RECEIPT # 307053

70 Pgs Attach A-E.

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

WARRIOR LACROSSE, INC.,

Plaintiff,

v.

BRINE, INC.,

Defendant.

04-71649

Civil Action No.:

NANCY G. EDMUNDS

MAGISTRATE JUDGE PEPE

John A. Artz (P 24679)
John S. Artz (P 48578)
Robert P. Renke (P 59030)
Steven W. Hays (P 53786)
ARTZ & ARTZ P.C.
28333 Telegraph Road, Suite 250
Southfield, MI 48034
(248) 223-9500

Attorneys for Plaintiff

U.S. DISTRICT COURT CLERK EASTERN DIST. MICH. DETROIT

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FILED

COMPLAINT AND DEMAND FOR JURY TRIAL

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Plaintiff, **WARRIOR LACROSSE, INC.**, hereby complains, through its counsel, ARTZ & ARTZ, P.C. of Defendant, BRINE, INC., as follows:

THE PARTIES

A. THE PLAINTIFF

1. Warrior Lacrosse, Inc. ("Warrior") is a corporation organized and existing under the laws of the State of Michigan, having a principal place of business at 6881 Chicago Road, Warren, Michigan 48092 and is doing business in this district.

2. Warrior is the owner by assignment of United States Patent No. 6,550,069 (the "'069 patent"), which issued on April 22, 2003, for an invention entitled "Padded Sports Glove Having Improved Flexibility and Breathability." (Copy attached as Exhibit A.)

3. Warrior is the owner by assignment from Mission Hockey Company of United States Patent No. 6,085,354 (the "'354 patent"), which issued on July 11, 2000, for an invention entitled "Hockey Glove with Ventilation Holes." (Copy attached as Exhibit B.)

4. Warrior is the owner by assignment from Mission Hockey Company of United States Patent No. 6,122,769 (the "'769 patent"), which issued on September 26, 2000, for an invention entitled "Hockey Glove with Ventilation Holes." (Copy attached as Exhibit C.)

5. Warrior is the owner by assignment from Mission Hockey Company of United States Patent No. 5,787,506 (the "'506 patent"), which issued on August 4, 1998, for an invention entitled "Hockey Glove with Ventilation Holes." (Copy attached as Exhibit D.)

B. THE DEFENDANT

6. Brine, Inc. ("Brine") is a corporation having a principal place of business at 47 Sumner Street, Milford, Massachusetts 01757-1656 and is doing business in this district.

7. Brine is the successor to the original W.H. Brine Company founded in 1922.

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8. Brine manufactures and sells protective sports gloves for use in the game of lacrosse.

9. Upon information and belief, Brine was aware of Warrior's commercial products made in accordance with the '069 patent prior to the introduction of any of the allegedly infringing lacrosse gloves. Brine was also aware of the tremendous success and reputation these Warrior products enjoyed in the market place.

10. Consequently, Brine sought to exploit this customer demand and incorporated many of the features of Warrior's successful commercial heads into Brine's products.

11. Brine has been manufacturing and selling lacrosse gloves under at least the trade designations "Avalanche," "Axis", "X-Factor," or "Gel," "Gel Goalie," "Supercrosse," "Ventilator X," "Element," "Spartan," "Maximus," "Performance" and "Trident," which incorporate many of the features of Warrior's successful commercial gloves ("the Brine Gloves"). (Copies of relevant pages from Brine's website, catalog and the Gait Brothers Lacrosse Website showing illustrations of the Brine Gloves appear as Exhibit E.)

12. Upon information and believe, Brine entered into an agreement ("Agreement") with Mission Hockey Company, a California company having its principal place of business at 1801 S. Standard Ave., Santa Anita, California 92707, prior to assignment of the patents to Warrior. The Agreement set forth that Brine would not make use, import, offer to sell, or sell products covered by any valid claims of the '354 patent, the '769 patent, and the '506 patent after April 1, 2003.

13. Brine has been manufacturing and selling lacrosse gloves since April of 2003 under at least the trade designations "Avalanche," "Axis," "X-Factor," "Gel," "Gel Goalie," "Supercrosse," "Ventilator X," "Performance," "Element," "Spartan," "Maximus," and "Trident,"

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which incorporate many of the claimed features of the '354 patent, the '769 patent, and the '506 patent.

JURISDICTION

14. This is a civil action arising under 35 U.S.C. § 102 et. seq. for patent infringement.

15. This Court has subject matter jurisdiction pursuant to 28 U.S.C. § 1331 and 1338 because this is a civil action for patent infringement and arises under the patent laws of the United States.

16. Venue is proper in this district because Brine resides within this district as provided in 28 U.S.C. §§ 1391(c) and 1400(b).

COUNT I – PATENT INFRINGEMENT
U.S. PATENT NO. 6,550,069

17. Warrior hereby realleges the allegations contained in paragraphs 1 through 16 of the Complaint as though fully set forth herein.

18. This action arises under the United States Patent Laws, Title 35, United States Code.

19. In violation of 35 U.S.C. § 271(a)-(c), Brine directly infringes the '069 patent and actively induces infringement thereof by others through the manufacture, use, offer to sell and sale of one or more of the Brine Gloves.

20. Brine's infringement of the '069 patent is willful.

21. The '069 patent was validly issued by the Patent Office and is valid and enforceable.

22. Unless preliminarily and then permanently enjoined, Brine will continue its unlawful and willful infringement of the '069 patent.

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COUNT II – PATENT INFRINGEMENT
U.S. PATENT NO. 6,085,354

23. Warrior hereby realleges the allegations contained in paragraphs 1 through 16 of the Complaint as though fully set forth herein.

24. This action arises under the United States Patent Laws, Title 35, United States Code.

25. In violation of 35 U.S.C. § 271(a)-(c), Brine directly infringes the '354 patent and actively induces infringement thereof by others through the manufacture, use, offer to sell and sale of one or more of the Brine Gloves.

26. Brine's infringement of the '354 patent is willful.

27. The '354 patent was validly issued by the Patent Office and is valid and enforceable.

28. Unless preliminarily and then permanently enjoined, Brine will continue its unlawful and willful infringement of the '354 patent.

COUNT III – PATENT INFRINGEMENT
U.S. PATENT NO. 6,122,769

29. Warrior hereby realleges the allegations contained in paragraphs 1 through 16 of the Complaint as though fully set forth herein.

30. This action arises under the United States Patent Laws, Title 35, United States Code.

31. In violation of 35 U.S.C. § 271(a)-(c), Brine directly infringes the '769 patent and actively induces infringement thereof by others through the manufacture, use, offer to sell and sale of one or more of the Brine Gloves.

32. Brine's infringement of the '769 patent is willful.

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33. The '769 patent was validly issued by the Patent Office and is valid and enforceable.

34. Unless preliminarily and then permanently enjoined, Brine will continue its unlawful and willful infringement of the '769 patent.

COUNT IV – PATENT INFRINGEMENT
U.S. PATENT NO. 5,787,506

35. Warrior hereby realleges the allegations contained in paragraphs 1 through 16 of the Complaint as though fully set forth herein.

36. This action arises under the United States Patent Laws, Title 35, United States Code.

37. In violation of 35 U.S.C. § 271(a)-(c), Brine directly infringes the '506 patent and actively induces infringement thereof by others through the manufacture, use, offer to sell and sale of one or more of the Brine Gloves.

38. Brine's infringement of the '506 patent is willful.

39. The '506 patent was validly issued by the Patent Office and is valid and enforceable.

40. Unless preliminarily and then permanently enjoined, Brine will continue its unlawful and willful infringement of the '506 patent.

RELIEF REQUESTED

WHEREFORE, Plaintiff, Warrior Lacrosse, Inc., demands judgment as follows:

A. That this Court preliminarily and permanently enjoin Brine from further infringement of U.S. Patent No. 6,550,069;

B. That this Court finds that Brine and those in privity therewith have infringed U.S. Patent No. 6,550,069;

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C. That this Court preliminarily and permanently enjoin Brine from further infringement of U.S. Patent No. 6,085,354;

D. That this Court finds that Brine and those in privity therewith have infringed U.S. Patent No. 6,085,354;

E. That this Court preliminarily and permanently enjoin Brine from further infringement of U.S. Patent No. 6,122,769;

F. That this Court finds that Brine and those in privity therewith have infringed U.S. Patent No. 6,122,769;

G. That this Court preliminarily and permanently enjoin Brine from further infringement of U.S. Patent No. 5,787,506;

H. That this Court finds that Brine and those in privity therewith have infringed U.S. Patent No. 5,787,506;

I. That this Court award Warrior compensatory damages and prejudgment interest thereof for Brine's infringing acts;

J. That this Court find that Brine's infringement has been willful and award Warrior treble damages pursuant to 35 U.S.C. § 284;

K. That this Court declare this case exceptional pursuant to 35 U.S.C. § 285 and award Warrior its reasonable attorneys fees; and

L. That this Court award Warrior its costs, expenses and such other relief as is deemed just and equitable.

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DEMAND FOR JURY TRIAL

Plaintiff demands a jury trial on all issues so triable.

Respectfully submitted,

ARTZ & ARTZ P.C.

By: _____

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John S. Artz (P 48578)
Robert P. Renke (P 59030)
Steven W. Hays (P 53786)
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Dated: April 30, 2004

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JS 44 11/99

CIVIL COVER SHEET

COUNTY IN WHICH THIS ACTION AROSE: Oakland

Edmunds / Pepe

The JS-44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for use of the Clerk of Court for the purpose of initiating the civil docket sheet.

71649

I. (a) PLAINTIFFS

Warrior Lacrosse, Inc., a Michigan corporation

(b) County of Residence of First Listed Macomb

DEFENDANTS

Brine, Inc., a Massachusetts corporation

04-71649

County of Residence of First Listed Worcester

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE LAND INVOLVED.

(C) Attorney's (Firm Name, Address, and Telephone Number)

John A. Artz
John S. Artz
Robert R. Renke

28333 Telegraph Road, Suite 250
Southfield, MI 48034
(248) 223-9500

Attorneys (If Known)

NANCY G. EDMUNDS

MAGISTRATE JUDGE PEPE

II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)

(For Diversity Cases Only)

	PLA	DEF		PLA	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated or Principal Place of Business In This State	☒ 4	☐ 4
Citizen of Another	☐ 2	☐ 2	Incorporated *and* Principal of Business In Another State	☐ 5	☒ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. NATURE OF SUIT (Place an "X" in One Box Only)

CONTRACT

- ☐ 110 Insurance
- ☐ 120 Marine
- ☐ 130 Miller Act
- ☐ 140 Negotiable Instrument
- ☐ 150 Recovery of Overpayment and Enforcement of Judgment
- ☐ 151 Medicare Act
- ☐ 152 Recovery of Defaulted Student Loans (Excl. Veterans)
- ☐ 153 Recovery of Overpayment of Veteran's Benefits
- ☐ 160 Stockholders' Suits
- ☐ 190 Other Contract
- ☐ 195 Contract Product Liability

TORTS

PERSONAL INJURY
- ☐ 310 Airplane
- ☐ 315 Airplane Product Liability
- ☐ 320 Assault Libel And Slander
- ☐ 330 Federal Employers' Liability
- ☐ 340 Marine
- ☐ 345 Marine Product Liability
- ☐ 350 Motor Vehicle
- ☐ 355 Motor Vehicle Product Liability
- ☐ 360 Other Personal Injury

PERSONAL INJURY
- ☐ 362 Personal Injury-Med. Malpractice
- ☐ 365 Personal Injury - Product Liability
- ☐ 368 Asbestos Personal Injury Product Liability

PERSONAL PROPERTY
- ☐ 370 Other Fraud
- ☐ 371 Truth in Lending
- ☐ 380 Other Personal Property Damage
- ☐ 385 Property Damage Product Liability

FORFEITURE/PENALTY

- ☐ 610 Agriculture
- ☐ 620 Other Food & Drug
- ☐ 625 Drug Related Seizure of Property 21: 881
- ☐ 630 Liquor Laws
- ☐ 640 R.R. & Truck
- ☐ 650 Airline Regs.
- ☐ 660 Occupational Safety/Health
- ☐ 690 Other

BANKRUPTCY

- ☐ 422 Appeal 28 USC 158
- ☐ 423 Withdrawal 28 USC 157

OTHER STATUTES

- ☐ 400 State Reapportionment
- ☐ 410 Antitrust
- ☐ 430 Banks and Banking
- ☐ 450 Commerce/ICC
- ☐ 460 Deportation
- ☐ 470 Racketeer Influenced & Corrupt Organizations
- ☐ 810 Selective Service
- ☐ 850 Securities/Commodities/ Exchange
- ☐ 875 Customer Challenge 12 USC 3410
- ☐ 891 Agricultural Acts
- ☐ 892 Economic Stabilization Act
- ☐ 893 Environmental Matters
- ☐ 894 Energy Allocation Act
- ☐ 895 Freedom of Information Act
- ☐ 900 Appeal of Fee Determination Under Equal Access to Justice
- ☐ 950 Constitutionality of State Statutes
- ☐ 890 Other Statutory Actions

REAL PROPERTY

- ☐ 210 Land Condemnation
- ☐ 220 Foreclosure
- ☐ 230 Rent Lease & Ejectment
- ☐ 240 Torts to Land
- ☐ 245 Tort Product Liability
- ☐ 290 All Other Real Property

CIVIL RIGHTS

- ☐ 441 Voting
- ☐ 442 Employment
- ☐ 443 Housing/ Accommodations
- ☐ 444 Welfare
- ☐ 440 Other Civil Rights

PRISONER PETITIONS

- ☐ 510 Motions to Vacate Sentence

Habeas Corpus:
- ☐ 530 General
- ☐ 535 Death Penalty
- ☐ 540 Mandamus & Other
- ☐ 550 Civil Rights
- ☐ 555 Prison Condition

LABOR

- ☐ 710 Fair Labor Standards Act
- ☐ 720 Labor/Mgmt. Relations
- ☐ 730 Labor/Mgmt. Reporting & Disclosure Act
- ☐ 740 Railway Labor Act
- ☐ 790 Other Labor Litigation
- ☐ 791 Empl. Ret. Inc. Security Act

PROPERTY RIGHTS

- ☐ 820 Copyrights
- ☒ 830 Patent
- ☐ 840 Trademark

SOCIAL SECURITY

- ☐ 861 HIA (1395ff)
- ☐ 862 Black Lung (923)
- ☐ 863 DIWC/DIWW (405(g))
- ☐ 864 SSID Title XVI
- ☐ 865 RSI (405(g))

FEDERAL TAX SUITS

- ☐ 870 Taxes (U.S. Plaintiff or Defendant)
- ☐ 871 IRS-Third Party 26 USC 7609

V. ORIGIN (PLACE AN "X" IN ONE BOX ONLY)

☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from another district (specify) ☐ 6 Multi district Litigation ☐ 7 Appeal to District Judge from Magistrate

VI. CAUSE OF ACTION (Cite the U.S. Civil Statute under which you are filing and write brief statement of cause. Do not cite jurisdictional statutes unless diversity.)

35 U.S.C. Sec. 271(a)-(c) Patent Infringement

VII. REQUESTED IN COMPLAINT:

☐ CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23

$ DEMAND

CHECK YES only if demanded in complaint:

JURY DEMAND: ☒ Yes ☐ No

VIII. RELATED CASE(S) IF ANY (See instructions):

JUDGE _____ DOCKET NUMBER _____

DATE 4/20/04

SIGNATURE OF ATTORNEY OF RECORD

John S. Artz

PURSUANT TO LOCAL RULE 83.11

1. Is this a case that has been previously dismissed? ☐ Yes ☑ No

If yes, give the following information:

Court: _____

Case No.: _____

Judge: _____

2. Other than stated above, are there any pending or previously discontinued or dismissed companion cases in this or any other court, including state court? (Companion cases are matters in which it appears substantially similar evidence will be offered or the same or related parties are present and the cases arise out of the same transaction or occurrence.) ☐ Yes ☑ No

If yes, give the following information:

Court: _____

Case No.: _____

Judge: _____

Notes :

04-71649

A.

US006550069B1

(12) **United States Patent**
Morrow

(10) **Patent No.: US 6,550,069 B1**
(45) **Date of Patent: Apr. 22, 2003**

(54) **PADDED SPORTS GLOVE HAVING IMPROVED FLEXIBILITY AND BREATHABILITY**

(75) Inventor: **David Morrow**, Farmington Hills, MI (US)

(73) Assignee: **Warrior Lacrosse, Inc.**, Warren, MI (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/569,778**

(22) Filed: **May 12, 2000**

(51) **Int. Cl.**[7] **A41D 19/00**
(52) **U.S. Cl.** **2/161.1**; 2/16
(58) **Field of Search** 2/16, 159, 161.1, 2/161.3, 161.4, 161.6, 161.8, 167, 169

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,484,359 A	*	11/1984	Tirinen	2/20
4,497,073 A	*	2/1985	Deutsch	2/161
4,677,698 A	*	7/1987	Angas	2/161
4,815,147 A	*	3/1989	Gazano et al.	2/161
5,390,372 A	*	2/1995	Hashimoto et al.	2/161.2
5,511,243 A	*	4/1996	Hall et al.	2/16
5,781,929 A	*	7/1998	Shikatani	2/16
5,787,506 A	*	8/1998	Wilder	2/161.1
5,946,720 A	*	9/1999	Sauriol	2/16
5,983,396 A	*	11/1999	Morrow et al.	2/161.1
6,122,769 A	*	9/2000	Wilder et al.	2/16

OTHER PUBLICATIONS

STX Lacrosse catalog, 1999–2000 issue, p. 9. Published in United States.

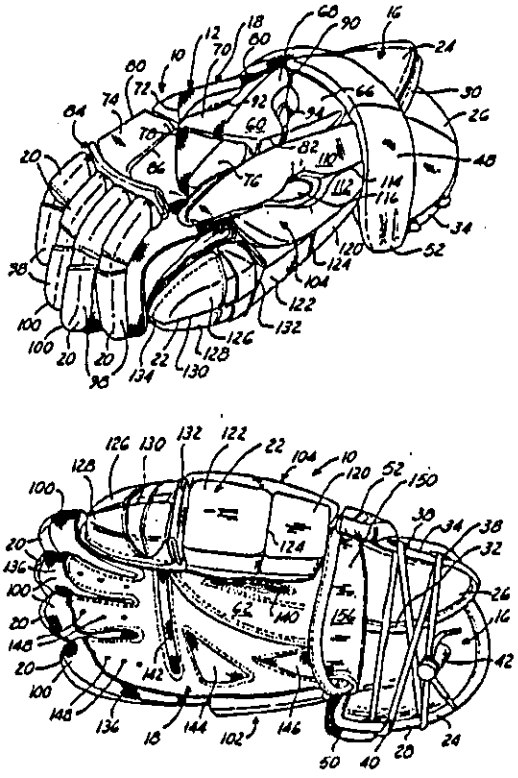
* cited by examiner

Primary Examiner—John J. Calvert
Assistant Examiner—Katherine Moran
(74) *Attorney, Agent, or Firm*—Artz & Artz, P.C.

(57) **ABSTRACT**

A protective sports glove for the game of lacrosse having a cuff portion, a hand portion, a plurality of finger portions, and a thumb portion. The hand portion has a palm portion and a back portion. The back portion has a plurality of protective padded portions disposed thereon. A wrist guard is elastically coupled to the hand portion. A plurality of vent openings are formed in the back portion of the hand portion. A plurality of mesh portions are disposed on the palm portion in areas that are not intended to provide primary contact with a stick.

69 Claims, 4 Drawing Sheets



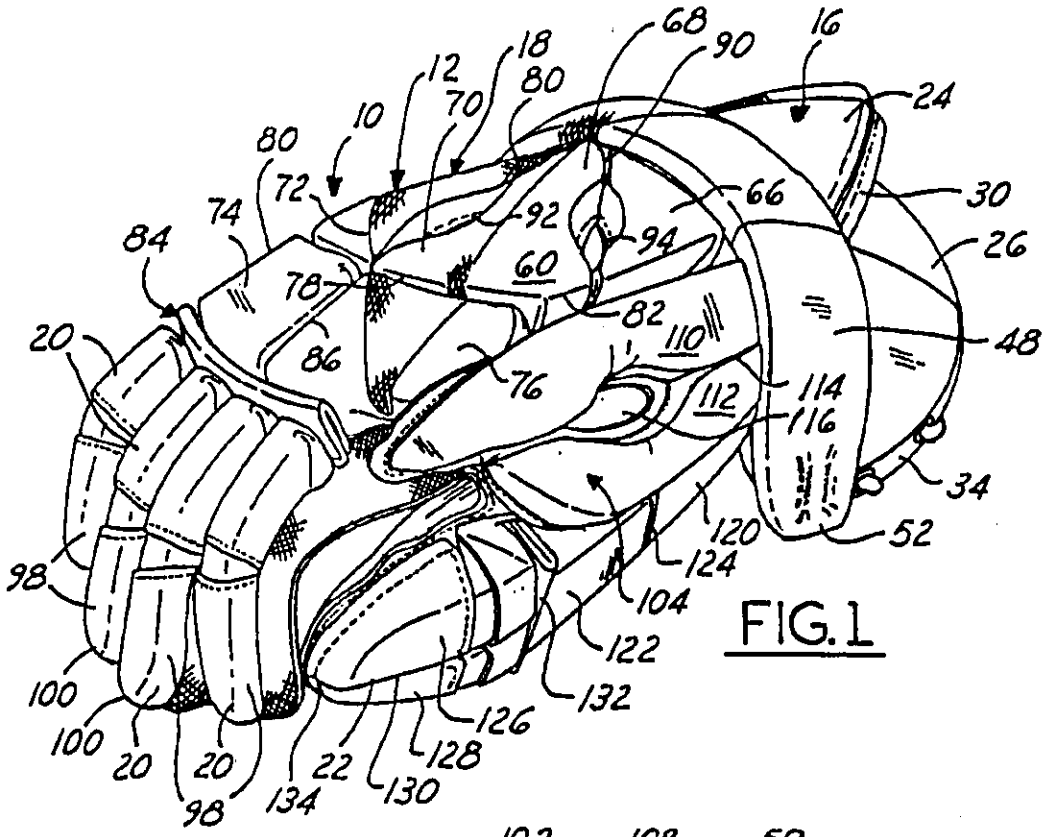

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FIG. 1

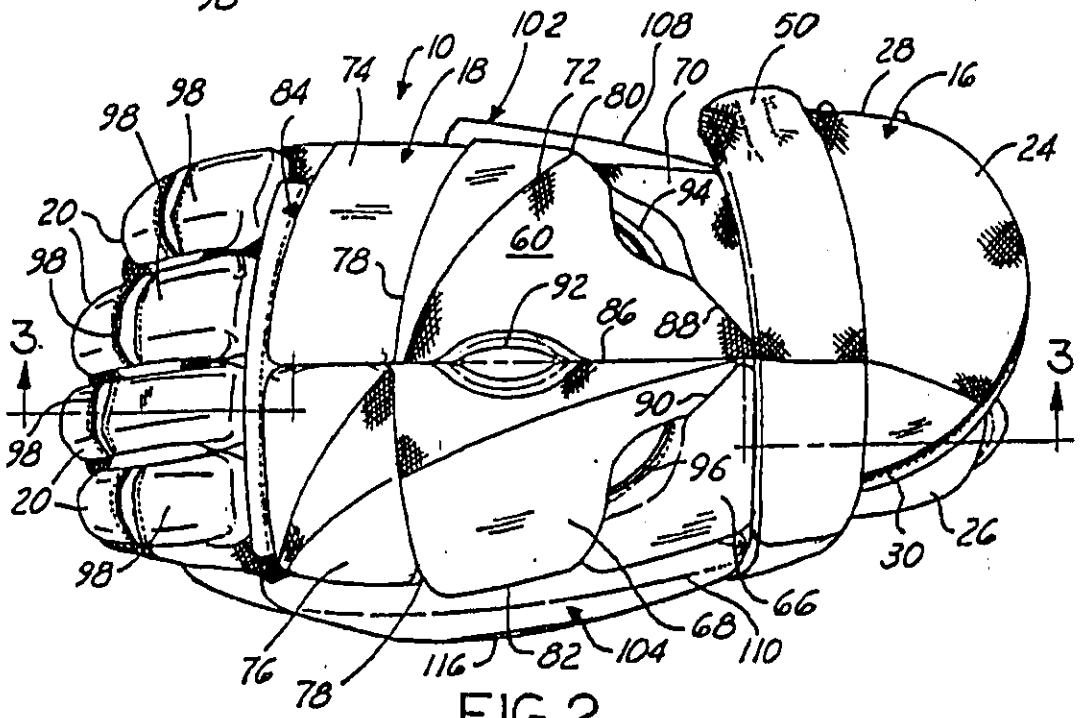
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FIG. 2

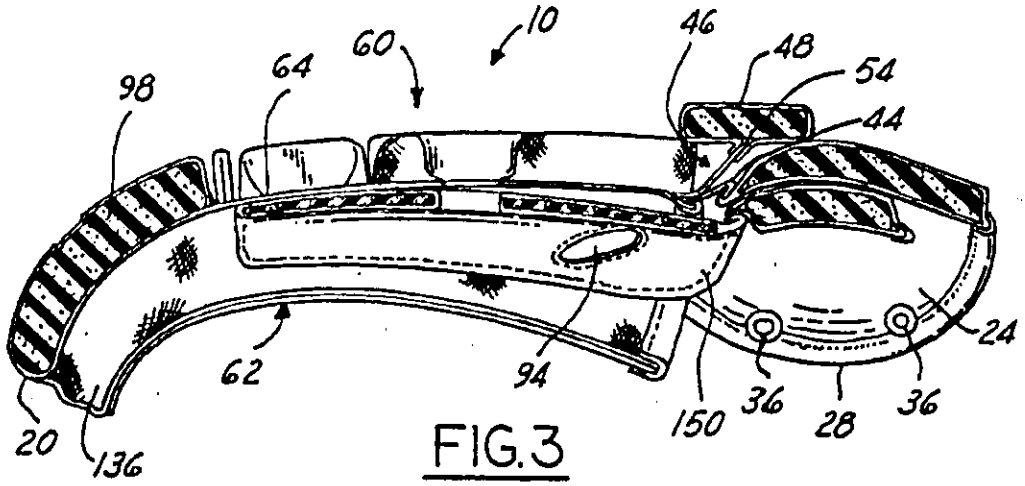
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FIG.3

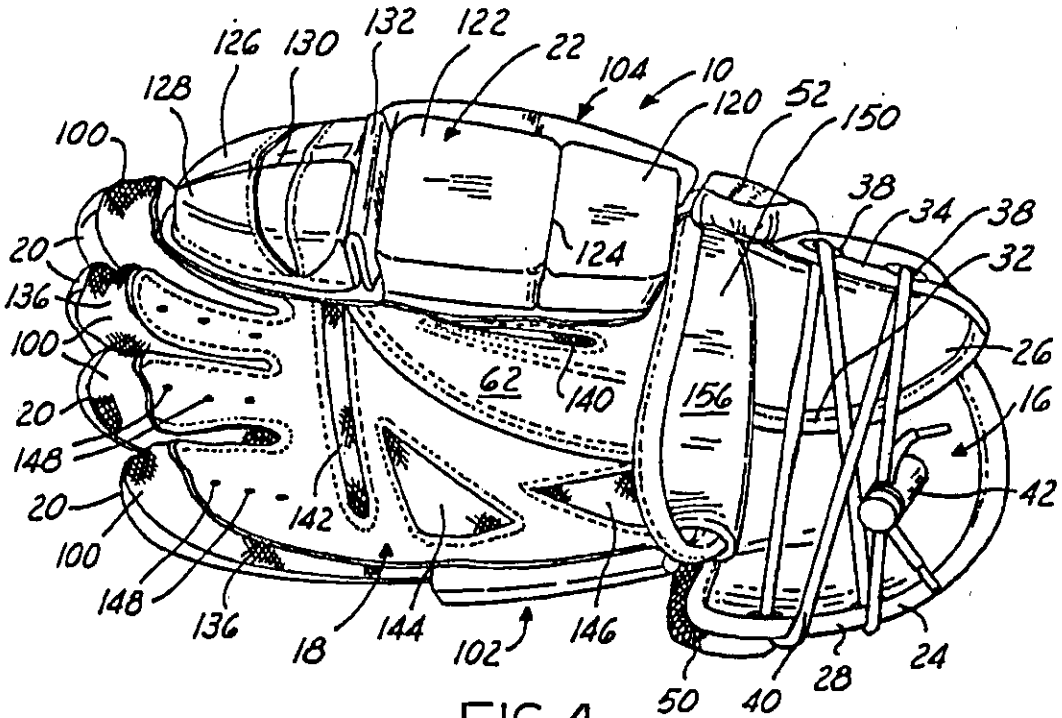
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FIG.4

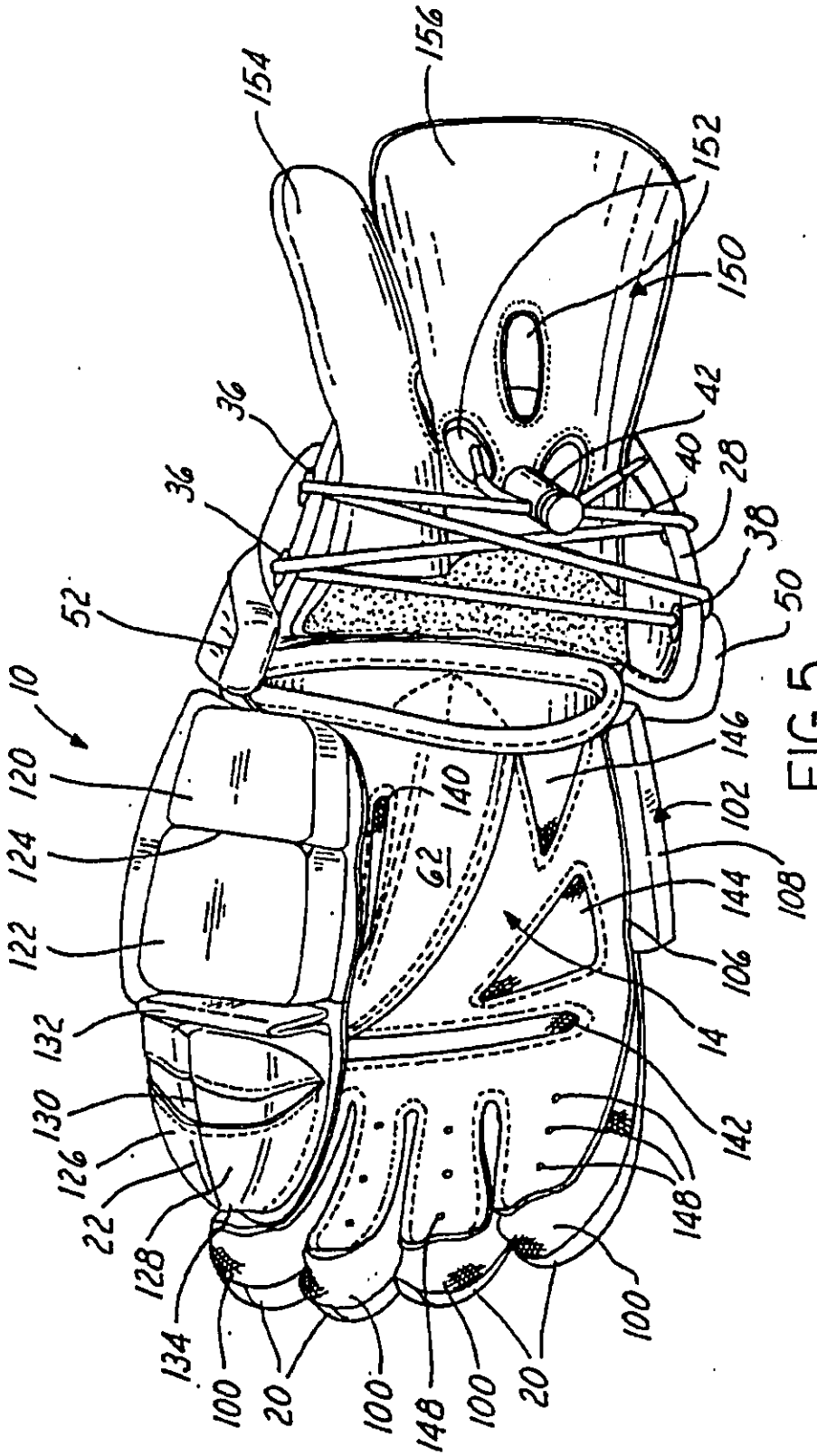
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FIG. 5

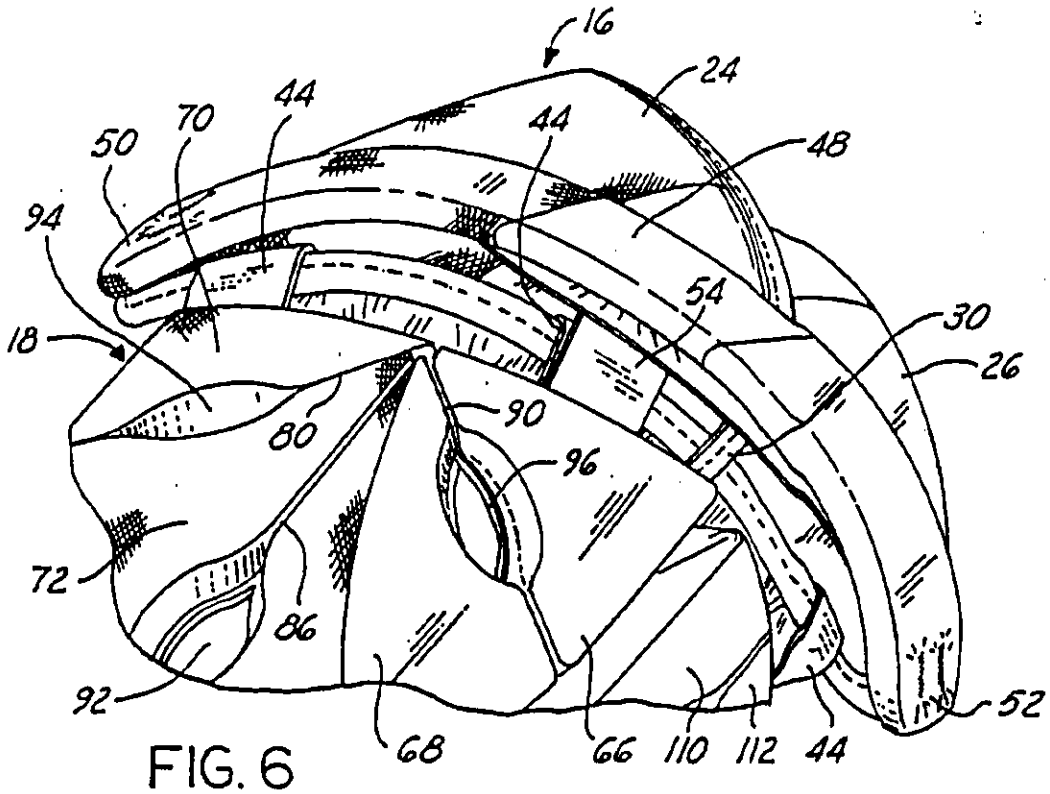
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FIG. 6

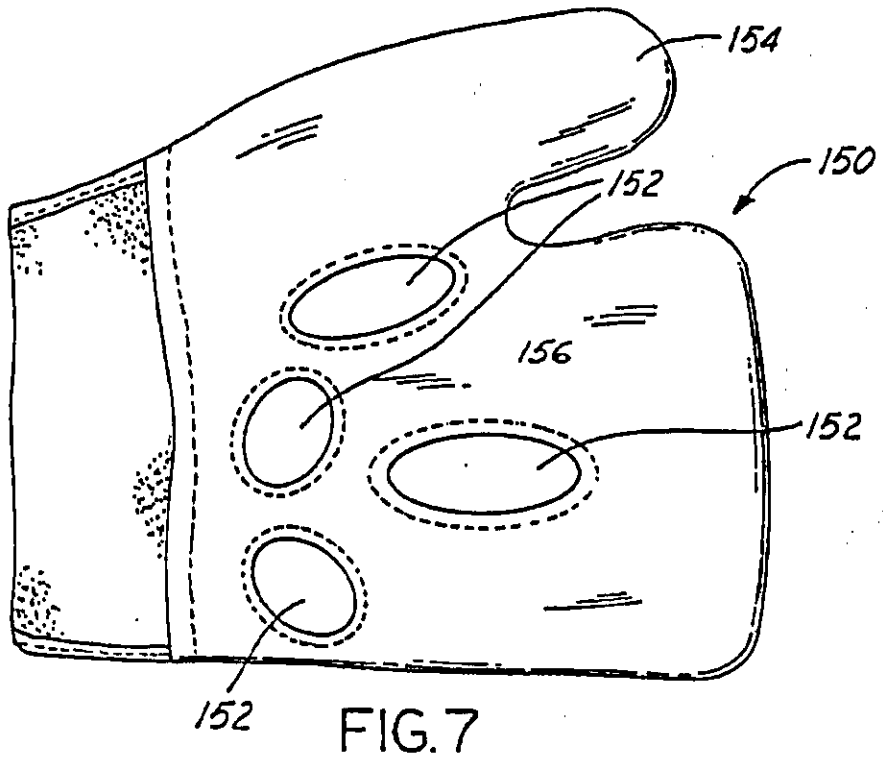
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FIG. 7

PADDED SPORTS GLOVE HAVING IMPROVED FLEXIBILITY AND BREATHABILITY

TECHNICAL FIELD

The present invention relates generally to a protective sports glove. More specifically, the present invention relates to a protective sports glove for use in the game of lacrosse that provides improved protection to a user's hand, while providing improved flexibility, durability , fit and breathability.

BACKGROUND ART

In contact sports, such as lacrosse or hockey, where sticks are essential elements of the game, a player's hands and wrists are especially vulnerable to injury when being checked by another player's stick. For this reason, players typically utilize padded gloves to protect their hands, wrists and lower forearms during play. The areas of a player's hand that are particularly susceptible to injury are those where the glove flexes, because at those locations, the protective padding is typically constructed such that it can bend or flex with a player's joint. However, such bending or flexing, such as at the wrist or knuckle area, can leave the player's joint exposed due to the bending away of the protective padding and, therefore, susceptible to injury.

Accordingly, wrist guards are known in the art for protective sports gloves to provide protection for a player's wrist between the cuff and hand portion. While most prior wrist guards provide adequate protection, they provide limited flexibility and adjustability and are therefore uncomfortable and are often removed by user. It is also a problem to provide a protective guard for a player's wrist between the glove and cuff portion that both protects the user's wrist, also provides flexibility and is not overly bulky.

Additionally, most prior gloves disclose cuffs that are secured directly to the glove portion by stitching. The stitching limits the flexibility of a player's wrist and also cannot be adjusted. U.S. Pat. No. 5,983,396, discloses a configuration where the cuff and glove portion are attached to one another by lacing which allows for improved flexibility and also adjustability. However, the lacing typically must be done by hand and therefore requires significant labor time in order to manufacture the glove, thereby increasing its cost.

Further, many prior gloves attempt to provide limited breathability and flexibility. Therefore, certain gloves have been introduced that utilize mesh material on portions of a player's palm and fingers. However, the mesh material is located in primary areas that contact a stick and because of the amount of movement of the stick in a player's hand, such as through cradling or the like, the mesh material tends to wear quickly and ultimately tear, therefore making the glove illegal. Moreover, some prior gloves have utilized vent holes in the glove to provide ventilation. The vent holes in these prior gloves, however, are relatively small and therefore offer little ventilation. Further, prior gloves that have tried to provide improved breathability through the inclusion of vent holes have done so at the expense of exposing a user's hand to injury at that location.

SUMMARY OF THE PRESENT INVENTION

It is therefore an object of the present invention to provide a protective sports glove for utilization in contact stick sports, such as lacrosse and hockey, having a wrist guard that is coupled to the glove so as to provide maximum protection and flexibility.

It is a further object of the present invention to provide a protective sports glove for utilization in contact stick sports, such as lacrosse and hockey, that is more flexible and therefore more comfortable for a player.

It is still another object of the present invention to provide a protective sports glove for utilization in contact stick sports, such as lacrosse and hockey, that provides more breathability and ventilation than prior gloves without sacrificing durability or protection.

It is yet another object of the present invention to provide a protective sports glove for use in lacrosse that is smaller than prior gloves.

It is still a further object of the present invention to provide a protective sports glove for use in lacrosse that provides a better fit for a user's hand.

In accordance with the above and other objects of the present invention, an improved protective sports glove is provided. The sports glove has a cuff portion for engaging a user's wrist and forearm and a hand portion elastically coupled to the cuff portion. The hand portion has a palm portion on the inner side of the glove and an opposing portion. The glove has a plurality of finger portions extending from the hand portion for receipt of a user's fingers therein and a thumb portion. A wrist guard is secured to the cuff portion and elastically coupled to the hand portion. The back portion of the hand portion has a plurality of protective padded portions. The protective padded portions are cut horizontally to allow a user's hand to flex and also vertically to conform to a user's hand as it holds the stick. At least one vent opening is formed between two protective padded portions disposed on either side of the vertical cut in the back portion. The palm portion of the glove is similarly comprised of a non-mesh material with a plurality of mesh portions, whereby the mesh material is located in the palm portions in areas that are not intended to have primary contact with the handle of a stick and thus will not wear.

These and other features of the present invention will become apparent from the following description of the invention, when viewed in accordance with the accompanying drawings and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a protective sports glove in accordance with a preferred embodiment of the present invention;

FIG. 2 is a top view of a protective sports glove in accordance with a preferred embodiment of the present invention;

FIG. 3 is a cross-sectional view of the protective sports glove of FIG. 2 along the line 3—3;

FIG. 4 is a bottom view of a protective sports glove in accordance with a preferred embodiment of the present invention;

FIG. 5 is a bottom view of a protective sports glove illustrating the inner flap portion in accordance with a preferred embodiment of the present invention;

FIG. 6 is an enlarged view of the junction of the cuff portion to the glove portion, which illustrates the wrist guard in accordance with a preferred embodiment of the present invention; and

FIG. 7 is an illustration of the inner flap portion for a protective sports glove in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the Figures, which illustrate a lacrosse glove **10** in accordance with the present invention. The disclosed glove **10** is preferably for use in lacrosse, however, it should be understood that the disclosed glove **10** may be used in any other contact stick sport, including hockey. The glove **10** has a top portion **12** and a bottom portion **14** which therebetween define an interior space for receipt of a lacrosse player's hand. The glove **10** has a cuff portion **16**, a hand portion **18** coupled to the cuff portion **16**, a plurality of finger portions **20** extending from the hand portion **18** and a thumb portion **22** also extending from the hand portion **18**.

Referring now to the FIGS. **1** through **4** and **6**, the cuff portion **12** preferably has a first cuff portion **24** and an adjacent second cuff portion **26**. The first cuff portion **24** and the second cuff portion **26** are secured at an upper border portion **27**. The first cuff portion **24** has a first edge portion **28** and a second edge portion **30**. The second cuff portion **26** has a first edge portion **32** and a second edge portion **34**. The second edge portion **30** of the first cuff portion **24** overlaps the first edge portion **32** of the second cuff portion **26** to provide a split cuff. The first cuff portion **24** and the second cuff portion **26** are designed to cover and protect substantial portions of a user's wrist and forearm. The overlapping (split cuff) configuration of the cuff portions **24, 26** provides added protection to a user's wrist and forearm because of the double layer of padding. Further, because the cuff portions **24, 26** are not affixed to each other along their adjacent edge portions **30, 32**, they can move with respect to one another and therefore provide desired flexibility for a user's wrist as it moves during play.

The first edge portion edge **28** of the first cuff portion **24** preferably has a first set of eyelets **36** formed therein. Similarly, the second edge portion **34** of the second cuff portion **26** has a second set of eyelets **38** formed therein. A lace **40** or other securing device is preferably passed through the first and second set of eyelets **36, 38** to connect the first cuff portion **24** to the second cuff portion **26** and surround a user's forearm when a user's hand is located in the interior space. As shown, the lace **40** is intended to pass around the underside of a user's forearm such that the tightness of the cuff portions **24, 26** with respect to a user's forearm may be adjusted. The lace **40** may be maintained in its desired position at a desired tightness through the use of the cord lock **42** or other similar locking device.

As best shown in FIG. **6**, the cuff portion **16** is preferably secured to the hand portion **18** through a plurality of elastic members **44**. Each of the elastic members **44** is preferably secured at one end to the upper border **37** of the cuff portion **16** at an opposing end to the hand portion **18**. This configuration keeps the cuff portion **16** secured to the hand portion **18**. However, the elastic members **44** allow the cuff portion **16** to move with respect to the hand portion **18** and provide flexibility as the user's hand flexes during play. The elastic members **44** are preferably disposed on either side of the cuff portion **16** with a third elastic member **44** being disposed generally in the middle. As the cuff portion **16** moves with respect to the hand portion **18**, the back of a player's wrist or hand can be exposed at a seam **46** formed therebetween. Accordingly, a wrist guard **48** is preferably disposed over the seam **46** between the cuff portion **16** and the hand portion **18**. The wrist guard **48** has a first end **50**, which is preferably secured to the first cuff portion **24** adjacent the first edge portion **28**. The wrist guard **48** has a second end **52** which is preferably attached to the second cuff portion **26** adjacent

the second edge portion **34**. While the first and second ends **50, 52** of the wrist guard **48** are preferably secured to cuff portion **16** by sewing, it should be understood that the ends **50, 52** may be attached by any other known securing means. Alternatively, the wrist guard **48** could instead be secured to the hand portion **18**. The integral attachment of the wrist guard **48** to the glove **10** prevents the wrist guard **48** from being removed and therefore provides permanent protection.

Additionally, the wrist guard **48** is preferably coupled to the hand portion **18** by an elastic member **54**. The elastic member **54** allows the wrist guard **48** to flex or move as needed during movement by a user's hand during play and still remain over the seam **46**. As shown, the wrist guard **48** is preferably located so that it lies over the seam **48** and above the top portion **12** of the glove **10**. Alternatively, the wrist guard **48** may be disposed within the interior space of the glove **10** to cover the seam **46** from below the top portion **12**.

The hand portion **18** extends between the seam **46** in the finger portions **20** and has a rear portion **60** and a palm portion **62**. The rear portion **60** preferably has an inner fabric **64** having a plurality of protected padded portions **66** secured thereto. As shown, the rear portion **60** is preferably subdivided into individual protective padded portions **66, 68, 70, 72, 74, 76**. The rear portion **60** of the glove **10** has a first lengthwise cut **78**, i.e., from one side **80** of the hand portion **18** to the other side **82** of the hand portion **18**, which allows the glove to flex along the lengthwise cut **78** as a user's hand moves. Specifically, the lengthwise cut **78** is cut so that the protective padded portions **74** and **76** are moveable with respect to the adjacent protective padded portions **68** and **72**.

The protective padded portions **74, 76** terminate at a junction **84** between the hand portion **18** and the finger portions **20**. The junction **84** allows the finger portions **20** to move with respect to the padded portions **74** and **76** as the junction **84** is generally disposed over a user's knuckle area, allowing the finger portions **20** to move as a user's fingers flex. Additionally, the rear portion **60** has a vertical cut **86** that extends generally from the cuff portion **16** to the junction **84**. The vertical cut **84** allows the protective padded portions **68** and **76** to move with respect to the protective padded portions **72** and **74**, allowing the glove to bend around an axis defined by the vertical cut **84**. The vertical cut **84** allows the glove to fit more comfortably as it allows the glove to better conform to a user's hand as he closes his hand around a stick and, therefore, providing a tighter shape. This is necessary as the back of a typical user's hand is not flat, and the padded protected portions are not flexible enough to bend without the vertical cut portion **86**. Thus, prior gloves tend to flatten out as a user flexes his hand which causes additional tension to be applied to the palm portions **62**.

The rear portion **60** of the hand portion **18** preferably has a pair of opposing angled cuts **88** and **90** which begin generally at the base of the hand portion **18** adjacent the seam **46** and extend generally outward to the respective side **80, 82** of the hand portion **18**. The angled cuts **88, 90** similarly assist the glove **10** in conforming to the user's hand as the protective padded portions **66, 70** can each independently move with respect to the other padded portions as a user's hand flexes during play, thus providing a better fitting glove. The cuts **78, 84, 86, 88**, and **90**, are preferably formed in the glove through die cutting or other known cutting or forming means, which are sufficient to configure the rear portion **60** of the glove to conform to the configuration described above. The rear portion **60** may have a variety of additional or different cuts as desired.

The rear portion 60 of the hand portion 18 has a plurality of vent openings formed therein to provide ventilation to a user's hand. A first vent opening 92 is preferably disposed along the vertical cut 86 between the protective padded portion 68 and the protective padded portion 72. A vent opening 94 is preferably disposed along the first angled cut 88 between the protective padded portion 70 and the protective padded portion 72. Another vent opening 96 is preferably disposed along the second angled cut 90 between protective padded portions 66 and 68. The vent openings 92, 94, 96 are located along die cuts 86, 88 and 90, which do not correspond to joints of a user's hand and, therefore while there is some relative movement of the protective pads in which the vent openings are formed, the movement is not sufficient to cause a portion of a user's hand to be exposed. Further, unlike prior vent openings which were typically formed along horizontal cuts, which result in the back of a user's hand being exposed to contact as the glove flexed, the disclosed vent openings 92, 94, 96 are located along non-horizontal cuts and thus can be made larger as the potential for exposure is minimal. It should be understood that while three vent openings are disclosed on the rear portion 60 of the glove 10, any number of vent openings may be utilized. Additionally, the vent openings may be disposed in a variety of other locations along the rear portion 60 in accordance with the preferred embodiment, including within the respective individual padded portions themselves, instead of along the die cuts.

The finger portions 20 each have a respective padded portion 98 that extends from the second lengthwise cut 84 to the respective tip of each finger portion 100. As with the hand portion 18, each of the padded portions is disposed on an inner fabric layer 64 that overlies each of the finger portions 20. The hand portion 18 of the glove 10 has a first side portion 102 connecting the side 80 of the hand portion 18 to the palm portion 62. The other side 82 of the hand portion 18 has a side portion 104 which extends between the hand portion 18 and a thumb portion 22. The thumb portion 22 is in turn connected to the palm portion 62 on its other side.

The first side 102 of the glove preferably has a mesh layer 106 extending between one side 80 of the hand portion 18 and the palm portion 62 with a protective padded portion 108 secured thereon. The second side 104 of the glove also has a protected padded portion that is sub-divided into a first padded portion 110 and a second padded portion 112 by a vertical die cut 114 formed therein. A side vent opening 116 is preferably formed along the vertical cut 14 between the first padded portion 110 and the second padded portion 112 of the second side 104 of the glove 10. The thumb portion 22 has a plurality of protected padded portions formed thereon. The thumb portion 22 has a first padded portion 120 disposed adjacent a second padded portion 122 and separated by a horizontal cut 124. The second padded portion 122 is disposed adjacent a third padded portion, which is sub-divided into a first part 126 and a second part 128 by a vertical cut 130. A second horizontal cut 132 is disposed between the second padded portion 122 and the first and second parts of the third padded portion 126, 128.

Referring now to FIGS. 4 and 5, which illustrate the palm portion 62 of the lacrosse glove, in more detail. The palm portion 62 extends from the lower edge of the hand portion 18 adjacent the seam 46 to the tips 100 of the finger portions 20 and the tip 134 of the thumb portion 22. The palm portion 62 is attached to each of the respective padded portions 98 of each finger portion 20 by a mesh layer 136. The mesh layer 136 allows for flexibility of the fingers within the finger portions 20 as well as to provide sufficient ventilation through the mesh layer 136 to a user's fingers. As shown, the palm portion 62 is preferably comprised of a durable material such as leather, a synthetic material, or any other known suitable material, generally illustrated by reference number 138. Mesh portions 140, 142, 144, and 146 are preferably located throughout the palm portion 62 to provide ventilation to a user's palm. The mesh portions are located in the palm portion 62 in areas that are not intended as primary contact areas for a stick. This is contrary to prior gloves that provide much larger mesh portions on the palm portion with mesh, which tend to wear and rip and thus render the glove illegal.

The first mesh portion 140 is preferably located at the junction between the palm portion 62 and the thumb portion 20. The first mesh portion 140 allows the thumb portion 20 to move with respect to the palm portion 62 without causing the palm material to bunch or bulge as typically occurs if the entire palm portion is formed of a wear-resistant material. Additionally, the second mesh portion 142 is disposed on the palm portion 62 at the junction between the hand portion 18 and the finger portions 20 to allow relative movement therebetween and to prevent bunching up of material at that joint as would typically occur if that portion were comprised of a wear-resistant material. Each of the finger portions 20 has a plurality of finger vent holes 148 formed in the durable wear-resistant material to provide ventilation to the user's fingers. The finger vent holes 146 are preferably formed by punching and must be formed far enough apart to prevent the durable material from ripping or tearing. The third mesh portion 144 and the fourth mesh portion 146 are also disposed in areas that are not likely to wear due to contact with a stick. The mesh portions 144, 146 are also disposed in locations that allow the glove to flex and therefore prevent bunching. Further, all of the mesh portions 140, 142, 144, 146, provide ventilation to the user's palm. It should be understood that more or less mesh portions may be included and the locations shown are merely exemplary and may obviously vary.

As shown in FIGS. 5 and 7, the glove 10 preferably has a flap portion 150 which is secured to the rear side of the cuff portion 16 and can move into and out of the interior portion of the glove. The flap portion 150 is shown in an inserted position inside the glove in FIG. 4 and is shown in a withdrawn position in FIG. 5. The flap portion 150 when in the inserted position, is designed to provide a better fit for the user's hand by taking up any excess space between the back of the user's hand and the underside of the hand portion 18. The flap portion 150 has a plurality of openings 152 formed therein, which correspond to a respective vent opening formed in the rear portion 60 and the second side 104 of the glove 10. The flap portion is preferably comprised of a foam or padded material so as to further protect the back of a user's hand from contact with a stick. As the flap portion 150 spans the seam 46 in the inserted position, it also assists the wrist guard 48 in preventing the back of a user's forearm or wrist from being exposed to contact with a stick. The flap portion 150 has a thumb portion 154 which preferably extends into the thumb portion 22 of the glove 10 to help to provide a better fit in the thumb portion and a palm portion 156 that helps provide a better fit for the hand.

Having now fully described the invention, it will be apparent to one of ordinary skill in the art that many changes and modifications can be made thereto without departing from the spirit or scope of the invention as set forth herein.

What is claimed is:

1. A protective sports glove, comprising:

a cuff portion for engaging at least a portion of a user's forearm;

a hand portion elastically coupled to said cuff portion, said hand portion having a palm portion and an opposing back portion having a plurality of protective padded portions secured thereon;

a plurality of finger portions secured to and extending from said hand portion for receipt of a user's fingers therein;

a thumb portion secured to and extending from said hand portion;

a wrist guard elastically coupled to said hand portion;

a plurality of vent openings formed in said back portion of said hand portion;

said palm portion being primarily comprised of a durable material and having a plurality of mesh portions disposed on said palm portion in areas that are not intended to primarily contact a stick.

2. The protective sports glove of claim 1, wherein said cuff portion comprises a first portion and a second portion, with a portion of said first portion overlying said second portion.

3. The protective sports glove of claim 1, wherein each of said plurality of finger portions has a rear padded portion, an opposing palm portion, and a substantially mesh side portion extending between said rear padded portion and said opposing palm portion.

4. The protective sports glove of claim 1, wherein one of said plurality of palm mesh portions is located at a junction between said plurality of finger portions and said palm portion.

5. The protective sports glove of claim 1, wherein one of said plurality of palm mesh portions is located at a junction between said thumb portion and said palm portion.

6. The protective sports glove of claim 1, wherein said back portion of said hand portion has a vertical cut portion that extends generally from a base of said hand portion to said finger portions.

7. The protective sports glove of claim 6, wherein one of said plurality of vent openings is formed along said vertical cut portion.

8. The protective sports glove of claim 1, wherein a side portion having a protective padded portion extends between said back portion and said thumb portion.

9. The protective sports glove of claim 8, wherein a vent opening is formed in said protective padded portion on said side portion.

10. A protective sports glove, comprising:

a cuff portion;

a hand portion coupled to said cuff portion, said hand portion having a palm portion and a back side portion having protective padding formed thereon and extending between a first side of said back side portion and a second side of said back side portion;

a plurality of finger portions extending from said hand portion;

at least one generally horizontal seam formed in said padding on said back side portion and extending from said first side of the glove to said second side of the glove;

at least one generally vertical seam formed in said padding on said back side portion; and

at least one vent opening formed along said vertical seam.

11. The glove of claim 10, further comprising:

a wrist guard coupled to a back side of the glove to cover any area on a user's hand or wrist that can be exposed by relative movement of said cuff portion and said hand portion.

12. The glove of claim 11, wherein said wrist guard is coupled to said hand portion.

13. The glove of claim 11, wherein said wrist guard is coupled to said cuff portion.

14. The glove of claim 11, wherein said wrist guard is permanently coupled to the glove.

15. The glove of claim 11, wherein said wrist guard is at least partially coupled to the glove by an elastic strap.

16. The glove of claim 10, wherein said cuff portion comprises a first portion and a second portion which are intended to move relative to each other to accommodate for movement of a player's wrist.

17. The glove of claim 16, wherein said cuff portion is coupled to said hand portion by a plurality of elastic straps.

18. The glove of claim 10, wherein each of said plurality of finger portions has a rear padded portion and an opposing palm portion, which is constructed of a wear resistant material.

19. The glove of claim 18, wherein each of said plurality of finger portions includes a substantially mesh side portion extending between said rear padded portion and said opposing palm portion.

20. The glove of claim 10, further comprising:

a thumb portion extending from said hand portion, said thumb portion having an outer padded portion and a palm portion, which is constructed of a wear resistant material.

21. The glove of claim 20, wherein at least one vent opening is formed in said thumb portion.

22. The glove of claim 10, wherein said generally vertical seam extends generally from a base of said hand portion to a base of said plurality of finger portions.

23. The glove of claim 10, further comprising:

a flap portion secured to the glove and moveable between a position inside the glove to take up any excess space and a position outside the glove.

24. A protective sports glove, comprising:

a cuff portion;

a hand portion coupled to said cuff portion, said hand portion having a palm portion and a back side portion having protective padding formed thereon and extending between a first side of said back side portion and a second side of said back side portion;

a plurality of finger portions extending from said hand portion;

at least one generally horizontal seam formed in said padding on said back side portion and extending from said first side of the glove to said second side of the glove; and

at least one generally vertical seam formed in said padding on said back side portion;

wherein said palm portion is comprised of a wear resistant material with at least one mesh portion that is located in an area that is not intended to be a high use area.

25. The glove of claim 24, wherein one of said one or more mesh portions is located adjacent a junction between said plurality of finger portions and said palm portion.

26. The glove of claim 24, wherein one of said one or more mesh portions is located adjacent a junction between a thumb portion and said palm portion.

27. A protective sports glove, comprising:

a cuff portion;

a hand portion coupled to said cuff portion, said hand portion having a palm portion and a back side portion having protective padding formed thereon and extending between a first side of said back side portion and a second side of said back side portion;

a plurality of finger portions extending from said hand portion;

at least one generally horizontal seam formed in said padding on said back side portion and extending from said first side of the glove to said second side of the glove;

at least one generally vertical seam formed in said padding on said back side portion; and

a pair of diagonal seams formed in said back side portion.

28. The glove of claim 27, wherein each of said pair of diagonal seams has a vent opening formed therealong.

29. A protective sports glove, comprising:

a cuff portion;

a hand portion coupled to said cuff portion and having a palm portion and an opposing back portion with a protective padding secured thereto, said palm portion being comprised of a wear resistant material with at least one mesh portion that is located in an area that is not intended to primarily contact a stick handle;

a plurality of finger portions secured to and extending from said hand portion for receipt of a user's fingers therein; and

a plurality of seams formed in said back portion of said hand portion separating said protective padding into multiple portions;

wherein at least two of said plurality of seams are aligned in different directions with respect to one another and one of said plurality of seams extends substantially from a first side of said back side to a second side.

30. The glove of claim 29, wherein at least one of said plurality of seams runs generally across the glove from one side to the other to divide said protective padding into a forward portion and a rear portion which are moveable with respect to one another.

31. The glove of claim 29, wherein at least one of said plurality of seams runs from a base of said hand portion to said plurality of finger portions to divide said protective padding into a pair of side portions which portions are moveable with respect to on another.

32. The glove of claim 29, further comprising:

a wrist guard coupled to a back side of the glove to cover any open area exposed between said cuff portion and said hand portion.

33. The glove of claim 32, wherein said wrist guard is coupled to said hand portion.

34. The glove of claim 32, wherein said wrist guard is coupled to said cuff portion.

35. The glove of claim 32, wherein said wrist guard is permanently coupled to the glove.

36. The glove of claim 32, wherein said wrist guard is at least partially coupled to the glove by an elastic strap.

37. The glove of claim 29, wherein said cuff portion comprises a first portion and a second portion which are intended to move relative to one another to provide flexibility.

38. The glove of claim 29, wherein said cuff portion is coupled to said hand portion by a plurality of elastic straps.

39. The glove of claim 29, wherein each of said plurality of finger portions has a rear padded portion and an opposing palm portion, which is constructed of a wear resistant material.

40. The glove of claim 29, further comprising:

a thumb portion extending from said hand portion, said thumb portion having an outer padded portion and a palm portion, which is constructed of a wear resistant material.

41. The glove of claim 40, wherein at least one vent opening is formed in said thumb portion.

42. The glove of claim 29, wherein said at least one mesh portion is located adjacent a junction between said plurality of finger portions and said palm portion.

43. The glove of claim 39, wherein each of said plurality of finger portions includes a substantially mesh side portion extending between said rear padded portion and said opposing palm portion.

44. The glove of claim 29, wherein said at least one mesh portion is located adjacent a junction between a thumb portion and said palm portion.

45. The glove of claim 29, further comprising one or more vent openings in said back portion.

46. The glove of claim 29, wherein said plurality of seams includes at least one diagonal seam formed in said back side portion.

47. The glove of claim 46, wherein said at least one diagonal seam has a vent opening formed therealong.

48. A protective sports glove, comprising:

a cuff portion;

a hand portion coupled to said cuff portion and having a palm portion and an opposing back portion with a protective padding secured thereto;

a plurality of finger portions secured to and extending from said hand portion for receipt of a user's fingers therein;

a plurality of seams formed in said back portion of said hand portion separating said protective padding into multiple portions;

wherein at least two of said plurality of seams are aligned in different directions with respect to one another and one of said plurality of seams extends substantially from a first side of said back side to a second side and another of said plurality of seams runs from a base of said hand portion to said plurality of finger portions to divide said protective padding into a pair of side portions which portions are moveable with respect to one another; and

wherein at least one vent opening is formed in said seam that runs from said base of said hand portion to said plurality of finger portions.

49. A protective sports glove, comprising:

a palm;

a protective back portion extending over said palm, said palm being comprised of a wear resistant material with at least one mesh portion that is located in an area that is not intended to be a high use area;

a cuff flexibly attached to said palm and said back portion;

a plurality of finger portions connected to said palm and said back portion and extending therefrom;

a first seam formed in said back portion and extending from said cuff toward said plurality of finger portions;

a second seam formed in said back portion and extending from a first side of said back portion to a second side of said back portion.

50. The glove of claim 49, wherein said first seam is generally straight.

51. The glove of claim 49, wherein said second seam is generally straight.

52. The glove of claim 49, further comprising:

a wrist guard coupled to said back portion of the glove to cover any area where said cuff is flexibly attached to said back portion.

53. The glove of claim 49, wherein said cuff portion comprises a first portion and a second portion which are intended to move relative to each other to accommodate for movement of a player's wrist.

54. The glove of claim 49, wherein said cuff portion is coupled to said hand portion by a plurality of elastic straps.

55. The glove of claim 49, further comprising:

at least one vent opening located in said back portion.

56. The glove of claim 49, further comprising:

a pair of diagonal seams formed in said back portion.

57. The glove of claim 56, wherein each of said pair of diagonal seams has a vent opening formed therealong.

58. A protective sports glove, comprising:

a palm;

a protective back portion extending over said palm;

a cuff flexibly attached to said palm and said back portion;

a plurality of finger portions connected to said palm and said back portion and extending therefrom;

a first seam formed in said back portion and extending from said cuff toward said plurality of finger portions;

a second seam formed in said back portion and extending from a first side of said back portion to a second side of said back portion; and

at least one vent opening located in said back portion, wherein said at least one vent opening is formed at said first seam.

59. A protective sports glove, comprising:

a palm;

a protective back portion extending over said palm;

a cuff flexibly attached to said palm and said back portion;

a plurality of finger portions connected to said palm and said back portion and extending therefrom;

a first seam formed in said back portion and extending from said cuff toward said plurality of finger portions;

a second seam formed in said back portion and extending from a first side of said back portion to a second side of said back portion; and

at least one vent opening located in said back portion, wherein said at least one vent opening is formed at said second seam.

60. A protective sports glove, comprising:

a cuff portion;

a hand portion coupled to said cuff portion, said hand portion having a palm portion and a back side portion with protective padding formed thereon, said palm portion being comprised of a wear resistant material with at least one opening formed therein;

a plurality of finger portions extending from said hand portion;

a mesh portion located in said at least one opening in said wear resistant material to provide ventilation to a wearer's hand.

61. The glove of claim 60, wherein said palm portion includes a plurality of openings formed in said wear resistant material with each of said plurality of openings having a mesh portion located therein.

62. The glove of claim 60, wherein said at least one opening is formed in said wear resistant material in a location that is not intended to primarily engage a lacrosse stick.

63. The glove of claim 60, wherein said at least one opening is formed in said wear resistant material adjacent a junction between said plurality of finger portions and said palm portion.

64. The glove of claim 60, wherein said at least one opening is formed in said wear resistant material adjacent a junction between a thumb portion and said palm portion.

65. The glove of claim 60, wherein each of said plurality of finger portions includes a substantially mesh side portion extending between a protective padding on said back side portion and a wear resistant material on said opposing palm portion.

66. The glove of claim 60, further comprising:

at least one generally horizontal seam formed in said protective padding on said back side portion, which extends from a first side of said back side portion and a second side of said back side portion.

67. The glove of claim 66, further comprising:

at least one generally vertical seam formed in said padding on said back side portion.

68. The glove of claim 67, further comprising:

at least one vent opening formed along said at least one generally vertical seam.

69. The glove of claim 66, further comprising:

at least one vent opening formed along said at least one generally horizontal seam.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

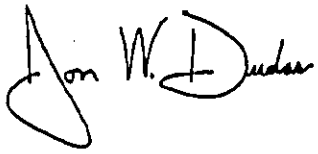
PATENT NO. : 6,550,069 B1
DATED : April 22, 2003
INVENTOR(S) : David Morrow

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 9,
Line 45, to read as follows: -- movcable with respect to one another. --

Signed and Sealed this

Twenty-seventh Day of January, 2004



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Acting Director of the United States Patent and Trademark Office

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US006085354

United States Patent [19]

Wilder et al.

[11] Patent Number: 6,085,354

[45] Date of Patent: *Jul. 11, 2000

[54] HOCKEY GLOVE WITH VENTILATION HOLES

[75] Inventors: Thomas Vaughn Wilder, Laguna Niguel; Alexander Parker Reynolds, Newport Beach; Jon Garfield Wong, Long Beach, all of Calif.

[73] Assignee: Mission Hockey Company, Santa Ana, Calif.

[*] Notice: This patent is subject to a terminal disclaimer.

[21] Appl. No.: 09/081,922

[22] Filed: May 20, 1998

Related U.S. Application Data

[62] Division of application No. 08/682,806, Jul. 10, 1996, Pat. No. 5,787,506.

[51] Int. Cl.[7] A41D 13/08

[52] U.S. Cl. 2/161.1; 2/16; 2/159

[58] Field of Search 2/161.1, 159, 161.3, 2/161.4, 161.6, 161.8, 167, 169

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Primary Examiner—Gloria M. Hale

Attorney, Agent, or Firm—Knobbe, Martens, Olson & Bear, LLP

[57] ABSTRACT

A glove for use in playing hockey is provided with ventilation holes extending through the glove to allow air to circulate directly to the skin of the hand in the glove. Segmented foam pads of the glove have cutaway sides substantially conforming to the shape of the holes. Preferably, the glove includes a floating cuff at the wrist for free yet protected movement of the wrist. Also preferably, the thumb, fingers, and palm have additional layers for reinforcement and enhanced gripping of a hockey stick.

16 Claims, 5 Drawing Sheets

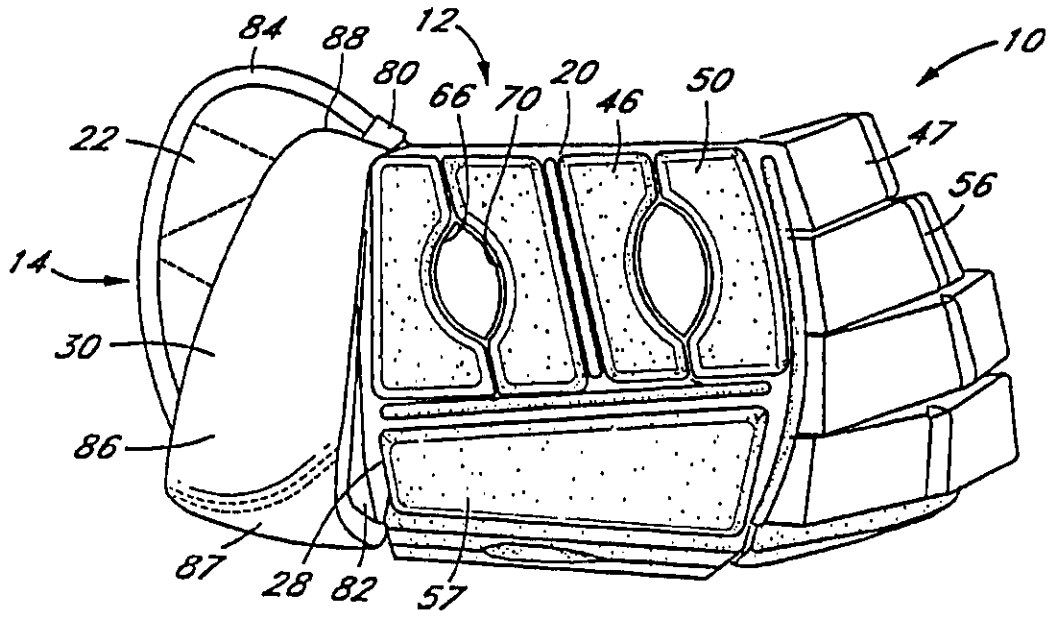


Fig. 1

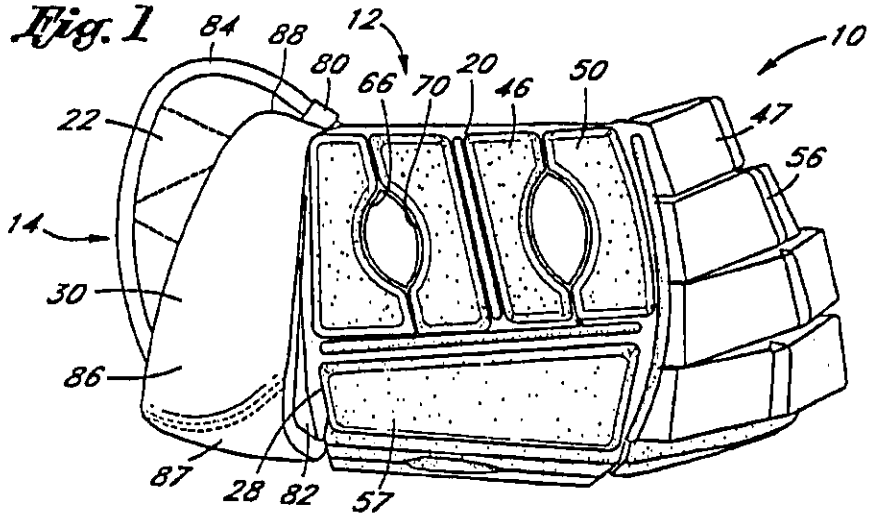


Fig. 2

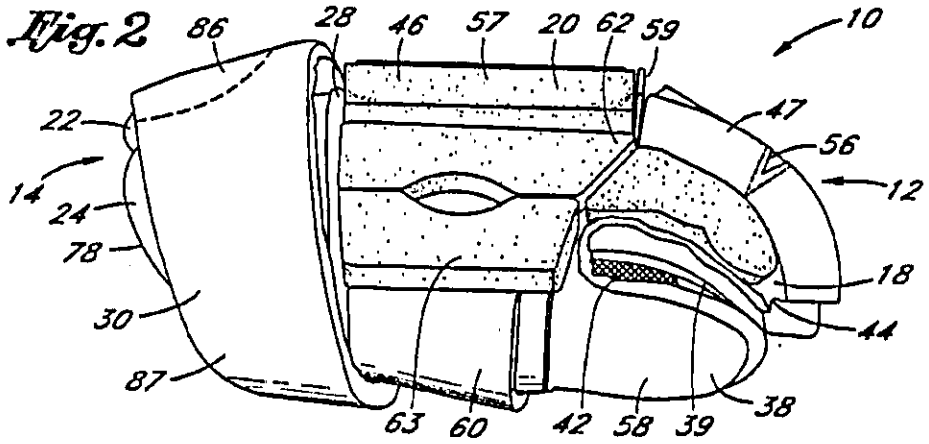


Fig. 3

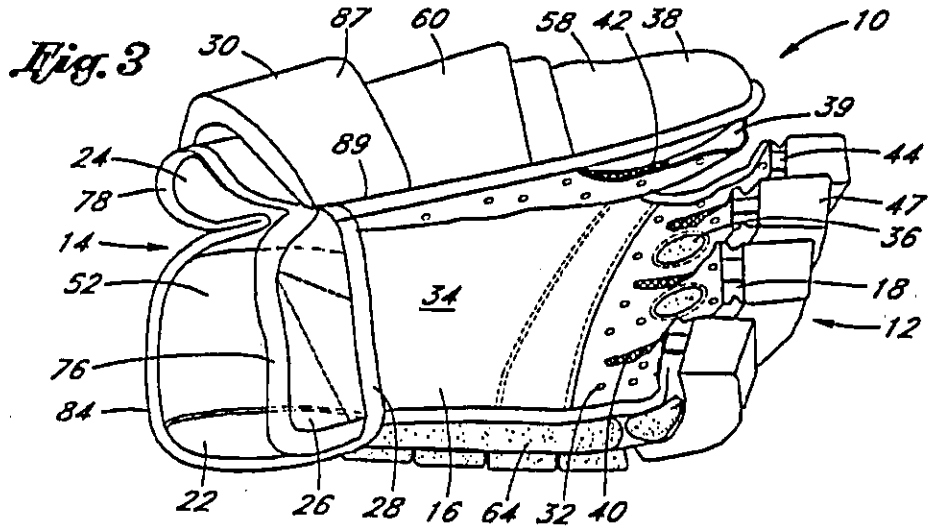


Fig. 4

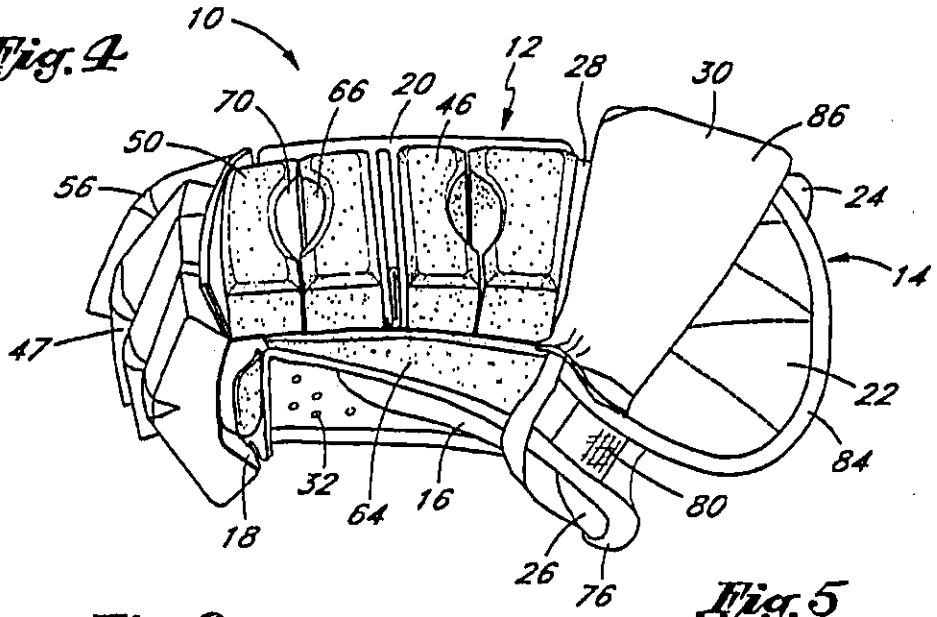


Fig. 6

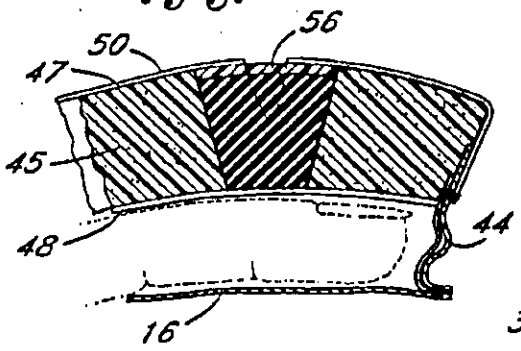


Fig. 5

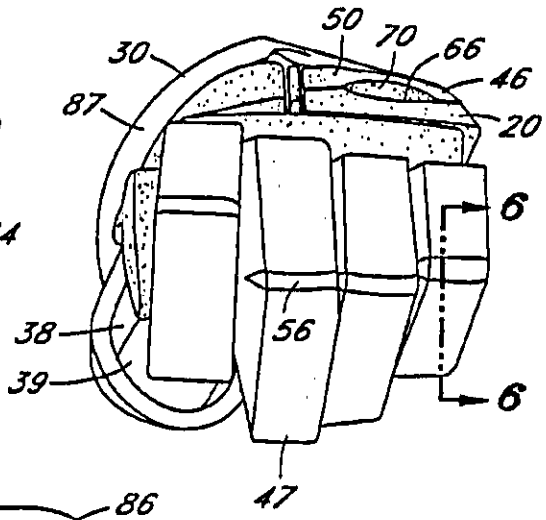
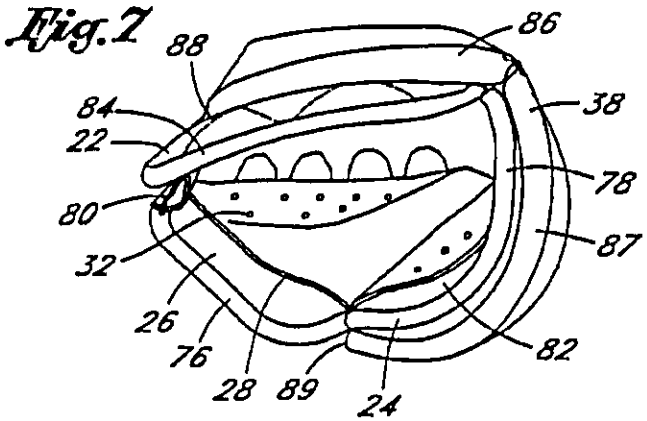


Fig. 7



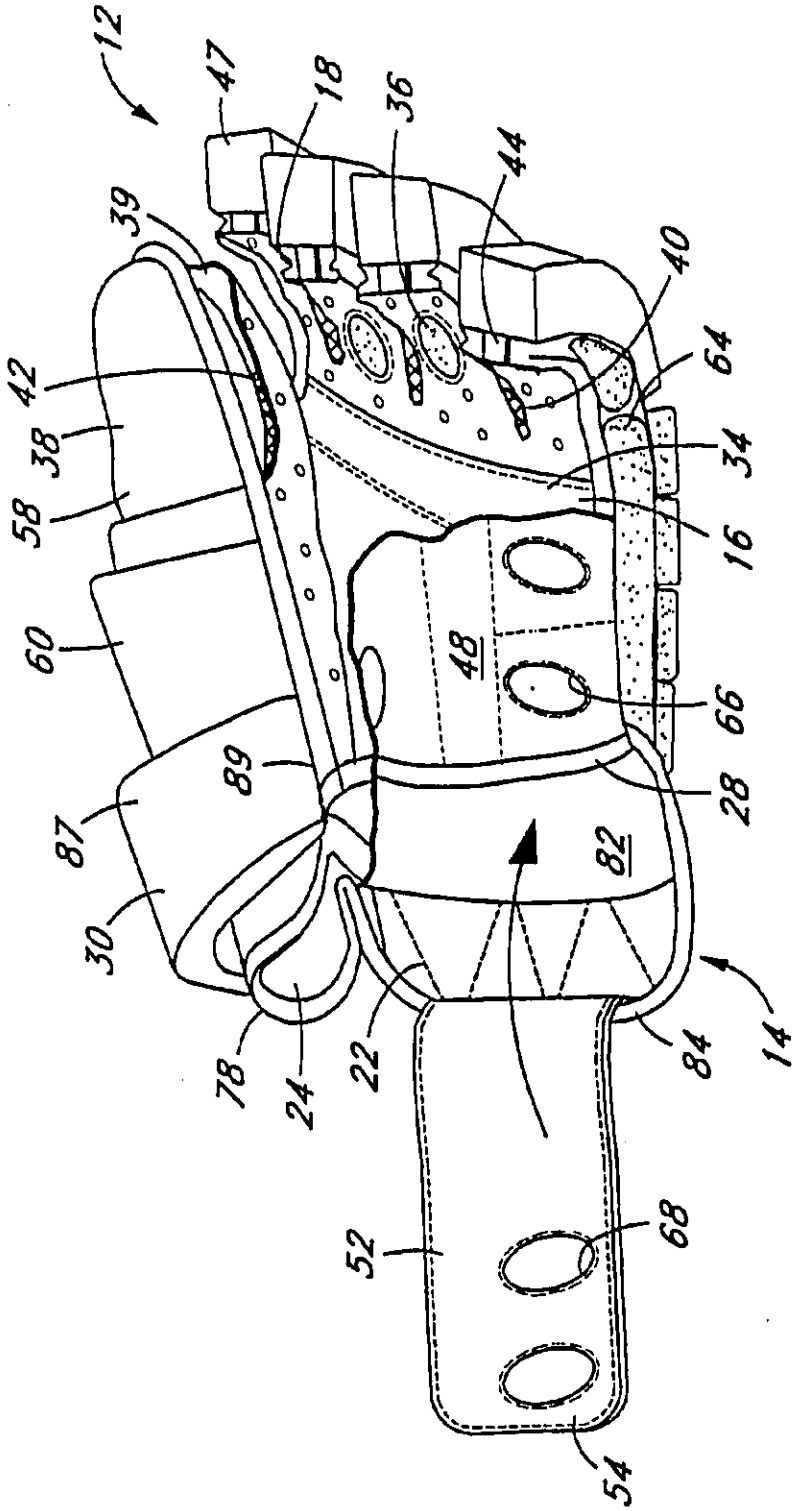

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Fig. 8

Fig. 9

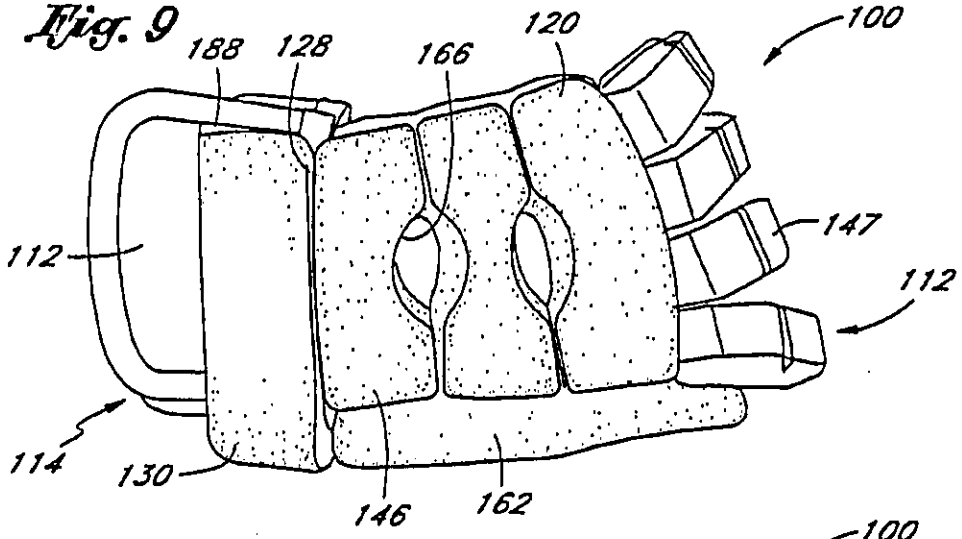


Fig. 10

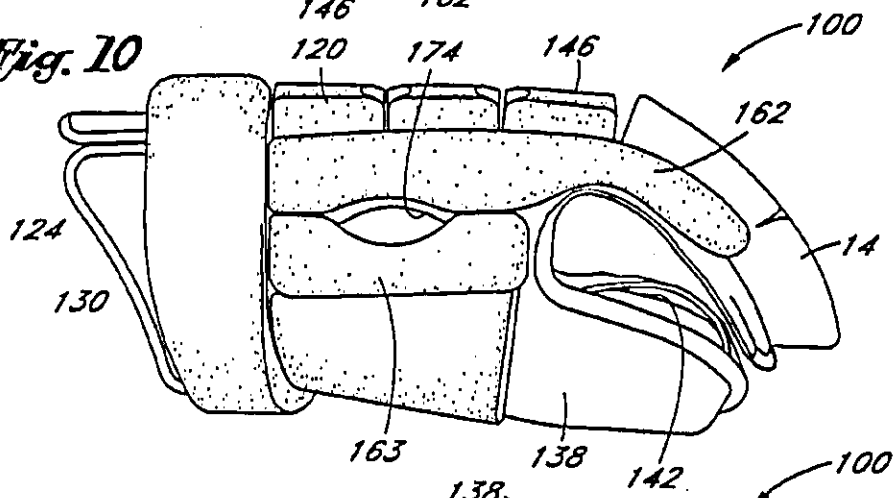
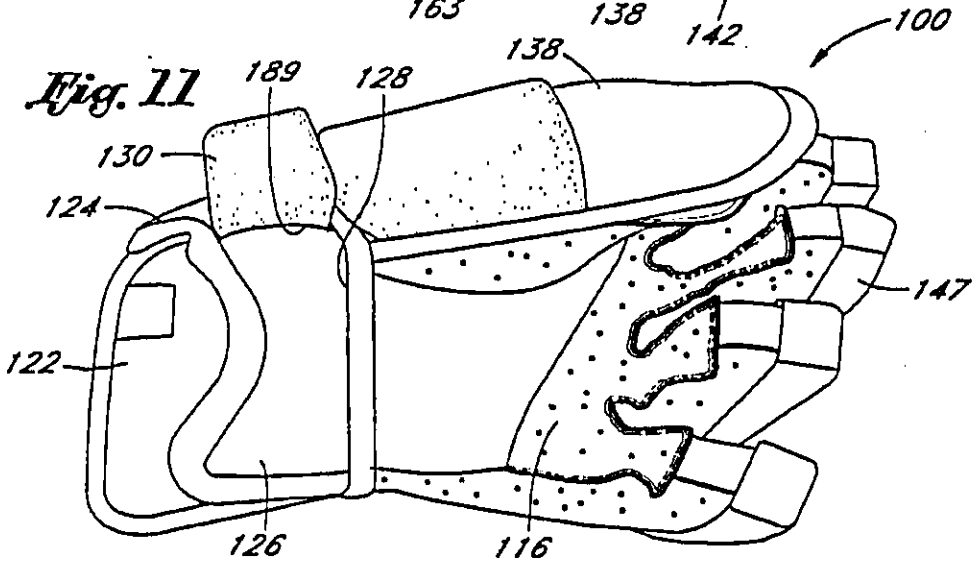


Fig. 11



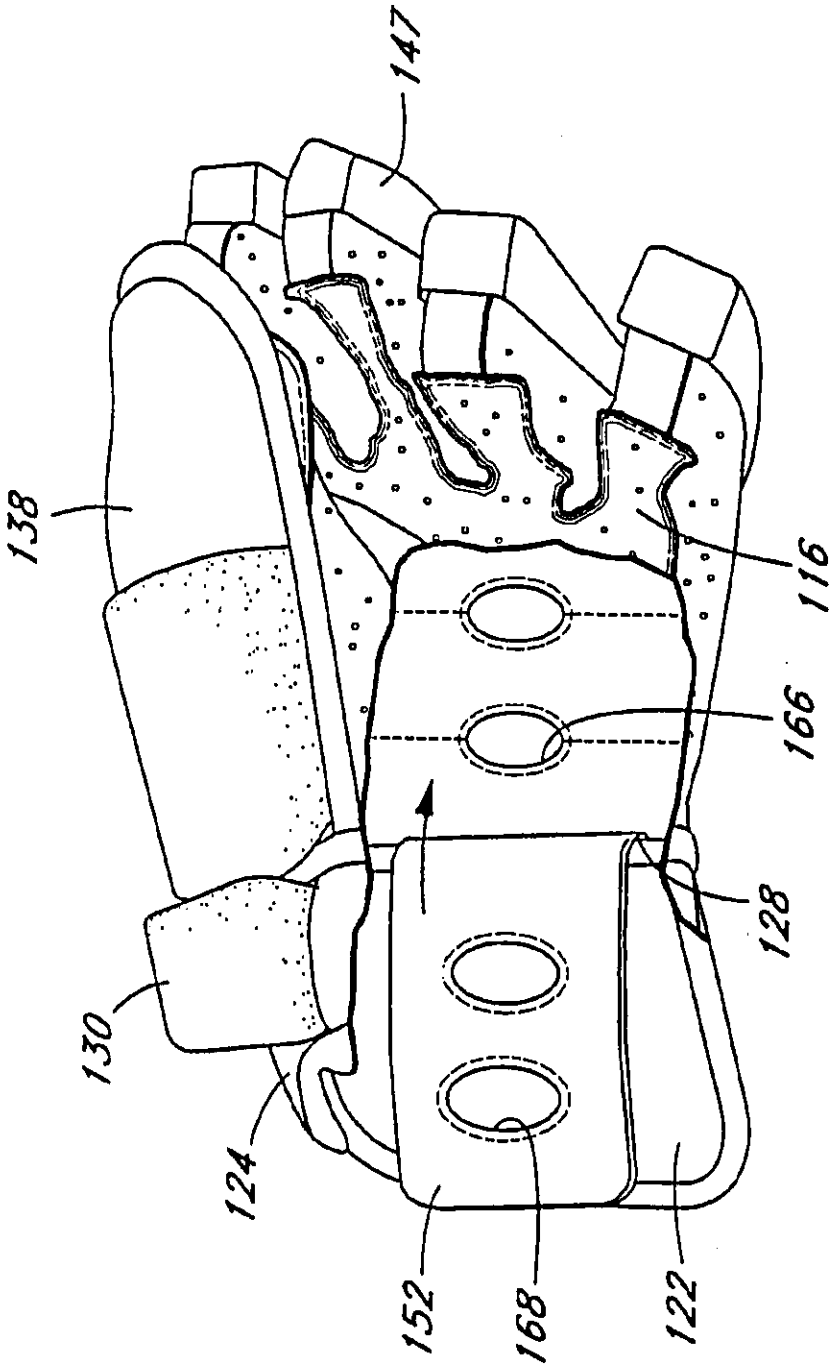


Fig. 12

HOCKEY GLOVE WITH VENTILATION HOLES

RELATED CASES

This is a divisional application of Ser. No. 08/682,806, filed Jul. 10, 1996, now U.S. Pat. No. 5,787,506.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to the field of protective outer gear, and, in particular, to protective gloves for use in playing roller hockey.

2. Description of the Related Art

Traditional gloves for playing hockey on ice include thick sections of foam which are arranged on the back of the glove to provide warmth and protection against hits by a hockey stick or contact with another player, the hockey puck, or the blade of an ice skate. These gloves provide protection and some flexibility of the glove to accommodate hand movements. The foam is typically covered by a material which is stitched to an inner lining, and so this type of glove requires greater time and skill for its manufacture.

Some gloves for roller hockey are less concerned with providing warmth and provide a lesser amount of padding to protect the hands during play. Roller hockey is often played in warmer climates and/or outdoors, where a warmer environment of the roller hockey game results in the player's hand sweating into the glove. This leads to discomfort by the player and may possibly impact the player's performance. Roller hockey gloves heretofore available have failed to provide adequate ventilation of the player's hands.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a hockey glove with one or more ventilation holes extending through the padded back of the glove to allow air to circulate to the skin of the back of the hand in the glove. The glove includes a ventilated palm and a protective back having a lining, foam pad segments, and an outer covering for the foam segments The glove may also include a short, flexible cuff attached for protected movement of the wrist of the hockey player's hand.

In one embodiment of the present invention, a protective hockey glove is provided having two holes extending through the lining at the back of the glove for unobstructed air flow through the glove to the hand. Foam segments adjacent the holes have cutaway sides which form openings to accommodate such airflow. The shape of the holes may be lenticular or oval, or may have any other shape. Further, the foam segments may be formed by waffle-type foam sections. Preferably, finger gussets and the ventilated palm of the glove, at the lower palm and crease areas, have additional layers for reinforcement and enhanced gripping of a hockey stick. Optional mesh material is provided between the finger gussets and at a thumb member for air flow at the web portions of these digits. The thumb member of the glove has a pocket for alternative placement of the player's thumb and has a separate abrasion resisting layer of material on its palm side. The additional layers provide more even wear of the glove and add to its life.

The glove also preferably has a wart, or side section on the back between the thumb member and the index finger, which has a hole formed between a pair of foam segments. Thus, additional, cooling air flow is provided around the skater's hand.

In another embodiment of the present invention, a protective hockey glove is provided having a cuff attached at the palm and back of the glove using a segment of neoprene material. This provides enhanced flexibility at the wrist of the player. A padded cuff roll is attached at the junction of the cuff to the body of the glove. The cuff is split into three sections to accommodate sideways movement of the player's wrist. Two adjacent sections at the glove's back slightly overlap to ensure protection around the wrist without a vulnerable gap. The top or back section of the cuff is configured to curve slightly upwardly, away from the player's wrist, to accommodate backward flexing of the hand. The cuff below the thumb and the palm forms curved or radially cut edges toward the back section, such that the cuff is narrower below the palm of the glove and therefore accommodates forward bending of the player's hand at the wrist. Thus, this "floating cuff" provides enhanced performance characteristics for the player.

These and other advantages and applications will become apparent to those skilled in the art from the following detailed description of the preferred embodiments and the drawings referenced herein, the inventions not being limited to any particular embodiment disclosed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan or back view of a left hand protective glove having features in accordance with the present invention;

FIG. 2 is a right side elevational view of the glove of FIG. 1;

FIG. 3 is a bottom plan or palm view of the glove of FIG. 1;

FIG. 4 is a left side elevational view of the glove of FIG. 1;

FIG. 5 is a finger end elevational view of the glove of FIG. 1;

FIG. 6 is a cross-sectional view taken along lines 6—6 of FIG. 5;

FIG. 7 is a palm end elevational view of the glove of FIG. 1;

FIG. 8 is a partial cutaway view of the palm side of the glove of FIG. 1, showing its loose pad pulled out;

FIG. 9 is a top plan or back view of an alternative embodiment of a left hand protective glove having features in accordance with the present invention;

FIG. 10 is a right side elevational view of the glove of FIG. 9;

FIG. 11 is a bottom plan or palm view of the glove of FIG. 9; and

FIG. 12 is a partial cutaway view of the palm side of the glove of FIG. 9, showing its loose pad pulled out.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows a roller hockey glove 10 having features in accordance with the present invention. The glove 10 generally comprises a body 12 and a cuff 14. The body 12 has a palm portion 16, finger gussets 18, and a back 20. The cuff 14 has panels 22, 24, 26 attached to a lower edge 28 of the body 12 and a cuff roll 3C extending below the back 20 of the glove body 12.

The palm portion 16 of the body 12 extends to cover the fronts of the thumb and fingers of the hockey wearer's hand. A plurality of holes 32 are provided in the palm portion 16

for allowing ventilation of the wearer's palm, thumb and fingers. The palm portion **16** of the glove **10** may be formed, for example, of split leather or synthetic leather selected for durability and comfort. Preferably, gripping sections **34, 36** of material, such as textured synthetic leather, is provided at a crease portion of the palm side and also at about the middle joint of the front of the middle two fingers of the glove **10** to improve gripping ability. If desired, the crease portion of the palm may have a layer of tacky material for enhanced gripping. A reinforcing section of material is preferably provided at a heel or lower portion of the palm side of the glove, and this may be formed as an extension of the gripping material at the crease portion, as shown in FIG. **3**.

The front of a thumb member **38** of the glove **10** has a loop **39** formed at the palm side to create a pocket for alternative placement of the wearer's thumb. Web or lower connecting portions **40** of the finger gussets **18** and an inside **42** of the thumb loop **39** are preferably formed of a mesh material to allow air to freely circulate to the thumb and fingers of the wearer's hand. The finger gussets **18** are preferably formed of leather or other natural or synthetic material selected for softness and durability and also include holes **32** for ventilation. It is preferred to provide tabs **44** of split leather over the tips of the finger gussets **18** for greater abrasion resistance, improved gripping ability, and extended wear of the glove **10**. Preferably, at least the middle two finger gussets include a tacky material attached at a lower portion for enhanced gripping.

Referring to FIGS. **6** and **8**, the back **20** of the glove, including the backs of the fingers **18**, includes segments **46, 47** formed of relatively thick foam sandwiched between an inner liner **48** and an outer cover **50**. These segments **46, 47** may be formed by waffle-type foam material, as known to those skilled in the art The inner liner **48** is typically about ⅛ inch foam covered on both sides by nylon. The foam segments **46, 47** are preferably between about ¼ to one inch thick for providing adequate protection of the hand. Preferably, the outer cover **50** is leather, or a suitable synthetic material, such as woven nylon cordura.

As shown in FIGS. **3** and **8**, a loose pad **52** of substantially rectangular shape is preferably attached to the lower edge of the back of the cuff **14**, as described below. This pad **52** is similar to the inner liner **48**, comprising about ⅛ to ½ inch layer of foam covered by nylon and provides additional comfort for the wearer. A free end **54** of the pad **52** extends to just below the finger gussets **18** when it is full inserted into the glove **10**.

The foam segments **46, 47** of the back **20** are formed and grouped to substantially conform to the shape of the back of the hand and fingers of a wearer. These foam segments **46, 47** are generally rectangular in cross-section. Referring to FIGS. **5** and **6**, the finger segments **47** are preferably formed to curve slightly to imitate a slightly closed position of the wearer's hand, and its outer cover **50** preferably includes a split center section **56** to accommodate the curvature. As shown in FIGS. **1** and **2**, a decorative foam segment **57** may be included between the lateral segments and a thumb member of the glove, and decorative panels **59** may be included between any of the foam segments **46, 47, 57** of the glove **10**.

The thumb member **38** preferably comprises upper and lower substantially rigid portions **58, 60**. These portions **58, 60** are curved to more closely fit partially around and protect the wearer's thumb. The upper portion **58** does not require a foam segment, and the lower portion **60** preferably includes a thinner foam segment than are used for the back and fingers segments **46, 47** of the glove **10**.

Referring to FIG. **2**, additional foam segments may be provided at the side of the glove between the index finger and thumb. This is often referred to as a "wart". Preferably, a foam segment **62** extends along the side of the hand at least partially up the index finger, and a shorter, adjacent foam segment **63** extends along the side of thumb member **38** up to its web **42**. Referring to FIG. **3**, one or more thinner foam segments **64** may optionally be provided along the outside of the pinky, between the back **20** and palm **16** of the glove **10**.

In this preferred embodiment of the glove shown in FIGS. **1** and **8**, a pair of openings **66** are provided between adjacent foam segments **46** on the back **20** of the glove **10**. These openings **66** preferably extend to the glove interior, exposing the wearer's skin; although, in alternative embodiments, a thin, interior layer of nylon or the like (not shown) may cover these openings **66** on the inside of the glove. It is most preferred, however, that these openings be unobstructed to allow direct contact of air with the skin of the wearer's hand. In addition, the loose pad **52** includes corresponding holes **68** to maintain protection and ventilation of the hand.

It is understood that in the present invention a single opening **66**, or three or more openings, may alternatively be provided on the glove **10** for airflow therethrough. These openings **66** may have any shape, such as the lenticular or oval shape shown, or may be circular or polygonal, for example. The openings **66** are sized in accordance with the glove size to provide adequate air circulation to the hand without compromising the level of protection of the hand against contact by a hockey puck or stick. To accommodate the openings **66**, the foam segments **46** on the back **20** have cutaway sides **70** which correspond to the shape of the openings **66**. The wart foam segments **62, 63** also have cutaway sides **72** to accommodate an additional opening **74** at that location.

In the preferred embodiment of the present invention shown in FIGS. **1–8**, the cuff **14** of the glove **10** comprises three panels **22, 24, 26** attached to the lower edge **28** of the body **12** and the cuff roll **30** extends about two-thirds the distance around the cuff **14**. The panels **22, 24, 26** are padded for protection about the wearer's wrist, but are preferably less than about half as thick as the foam segments **46, 47** on the body **12** of the glove **10**. The panels **22, 24, 26** are preferably covered by leather or suitable synthetic materials such as woven nylon cordura, as desired. Optionally, a fairly rigid member (not shown) may be included in one or more panels for added protection of the wearer's wrist against hits from a hockey stick or the puck.

It is preferred that the back panel **22** of the cuff **14**, generally below the fingers **18** of the glove **10**, be formed to curve slightly outward at its free edge **84** (FIG. **7**), away from the back of the wearer's hand. This provides greater freedom for the wearer to flex his or her hand during play without bending the glove **10** and creasing the material. Referring to FIGS. **2** and **3**, in order to accommodate sideways motion of the wearer's hand, especially at the thumb side, it is preferred that the palm panel **26** include a free edge **76** which is radially cut so that the palm panel **26** is wider below the pinky and narrower closer to the thumb. Similarly, the panel **24** substantially below the thumb is preferably radially cut along its free edge **78** so that it has about the same narrow width adjacent the palm panel **26** and is wider toward the back panel **22** of the glove **10**. The thumb and palm panels **24, 26** may be separately formed and attached to the glove body, as shown in FIG. **3**, or they may alternatively be integrally formed and attached as a single panel to the glove.

As shown in FIGS. **3** and **4**, a discontinuity in the adjacent panel widths occurs at the junction of the back panel **22** with

the palm panel 26 of the cuff 14. Preferably, a short strip of elastic 80 is provided between the back and palm panels 22, 26 to maintain their proximity during use, so that one or both does not become deformed and separate enough to allow a stick or such to strike the wearer's wrist. It is preferred that adjoining panels 22, 24, 26 of the cuff 14 overlap slightly to further safeguard against openings around the wrist which could lead to injury.

In this embodiment of the present invention, the back and thumb panels 22, 24 of the cuff 14 are attached to the body 12 of the glove 10 using sections 82 of compliant material, preferably neoprene. In this particular embodiment, the loose pad 52 is attached at a free edge 84 of the back panel 22, rather than to the body 12 of the glove 10. This flexible or "floating" cuff 14 allows enhanced flexibility of the glove for the wearer's hand motions, such as when hitting the hockey puck with the stick.

Referring to FIG. 7, the cuff roll 30 is formed of sections formed of foam about ½-inch thick which are covered by real or synthetic leather, or other suitable material. In this embodiment, the cuff roll 30 comprises separate foam sections 86, 87 generally corresponding in length to the back and thumb panels 22, 24 of the cuff. The cuff roll 30 is preferably attached only at its short ends 88, 89 near either side of the palm panel 26.

In a protective glove constructed in accordance with the present invention, a variety of arrangements of the foam segments for the back of the glove are possible. As shown in the alternative embodiment 100 of FIGS. 9–12, a back 120 of the glove 100 may have a group of about three segments 146 extending laterally across the back from under its pinky or little finger segment 147 toward its thumb member 138. Openings 166 are formed between adjacent segments 146, extending through the glove 100 to its interior. A foam segment 162 extends along the side of the hand, or wart, up along the index finger, and a shorter, adjacent foam segment 163 extends along the side of thumb member 138 up to its web 142. Another opening 174 is provided in the wart of the glove 100.

In this embodiment, a cuff 114 has a cuff roll 130 is sewn along one edge to a lower edge 128 of the glove body 112. In addition, panels 122, 124, 126 are also attached to the lower edge 128. In addition, the cuff roll 130 may be attached at its short ends 188, 189 near each side of the panel below a palm portion 116 of the glove 100, as shown in FIGS. 9 and 11. An interior pad 152 (FIG. 12) of substantially rectangular shape is also preferably attached at the lower edge 128 of the back 120, and has holes 168 corresponding to those 166 on the back 120 of the glove 100.

The embodiments of the glove of the present invention illustrated and described above are provided by way of example only. Changes and modifications may be made from the embodiments presented herein by those skilled in the art without departure from the spirit and scope of the invention herein disclosed, as defined by the appended claims.

What is claimed is:

1. A protective sports glove, comprising:

a palm;

a padded back extending over said palm, said back having a plurality of hinged segments; and

at least one opening formed between at least one pair of adjacent hinged segments extending completely through said padded back and sized and configured so as to allow substantially direct air contact with a hand disposed in said glove.

2. The glove of claim 1, wherein said hinged segments are formed of a foam material.

3. The glove of claim 1, further including a wart portion of said back extending between a thumb member and index finger member, said wart having a pair of hinged segments with an opening therebetween extending through said wart portion.

4. The glove of claim 1, wherein adjacent ones of said hinged segments have cut-away portions defining said at least one opening.

5. The glove of claim 4, wherein said cut-away portions of said adjacent foam segments form a generally lenticular shaped opening.

6. The glove of claim 1, further comprising an inner pad or lining having at least one hole corresponding to said at least one opening.

7. A protective glove, comprising:

a palm;

a protective back extending over said palm;

a protective cuff flexibly attached proximally said palm and said back; and

a cuff roll extending generally over said cuff so as to provide comfort and protection of the wrist of a wearer.

8. The glove of claim 7, wherein said protective cuff is attached to said palm and/or said back using a flexible neoprene material.

9. The glove of claim 8, wherein said cuff is split into multiple hinged sections.

10. The glove of claim 7, wherein said back comprises a plurality of hinged segments and at least one opening formed between adjacent hinged segments extending completely through said back and sized and configured so as to allow substantially direct air contact with a hand disposed in said glove.

11. A ventilated padded back for a protective hockey glove, comprising:

a plurality of hinged segments sized and configured to provide padded protection of a wearer's hand placed in said glove without substantially restricting the freedom of motion of said wearer's hand while in said glove; and

at least one opening formed between at least one pair of adjacent hinged segments, said opening extending substantially completely through said padded back and sized and configured so as to allow substantially direct air contact with said wearer's hand while in said glove.

12. The padded back of claim 11, wherein said hinged segments are formed of a foam material.

13. The padded back of claim 11, wherein said at least one pair of adjacent hinged segments each have cut-away portions defining said at least one opening.

14. The padded back of claim 13, wherein said cut-away portions of said adjacent foam segments form a generally lenticular shaped opening.

15. The padded back of claim 11, further comprising an inner pad or lining having at least one hole corresponding to said at least one opening.

16. The padded back of claim 11 in combination with a palm and finger members forming a ventilated protective sports glove.

* * * * *

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United States Patent [19]

Wilder et al.

[11] Patent Number: 6,122,769

[45] Date of Patent: Sep. 26, 2000

[54] HOCKEY GLOVE WITH VENTILATION HOLES

[75] Inventors: Thomas Vaughn Wilder, Laguna Niguel; Alexander Parker Reynolds, Newport Beach; Jon Garfield Wong, Long Beach, all of Calif.

[73] Assignee: Mission Hockey Company, Santa Ana, Calif.

[*] Notice: This patent is subject to a terminal disclaimer.

[21] Appl. No.: 09/128,958

[22] Filed: Aug. 4, 1998

Related U.S. Application Data

[63] Continuation of application No. 08/682,806, Jul. 10, 1996, Pat. No. 5,787,506.

[51] Int. Cl.[7] A41D 19/00

[52] U.S. Cl. 2/16; 2/161.1; 2/159

[58] Field of Search 2/161.1, 159, 161.3, 2/161.4, 161.6, 161.8, 167, 169, 16

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Primary Examiner—Gloria M. Hale

Attorney, Agent, or Firm—Knobbe, Martens, Olson & Bear, LLP

[57] ABSTRACT

A glove for use in playing hockey is provided with ventilation holes extending through the glove to allow air to circulate directly to the skin of the hand in the glove. Segmented foam pads of the glove have cutaway sides substantially conforming to the shape of the holes. Preferably, the glove includes a floating cuff at the wrist for free yet protected movement of the wrist. Also preferably, the thumb, fingers, and palm have additional layers for reinforcement and enhanced gripping of a hockey stick.

26 Claims, 5 Drawing Sheets

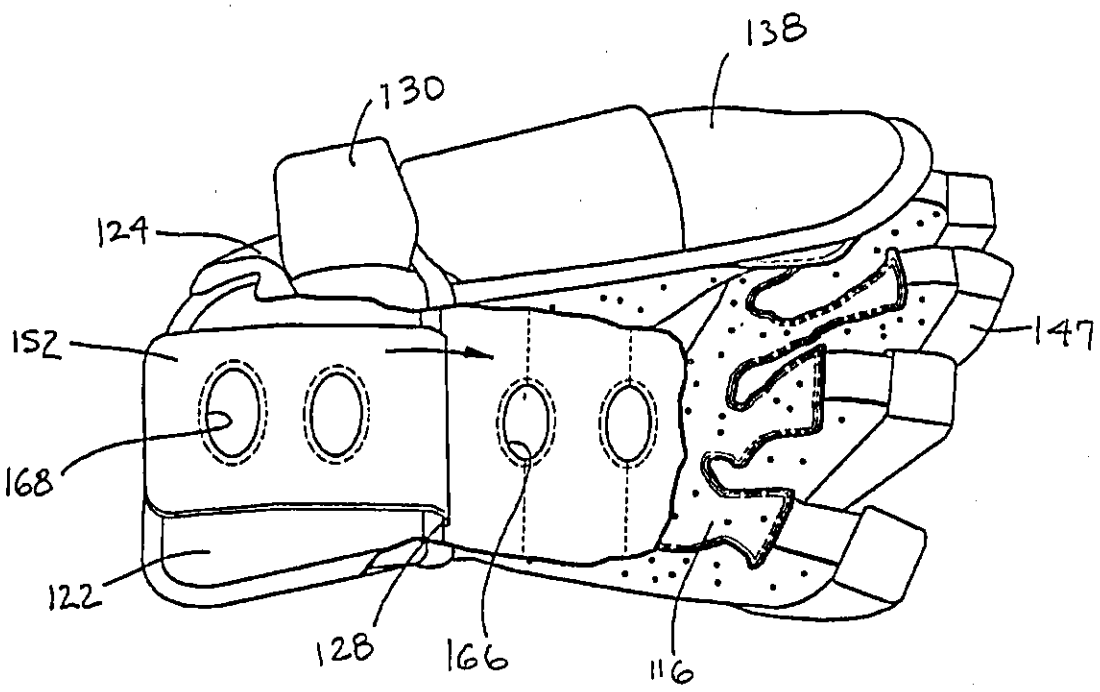


Fig. 1

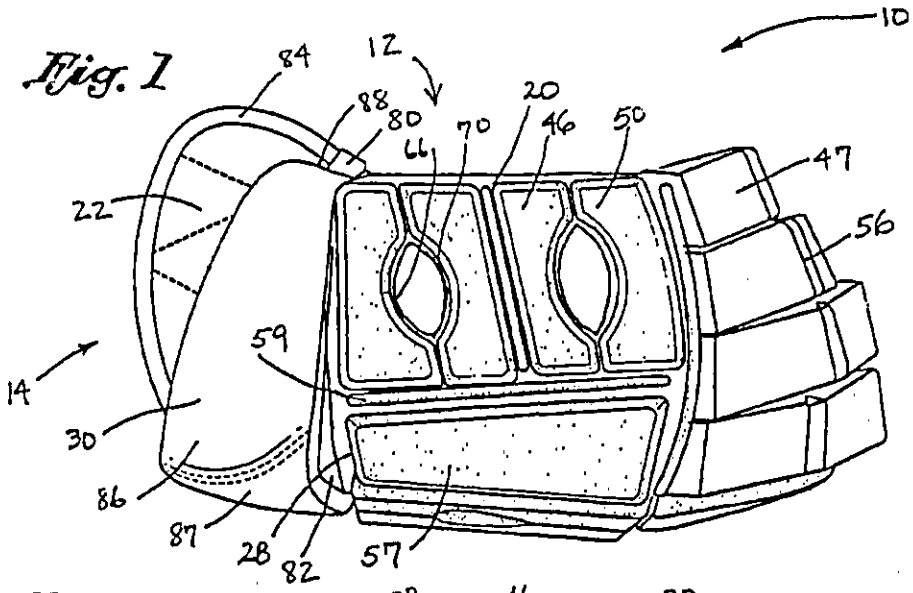


Fig. 2

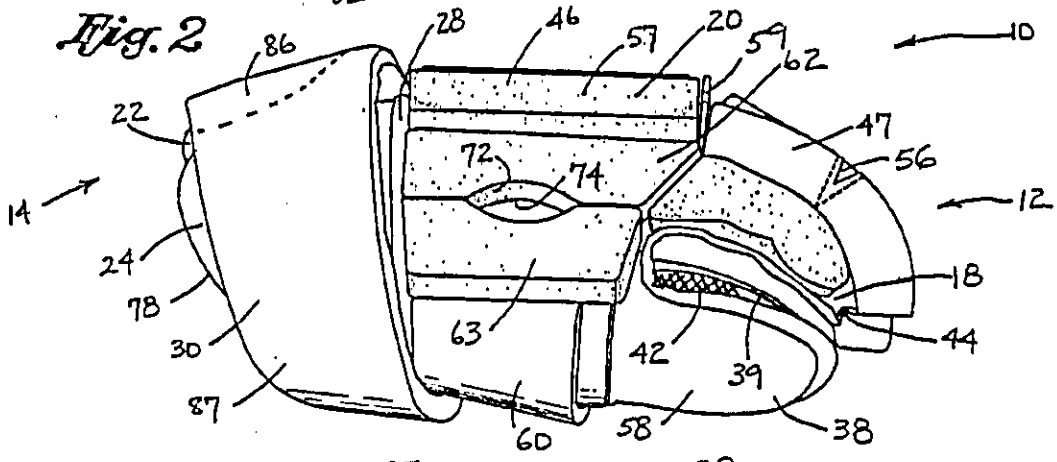


Fig. 3

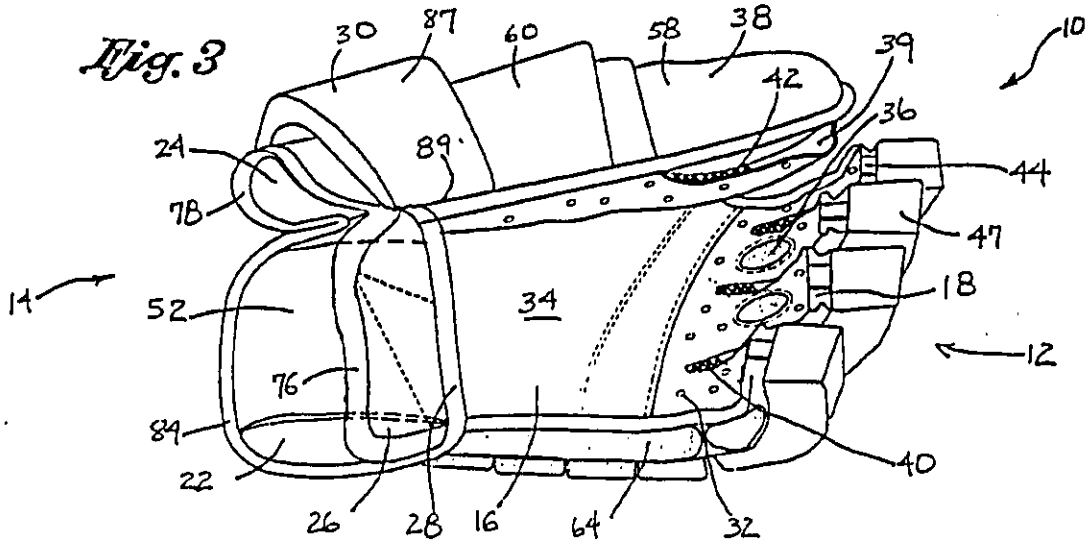


Fig. 4

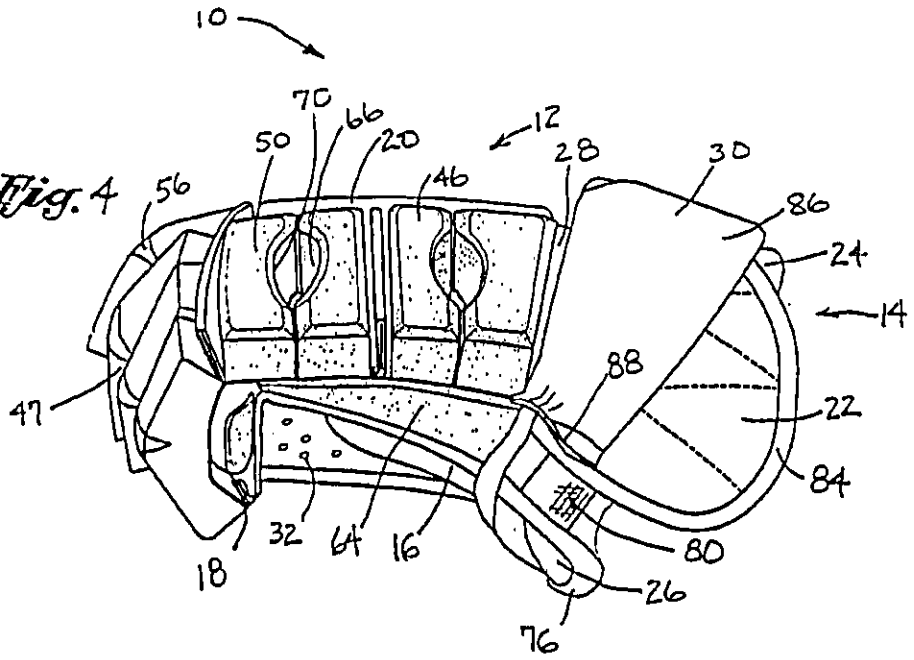


Fig. 6

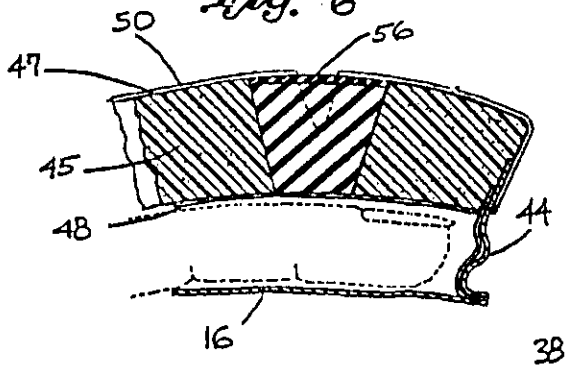


Fig. 5

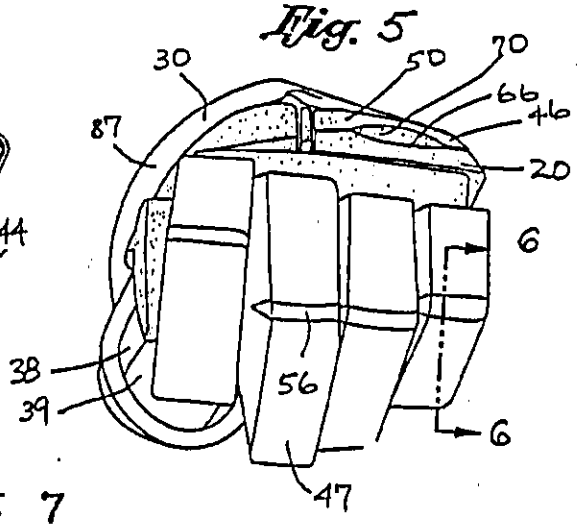
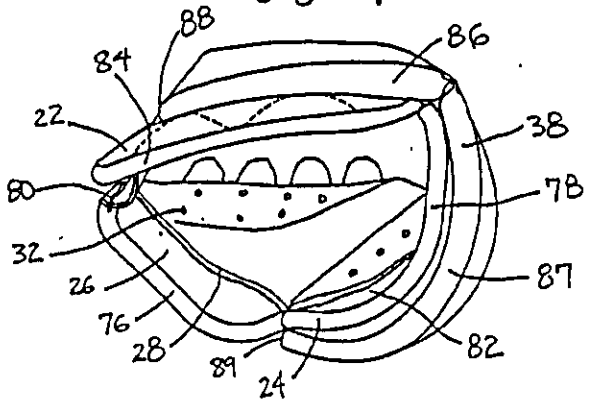


Fig. 7



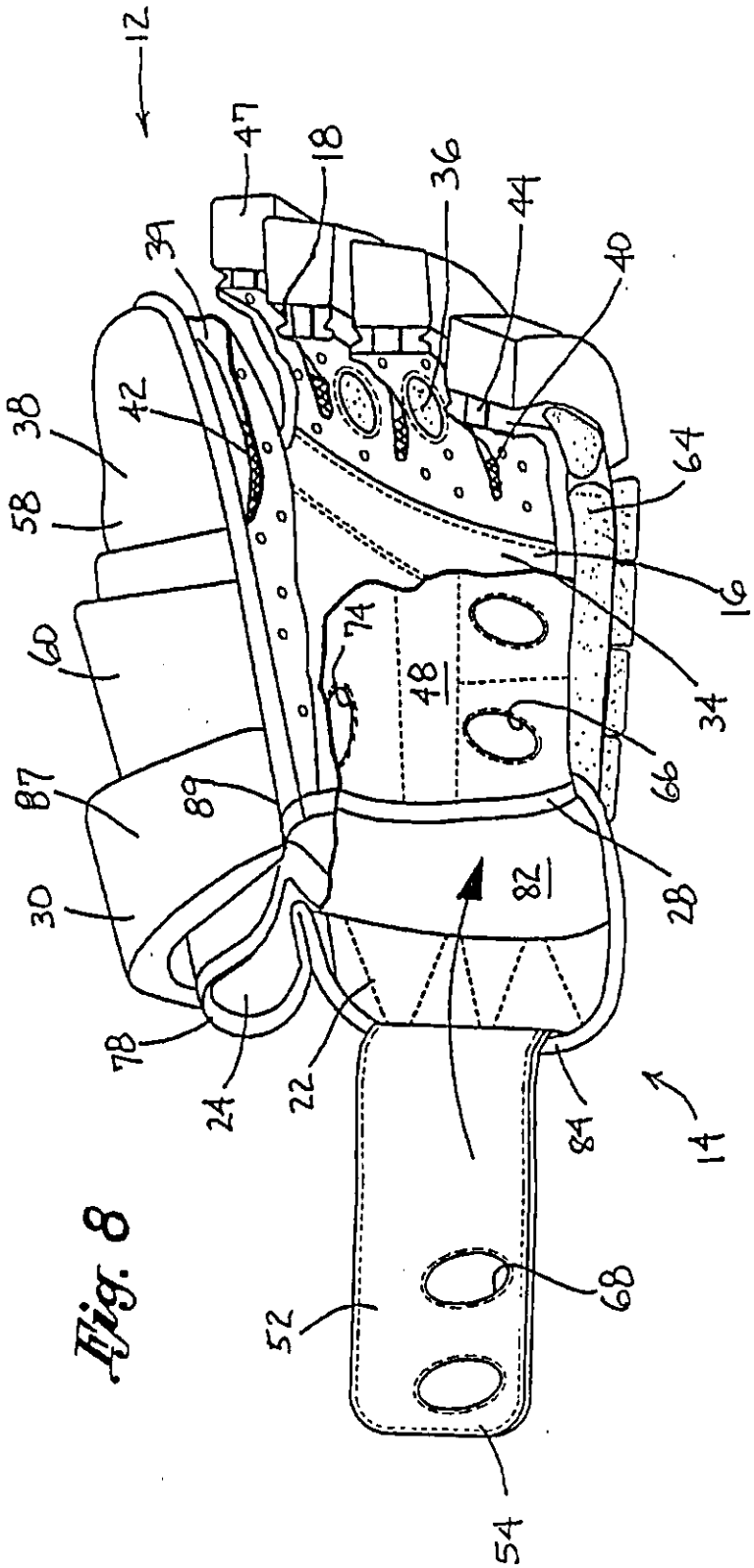

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Fig. 8

Fig. 9

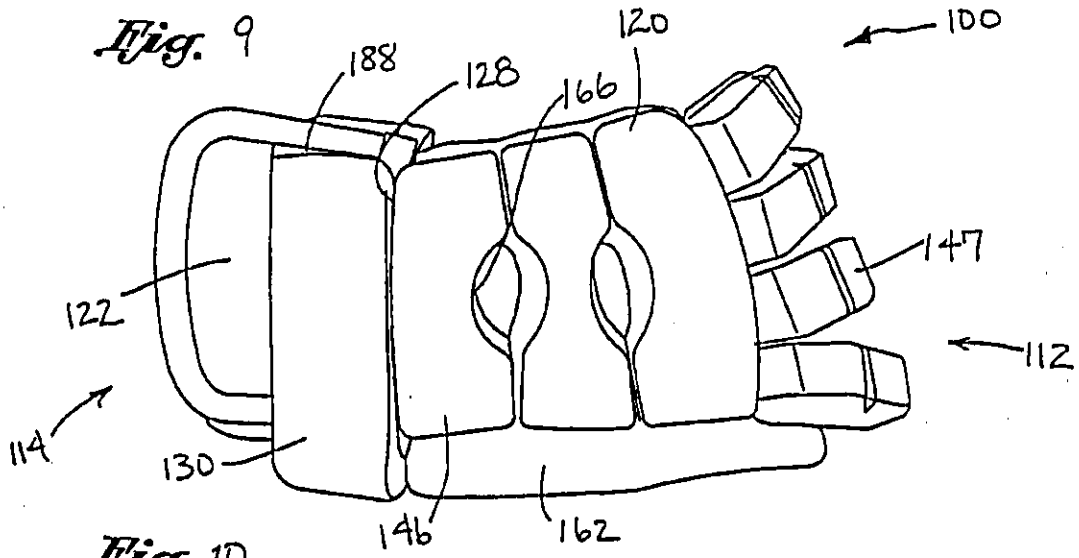


Fig. 10

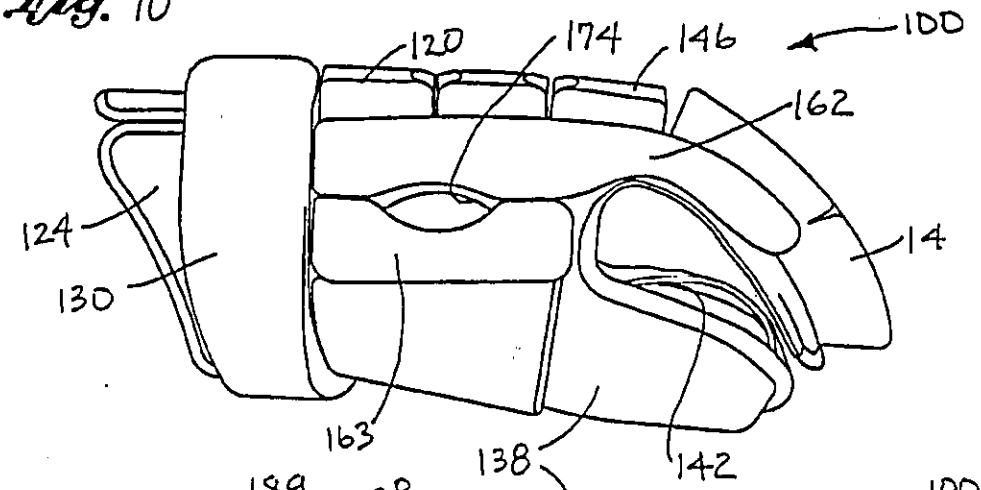
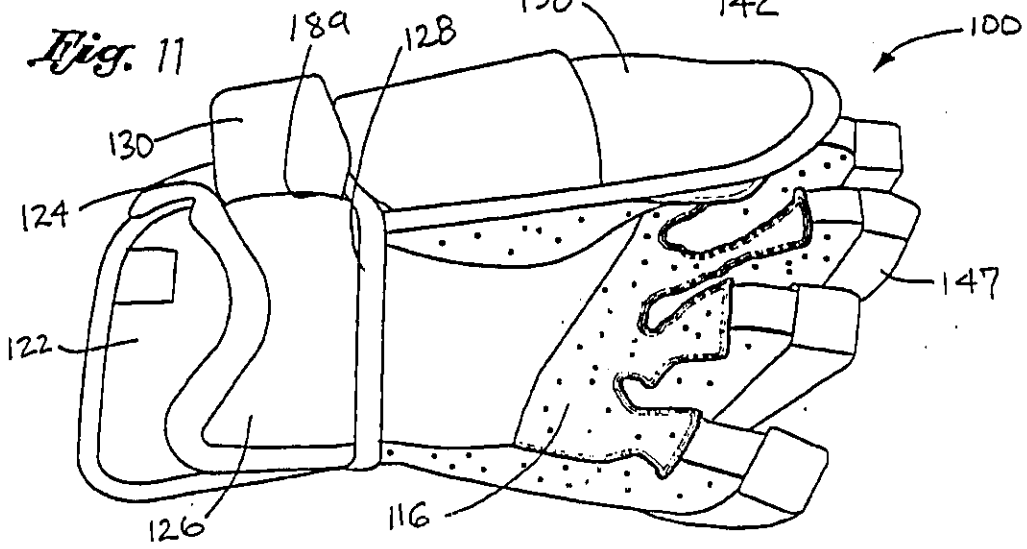


Fig. 11



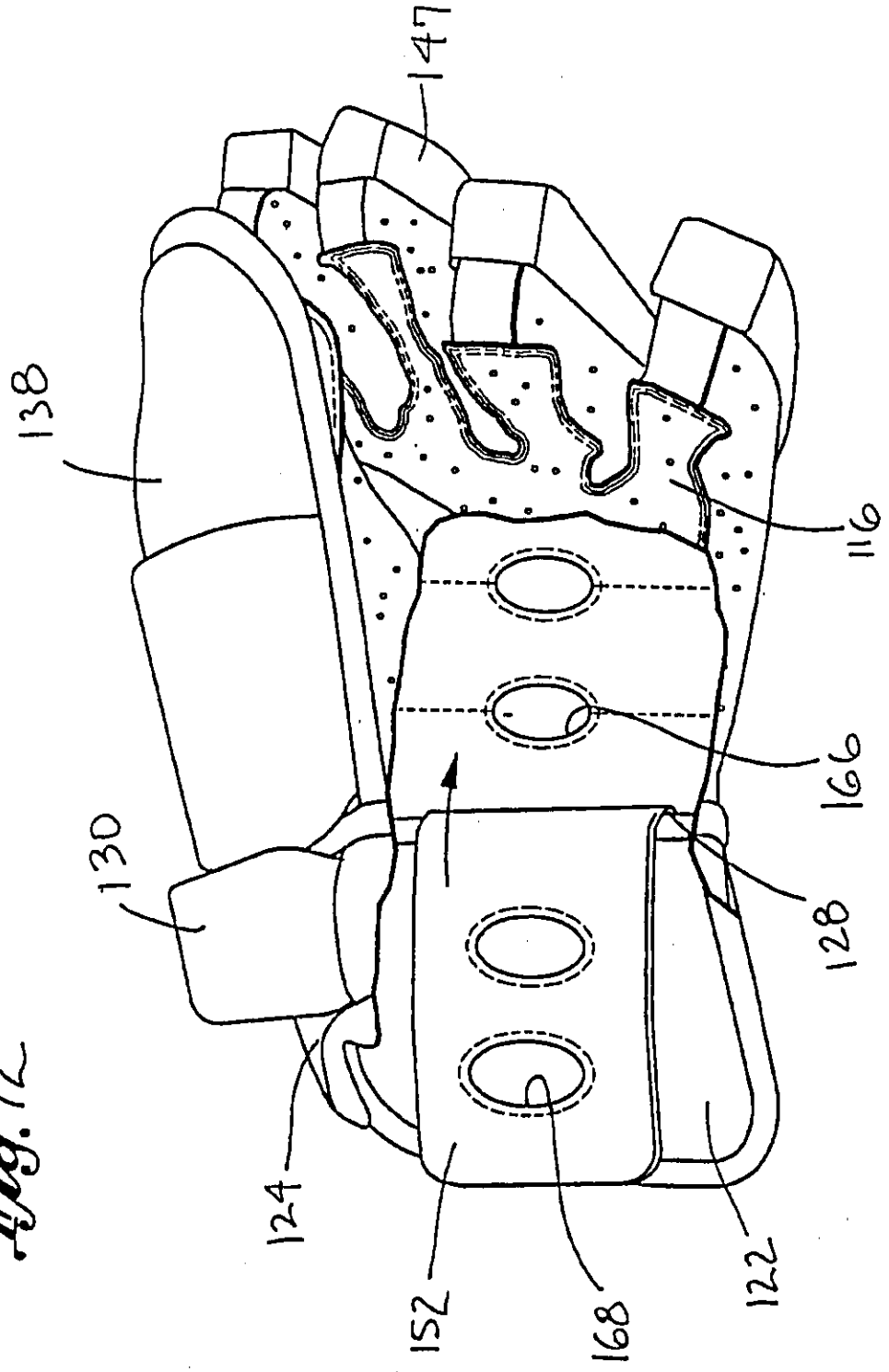


Fig. 12

HOCKEY GLOVE WITH VENTILATION HOLES

This application is a continuation of U.S. application Ser. No. 08/682,806 filed Jul. 10, 1996, now U.S. Pat. No. 5,787,506.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to the field of protective outer gear, and, in particular, to protective gloves for use in playing roller hockey.

2. Description of the Related Art

Traditional gloves for playing hockey on ice include thick sections of foam which are arranged on the back of the glove to provide warmth and protection against hits by a hockey stick or contact with another player, the hockey puck, or the blade of an ice skate. These gloves provide protection and some flexibility of the glove to accommodate hand movements. The foam is typically covered by a material which is stitched to an inner lining, and so this type of glove requires greater time and skill for its manufacture.

Some gloves for roller hockey are less concerned with providing warmth and provide a lesser amount of padding to protect the hands during play. Roller hockey is often played in warmer climates and/or outdoors, where a warmer environment of the roller hockey game results in the player's hand sweating into the glove. This leads to discomfort by the player and may possibly impact the player's performance. Roller hockey gloves heretofore available have failed to provide adequate ventilation of the player's hands.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a hockey glove with one or more ventilation holes extending through the padded back of the glove to allow air to circulate to the skin of the back of the hand in the glove. The glove includes a ventilated palm and a protective back having a lining, foam pad segments, and an outer covering for the foam segments. The glove may also include a short, flexible cuff attached for protected movement of the wrist of the hockey player's hand.

In one embodiment of the present invention, a protective hockey glove is provided having two holes extending through the lining at the back of the glove for unobstructed air flow through the glove to the hand. Foam segments adjacent the holes have cutaway sides which form openings to accommodate such airflow. The shape of the holes may be lenticular or oval, or may have any other shape. Further, the foam segments may be formed by waffle-type foam sections. Preferably, finger gussets and the ventilated palm of the glove, at the lower palm and crease areas, have additional layers for reinforcement and enhanced gripping of a hockey stick. Optional mesh material is provided between the finger gussets and at a thumb member for air flow at the web portions of these digits. The thumb member of the glove has a pocket for alternative placement of the player's thumb and has a separate abrasion resisting layer of material on its palm side. The additional layers provide more even wear of the glove and add to its life.

The glove also preferably has a wart, or side section on the back between the thumb member and the index finger, which has a hole formed between a pair of foam segments. Thus, additional, cooling air flow is provided around the skater's hand.

In another embodiment of the present invention, a protective hockey glove is provided having a cuff attached at the palm and back of the glove using a segment of neoprene material. This provides enhanced flexibility at the wrist of the player. A padded cuff roll is attached at the junction of the cuff to the body of the glove. The cuff is split into three sections to accommodate sideways movement of the player's wrist. Two adjacent sections at the glove's back slightly overlap to ensure protection around the wrist without a vulnerable gap. The top or back section of the cuff is configured to curve slightly upwardly, away from the player's wrist, to accommodate backward flexing of the hand. The cuff below the thumb and the palm forms curved or radially cut edges toward the back section, such that the cuff is narrower below the palm of the glove and therefore accommodates forward bending of the player's hand at the wrist. Thus, this "floating cuff" provides enhanced performance characteristics for the player.

These and other advantages and applications will become apparent to those skilled in the art from the following detailed description of the preferred embodiments and the drawings referenced herein. The inventions not being limited to any particular embodiment disclosed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan or back view of a left hand protective glove having features in accordance with the present invention;

FIG. 2 is a right side elevational view of the glove of FIG. 1;

FIG. 3 is a bottom plan or palm view of the glove of FIG. 1;

FIG. 4 is a left side elevational view of the glove of FIG. 1;

FIG. 5 is a finger end elevational view of the glove of FIG. 1;

FIG. 6 is a cross-sectional view taken along lines 6—6 of FIG. 5;

FIG. 7 is a palm end elevational view of the glove of FIG. 1;

FIG. 8 is a partial cutaway view of the palm side of the glove of FIG. 1, showing its loose pad pulled out;

FIG. 9 is a top plan or back view of an alternative embodiment of a left hand protective glove having features in accordance with the present invention;

FIG. 10 is a right side elevational view of the glove of FIG. 9;

FIG. 11 is a bottom plan or palm view of the glove of FIG. 9; and

FIG. 12 is a partial cutaway view of the palm side of the glove of FIG. 9, showing its loose pad pulled out.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows a roller hockey glove 10 having features in accordance with the present invention. The glove 10 generally comprises a body 12 and a cuff 14. The body 12 has a palm portion 16, finger gussets 18, and a back 20. The cuff 14 has panels 22, 24, 26 attached to a lower edge 28 of the body 12 and a cuff roll 30 extending below the back 20 of the glove body 12.

The palm portion 16 of the body 12 extends to cover the fronts of the thumb and fingers of the hockey wearer's hand. A plurality of holes 32 are provided in the palm portion 16

for allowing ventilation of the wearer's palm, thumb and fingers. The palm portion 16 of the glove 10 may be formed, for example, of split leather or synthetic leather selected for durability and comfort. Preferably, gripping sections 34, 36 of material, such as textured synthetic leather, is provided at a crease portion of the palm side and also at about the middle joint of the front of the middle two fingers of the glove 10 to improve gripping ability. A reinforcing section of material is preferably provided at a heel or lower portion of the palm side of the glove, and this may be formed as an extension of the gripping material at the crease portion, as shown in FIG. 3.

The front of a thumb member 38 of the glove 10 has a loop 39 formed at the palm side to create a pocket for alternative placement of the wearer's thumb. Web or lower connecting portions 40 of the finger gussets 18 and an inside 42 of the thumb loop 39 are preferably formed of a mesh material to allow air to freely circulate to the thumb and fingers of the wearer's hand. The finger gussets 18 are preferably formed of leather or other natural or synthetic material selected for softness and durability and also include holes 32 for ventilation. It is preferred to provide tabs 44 of split leather over the tips of the finger gussets 18 for greater abrasion resistance, improved gripping ability, and extended wear of the glove 10.

Referring to FIGS. 6 and 8, the back 20 of the glove, including the backs of the fingers 18, includes segments 46, 47 formed of relatively thick foam sandwiched between an inner liner 48 and an outer cover 50. These segments 46, 47 may be formed by waffle-type foam material, as known to those skilled in the art. The inner liner 48 is typically about ⅛ inch foam covered on both sides by nylon. The foam segments 46, 47 are preferably between about ¼ to one inch thick for providing adequate protection of the hand. Preferably, the outer cover 50 is leather, or a suitable synthetic material, such as woven nylon cordura.

As shown in FIGS. 3 and 8, a loose pad 52 of substantially rectangular shape is preferably attached to the lower edge of the back of the cuff 14, as described below. This pad 52 is similar to the inner liner 48, comprising about ⅛ to ½ inch layer of foam covered by nylon and provides additional comfort for the wearer. A free end 54 of the pad 52 extends to just below the finger gussets 18 when it is full inserted into the glove 10.

The foam segments 46, 47 of the back 20 are formed and grouped to substantially conform to the shape of the back of the hand and fingers of a wearer. These foam segments 46, 47 are generally rectangular in cross-section. Referring to FIGS. 5 and 6, the finger segments 47 are preferably formed to curve slightly to imitate a slightly closed position of the wearer's hand, and its outer cover 50 preferably includes a split center section 56 to accommodate the curvature. As shown in FIGS. 1 and 2, a decorative foam segment 57 may be included between the lateral segments and a thumb member of the glove, and decorative panels 59 may be included between any of the foam segments 46, 47, 57 of the glove 10.

The thumb member 38 preferably comprises upper and lower substantially rigid portions 58, 60. These portions 58, 60 are curved to more closely fit partially around and protect the wearer's thumb. The upper portion 58 does not require a foam segment, and the lower portion 60 preferably includes a thinner foam segment than are used for the back and fingers segments 46, 47 of the glove 10.

Referring to FIG. 2, additional foam segments may be provided at the side of the glove between the index finger and thumb. This is often referred to as a "wart". Preferably, a foam segment 62 extends along the side of the hand at least partially up the index finger, and a shorter, adjacent foam segment 63 extends along the side of thumb member 38 up to its web 42. Referring to FIG. 3, one or more thinner foam segments 64 may optionally be provided along the outside of the pinky, between the back 20 and palm 16 of the glove 10.

In this preferred embodiment of the glove shown in FIGS. 1 and 8, a pair of openings 66 are provided between adjacent foam segments 46 on the back 20 of the glove 10. These openings 66 preferably extend to the glove interior, exposing the wearer's skin; although, in alternative embodiments, a thin, interior layer of nylon or the like (not shown) may cover these openings 66 on the inside of the glove. It is most preferred, however, that these openings be unobstructed to allow direct contact of air with the skin of the wearer's hand. In addition, the loose pad 52 includes corresponding holes 68 to maintain protection and ventilation of the hand.

It is understood that in the present invention a single opening 66, or three or more openings, may alternatively be provided on the glove 10 for airflow therethrough. These openings 66 may have any shape, such as the lenticular or oval shape shown, or may be circular or polygonal, for example. The openings 66 are sized in accordance with the glove size to provide adequate air circulation to the hand without compromising the level of protection of the hand against contact by a hockey puck or stick. To accommodate the openings 66, the foam segments 46 on the back 20 have cutaway sides 70 which correspond to the shape of the openings 66. The wart foam segments 62, 63 also have cutaway sides 72 to accommodate an additional opening 74 at that location.

In the preferred embodiment of the present invention shown in FIGS. 1–8, the cuff 14 of the glove 10 comprises three panels 22, 24, 26 attached to the lower edge 28 of the body 12 and the cuff roll 30 extends about two-thirds the distance around the cuff 14. The panels 22, 24, 26 are padded for protection about the wearer's wrist, but are preferably less than about half as thick as the foam segments 46, 47 on the body 12 of the glove 10. The panels 22, 24, 26 are preferably covered by leather or suitable synthetic materials such as woven nylon cordura, as desired. Optionally, a fairly rigid member (not shown) may be included in one or more panels for added protection of the wearer's wrist against hits from a hockey stick or the puck.

It is preferred that the back panel 22 of the cuff 14, generally below the fingers 18 of the glove 10, be formed to curve slightly outward at its free edge 84 (FIG. 7), away from the back of the wearer's hand. This provides greater freedom for the wearer to flex his or her hand during play without bending the glove 10 and creasing the material. Referring to FIGS. 2 and 3, in order to accommodate sideways motion of the wearer's hand, especially at the thumb side, it is preferred that the palm panel 26 include a free edge 76 which is radially cut so that the palm panel 26 is wider below the pinky and narrower closer to the thumb. Similarly, the panel 24 substantially below the thumb is preferably radially cut along its free edge 78 so that it has about the same narrow width adjacent the palm panel 26 and is wider toward the back panel 22 of the glove 10. The thumb and palm panels 24, 26 may be separately formed and attached to the glove body, as shown in FIG. 3, or they may alternatively be integrally formed and attached as a single panel to the glove.

As shown in FIGS. 3 and 4, a discontinuity in the adjacent panel widths occurs at the junction of the back panel 22 with

the palm panel 26 of the cuff 14. Preferably, a short strip of elastic 80 is provided between the back and palm panels 22, 26 to maintain their proximity during use, so that one or both does not become deformed and separate enough to allow a stick or such to strike the wearer's wrist. It is preferred that adjoining panels 22, 24, 26 of the cuff 14 overlap slightly to further safeguard against openings around the wrist which could lead to injury.

In this embodiment of the present invention, the back and thumb panels 22, 24 of the cuff 14 are attached to the body 12 of the glove 10 using sections 82 of compliant material, preferably neoprene. In this particular embodiment, the loose pad 52 is attached at a free edge 84 of the back panel 22, rather than to the body 12 of the glove 10. This flexible or "floating" cuff 14 allows enhanced flexibility of the glove for the wearer's hand motions, such as when hitting the hockey puck with the stick.

Referring to FIG. 7, the cuff roll 30 is formed of sections formed of foam about ½-inch thick which are covered by real or synthetic leather, or other suitable material. In this embodiment, the cuff roll 30 comprises separate foam sections 86, 87 generally corresponding in length to the back and thumb panels 22, 24 of the cuff. The cuff roll 30 is preferably attached only at its short ends 88, 89 near either side of the palm panel 26.

In a protective glove constructed in accordance with the present invention, a variety of arrangements of the foam segments for the back of the glove are possible. As shown in the alternative embodiment 100 of FIGS. 9–12, a back 120 of the glove 100 may have a group of about three segments 146 extending laterally across the back from under its pinky or little finger segment 147 toward its thumb member 138. Openings 166 are formed between adjacent segments 146, extending through the glove 100 to its interior. A foam segment 162 extends along the side of the hand, or wart, up along the index finger, and a shorter, adjacent foam segment 163 extends along the side of thumb member 138 up to its web 142. Another opening 174 is provided in the wart of the glove 100.

In this embodiment, a cuff 114 has a cuff roll 130 is sewn along one edge to a lower edge 128 of the glove body 112. In addition, panels 122, 124, 126 are also attached to the lower edge 128. In addition, the cuff roll 130 may be attached at its short ends 188, 189 near each side of the panel below a palm portion 116 of the glove 100, as shown in FIGS. 9 and 11. An interior pad 152 (FIG. 12) of substantially rectangular shape is also preferably attached at the lower edge 128 of the back 120, and has holes 168 corresponding to those 166 on the back 120 of the glove 100.

The embodiments of the glove of the present invention illustrated and described above are provided by way of example only. Changes and modifications may be made from the embodiments presented herein by those skilled in the art without departure from the spirit and scope of the invention herein disclosed, as defined by the appended claims.

What is claimed is:

1. A protective hockey glove, comprising:

a palm;

a protective back extending over said palm, said back having at least one foam segment;

an interior between said palm and said back, said interior having an inner surface a liner pad hingedly connected to the inner surface at a fold line; and

one or more openings extending through said back to allow ventilation of a hand disposed in said glove, wherein said openings provide a flow of air for cooling and evaporation of sweat.

2. The glove of claim 1, wherein said at least one foam segment is formed from waffle-type foam material.

3. The glove of claim 1, further comprising an inner lining attached to an inner surface of said back.

4. The glove of claim 3, wherein said opening further extends through said lining of said back of said glove thereby providing unobstructed air flow through said glove.

5. The glove of claim 1, comprising at least two openings formed in said back of said glove.

6. The glove of claim 1, further comprising a wart portion of said back extending from between a thumb member and an index finger member, said wart portion having at least one foam segment with an opening through said wart portion to allow ventilation of a hand disposed in said glove.

7. The glove of claim 1, further comprising an inner pad having at least one hole corresponding to said at least one opening.

8. The glove of claim 1, wherein said back comprises a plurality of foam segments and said one or more openings are formed between adjacent foam segments.

9. The glove of claim 8, wherein said adjacent foam segments have their sides at least partly cut away to accommodate said one or more openings.

10. The glove of claim 1, wherein said at least one foam segment on said back is sandwiched between an inner lining and an outer covering.

11. A protective hockey glove, comprising:

a palm;

a padded back having one or more foam segments;

at least one ventilation hole through said padded back;

a glove interior having an inner surface; and

a liner pad attached to the inner surface at an attachment point, the liner pad being movable relative to the attachment point;

wherein said ventilation hole allows air to circulate to a back of a hand disposed in said glove.

12. The glove of claim 11, further comprising a wart portion of said back extending between a thumb member and an index finger member, said wart portion having at least one foam segment and having an opening therethrough.

13. The glove of claim 11, having an inner lining and means for attaching said lining to said padded back.

14. The glove of claim 13, wherein said inner lining has at least one ventilation hole.

15. The glove of claim 11, wherein said hole is of a generally lenticular shape.

16. The glove of claim 11, wherein said back comprises a plurality of foam segments and said at least one ventilation hole is formed between adjacent foam segments.

17. The glove of claim 16, wherein said adjacent foam segments have their sides at least partly cut away to accommodate said at least one opening.

18. The glove of claim 11, wherein said one or more foam segments on said back are sandwiched between an inner lining and an outer covering.

19. The glove of claim 1, wherein the liner pad has a plurality of holes formed therethrough and is at least partially removable from the glove interior.

20. The glove of claim 1 additionally comprising a cuff portion movably attached to the protective back, and the fold line is positioned on the cuff potion.

21. The glove of claim 11 wherein the liner pad is at least partially removable from the glove interior.

22. The glove of claim 11 additionally comprising a cuff portion movably attached to the protective back, and the attachment point is positioned on the cuff portion.

23. The glove of claim 11, wherein the inner surface has a back side adjacent to the padded back, and the attachment point is positioned on the back side.

24. A protective hockey glove, comprising:

a palm;

a padded back having one or more foam segments, the padded back having one or more ventilation holes extending therethrough, the ventilation holes being generally lenticular in shape; and

a padded cuff portion attached to said padded back and adapted to be movable relative to the padded back;

wherein the ventilation holes allow air to circulate to a back of a hand disposed in the glove.

25. The glove of claim 24 additionally comprising an interior between the back and the palm, said interior having an inner surface, and a liner pad attached to the inner surface at an attachment point, the liner pad being movable relative to the attachment point.

26. The hockey glove of claim 24 additionally comprising a wart portion of the padded back extending between a thumb member and an index finger member, the wart portion having an opening formed therethrough, and the opening is adapted to allow ventilation of a thumb disposed in the glove.

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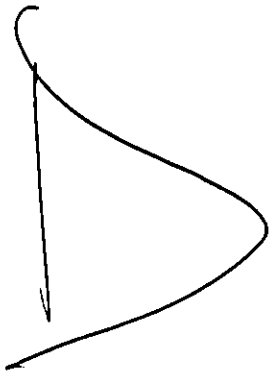

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United States Patent [19]

Wilder et al.

[11] Patent Number: 5,787,506

[45] Date of Patent: Aug. 4, 1998

[54] **HOCKEY GLOVE WITH VENTILATION HOLES**

[75] Inventors: **Thomas Vaughn Wilder**, Laguna Niguel; **Alexander Parker Reynolds**, Newport Beach; **Jon Garfield Wong**, Long Beach, all of Calif.

[73] Assignee: **Dare Development Group**, Santa Ana, Calif.

[21] Appl. No.: **682,806**

[22] Filed: **Jul. 10, 1996**

[51] **Int. Cl.**[6] **A41D 19/00**

[52] **U.S. Cl.** **2/161.1**; 2/159

[58] **Field of Search** 2/161.1, 159, 161.3, 2/161.4, 161.6, 161.8, 167, 169

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Primary Examiner—Gloria M. Hale

Attorney, Agent, or Firm—Knobbe, Martens, Olson & Bear

[57] **ABSTRACT**

A glove for use in playing hockey is provided with ventilation holes extending through the glove to allow air to circulate directly to the skin of the hand in the glove. Segmented foam pads of the glove have cutaway sides substantially conforming to the shape of the holes. Preferably, the glove includes a floating cuff at the wrist for free yet protected movement of the wrist. Also preferably, the thumb, fingers, and palm have additional layers for reinforcement and enhanced gripping of a hockey stick.

29 Claims, 5 Drawing Sheets

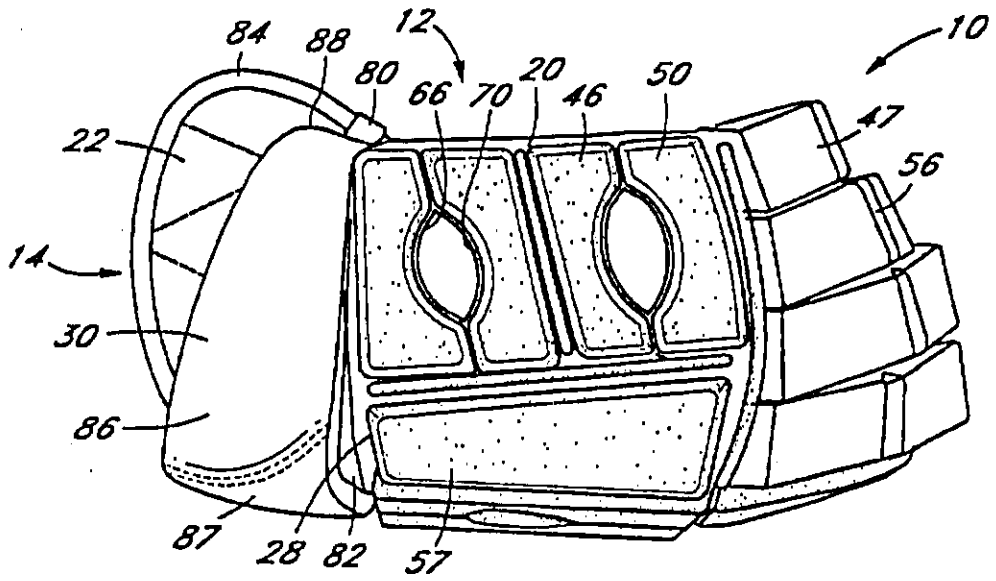


Fig. 1

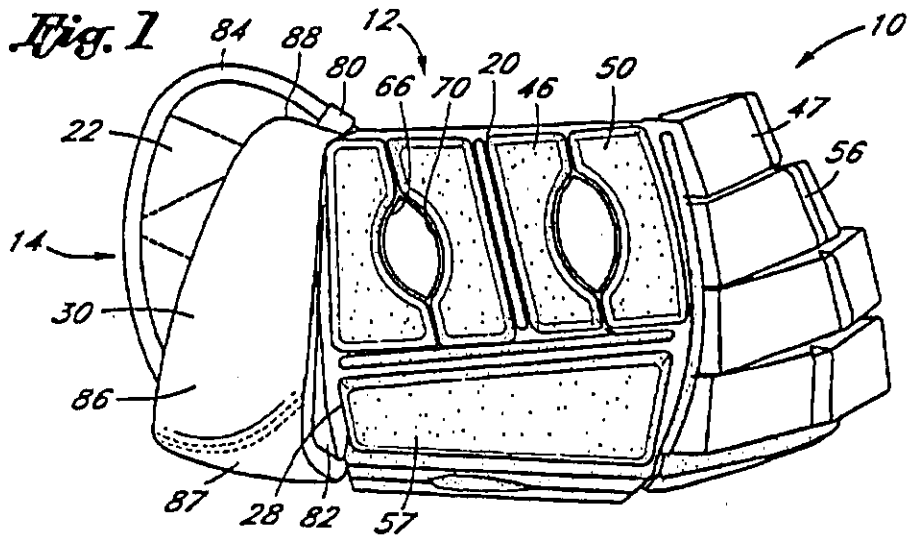


Fig. 2

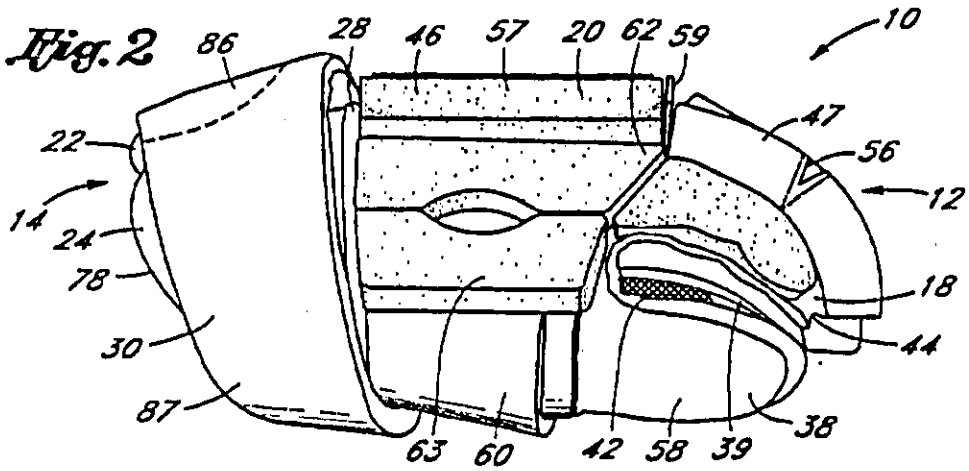


Fig. 3

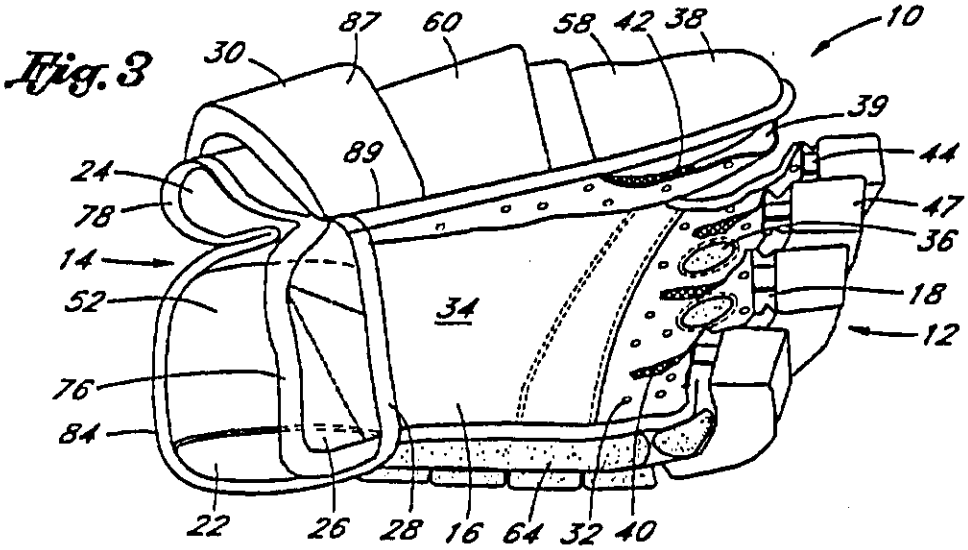


Fig. 4

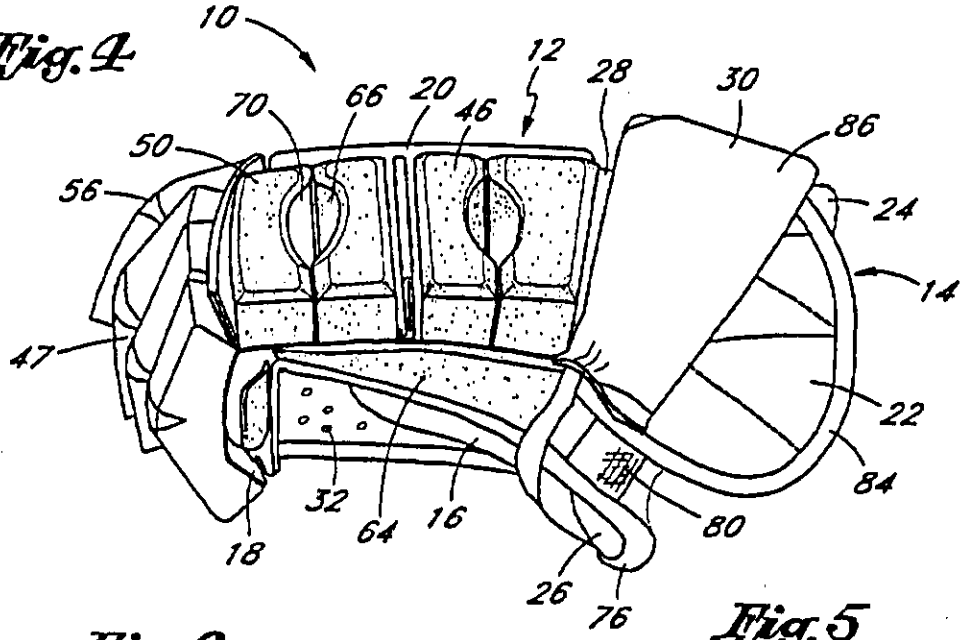


Fig. 6

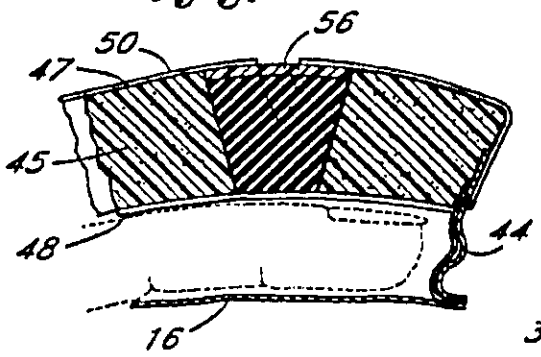


Fig. 5

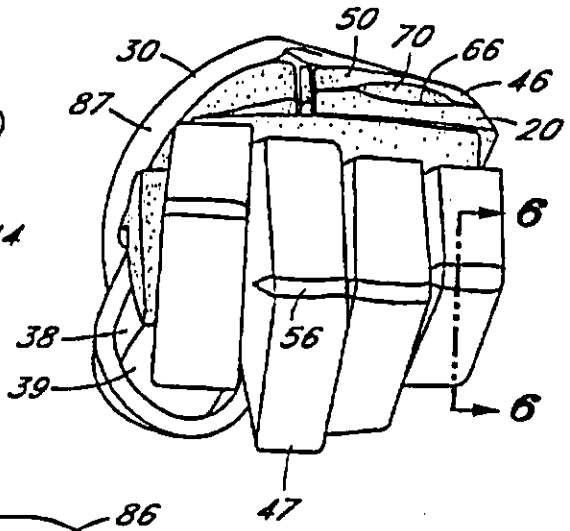
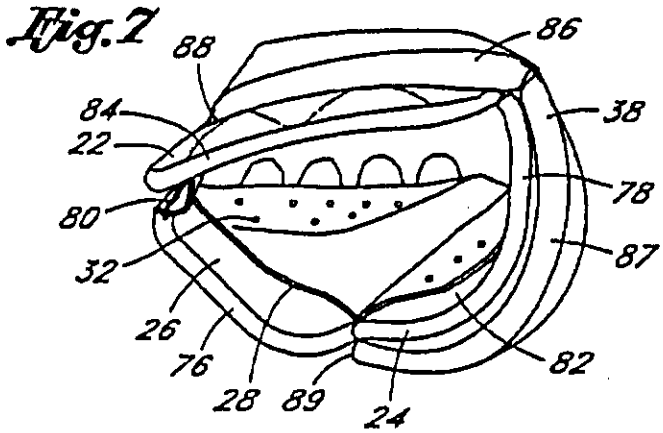


Fig. 7



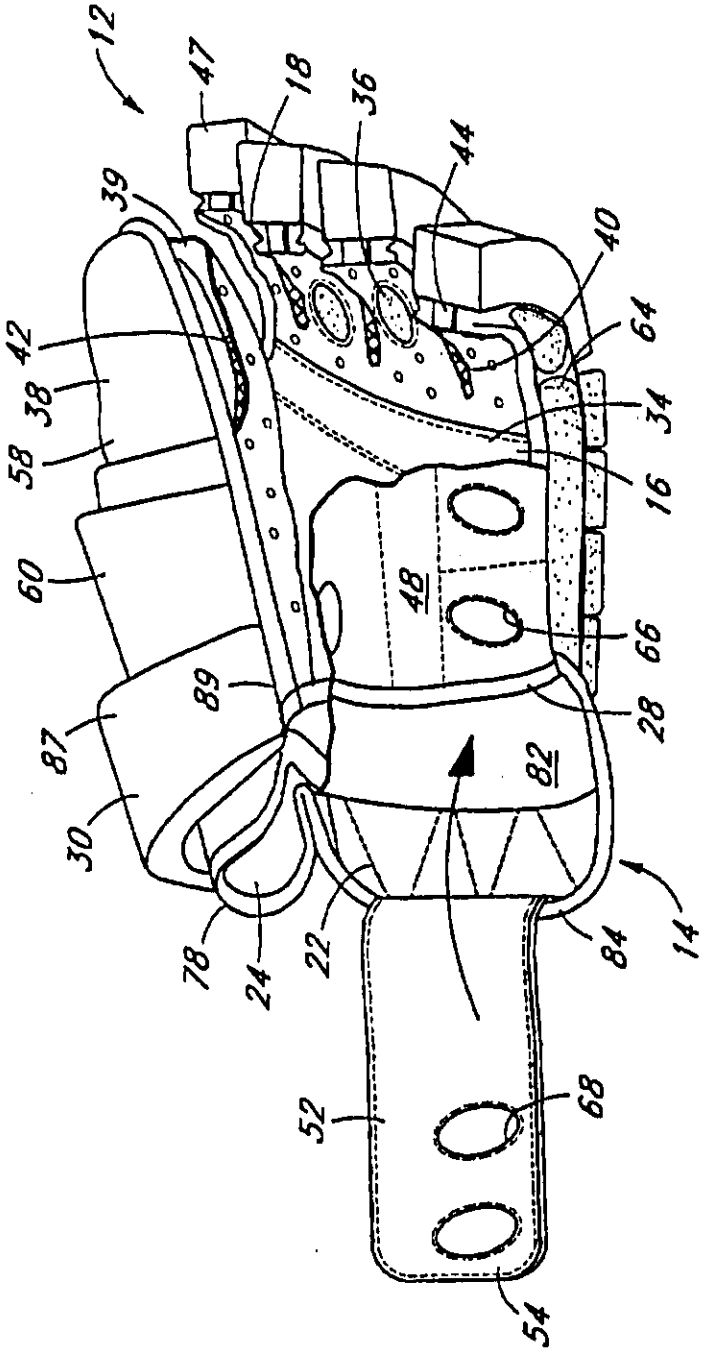

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Fig. 8

Fig. 9

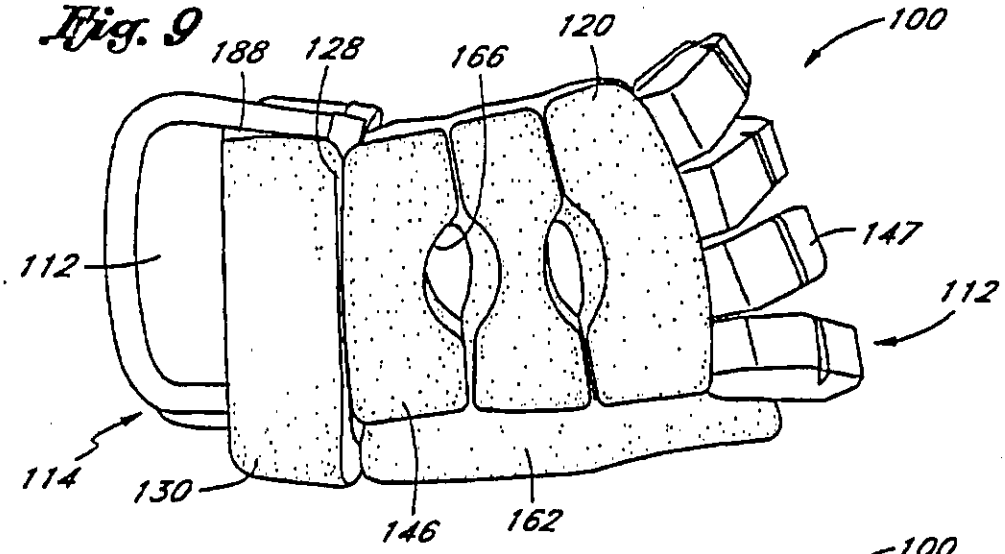

Fig. 10

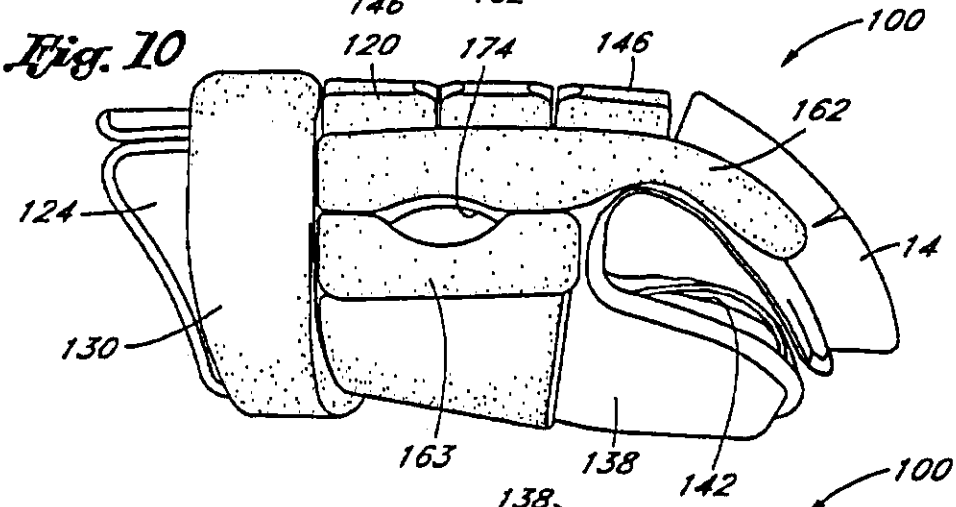

Fig. 11