

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

Anvik Corporation,

Plaintiff,

v.

LG. Philips LCD Co., Ltd. and  
LG. Philips LCD America, Inc.,

Defendants.

CIVIL ACTION No. \_\_\_\_\_

07 CIV. 0816

FILED  
U.S. DISTRICT COURT  
S.D. OF N.Y. W.P.  
2007-2 A 11-17

**COMPLAINT**

Plaintiff Anvik Corporation ("Anvik"), by and through its undersigned counsel, for its Complaint against defendants LG. Philips LCD Co., Ltd. and LG. Philips LCD America, Inc. (collectively, "LGL" or "defendants"), alleges the following upon information and belief, except as to those allegations concerning Anvik, which are alleged upon knowledge.

**NATURE OF THE ACTION**

1. This is an action for patent infringement under the patent laws of the United States, 35 U.S.C. § 1 *et. seq.* In short, this action concerns LGL's ongoing violations of U.S. patent laws by importing and selling, directly and/or through intermediaries, into the United States hundreds of millions, if not billions, of dollars annually of flat-panel displays made using Anvik's patented technologies.

2. The patents-in-suit in this action relate to scanning microlithography systems and the methods performed by such systems. Scanning microlithography systems are critical in the production of a variety of microelectronic devices, including flat-panel displays, semiconductor integrated circuit chips, and other high-performance electronic products. As an example, scanning microlithography systems and the methods performed thereby are used by many of the world's largest electronics manufacturers to make thin-film transistor liquid crystal display ("LCD") panels that are incorporated into and have revolutionized televisions, computer monitors, cellular phones, video recorders and the like. The LCD panel industry generates revenue of approximately \$69 billion annually.

3. Anvik, the owner of the patents-in-suit, is a Westchester, New York-based company that designs, develops, manufactures and sells scanning microlithography systems. Anvik's patented scanning microlithography systems are based on several significant breakthroughs Anvik has made in optical systems, lithography, and microelectronics process technologies. These innovations have enabled Anvik's patented systems to achieve the high throughput levels and low cost-of-ownership demanded by the microelectronics, optoelectronics, and microsystems industries.

4. Anvik's President and founder, Dr. Kanti Jain, is a named inventor on each of the patents-in-suit. He is also Professor of Electrical and Computer Engineering and Director of the Photonics, Microelectronics, and Microsystems Laboratory at the University of Illinois at Urbana-Champaign. As a result of his more than 30 years of contributions in the advancement of optical imaging and microelectronics manufacturing technologies, Dr. Jain is an internationally

recognized scientist and technologist. He is widely recognized for his pioneering development of excimer laser lithography, for which he received two Outstanding Innovation Awards from I.B.M., and which is now used worldwide in semiconductor chip and flat-panel display manufacturing. Dr. Jain holds 50 issued patents in microlithography systems and optics, has applications for 10 additional patents pending, has published 55 papers, and has written the book *Excimer Laser Lithography*, published by the International Society for Optical Engineering ("SPIE") in 1990. He is a Fellow of the Optical Society of America, a Fellow of the Institute of Electrical and Electronics Engineers, and a Fellow and former Member of the Board of Directors and Executive Committee of SPIE.

5. LGL is a leading maker of LCD panels in a broad range of sizes and specifications, primarily for use in notebook computers, desktop monitors, televisions and other applications. LGL is one of the world's leading suppliers of high-definition television panels. The company also manufactures LCD panels for handheld application products, such as mobile phones and personal digital assistants, as well as for industrial and other applications, such as entertainment systems, automobile navigation systems, aircraft instrumentation and medical diagnostic equipment. In 2005, LGL sold a total of 47.8 million large (10-inch or larger) LCD panels, a large percentage of which were sold into the United States. LGL reported a gross profit of USD \$996 million on sales of USD \$9.97 billion in 2005.

6. LGL sells its LCD panels into the United States both directly to its brand-name customers (including without limitation LG Electronics, Philips Electronics, and Dell) and indirectly, at the direction of its brand-name customers, through companies that design and

assemble products based on their brand-name customers' specifications, commonly known as original equipment manufacturing ("OEM") service providers. These OEM service providers use LGL's LCD panels in computer and consumer electronics products that they manufacture on a contract basis for brand-name companies in the United States and elsewhere.

7. LGL's ability to meet the growing demand for LCD televisions and other products incorporating LCD panels is due in large part to its misappropriation of Anvik's patented technologies. LGL manufactures many or all of its LCD panels using methods performed by scanning microlithography systems manufactured by Nikon Corp. ("Nikon"), a large Japanese company. Those Nikon machines are designated by Nikon as FX-Series scanners. The methods performed by LGL using those FX-Series scanners violate Anvik's patents-in-suit. Neither LGL nor Nikon is authorized to use the technology covered by Anvik's patents. Accordingly, LGL's importation and sale of LCD panels manufactured using methods performed by the Nikon FX-Series scanners is an ongoing violation of Anvik's patents-in-suit.

8. In addition, the importation and sale into the United States by LGL's OEM service provider customers of products incorporating LCD panels purchased from LGL manufactured using methods performed by the Nikon FX-Series scanners is an ongoing violation of Anvik's patents-in-suit. LGL works in concert with its OEM customers to import and sell into the United States infringing LCD panels (and/or products with infringing LCD panels incorporated therein). LGL has knowledge of Anvik's patents and possesses a specific intent to encourage direct infringement of Anvik's patents by LGL's OEM service provider customers.

9. Accordingly, LGL is importing and selling into the United States, directly or through intermediaries, hundreds of millions of dollars annually of LCD panels in violation of Anvik's patents-in-suit.

10. As a result of LGL's infringement of Anvik's patents, Anvik's business has been irreparably damaged and is being harmed on a continuing basis. Anvik has suffered damages in the hundreds of millions, if not billions, of dollars.

### **THE PARTIES**

11. Anvik is a New York corporation with a principal place of business at 6 Skyline Drive, Hawthorne, New York 10532.

12. LG. Philips LCD Co., Ltd. ("LGL Korea") is a Korean corporation having its head office at 17th Floor, West Tower, LG Twin Towers, 20 Yoido-dong, Youngdungpo-gu, Seoul, Republic of Korea 150-721.

13. LG. Philips LCD America, Inc. ("LGL America") is a California corporation having its principal place of business at 150 East Brokaw Road, San Jose, CA 95112-4203. LGL America provides sales and service of LGL Korea's products in the United States. LGL Korea and LGL America are collectively referred to herein as LGL.

### **JURISDICTION AND VENUE**

14. This Court has jurisdiction over the subject matter of the claims asserted herein pursuant to 28 U.S.C. §§ 1331 and 1338.

15. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(b) and (c) because a substantial part of the events giving rise to the claims occurred in this district, LGL

may be found in this judicial district, and LGL is subject to personal jurisdiction in this judicial district. Venue is also proper in this judicial district under 28 U.S.C. § 1400(b).

16. LGL, both directly and through one or more intermediaries, is doing business within this State and judicial district, transacts business with this State and judicial district, derives substantial revenue from intra-state and inter-state commerce, has committed acts of patent infringement within this State and judicial district, and is otherwise within the jurisdiction of this Court. LGL manufactures LCD panels in Korea and directs those products to the United States, including this judicial district, directly and/or through established distribution channels involving one or more third parties, knowing that these third parties will use their respective nationwide contacts and distribution channels to import into, sell, offer for sale and/or use these products in this judicial district and elsewhere in the United States.

**COUNT I - Infringement of U.S. Patent No. 4,924,257**

17. Anvik repeats and realleges the allegations set forth above.

18. This claim arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.*, including 35 U.S.C. § 271, and is for willful patent infringement.

19. United States Patent No. 4,924,257 ("the '257 patent"), entitled "Scan and Repeat High Resolution Projection Lithography System," was duly and legally issued by the United States Patent and Trademark Office on May 8, 1990. A copy of the '257 Patent is attached hereto as Exhibit A.

20. Anvik is the assignee of all rights, title, and interest in and to the '257 patent and possesses all rights of recovery under the '257 patent.

21. Through its conduct discussed above, directly and/or through intermediaries, LGL has infringed and is continuing to infringe the '257 patent in violation of 35 U.S.C. § 271, including but not limited to, 35 U.S.C. § 271(g).

22. Through its conduct discussed above, LGL has also contributed to the infringement of the '257 patent, and/or induced others to infringe the '257 patent, in violation of 35 U.S.C. §§ 271(b) and/or (c).

23. As a direct and proximate result of LGL's acts of infringement, Anvik has suffered damages and is entitled to recover an amount adequate to compensate for the infringement under 35 U.S.C. § 284, which amount is to be determined at trial.

24. LGL has had, at all relevant times, actual and constructive notice that its conduct infringed on the claims of the '257 patent but nevertheless continued its infringing conduct. LGL's infringement has been, and continues to be, willful and, therefore, Anvik is entitled to treble damages under 35 U.S.C. § 284.

25. This is an exceptional case under 35 U.S.C. § 285 which entitles Anvik to an award of reasonable attorneys' fees.

26. LGL will continue infringing the '257 patent, causing irreparable harm for which there is no adequate remedy at law, unless enjoined from further infringement by this Court.

**COUNT II - Infringement of U.S. Patent No. 5,285,236**

27. Anvik repeats and re-alleges the allegations set forth above.

28. This claim arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.*, including 35 U.S.C. § 271, and is for willful patent infringement.

29. United States Patent No. 5,285,236 ("the '236 patent"), entitled "Large-Area, High-Throughput, High-Resolution Projection Imaging System," was duly and legally issued by the United States Patent and Trademark Office on February 8, 1994. A copy of the '236 patent is attached hereto as Exhibit B.

30. Anvik is the assignee of all rights, title, and interest in and to the '236 patent and possesses all rights of recovery under the '236 patent.

31. Through its conduct discussed above, directly and/or through intermediaries, LGL has infringed and is continuing to infringe the '236 patent in violation of 35 U.S.C. § 271, including but not limited to, 35 U.S.C. § 271(g).

32. Through its conduct discussed above, LGL has also contributed to the infringement of the '236 patent, and/or induced others to infringe the '236 patent, in violation of 35 U.S.C. §§ 271(b) and/or (c).

33. As a direct and proximate result of LGL's acts of infringement, Anvik has suffered damages and is entitled to recover an amount adequate to compensate for the infringement under 35 U.S.C. § 284, which amount is to be determined at trial.

34. LGL has had, at all relevant times, actual and constructive notice that its conduct infringed on the claims of the '236 patent but nevertheless continued its infringing conduct. LGL's infringement has been, and continues to be, willful and, therefore, Anvik is entitled to treble damages under 35 U.S.C. § 284.

35. This is an exceptional case under 35 U.S.C. § 285 which entitles Anvik to an award of reasonable attorneys' fees.



36. LGL will continue infringing the '236 patent, causing irreparable harm for which there is no adequate remedy at law, unless enjoined from further infringement by this Court.

**COUNT III - Infringement of U.S. Patent No. 5,291,240**

37. Anvik repeats and re-alleges the allegations set forth above.

38. This claim arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et. seq.*, including 35 U.S.C. § 271, and is for willful patent infringement.

39. United States Patent No. 5,291,240 ("the '240 patent"), entitled "Nonlinearity-Compensated Large-Area Patterning System," was duly and legally issued by the United States Patent and Trademark Office on March 1, 1994. A copy of the '240 patent is attached hereto as Exhibit C.

40. Anvik is the assignee of all rights, title, and interest in and to the '240 patent and possesses all rights of recovery under the '240 patent.

41. Through its conduct discussed above, directly and/or through intermediaries, LGL has infringed and is continuing to infringe the '240 patent in violation of 35 U.S.C. § 271, including but not limited to, 35 U.S.C. § 271(g).

42. Through its conduct discussed above, LGL has also contributed to the infringement of the '240 patent, and/or induced others to infringe the '240 patent, in violation of 35 U.S.C. §§ 271(b) and/or (c).

43. As a direct and proximate result of LGL's acts of infringement, Anvik has suffered damages and is entitled to recover an amount adequate to compensate for the infringement under 35 U.S.C. § 284, which amount is to be determined at trial.

44. LGL has had, at all relevant times, actual and constructive notice that its conduct infringed on the claims of the '240 patent but nevertheless continued its infringing conduct. LGL's infringement has been, and continues to be, willful and, therefore, Anvik is entitled to treble damages under 35 U.S.C. § 284.

45. This is an exceptional case under 35 U.S.C. § 285 which entitles Anvik to an award of reasonable attorneys' fees.

46. LGL will continue infringing the '240 patent, causing irreparable harm for which there is no adequate remedy at law, unless enjoined from further infringement by this Court.

**COUNT IV - Infringement of U.S. Patent No. 5,721,606**

47. Anvik repeats and re-alleges the allegations set forth above.

48. This claim arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et. seq.*, including 35 U.S.C. § 271, and is for willful patent infringement.

49. United States Patent No. 5,721,606 ("the '606 patent"), entitled "Large-Area, High-Throughput, High-Resolution, Scan-and-Repeat, Projection Patterning System Employing Sub-Full Mask," was duly and legally issued by the United States Patent and Trademark Office on February 24, 1998. A copy of the '606 patent is attached hereto as Exhibit D.

50. Anvik is the assignee of all rights, title, and interest in and to the '606 patent and possesses all rights of recovery under the '606 patent.

51. Through its conduct discussed above, directly and/or through intermediaries, LGL has infringed and is continuing to infringe the '606 patent in violation of 35 U.S.C. § 271, including but not limited to, 35 U.S.C. § 271(g).

52. Through its conduct discussed above, LGL has also contributed to the infringement of the '606 patent, and/or induced others to infringe the '606 patent, in violation of 35 U.S.C. §§ 271(b) and/or (c).

53. As a direct and proximate result of LGL's acts of infringement, Anvik has suffered damages and is entitled to recover an amount adequate to compensate for the infringement under 35 U.S.C. § 284, which amount is to be determined at trial.

54. LGL has had, at all relevant times, actual and constructive notice that its conduct infringed on the claims of the '606 patent but nevertheless continued its infringing conduct. LGL's infringement has been, and continues to be, willful and, therefore, Anvik is entitled to treble damages under 35 U.S.C. § 284.

55. This is an exceptional case under 35 U.S.C. § 285 which entitles Anvik to an award of reasonable attorneys' fees.

56. LGL will continue infringing the '606 patent, causing irreparable harm for which there is no adequate remedy at law, unless enjoined from further infringement by this Court.

**COUNT V - Infringement of U.S. Patent No. 5,897,986**

57. Anvik repeats and re-alleges the allegations set forth above.

58. This claim arises under the Patent Laws of the United States, 35 U.S.C. § 1 *et. seq.*, including 35 U.S.C. § 271, and is for willful patent infringement.

59. United States Patent No. 5,897,986 ("the '986 patent"), entitled "Projection Patterning of Large Substrates Using Limited-Travel X-Y Stage," was duly and legally issued by

the United States Patent and Trademark Office on April 27, 1999. A copy of the '986 patent is attached hereto as Exhibit E.

60. Anvik is the assignee of all rights, title, and interest in and to the '986 patent and possesses all rights of recovery under the '986 patent.

61. Through its conduct discussed above, directly and/or through intermediaries, LGL has infringed and is continuing to infringe the '986 patent in violation of 35 U.S.C. § 271, including but not limited to, 35 U.S.C. § 271(g).

62. Through its conduct discussed above, LGL has also contributed to the infringement of the '986 patent, and/or induced others to infringe the '986 patent, in violation of 35 U.S.C. §§ 271(b) and/or (c).

63. As a direct and proximate result of LGL's acts of infringement, Anvik has suffered damages and is entitled to recover an amount adequate to compensate for the infringement under 35 U.S.C. § 284, which amount is to be determined at trial.

64. LGL has had, at all relevant times, actual and constructive notice that its conduct infringed on the claims of the '986 patent but nevertheless continued its infringing conduct. LGL's infringement has been, and continues to be, willful and, therefore, Anvik is entitled to treble damages under 35 U.S.C. § 284.

65. This is an exceptional case under 35 U.S.C. § 285 which entitles Anvik to an award of reasonable attorneys' fees.

66. LGL will continue infringing the '986 patent, causing irreparable harm for which there is no adequate remedy at law, unless enjoined from further infringement by this Court.

**PRAYER FOR RELIEF**

WHEREFORE, Anvik prays for judgment and relief as follows:

- A. A judgment that LGL has infringed and continues to infringe claims of the '257, '236, '240, '606 and '986 patents;
- B. An order, pursuant to 35 U.S.C. § 283, permanently enjoining and restraining LGL and its officers, directors, principals, agents, servants, employees, successors and assigns, and all those in active concert or participation with each of the foregoing, from infringing – and from contributing to and/or inducing the infringement of – any claims of the '257, '236, '240, '606 and '986 patents;
- C. An order, pursuant to 35 U.S.C. § 284, that LGL account to Anvik for an amount adequate to compensate Anvik for damages sustained from LGL's infringing acts, which amount is to be determined, and that said amount be trebled pursuant to 35 U.S.C. § 284;
- D. An order, pursuant to 35 U.S.C. § 285, that LGL pay Anvik its reasonable attorneys' fees in connection with this action;
- E. A judgment that costs of this action be awarded to Anvik;
- F. An order that LGL pay Anvik prejudgment and post-judgment interest at the highest statutory rate on Anvik's damages, costs and attorneys' fees; and
- G. An order awarding Anvik such other and further relief as may be deemed by this Court to be just and proper.

**JURY DEMAND**

Anvik hereby demands trial by jury on all issues so triable.

Date: February 2, 2007

Respectfully submitted,

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**ATTORNEYS FOR PLAINTIFF ANVIK CORPORATION**

**Exhibit A**

**United States Patent** [19]**Jain**[11] **Patent Number:** **4,924,257**[45] **Date of Patent:** **May 8, 1990**[54] **SCAN AND REPEAT HIGH RESOLUTION PROJECTION LITHOGRAPHY SYSTEM**[76] **Inventor:** Kantilal Jain, 18 Algonquian Trail, Briarcliff Manor, N.Y. 10510[21] **Appl. No.:** 253,717[22] **Filed:** Oct. 5, 1988[51] **Int. Cl.:** ..... G03B 27/42[52] **U.S. Cl.:** ..... 355/53; 355/77; 250/492.2[58] **Field of Search** ..... 355/43, 53, 77; 356/400, 401; 250/548, 442.1, 205, 491.1, 492.2, 492.3[56] **References Cited****U.S. PATENT DOCUMENTS**

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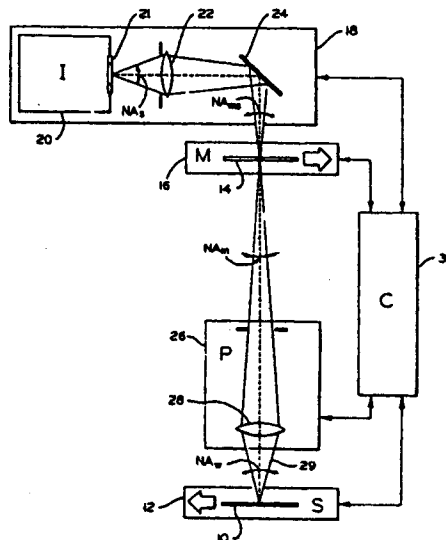
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4,825,086 4/1989 Mueller ..... 250/492.2 X

*Primary Examiner*—L. T. Hix*Assistant Examiner*—D. Rutledge*Attorney, Agent, or Firm*—Carl Kling[57] **ABSTRACT**

This scan and repeat lithography system has high resolution capability, large effective image field size, and high substrate exposure speed, and comprises: (a) a

substrate stage capable of scanning a substrate in one dimension and, when not scanning in said dimension, capable of moving laterally in a direction perpendicular to the scan direction so as to position the substrate for another scan; the substrate stage exposing the full substrate by breaking up the substrate area into parallel strips, and exposing each of the strips by scanning the length of the strip across a fixed illumination region; (b) a mask stage capable of scanning in the same direction as, and synchronized with, the substrate stage, at a speed faster than the substrate stage scanning speed by a certain ratio  $M$ ; (c) an illumination subsystem having an effective source plane in the shape of a polygon, and capable of uniformly illuminating a polygon-shaped region on the mask; (d) a projection subsystem having an object-to-image reduction ratio  $M$ , and having a polygon-shaped image field of an area smaller than the desired effective image field size of the lithography system; and (e) provision of complementary exposures in an overlap region between the areas exposed by adjacent scans in such a way that a seam in the exposure dose distribution received on the substrate is absent between the scans, and such that the exposure dose delivered across the entire substance is uniform.

**22 Claims, 5 Drawing Sheets**

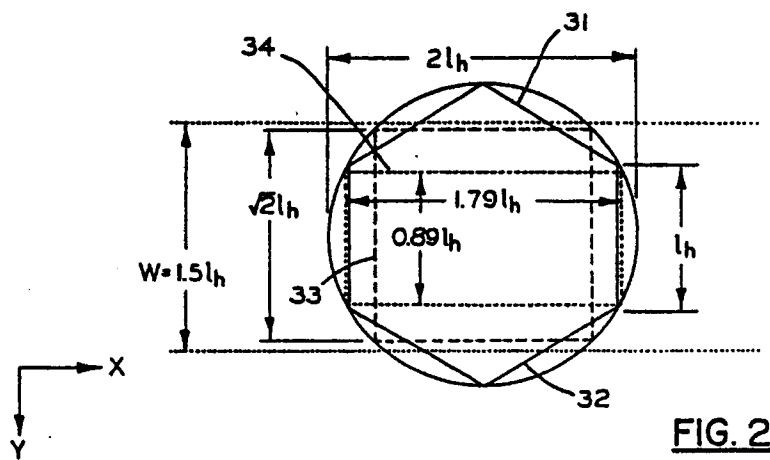
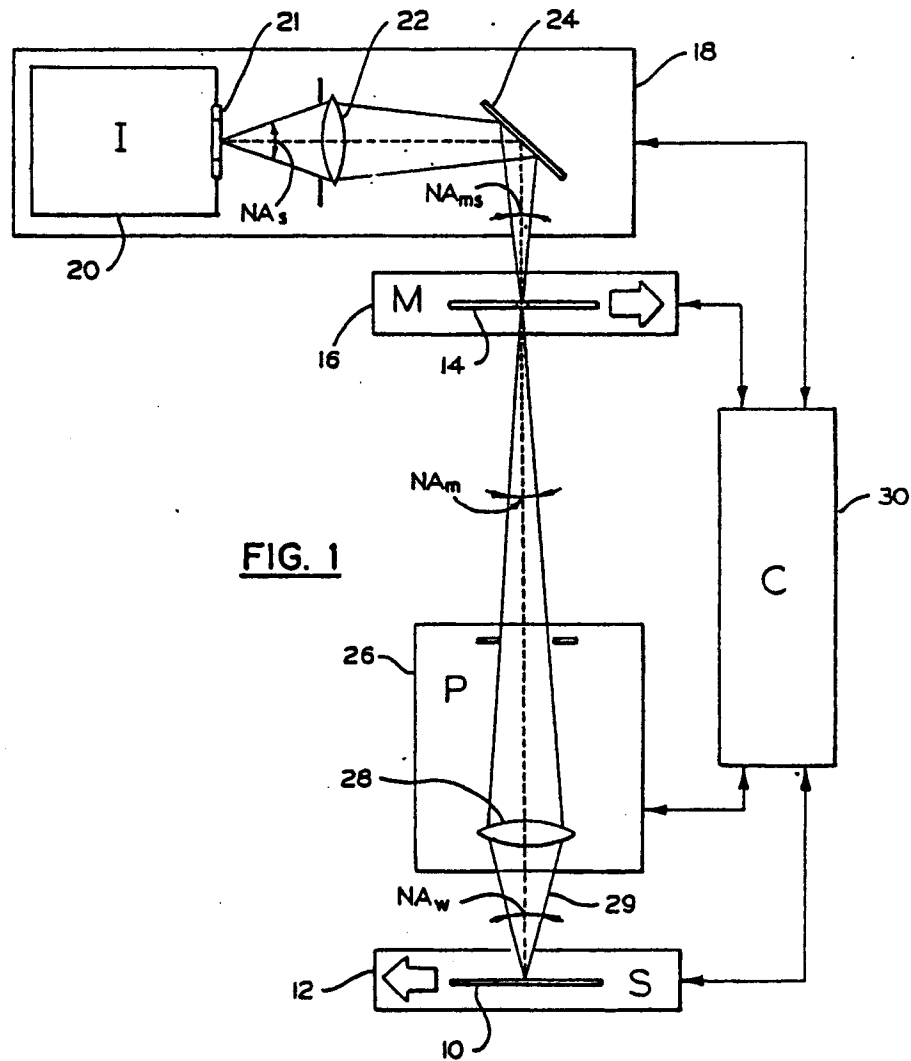


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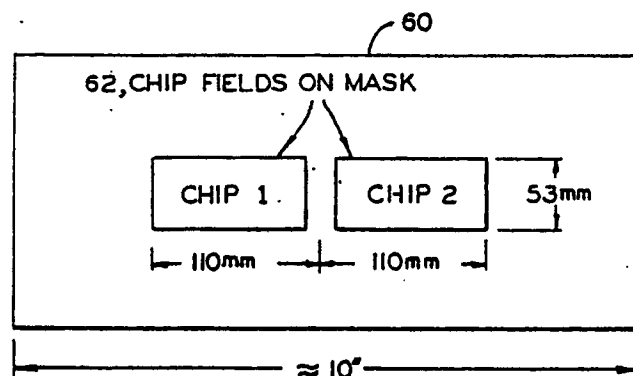


FIG. 6

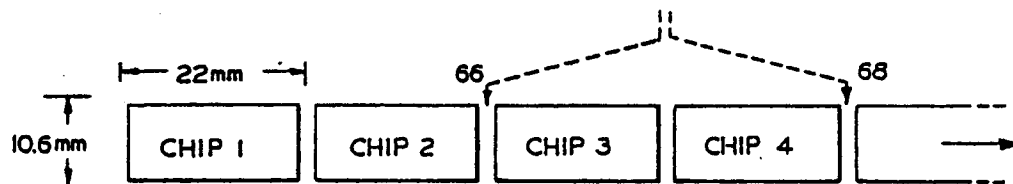


FIG. 7

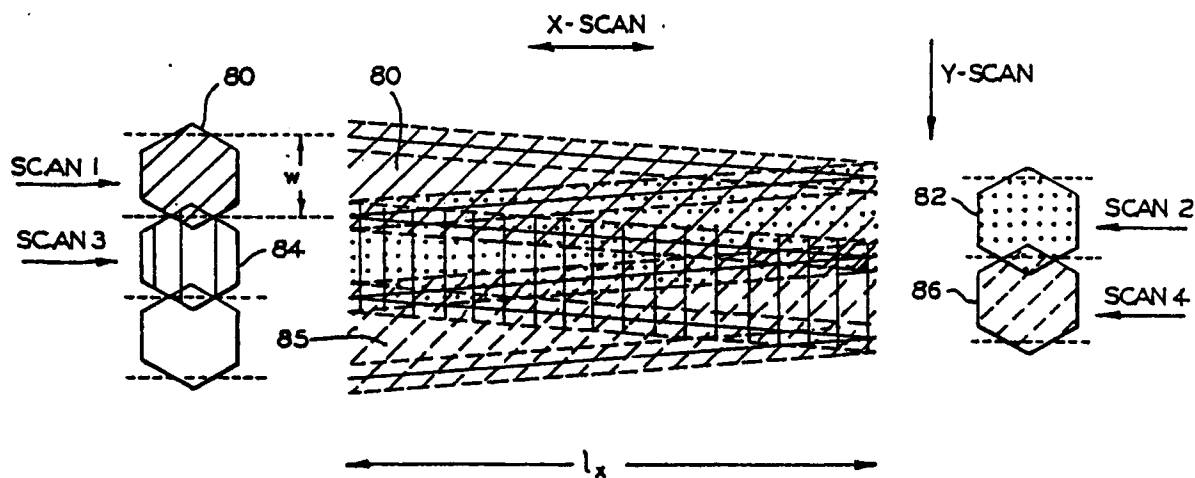


FIG. 9

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