

No. 886,418.

PATENTED MAY 5, 1908.

W. A. SCHMIDT.
WRITING MACHINE.

APPLICATION FILED MAY 20, 1905.

6 SHEETS—SHEET 1.

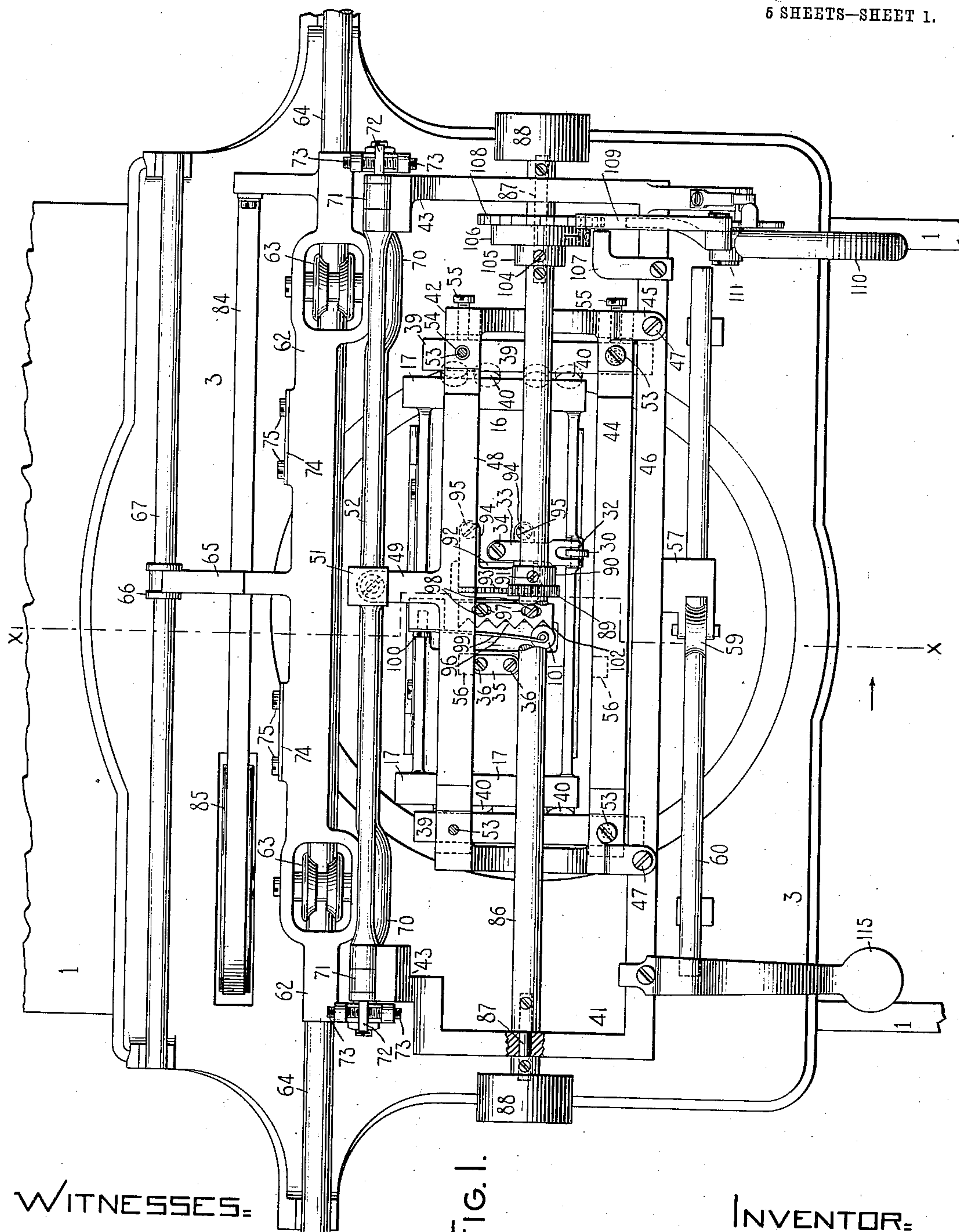


FIG. 1.

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By Jacob F. Feltz

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5 SHEETS—SHEET 2.

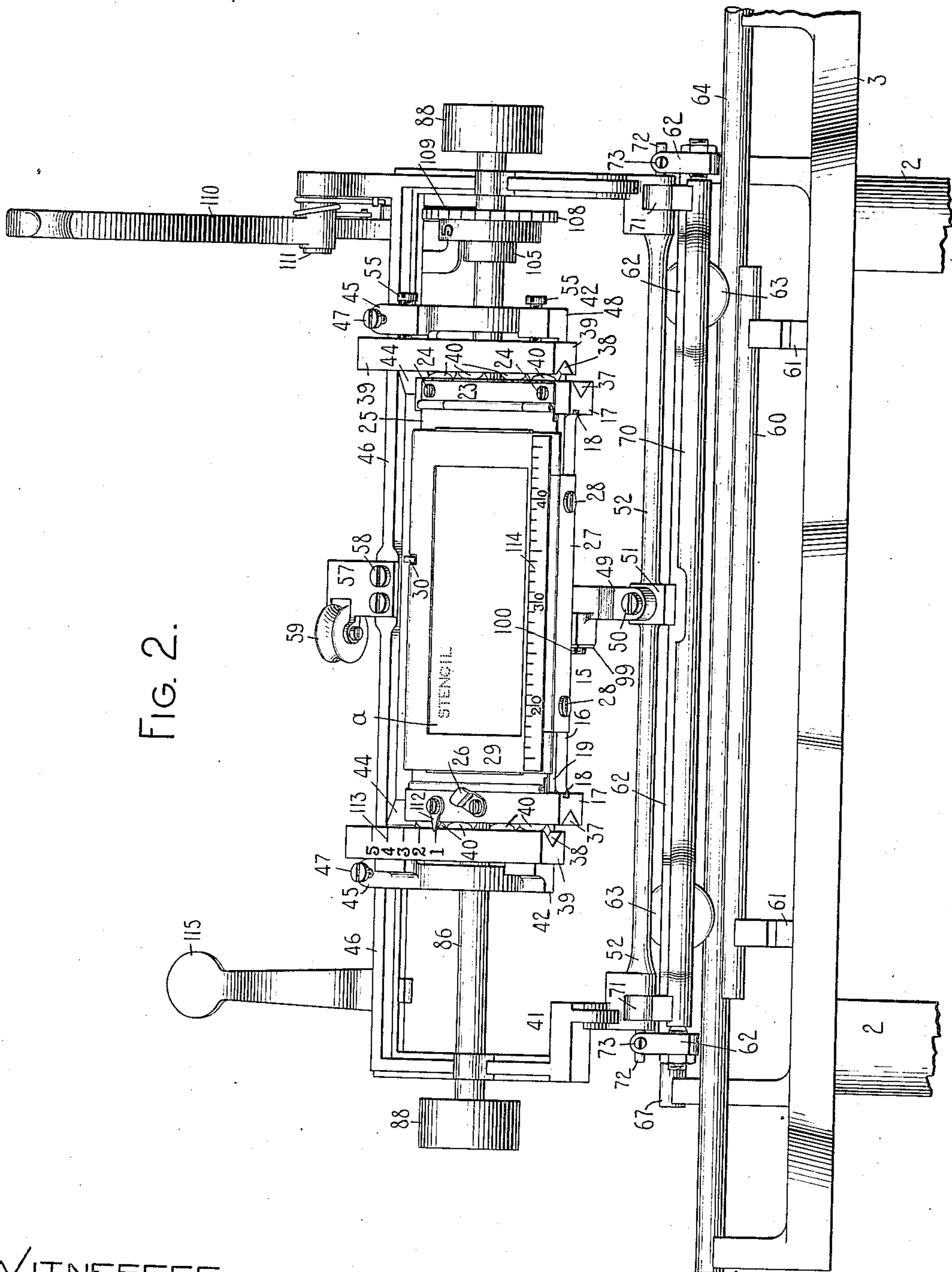


Fig. 2.

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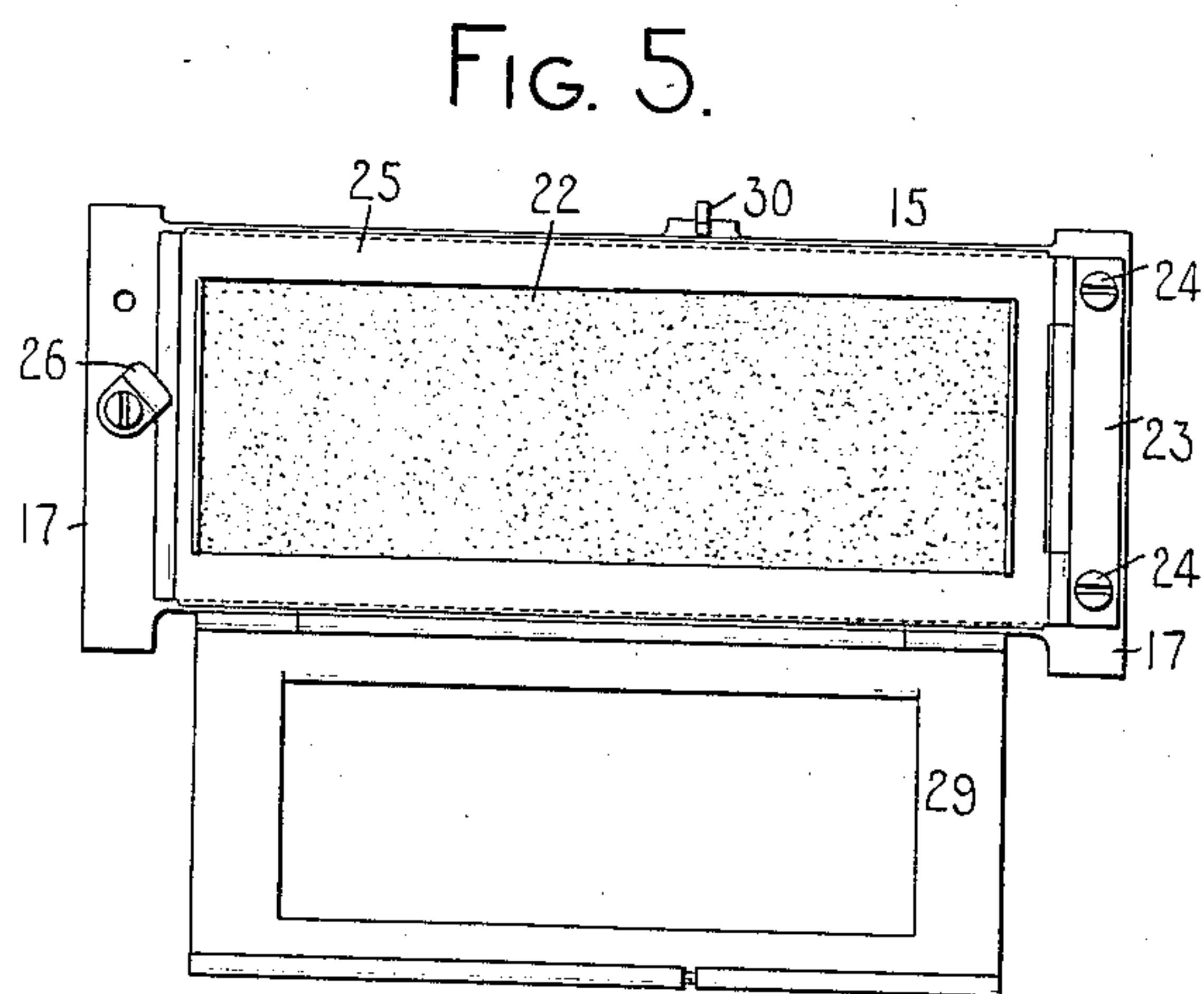
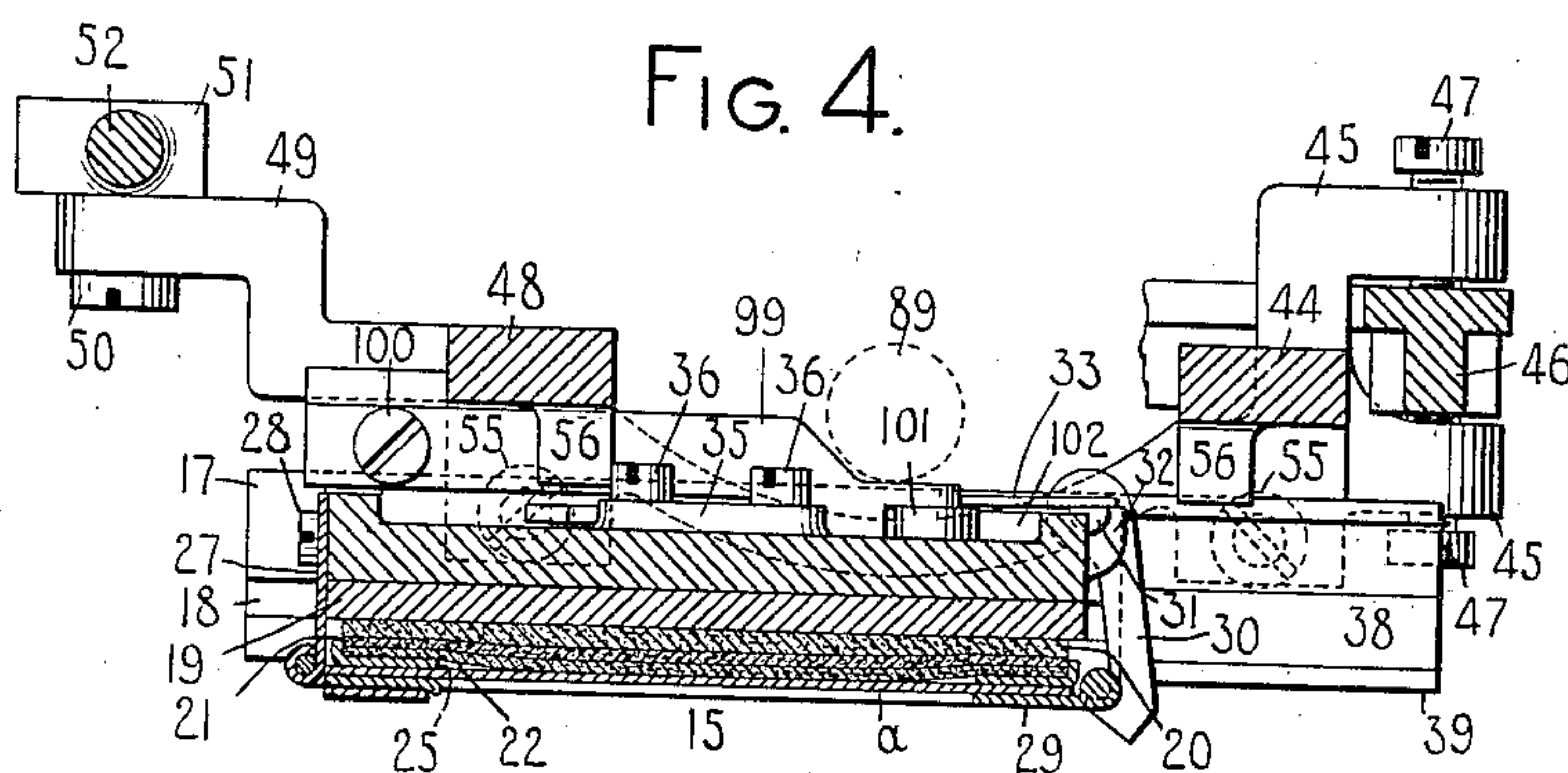
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5 SHEETS—SHEET 4.



WITNESSES:

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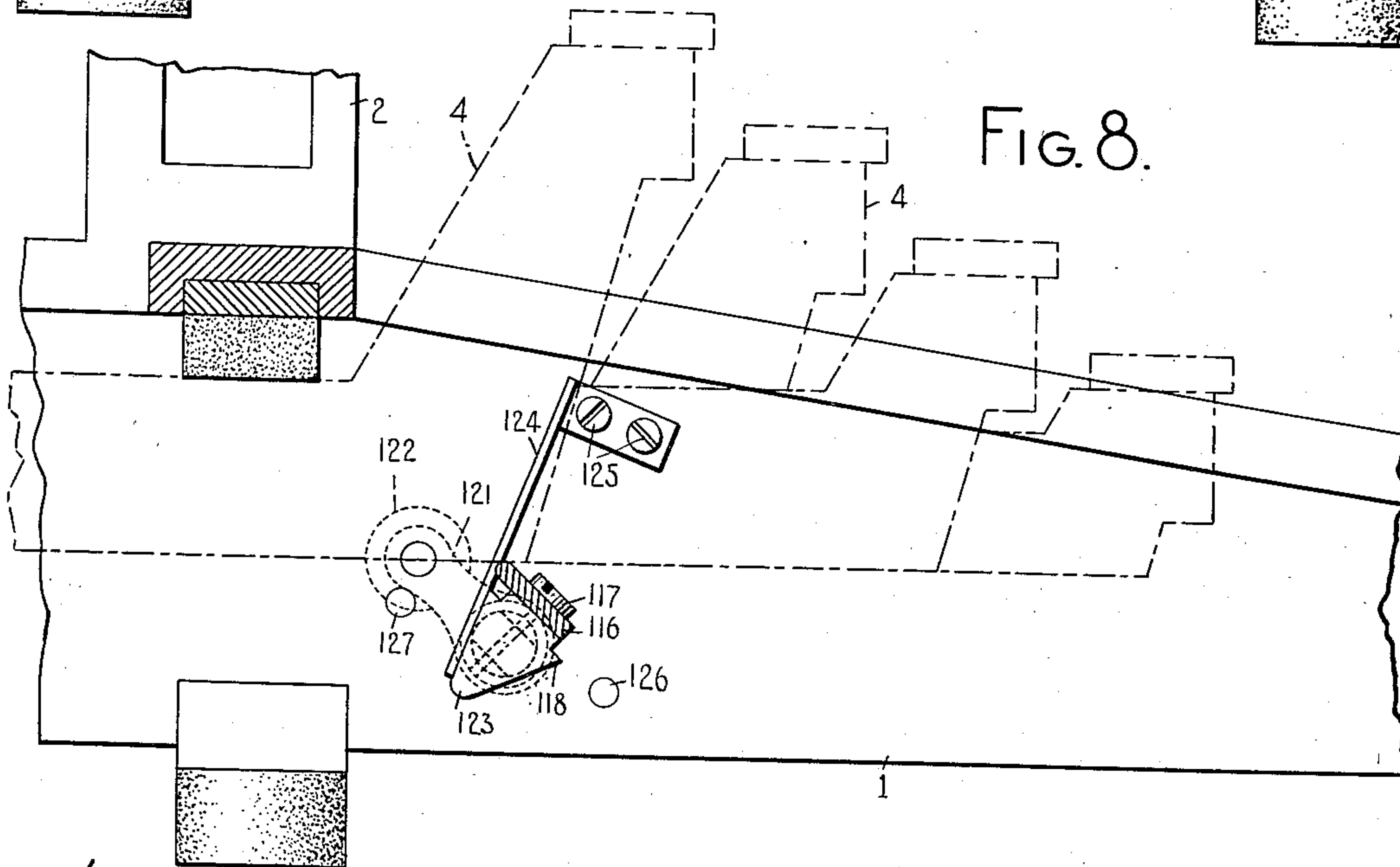
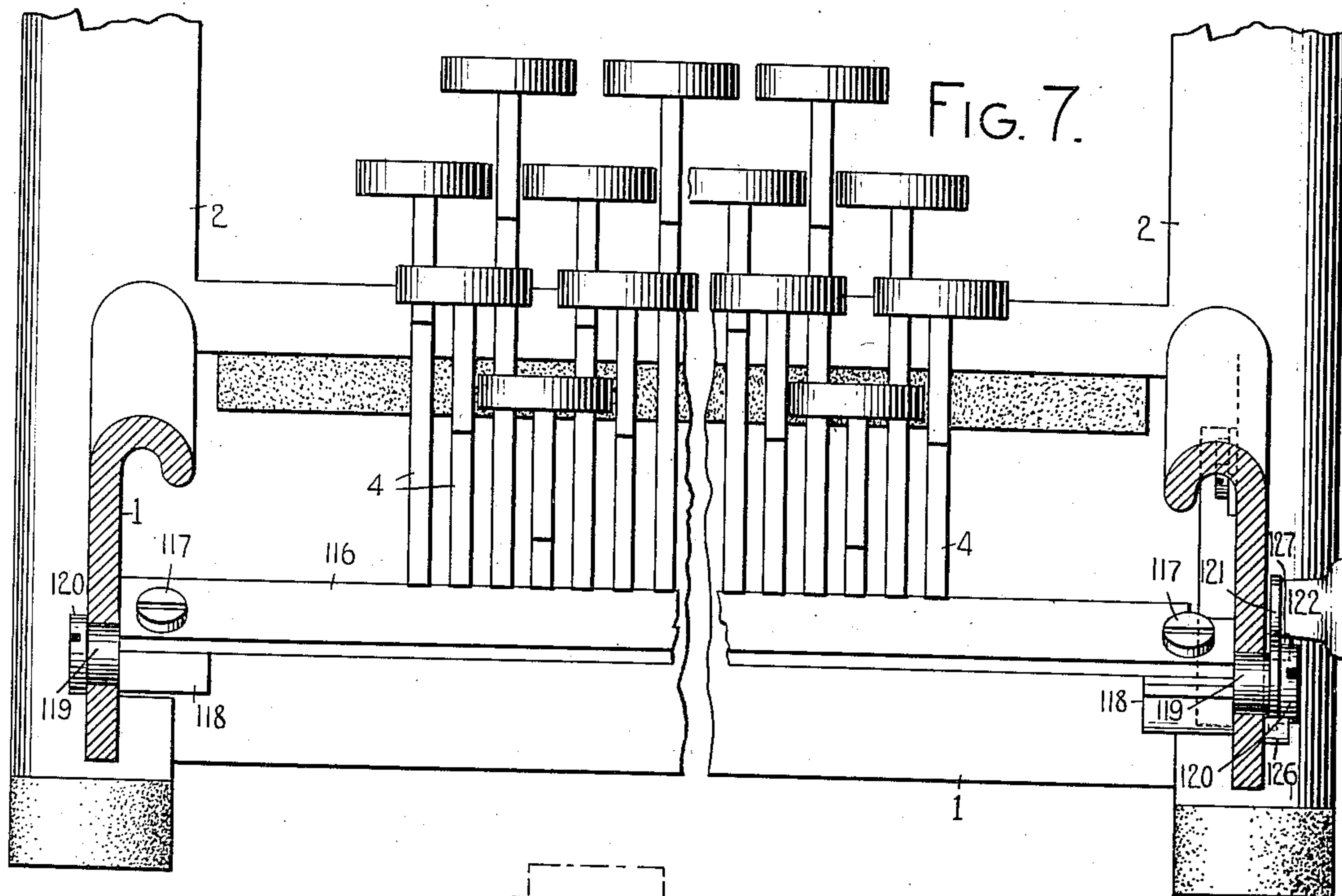
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

WILHELM ARMINE SCHMIDT, OF ILION, NEW YORK, ASSIGNOR TO WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

WRITING-MACHINE.

No. 886,418.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed May 20, 1905. Serial No. 261,385.

To all whom it may concern:

Be it known that I, WILHELM A. SCHMIDT, citizen of the United States, and resident of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Writing-Machines, of which the following is a specification.

My invention relates to writing machines, and its main object is to provide a machine having a flat platen which is particularly adapted for employment with a stencil sheet or other work sheet too inflexible to be readily fed around a cylindrical platen.

To this and other ends the invention resides in the features of construction, arrangements of parts and combinations of devices, hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a fragmentary top plan view of a writing machine embodying one form of my invention. Fig. 2 is a front elevation of the upper portion of the machine, the platen being shown raised, exposing the work. Fig. 3 is a sectional side elevation taken on a plane represented by the line $x-x$ in Fig. 1. Fig. 4 is an enlarged sectional side elevation of the platen carrier and the platen, parts being omitted. Fig. 5 is a bottom plan view of the platen showing the work retaining member or clamp in inoperative position. Fig. 6 is a detail view of the line-space ratchet and line scale. Fig. 7 is an enlarged fragmentary front elevation, partly in section, showing the device for locking the key levers. Fig. 8 is an enlarged fragmentary side view of the front part of the machine and showing the device for locking the key levers.

In the drawings, 1 indicates the base of the machine, 2 corner posts and 3 a top plate supported by the corner posts. A series of key levers 4 are pivoted at 5 in the rear of the base, each key lever being provided with a restoring spring 6. A link 7 connects each of the key levers with a type bar 8 pivotally secured in a hanger 9, the series of hangers being circularly arranged and fixedly mounted on the top plate 3. The free end of each type bar is provided with a type 10, the working face of the type having a puncturing or cutting surface, which surface, as herein shown, comprises a plurality of fine needle points 11. The free ends of the type bars are supported, when in normal position, by a circular type rest 14.

The puncturing elements or type bars are adapted to cooperate with the under side of a flat platen or stencil support, designated as a whole by the reference 15, and comprising a thin web-like metal portion 16 connecting heavier bar-like side portions 17. The web-like portion is somewhat thicker at the front and rear edges than in its body portion. As best shown in Figs. 2 and 4, the inner faces of the side portions 17 are formed beneath the web 16 with grooves 18 which receive a backing plate 19 preferably made of wood. Upon the backing plate 19 are placed a plurality of layers 20, 21 and 22 of a softer material, preferably of fabric such as canvas. The layers of the fabric progressively decrease in thickness, the innermost layer 20 being comparatively coarse and heavy and the outermost layer or facing 22 being comparatively thin and smooth. A bearing plate 23 is secured by screws 24 to the under side of the right-hand side portion 17. Hinged to the bearing plate is a backing retainer or pad holder 25 which is held pressed against the facing 22 by a latch 26 pivoted to the under face of the left-hand side portion 17 and adapted to engage the left-hand edge of the pad holder or retaining frame 25.

A plate 27 is secured to the rear face of the platen frame by headed screws 28 and serves as one member of a hinge which supports a work clamp or retaining frame 29. A latch 30 is provided with trunnions 31 which are received in bearings 32 projecting from the front of the platen frame. The tops of the trunnions 31 are flattened and a bifurcated leaf spring 33, secured to the top of the web 16 by a screw 34, is adapted to engage the flattened portions of the trunnions when the latch 30 is in normal position, so as to retain said latch in its bearings and in a position to engage the front of the retaining frame or work clamp 29 to hold the latter in operative or working position. A portion 35 projecting upwardly from the web 16 receives limiting screws 36.

As best seen in Fig. 2, the outer faces of the right and left-hand side portions 17 of the platen are formed with V-shaped grooves 37 which cooperate with similar grooves 38 formed in guide rails 39 to receive rollers 40. The guide rails 39 are secured to a platen carrier designated as a whole by the reference 41 and comprising, as best seen in Fig. 1, an inner rectangular frame 42, which is fixedly

secured in an outer frame 43. The front bar 44 of the inner frame 42 is provided at its ends with ears 45 which are bifurcated to embrace the front bar 46 of the outer frame.

5 Screws 47 are screwed into the bifurcated ears 45, the ends of the screws abutting against the top and bottom of the forward bar 46. Extending from the rear bar 48 of the inner frame 42 is an arm 49 which is se-

10 cured by a screw 50 to an enlarged portion 51 central of the rear rod 52 of the outer frame 43 of the platen carrier. The screws 47 and 50 serve to maintain the inner and outer frames of the platen carrier in a fixed rela-

15 tion. The guide rails 39 are fixed to the under side of the inner frame 42 near its right and left-hand ends by screws 53. The two left-hand screws 53 pass through holes in the frame 42 just large enough to permit their

20 passage and are screwed into threaded perforations in the left-hand guide rail 39, thereby maintaining the two members in a non-adjustable relation. As indicated in Fig. 1, however, the holes 54 in the frame 42

25 through which the right-hand screws 53 pass are larger in diameter than the shanks of the screws so that, until the screws 53 are screwed down into the right-hand guide rail 39 far enough to bring the heads of said

30 screws into contact with the upper face of the front and rear bars of the frame 42, the right-hand guide rail 39 may be moved longitudinally of the frame 42, the extent of movement being limited by the walls of the holes 54. This

35 construction enables wear to be taken up in the roller bearings connecting the platen with the platen carrier and also permits ready adjustment of the bearings when the platen is as-

40 screwing through the right-hand side of the inner frame 42 so that their ends abut against the outer wall of the right-hand guide rail 39, control the movement of the latter and facilitate the adjustment of the roller bear-

45 ings. Lugs 56 depend from the front and rear bars of the inner frame 42 of the platen carrier in position to co-act with the limiting screws 36 so as to limit the fore and aft move-

50 ment of the platen 15 in the platen carrier. A bracket 57 secured by screws 58 to the front bar 46 of the outer frame of the platen carrier serves to support a wheel or roller 59 which, during the movement of the platen from side to side of the machine, runs on a

55 guide rail 60 mounted on fixed posts 61.

At the rear of the platen carrier is a truck 62 provided with wheels or rollers 63 which run on a fixed back rail 64. An abutment or arm 65 projects rearwardly from the center

60 of the truck 62 and is bifurcated to embrace a spool 66 slidably mounted on a fixed guide rod 67. A rod 70 pivotally mounted in the sides of the truck 62 is provided near its ends with upstanding ears 71 which support pivot

65 pins 72, the latter serving as bearings for the

rod 52 of the platen carrier, so that said carrier may be swung upwardly about said pivot pins to expose the writing, as indicated in Fig. 2. Set screws 73 in the ends of the truck 62 serve to maintain the pivot pins 72 70 in a fixed position and to prevent rotation of the rod 70. Retaining pieces 74 are secured to the back of the truck 62 by screws 75 and curve downwardly and forwardly so that their lower ends are under the back rail 64, 75 thereby preventing the rollers 63 from becoming disengaged from said back rail.

Any suitable carriage feeding mechanism may be employed with my invention. The carriage feeding mechanism herein shown re- 80 sembles generally that of the No. 6 Remington typewriter. As illustrated in Fig. 3, a rack 76 is mounted on the truck 62 and normally meshes with an escapement pinion 77 which is operatively connected with an es- 85 capement wheel 78. The latter is adapted to coöperate with escapement dogs 79 mounted in the vertically disposed arm 80 of a pivoted dog rocker, the horizontally disposed arm 81 whereof is connected by rods 82 90 with a universal bar 83 which passes from side to side of the machine beneath the series of key levers 4. A strap 84 connects the truck 62 with the usual spring drum 85 which tends constantly to draw the truck 62, and 95 with it the platen carrier 41 and platen 15, leftward across the top plate of the machine. The parts of the carriage feeding mechanism are proportioned to permit a step-by-step movement of the platen sufficient to properly 100 space the letters formed in the work sheet by the puncturing elements.

Means for accomplishing a fore and aft movement of the platen and platen carrier in order to provide for the line spacing of the 105 work sheet will now be described. A rod or shaft 86 extends from side to side of the outer frame 43 of the platen carrier, passing over the inner frame 42 and over the platen. As indicated in Fig. 1, bearing pins 87 are se- 110 cured in the ends of the shaft 86 and pass through perforations in the side of the frame 43, said bearing pins having finger wheels 88 fixed on their outer ends. The construction is such that endwise movement of the shaft 115 86 is prevented, while at the same time it may be freely rotated by the finger wheels 88 or by means presently to be described. On the shaft 86 near its center is a pinion 89, said pinion having a collar portion 90 through 120 which passes a set screw 91 by which the pinion is fixedly secured to the shaft 86. The web 16 of the platen frame is cut-away or depressed at 92 and in the depression is seated a rack member 93 extending fore and 125 aft of the machine beneath and meshing with the pinion 89, and provided with arms 94 through which screws 95 pass into the web 16, thereby securing the rack 93 to the platen frame. A short saw-toothed rack 96 pro- 130

vided with elongated screw holes 97 is adjustably secured by screws 98 to the web 16 of the platen frame at the left of the rack 93. The teeth of the rack 96 are a line space distance apart. A detent spring 99 is secured by a screw 100 to the rear of the inner frame 42 of the platen carrier. The free end of the detent spring 99 is provided with a small roller 101 which plays in a depression 102 in the web 16 of the platen frame and which engages with the saw-tooth rack 96, as shown in Fig. 1, so as to maintain the platen in any one of a plurality of predetermined line space positions. On the shaft 86 near its right-hand end is fixedly secured a ratchet wheel member 103 which is represented in detail in Fig. 6. The member 103 is secured to the shaft 86 by a set screw 104 passing through a hub portion 105. The member 103 is provided with a circular line space scale 106 which coöperates with an indicator or pointer 107 fixed to the bar 46 of the platen carrier to indicate the line when the platen is down in normal position. The ratchet wheel proper 108 is in position to be actuated by a line space pawl 109 which is operated by a line space lever 110 pivoted at 111. The line space actuating mechanism just described, that is, the lever 110 and pawl 109, being of a known construction, it is deemed unnecessary to describe it in detail. A pointer 112, secured to the bottom face of the left-hand guide rail 67 of the platen frame, coöperates with a scale 113 on the left-hand guide rail 39 to indicate the line of writing when the platen is raised, as shown in Fig. 2. A scale plate 114 is fixed to the work clamp or retaining frame 29 and indicates the letter space position, coöperating with letter space scales and pointers on the platen carrier and the truck 62 and which, being of ordinary construction, are not shown in the drawings. 115 indicates the usual finger piece which is employed in manipulating the carriage.

To prevent careless or unskilled manipulation of the machine by unauthorized persons, and consequent injury or destruction of the needle-pointed types, I provide means for locking the key levers against depression when it is not desired that the machine be used. Referring more particularly to Figs. 3, 7 and 8, the reference 116 indicates a locking bar extending from side to side of the machine, beneath the key levers near their forward ends. The ends of the bar 116 are secured by screws 117 to blocks 118, the outer ends whereof are provided with cylindrical portions 119 extending through perforations in the sides of the base of the machine and confined by headed screws 120. Between the head of the right hand screw 120 and the outer end of the right-hand cylindrical portion 119 is secured a crank arm 121 provided with a finger piece 122, by

manipulating which the bar 116 may be revolved in its bearings in the side frames, the cylindrical portions 119 of the blocks 118 serving as pivots. The right-hand block 118, as illustrated in Figs. 3 and 8, is triangular in cross section, the part furthest from the bar 116 terminating in a rounded portion, which, with the inclined faces of the block, forms a cam 123 adapted to coöperate with a flat holding spring 124 secured by screws 125 to the inner face of the right-hand side frame of the machine. Limiting stops 126 and 127 project outwardly from the right-hand side of the base in position to co-act with the crank arm 121.

The inoperative position of the locking bar 116 is indicated in Fig. 3, wherein, it will be noted, the crank arm 121 is in contact with the forward limiting stop 126, being maintained in this position by the pressure of the holding spring 124 against one of the inclined faces of the right-hand block 118. With the parts thus positioned the bar 116 is maintained at a sufficient distance beneath the series of key levers to permit the latter to be depressed to operate the machine without interference. When the work is completed and it is desired to lock the key levers, the operator, by means of the finger piece 122, turns the crank arm 121 rearwardly, revolving the bar 116 in its bearings and causing the cam 123 to press the locking spring 124 to the rear, so that the parts may be turned until the crank arm 121 contacts with the rear limiting stop 127 and the spring 124 co-acts with the other inclined face of the right-hand block 118 to maintain the parts in the position indicated in Fig. 8, and in Fig. 7 which corresponds thereto. A comparison of Fig. 8 with Fig. 3 will show that in the former the bar 116 has been swung upwardly until its edge is in contact with the underside of the series of key levers, thereby preventing downward movement of the latter until such time as the parts are restored to the positions indicated in Fig. 3.

The operation of my invention will be understood from the foregoing description but will be briefly explained. The platen carrier is first swung upward about the pivot pins 72 to the position indicated in Fig. 2 and the spring pressed latch or detent 30 is pressed back to release the work clamp or retaining frame 29, which latter is swung away from the platen as represented in Fig. 5. The stencil plate or work sheet, indicated by the reference *a*, is thereupon placed in position against the facing 22 and the retaining frame 29 is pushed back against the work sheet and retained pressed against it by the latch 30. The platen carrier is then returned to normal position with the roller 59 in contact with the front guide rail 60, and the carriage, comprising the truck 62, the platen carrier and the platen, is pushed

rightward across the top plate to the beginning of the line. One of the finger wheels 88 may then be turned so as to cause the platen, through pinion 89 and rack 93, to move rearwardly in the platen carrier until the rear limiting screw 36 contacts with the rear limiting lug 56, the parts being so adjusted that the platen will then be in a position to write on the first line of the work sheet.

The key levers 4 may then be operated to cause their associate puncturing elements or type bars, through the links 7, to co-act with the work sheet *a*, so that the latter will be punctured or cut in the manner indicated in Fig. 2 of the drawings. Each operation of a type bar or of the spacing bar (not shown) causes the escapement members, through the universal bar and its associate train of mechanism, to coöperate in a known manner to permit the carriage to be moved a letter space distance across the top plate of the machine under the influence of the spring drum 85. When the end of the line of writing is reached the carriage is returned rightward across the top plate to a position to begin a new line of writing and the line space lever 110 is manipulated to cause the pawl 109 to turn the ratchet wheel 108, shaft 86 and pinion 89, which last, acting on the rack 93 causes the platen to move forwardly from the position indicated in Fig. 1 until the detent roll 101 disengaging from the first tooth of the saw-toothed rack 96 engages with the second tooth of said rack. The platen will now be positioned to begin the second line of writing.

The operations above outlined are continued until the writing is completed, whereupon the stencil plate or work sheet may be removed and another one substituted therefor.

Various changes may be made in the details of construction and arrangements of parts without departing from the scope of my invention.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars arranged thereon; a flat platen; and a platen carriage in which said platen is mounted, said platen carriage comprising a truck and a platen carrier, the latter having an outer frame and an inner frame removably secured to said outer frame, said platen carrier being pivotally connected with said truck.

2. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted thereon; a platen carriage comprising a truck and a platen carrier pivotally connected thereto, said platen carrier having an outer frame and an inner frame; grooved guide ways fixed to the inner frame of the platen car-

rier; a flat platen having oppositely grooved guide ways; and anti-friction rollers connecting the guide ways in the platen with the guide ways in the platen carrier.

3. In a writing machine, the combination of a fixed type bar support; a set of key actuated type bars mounted thereon; a platen carriage comprising a truck and a hinged platen carrier; means for moving the platen carrier step-by-step in one direction; a flat platen; a roller bearing connecting said platen with said platen carrier; a rack and pinion; a hand actuated means for operating said rack and pinion to move said platen in said platen carrier, the direction of movement of said platen being at right angles to the direction of movement of the platen carriage.

4. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted thereon; a platen carriage; means for moving said platen carriage step-by-step in one direction for letter spacing; a flat platen; a roller bearing connecting said platen with said platen carriage; a rack on said platen; a rotary shaft pivoted in said platen carriage; a pinion secured to said shaft and meshing with said rack; and a finger wheel on said shaft adapted to turn it to move the platen in the platen carriage in a direction at right angles to the step-by-step letter spacing movement of the latter.

5. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted thereon; a platen carriage; means for moving said platen carriage step-by-step in one direction for letter spacing; a flat platen; a roller bearing connecting said platen with said platen carriage; a rack connected with said platen; a rotary shaft on the platen carriage; a pinion fixed to said shaft and meshing with said rack; a ratchet wheel also fixed to said shaft; and a hand actuated pawl adapted to coöperate with said ratchet wheel for line spacing the platen.

6. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted thereon; a platen carriage; means for moving said platen carriage step-by-step one way of said type bars for letter spacing; a flat platen; a roller bearing connecting said platen with said platen carriage; a rack connected with said platen; a rotary shaft on the platen carriage; a pinion fixed to said shaft and meshing with said rack; a ratchet wheel also fixed to said shaft; a hand actuated pawl adapted to coöperate with said ratchet wheel for line spacing the platen; and means for maintaining the platen in any one of a plurality of predetermined positions fore and aft of the machine.

7. In a writing machine, the combination

of a fixed type bar support; a series of key actuated type bars mounted thereon; a platen carriage; means for moving said platen carriage step-by-step one way of said type bars for letter spacing; a flat platen; a rack connected with said platen; a roller bearing connecting said platen with said platen carriage; a rotary shaft on the platen carriage; a pinion fixed to said shaft and meshing with said rack; a ratchet wheel also fixed to said shaft; a hand actuated pawl adapted to cooperate with said ratchet wheel for line spacing the platen; an adjustable saw-toothed rack on said platen; and a detent on said platen carriage, said saw-toothed rack and detent cooperating to maintain the platen in any one of a plurality of predetermined relations with said platen carriage.

8. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted on said support; a platen carriage having rollers or wheels mounted therein; fixed guide ways for said wheels; means for moving the carriage step-by-step along said fixed ways; a flat platen; a roller bearing connecting said platen with said platen carriage; means for moving said platen in said platen carriage; and means for positively limiting the movements of said platen in said platen carriage, the limiting means comprising detachable stops on said platen and cooperating lugs on said carriage.

9. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted thereon; fixed carriage rails, a platen carriage bearing on said rails and comprising front and rear bars; means for moving said carriage along said rails from side to side of the machine; a flat platen; a roller bearing connecting said platen with said platen carriage; means for moving said platen fore and aft in said platen carriage; limiting stops on said platen; and stops depending from the front and rear bars of said platen carriage with which said limiting stops are adapted to co-act to limit the movement of said fore and aft movement of said platen.

10. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted thereon; a carriage truck having rollers; a fixed way on which said rollers run; a platen carrier frame hinged to said truck and having a roller; a fixed way on which said roller runs; an inner platen carrier frame removably secured to the front and rear bars of said hinged frame; a platen slidably connected with said inner frame of the platen carrier; and a work clamp or holder hinged to the platen frame, the platen being adapted to be moved independently one way above the type bars and another way at right angles to the first way along with said platen carrier and said truck,

and said platen and platen carrier frames being adapted to be swung upwardly together to expose the printing point.

11. In a stencil writing machine, the combination of a fixed support; a series of key actuated puncturing elements secured to said support; a platen carriage arranged above said support; said platen carriage comprising a truck and a double framed platen carrier hinged thereto; a platen frame; a flat facing or pad; a facing retainer or pad holder hinged to the platen frame; and a roller bearing connecting the platen frame with the inner frame of the platen carrier.

12. In a stencil writing machine, the combination of a fixed support; a series of key actuated puncturing elements secured to said support; a platen carriage arranged above said support; said platen carriage comprising a truck and a double framed platen carrier hinged thereto; a platen frame; a flat facing or pad; a facing retainer or pad holder hinged to the platen frame; a roller bearing connecting the platen frame with the inner frame of the platen carrier; means for moving the platen carriage in one direction above said puncturing elements for letter spacing; means for moving the platen frame in the platen carrier for line spacing in a direction at right angles to the letter space movement; a pointer on the platen frame; and a scale on the platen carrier; said scale and pointer cooperating to indicate the printing line.

13. In a stencil writing machine, the combination of a fixed support; a series of key actuated puncturing elements secured to said support; a platen carriage arranged above said support, said platen carriage comprising a truck and a double framed platen carrier hinged thereto; a platen frame; a flat facing or pad; a facing retainer or pad holder hinged to the platen frame; a roller bearing connecting the platen frame with the inner frame of the platen carrier; a work holder or clamp also hinged to the platen frame; and a pivoted latch adapted to retain said work holder in operative position.

14. In a stencil writing machine, the combination of a fixed support; a series of key actuated puncturing elements secured on said support; a platen carriage adapted to move in one direction above said support for letter spacing; a platen mounted in said platen carriage and adapted to move in another direction above said support for line spacing; a backing pad comprising a plurality of layers of fabric; a pivoted holder adapted to clamp said pad to the platen; a latch for retaining said holder in position; a pivoted work clamp for retaining the stencil plate in position against the backing; and a spring pressed latch having trunnion bearings, said latch being adapted to hold said work clamp pressed against the stencil plate.

15. In a typewriting machine, the combination of a series of key levers; a rotary locking bar beneath said key levers; hand operated means adapted to swing said bar into and out of position to lock said key levers; limiting stops for said bar; and a double acting holding spring adapted to hold said bar against either of said limiting stops.

16. In a typewriting machine, the combination of a series of key levers; a locking bar pivoted in the side frames of the machine base beneath said key levers; a cam integral with said bar; limiting stops; a handle for revolving said bar into and out of position to prevent the depression of the key levers; and a spring co-acting with said cam to maintain said handle against one or another of said limiting stops.

17. In a stencil writing machine, the combination of a flat platen; a fixed type bar support beneath said platen; a series of type bars mounted on said support; needle pointed types on said type bars; a series of key levers operatively connected with said type bars; a rotary locking bar beneath said key levers; hand operated means adapted to swing said bar into and out of position to lock said key levers; limiting stops for said bar; and a double acting holding spring adapted to hold said bar against either of said limiting stops.

18. In a stencil writing machine, the combination of a flat platen; a fixed type bar support beneath said platen; a series of type bars mounted on said support; needle pointed types on said type bars; a series of key levers operatively connected with said type bars; a locking bar pivoted in the side frames of the machine base beneath said key levers; a cam integral with said bar; limiting stops; a handle for revolving said bar into and out of position to prevent the depression of the key levers; and a spring co-acting with the cam on said bar to maintain said handle against one or another of said limiting stops.

19. In a writing machine, the combination of a fixed type bar support; a set of key actuated type bars mounted thereon; a platen carriage comprising a truck and a platen carrier or frame hinged thereto; means for moving the platen carriage step-by-step in one direction; a flat platen slidably mounted in said platen carrier; a rack and pinion; and hand actuated means for operating said rack and pinion to move said platen in said platen

carrier in a direction at right angles to the direction of movement of the platen carriage.

20. In a writing machine, the combination of a fixed type bar support; a series of key actuated type bars mounted thereon; a platen carriage comprising a truck and a platen carrier hinged to said truck; means for moving said carriage step-by-step one way of said type bars for letters spacing; a flat platen slidably mounted on said platen carriage; a rack connected with said platen; a rotary shaft on said platen carriage; a pinion fixed to said shaft and meshing with said rack; a ratchet wheel fixed to said shaft; and a hand actuated pawl adapted to cooperate with said ratchet wheel for line spacing the platen in a direction at right angles to the letter space feed movement thereof.

21. In a stencil writing machine, the combination of a series of stencil types; a carriage adapted to move from side to side of the machine for letter spacing; a flat stencil support slidably mounted in said carriage; a rack and pinion; and hand actuated means for operating said rack and pinion to move said stencil support on said carriage for line spacing in a direction at right angles to the direction of movement of said carriage for letter spacing; said hand actuated means comprising a ratchet wheel fixedly related to said pinion and a cooperating pawl pivoted on said carriage.

22. In a stencil writing machine, the combination of a series of stencil types; a carriage adapted to move from side to side of the machine for letter spacing; a flat stencil support pivoted to swing up and down and slidable on said carriage in line spacing direction; a rack on said stencil support; a rotary shaft pivoted on said carriage; a pinion secured to said shaft and meshing with said rack, said shaft being rotatable by hand to cause said rack and pinion to cooperate to move said stencil support in line spacing direction; a ratchet wheel fixed on said shaft; and a hand operated pawl pivoted on said carriage and cooperative with said rack.

Signed at Ilion, in the county of Herkimer and State of New York this 18 day of May, A. D., 1905.

WILHELM ARMINE SCHMIDT.

Witnesses:

JOHN CALDER,
EDGAR H. BERRY.