

994,209.

A. W. STEIGER.  
TYPE WRITING MACHINE.  
APPLICATION FILED MAR. 17, 1910.

Patented June 6, 1911.

4 SHEETS—SHEET 1.

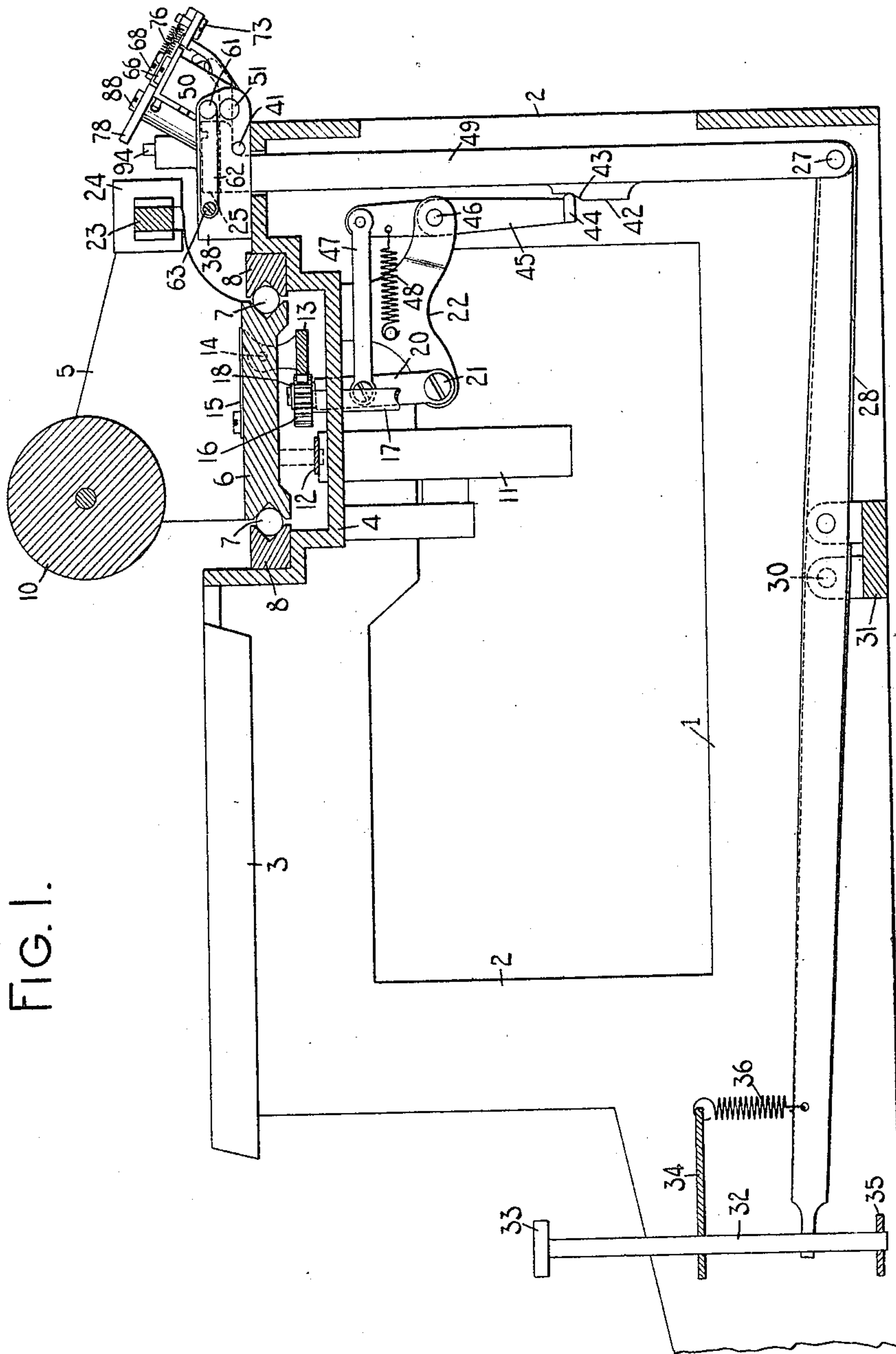


FIG. 1.

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*By Jacob F. Fehel*

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Patented June 6, 1911.

4 SHEETS—SHEET 2.

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FIG. 3.

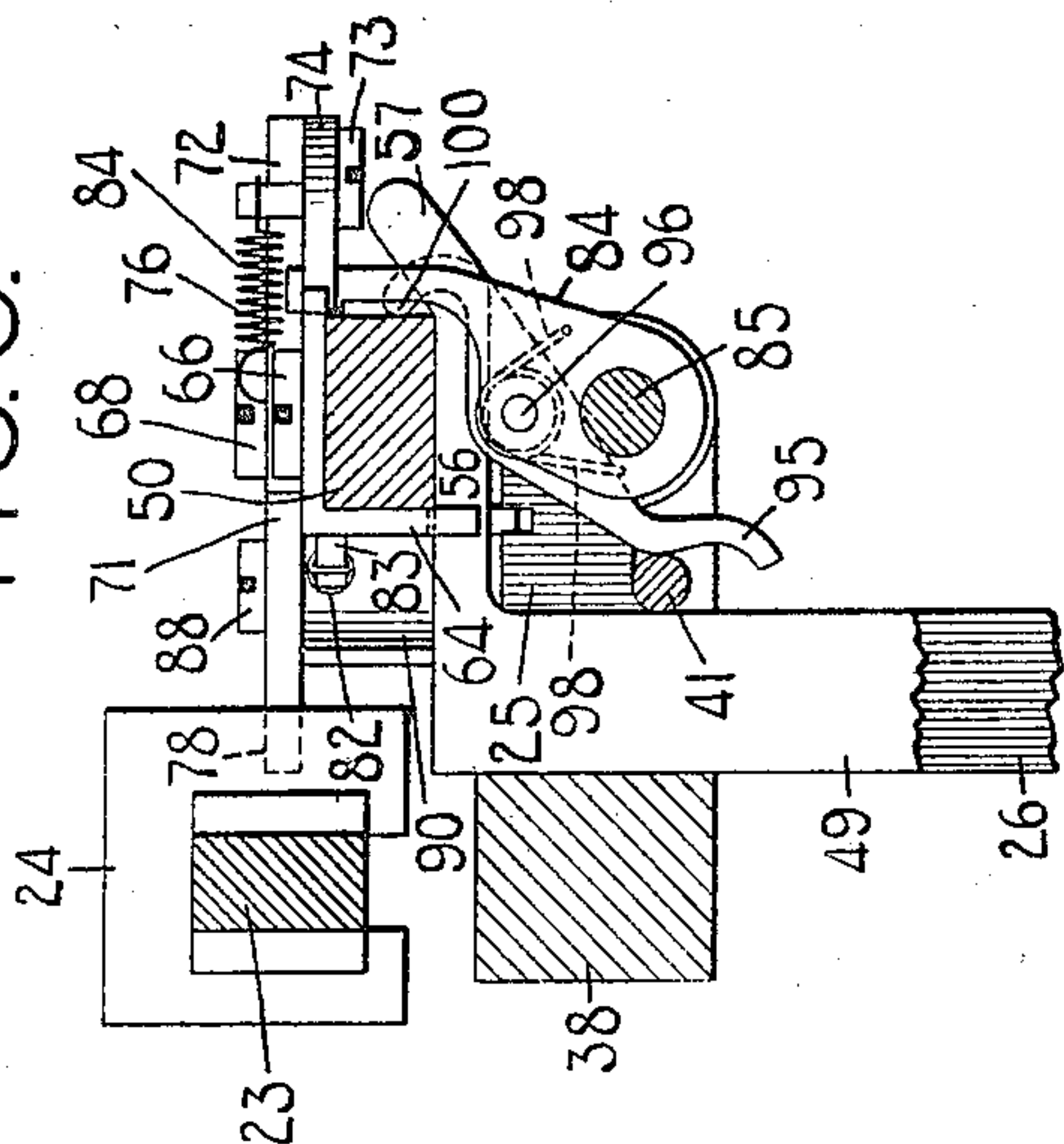


FIG. 5.

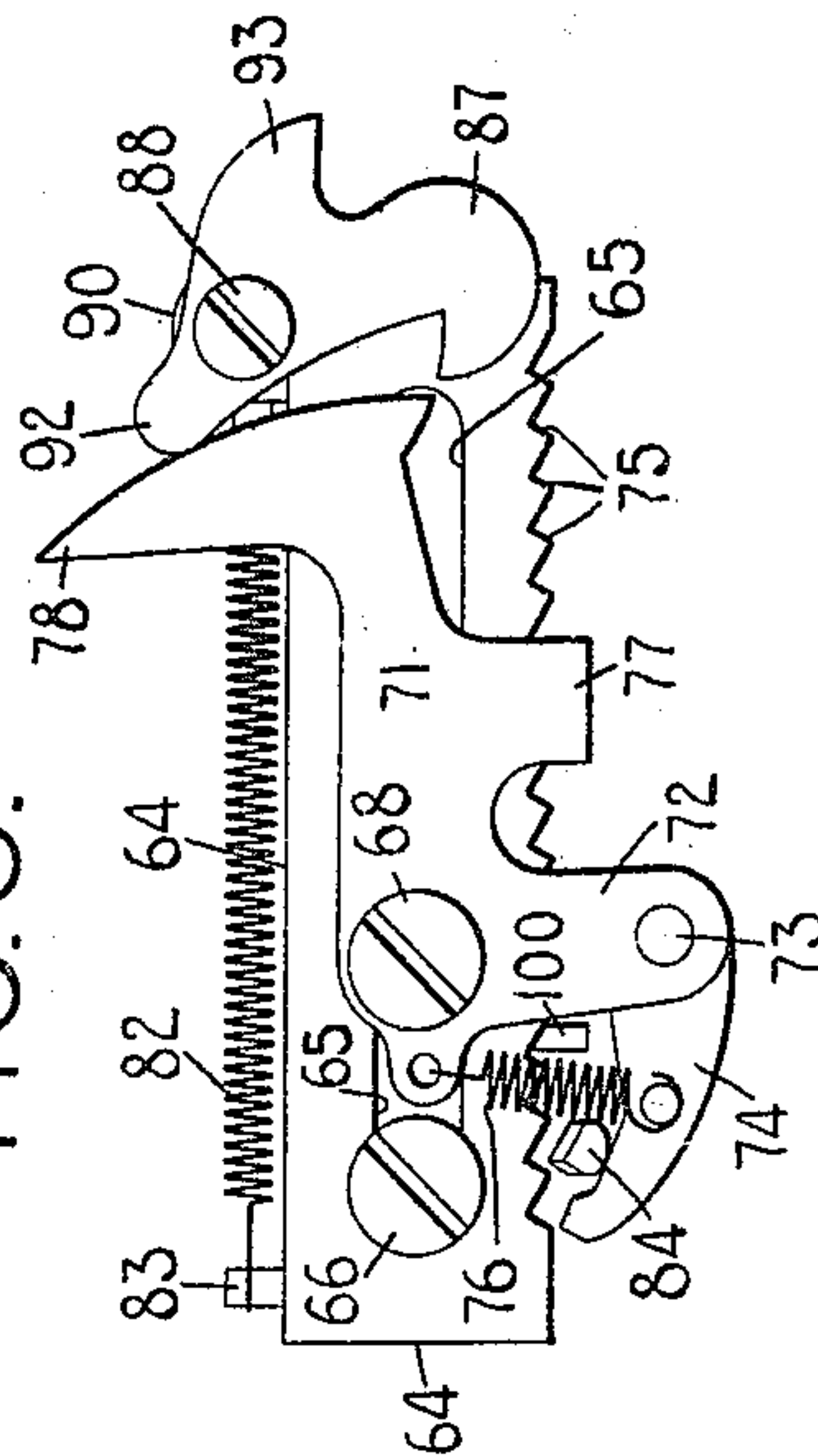


FIG. 2.

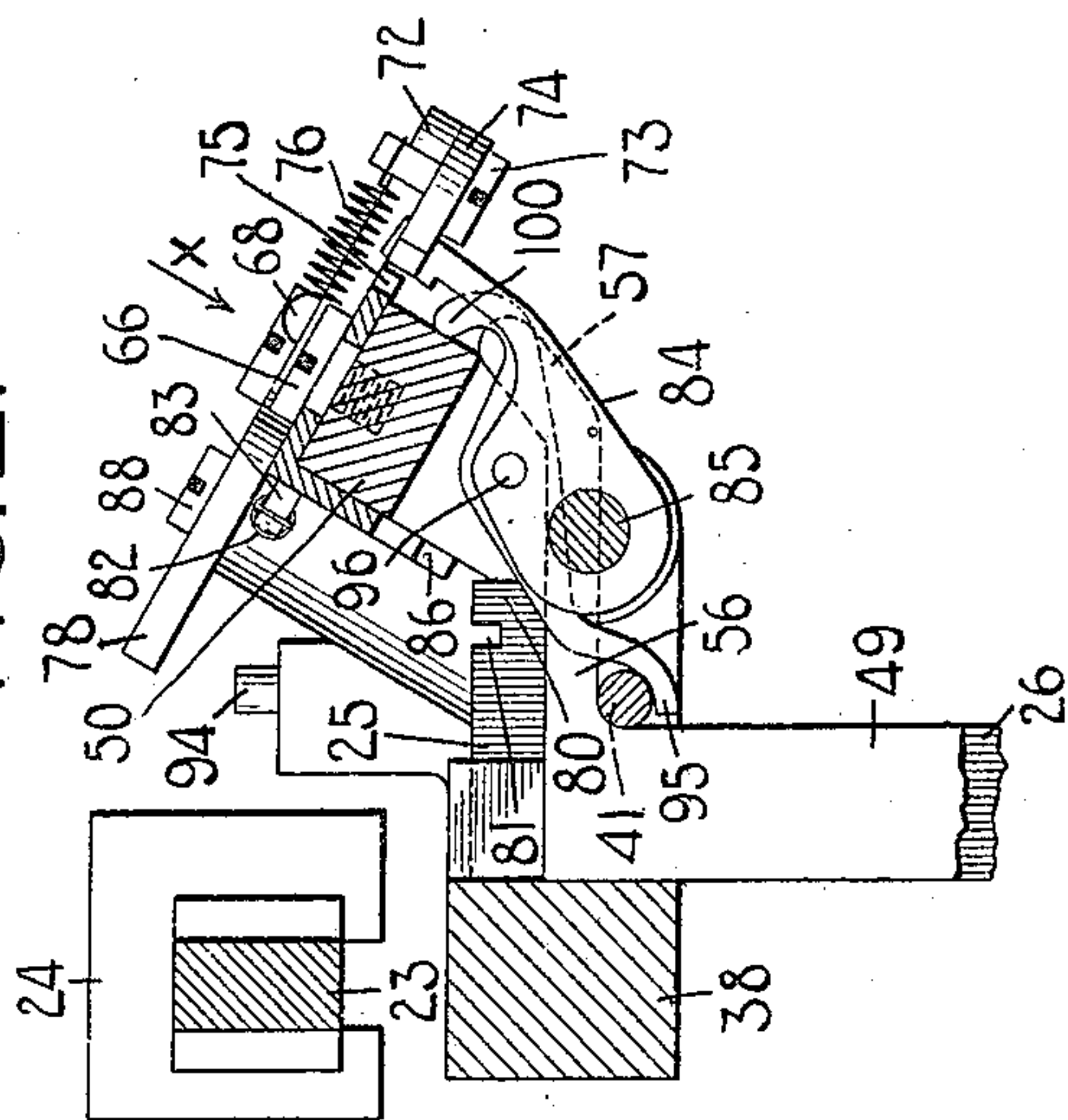
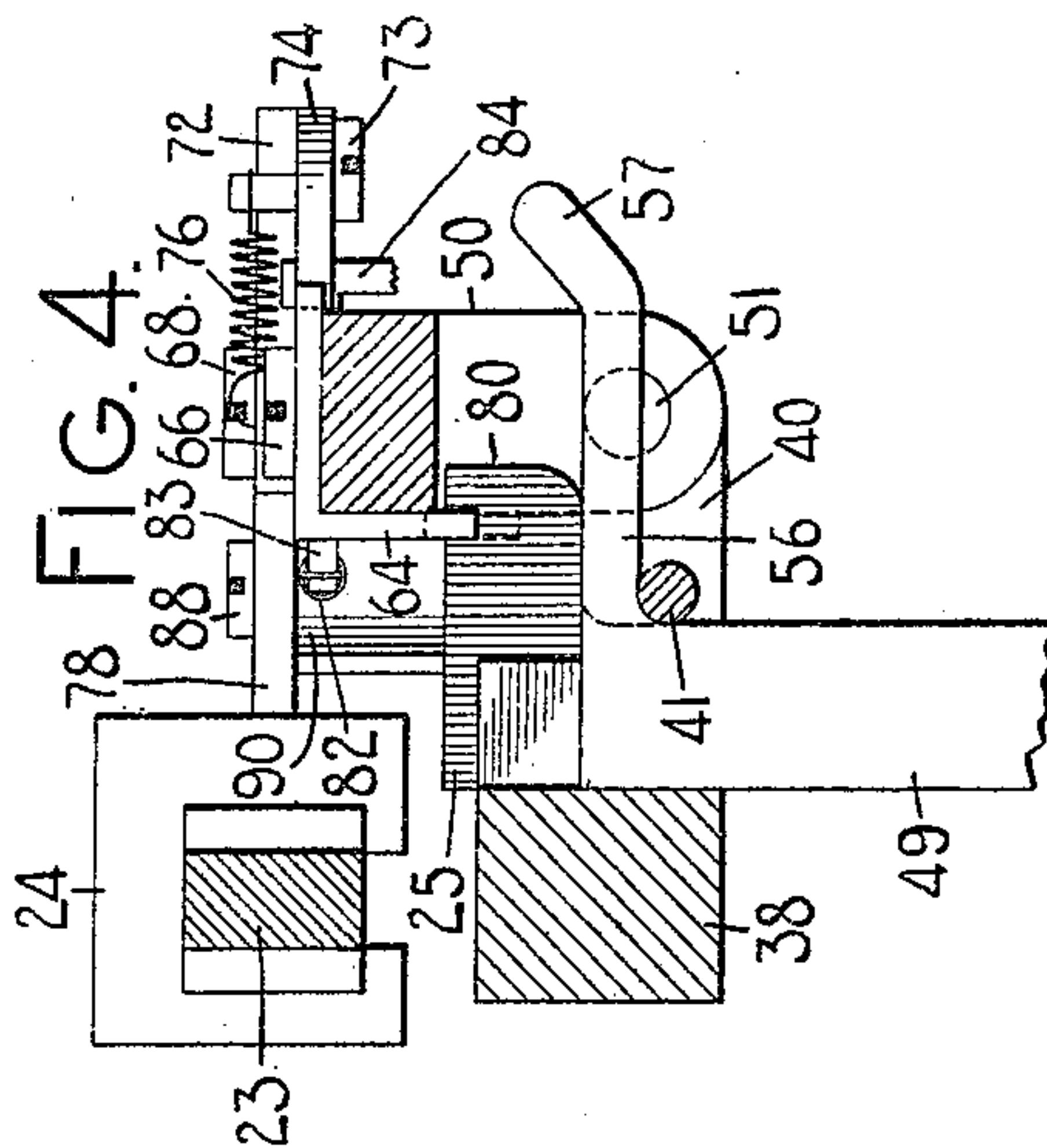


FIG. 4.



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4 SHEETS—SHEET 3.

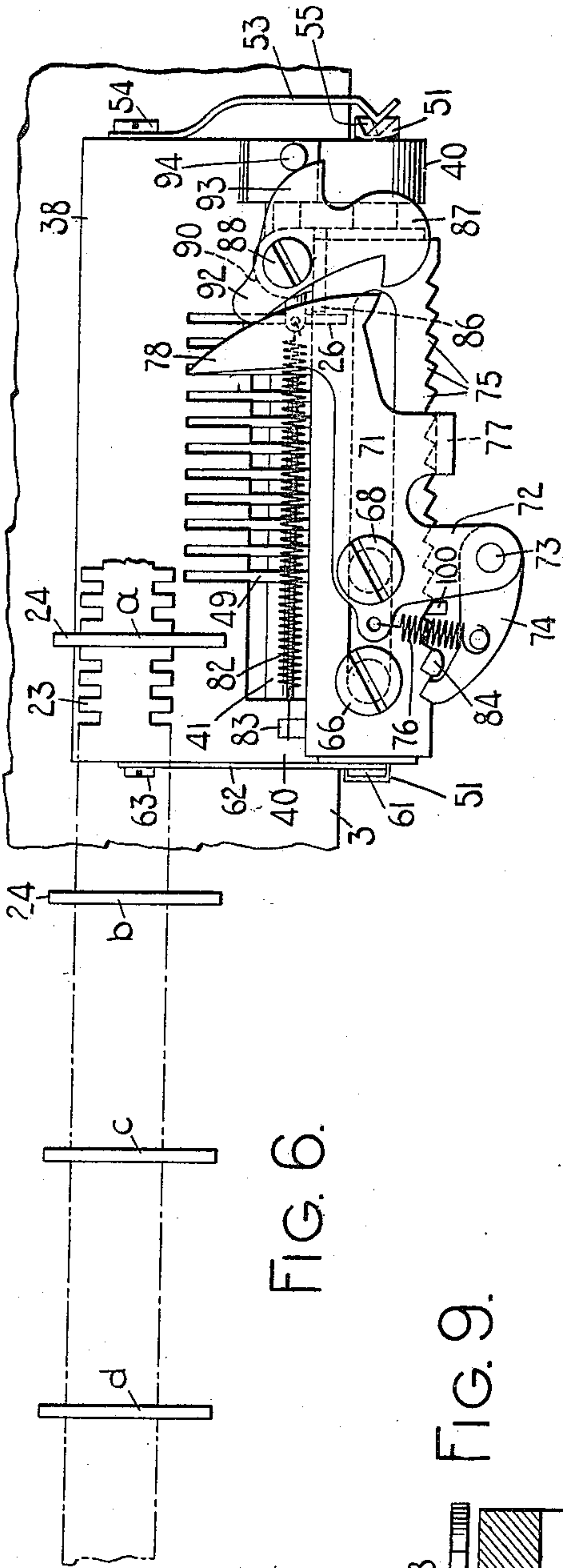


FIG. 6.

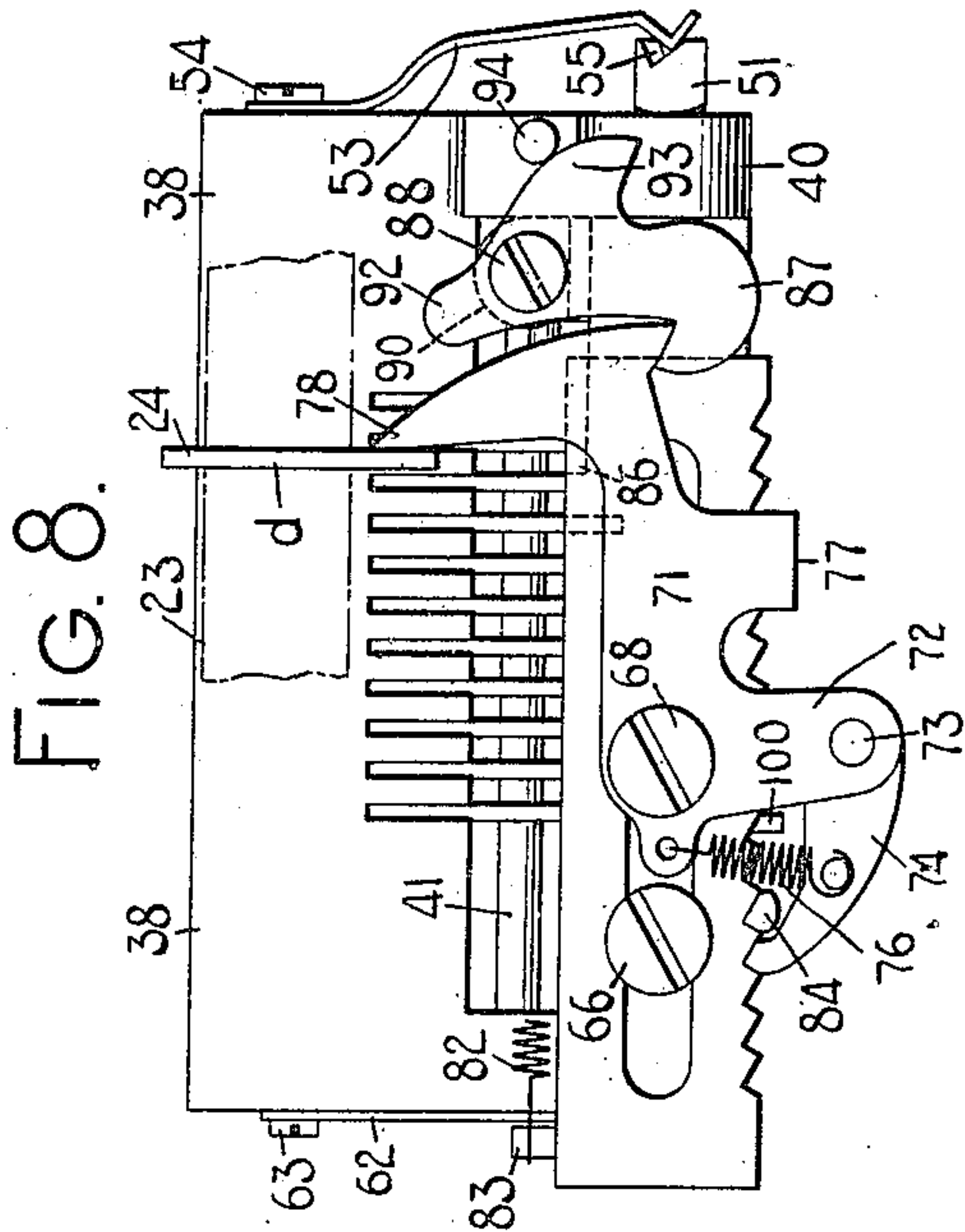


FIG. 7.

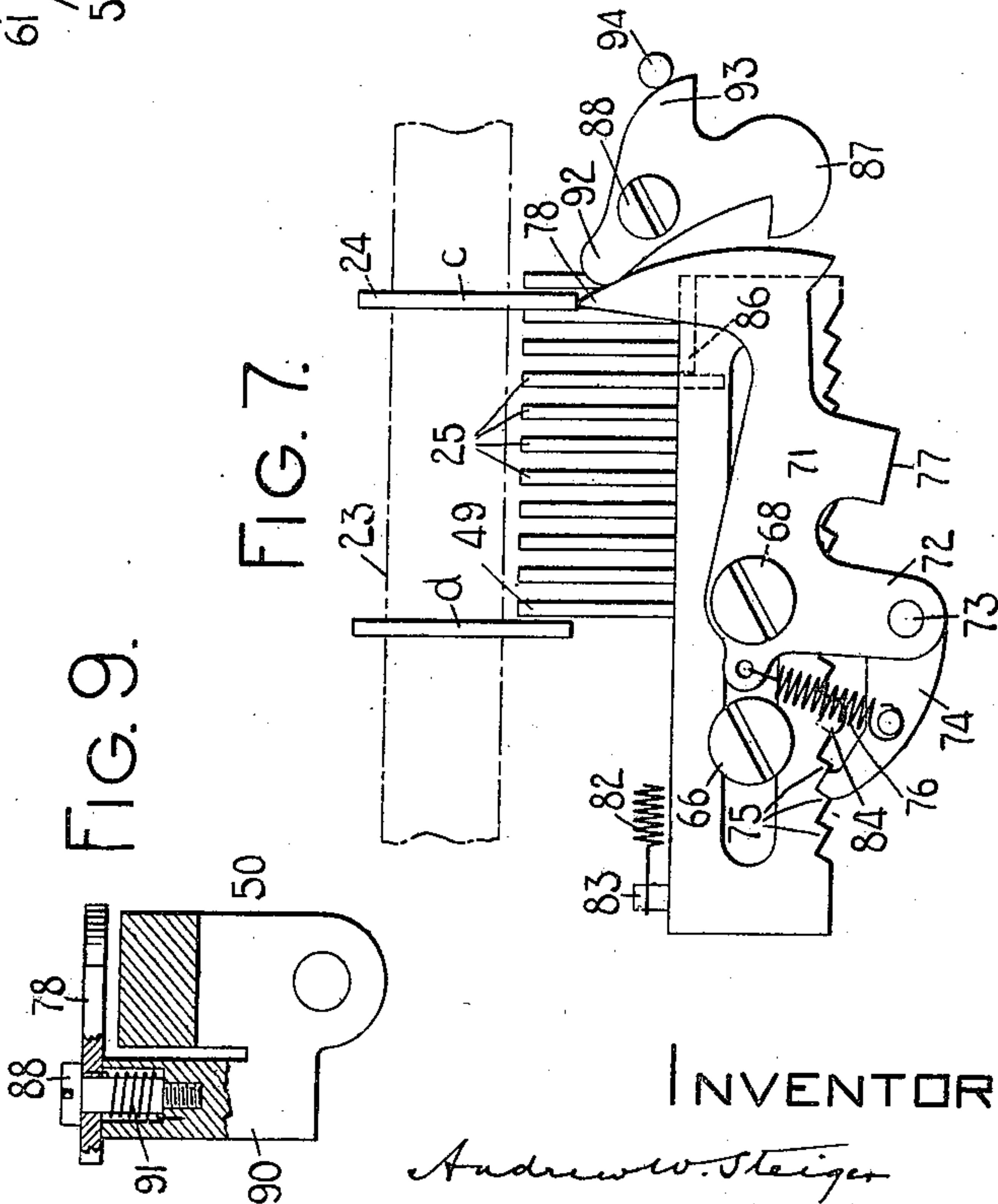


FIG. 8.

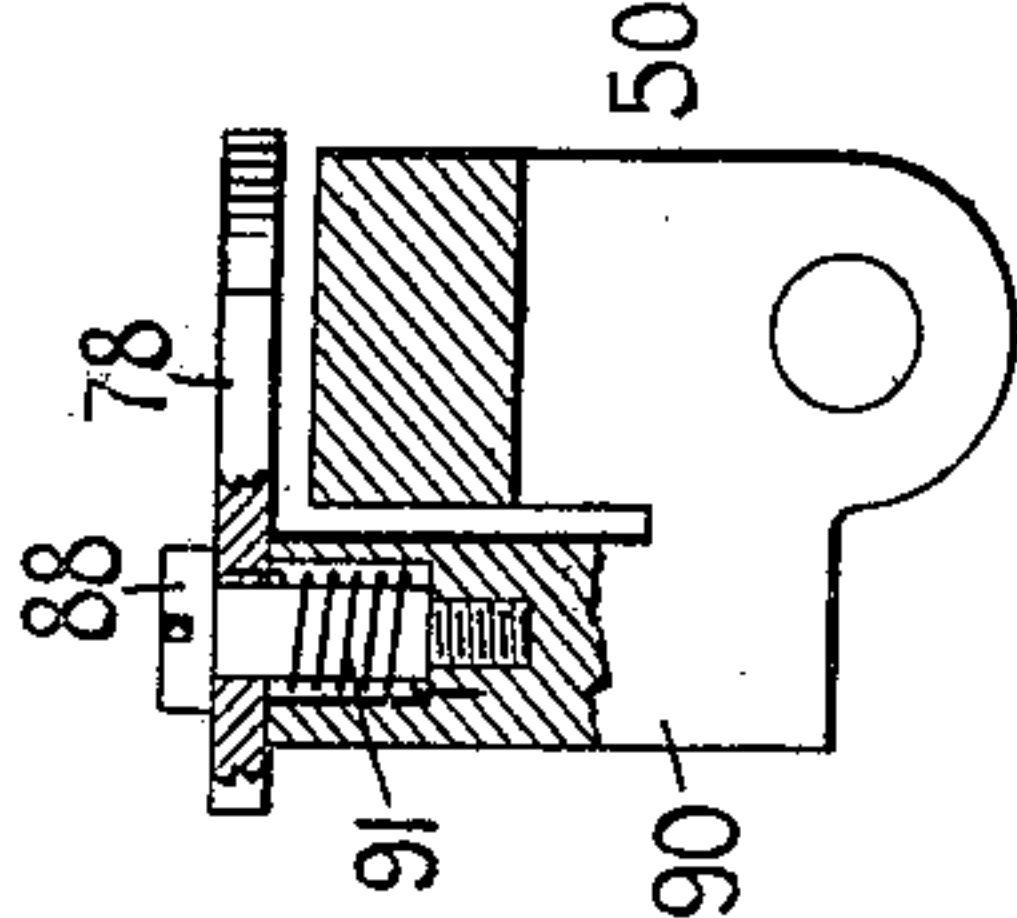


FIG. 9.

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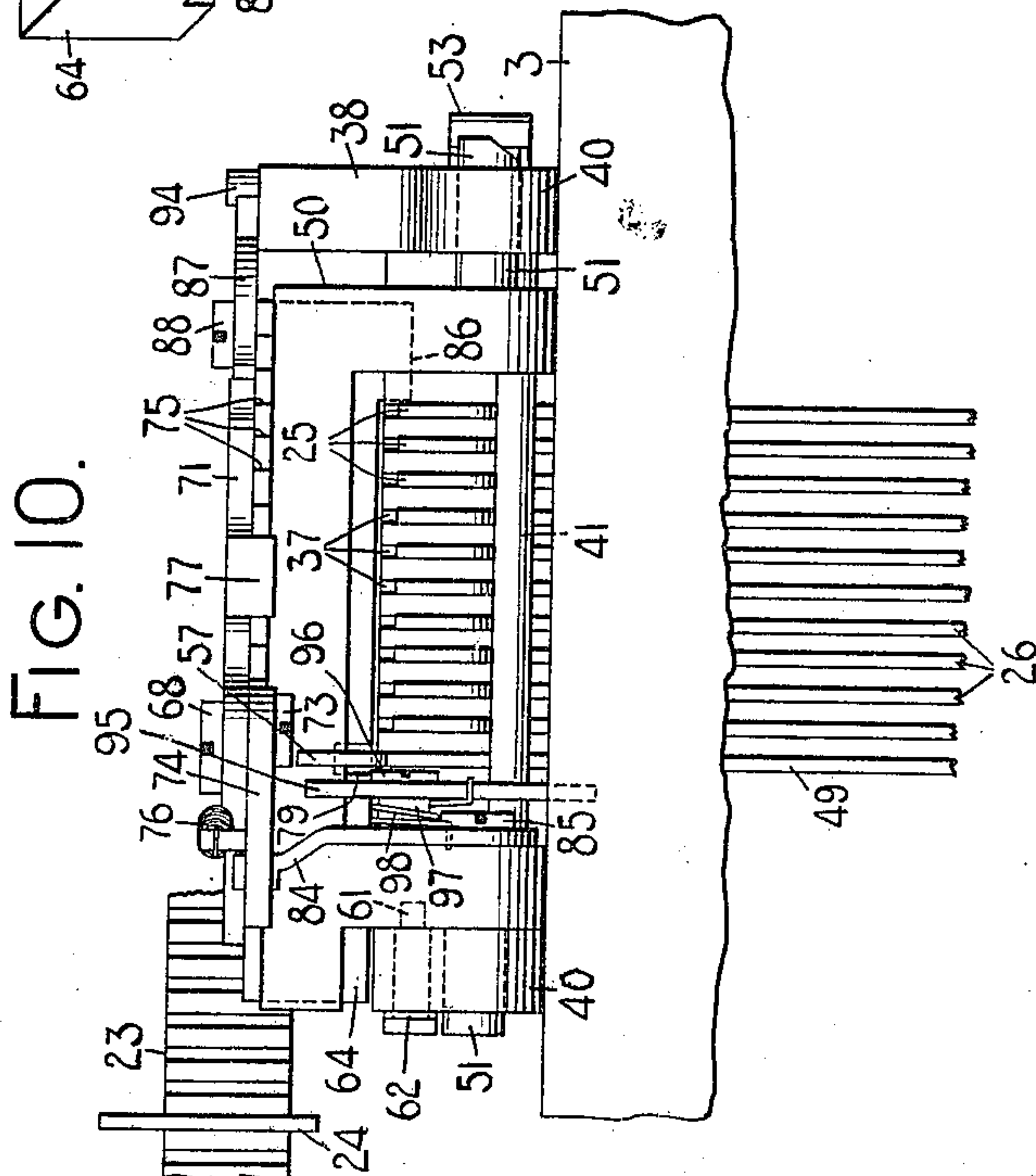
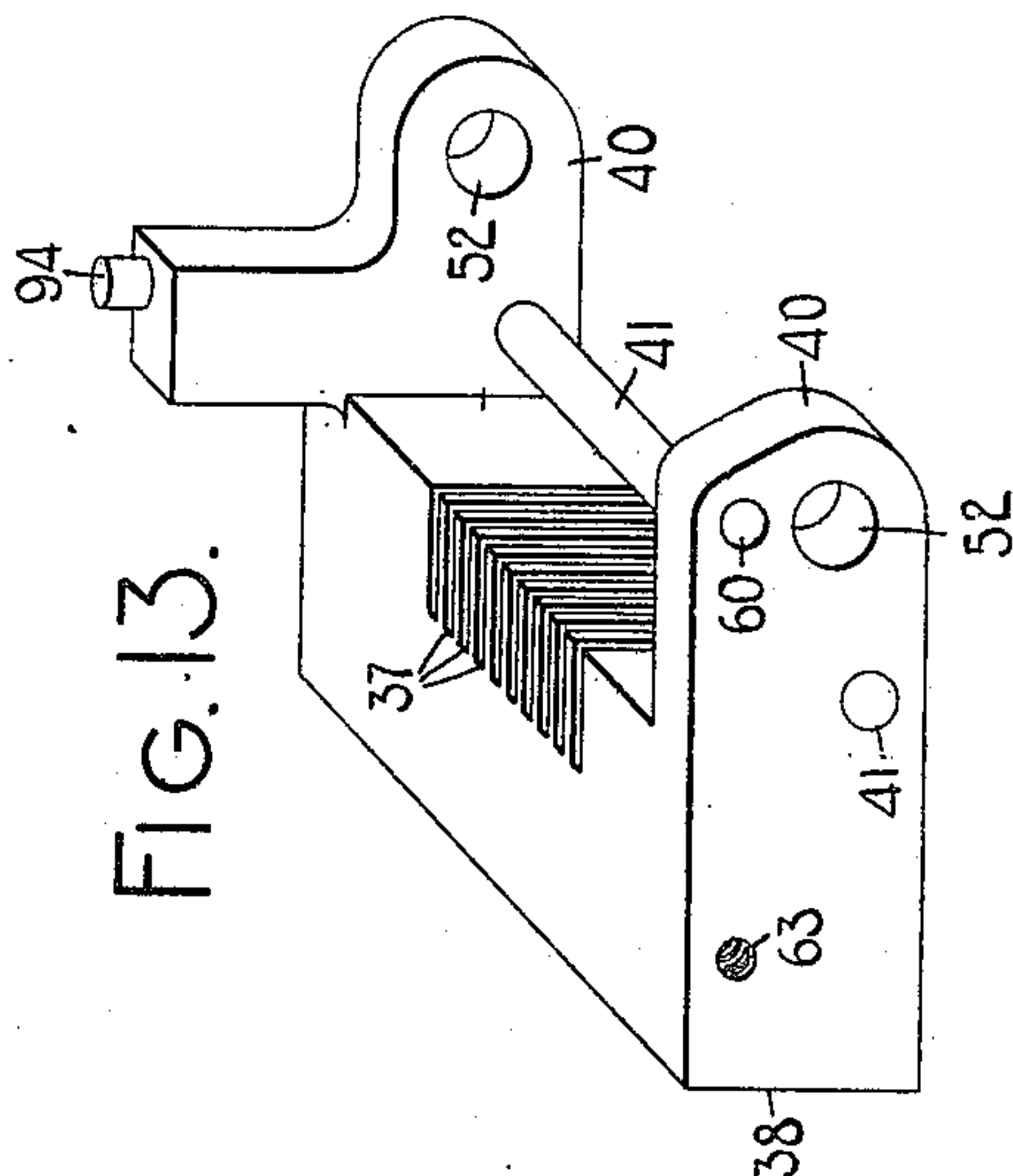
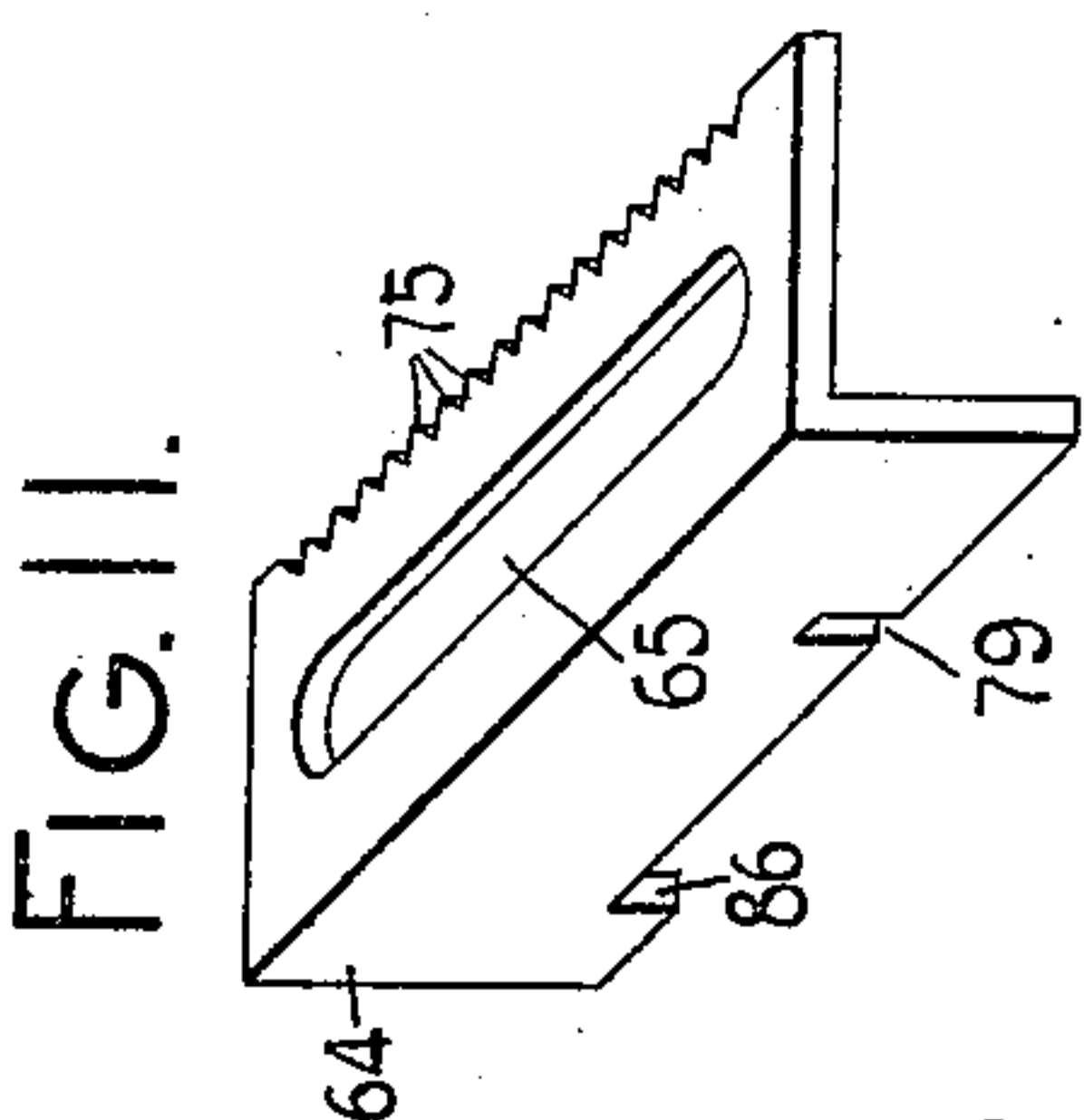
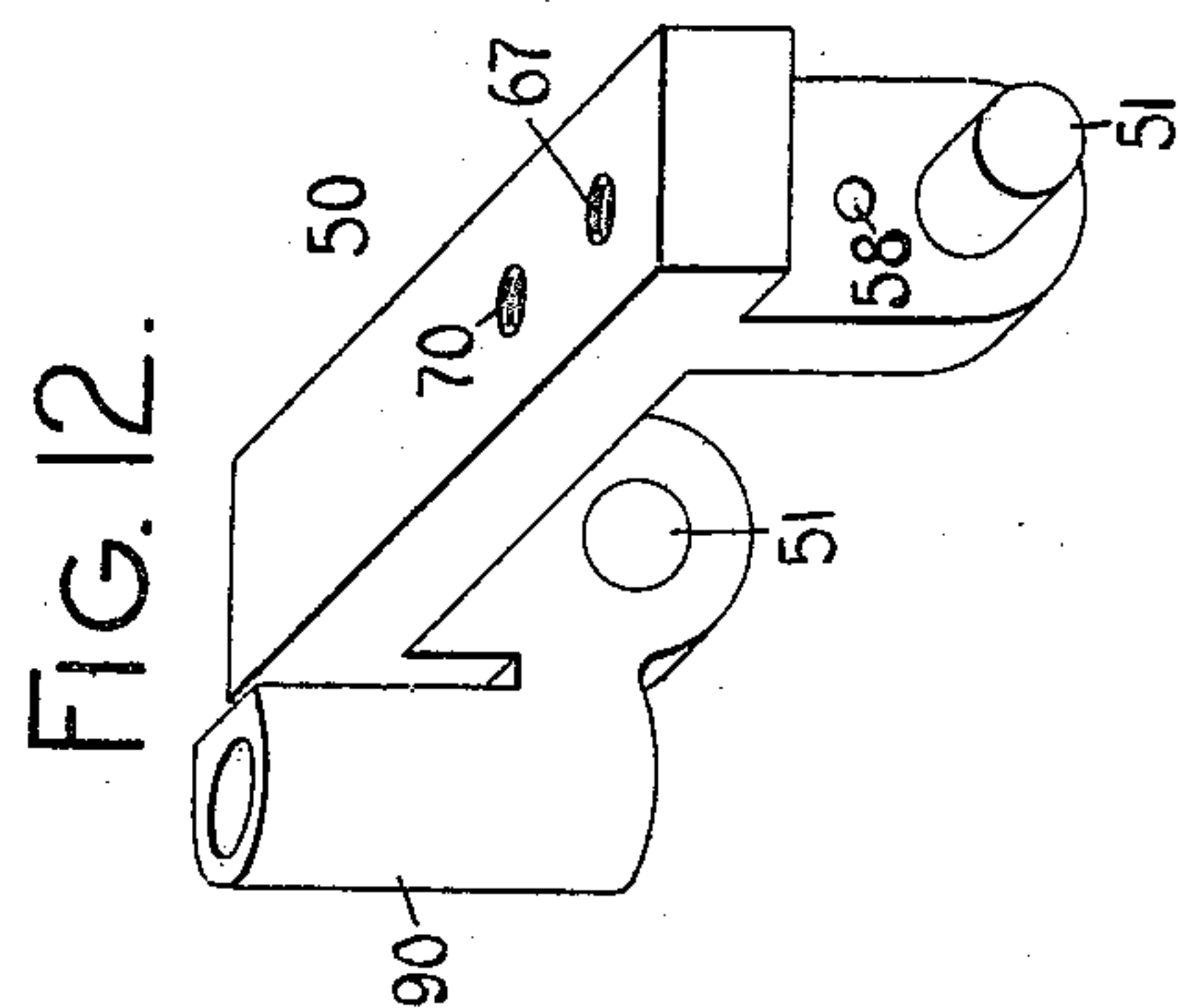


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4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

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## TYPE-WRITING MACHINE.

994,209.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed March 17, 1910. Serial No. 549,991.

*To all whom it may concern:*

Be it known that I, ANDREW W. STEIGER, citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and more particularly to tabulator mechanism for such machines.

The object of the invention is to make certain improvements in that class of tabulating devices in which denominational tabulator mechanism is combined with means for selecting any one of a plurality of columns defined by the adjustment of the column stops.

The present invention is in some respects of the same general character as those set forth in my prior applications Serial No. 511,613, filed August 6, 1909, and Serial No. 514,382, filed August 24, 1909, which applications contain claims broader than any in the present application, and the present application contains no claims for anything shown in said prior applications. By the present invention certain modifications and improvements have been made which will appear in the course of the description.

My invention consists in certain features of construction and combinations and arrangements of parts which will be set forth herein and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front to rear vertical sectional view of a typewriting machine having my invention embodied therein and only so much of said machine being shown as is necessary to an understanding of the invention. Fig. 1 is on a reduced scale and the remaining figures are on an enlarged scale. Fig. 2 is a fragmentary side elevation with parts in section and the mechanism in normal position. Fig. 3 is a view similar to Fig. 2 but showing the mechanism as it stands when the special column selector key is operated. Fig. 4 is a view similar to Fig. 3 but with the column key restored to normal, and one of denominational stops projected to column selecting position. Fig. 5 is a face view of some of the operating parts as seen when looking in the direction of the arrow  $x$  in Fig. 2. Fig.

6 is a top plan view with the parts in position for selecting columns. Fig. 7 is a view similar to part of Fig. 6 but showing the mechanism after two column stops have passed it and showing the third column stop in the act of passing the column selecting mechanism. Fig. 8 is a similar view but showing the fourth column stop arrested by the column selecting mechanism. Fig. 9 is a fragmentary vertical sectional view through part of the column selecting frame. Fig. 10 is a rear elevation with the column selecting devices in operative position. Figs. 11, 12 and 13 are detail isometric views of parts of the mechanism detached.

My invention is applicable or readily adaptable to typewriting machines generally, and the general outline of a typewriter is shown in Fig. 1 conventionally.

The frame is shown with a base 1, corner posts 2 and a top plate 3, the last having a transverse depression or trough 4 beneath the carriage 5. Said carriage is shown with a horizontal rail 6 that is grooved in its front and rear edges to receive anti-friction rollers 7 which coöperate with stationary grooved rails 8. Said carriage has the usual paper roller or platen 10 mounted thereon.

The carriage is drawn across the machine by the usual spring drum 11 which is connected therewith by means of the usual strap 12. The step-by-step feed of the carriage is controlled by mechanism comprising a feed rack 13 which is supported on arms depending from the carriage, to which they are pivoted at 14. Said rack 13 has teeth on the forward edge thereof and it is held forward in normal position by means of a flat spring 15. Said rack engages a feed pinion 16 which is mounted on the upper end of a shaft 17, the lower end of which may carry any suitable escapement wheel controlled by any suitable dogs, operated by the space key and printing keys of the machine. The carriage can be released from its escapement mechanism by swinging the rack 13 toward the rear. This can be done by means of a roller or shoe 18 mounted on the upper end of a lever arm 20 which is pivoted at 21 to a bracket 22 depending from the trough-like part 4 of the top plate.

The tabulator mechanism comprises the usual column stop bar 23 which is secured at its ends to the rear part of the carriage in



any suitable or usual manner. So far as my invention is concerned the parts thus far referred to may be of any usual or suitable sort. The column stop bar is here shown of square cross section with the usual notches spaced a letter space distance apart for the reception of blade-like column stops 24. Any suitable number of these stops can be placed on the bar 23, four stops being shown in the drawings.

My invention is capable of operation, substantially in the ordinary way, as a denominational tabulator. The denominational stops 25 consist of the upper ends of a series of vertically disposed flat bars 26 which at their lower ends are pivoted at 27 to the rear ends of a set of levers 28 of the first order which in turn are pivoted at 30 to a cross bar 31 in the base of the machine, these levers preferably being located below the printing key levers or other printing instrumentalities of the machine. The forward ends of the levers 28 are reduced and pass through suitable slots in the stems 32 of a series of keys 33 which extend across the key board of the machine back of the last row of printing keys. The rear ends of the levers 28 are comparatively close together and said levers preferably fan out toward the front of the machine so as to space the keys 33 a suitable distance apart. The key stems 32 are guided by two plates 34 and 35 in the base of the machine and the key levers are held in normal position by springs 36.

The upper ends of the bars 26 pass through a suitable opening in the top plate 3 and these bars are guided in slots 37 (Fig. 13) cut in a block or frame 38 which is secured to the top plate as indicated in Fig. 1. As shown in Fig. 13 the block or frame 38 has two rearwardly projecting arms 40 which are connected by a rod 41 which retains the stops 25 and bars 26 in the slots 37; that is to say, it prevents the bars from moving toward the rear.

The construction is such that when one of the denominational keys 33 is depressed the corresponding denominational stop 25 is raised into the path of the column stops 24.

In order to release the carriage automatically any suitable means may be provided. As here shown each of the bars 26 of the denominational stops has a projection 42 on its forward edge, said projection being formed with an inclined part 43 arranged to coöperate with a universal bar 44 suspended by arms 45, which arms are pivoted at 46 in a branch of the bracket 22. One of the arms 45 is prolonged above the pivot 46 and is connected by a link 47 with the carriage release lever 20. This universal bar frame is controlled by a restoring spring 48. The construction is such that when any one of the denominational keys is operated the

universal bar 44 is moved toward the front of the machine and the lever 20 is swung toward the rear of the machine, forcing the rack 13 out of engagement with the pinion 16.

The column selecting mechanism is brought into operation by a special one of the keys 33, the right-hand one of said keys being shown in the present instance equipped for this purpose. This key controls a bar 49, somewhat similar to the bars 26 and similarly connected to its key 33, but, as shown in Fig. 1 this bar 49 is not formed with the projection 42 so that it does not operate the carriage release. The upper end of the bar 49 is not adapted to move into the path of the column stops but is formed in a peculiar manner to be presently described.

The column selecting mechanism comprises a frame denoted generally in Figs. 9 and 12 by the reference numeral 50. This frame is of bail-shape and it is pivoted by means of trunnions 51 to the stationary block or frame 38, said trunnions entering holes 52 in the arms 40 of said blocks. As shown in Fig. 10, the frame 50 stands between the two arms 40 and said frame does not fill up the whole space between said arms, so the frame is free to slide to the limited extent in a right and left-hand direction. The left-hand one of the trunnions 51 projects beyond the arm 40, and a spring 53, secured to the block 38 by a screw 54, presses against said trunnion and normally holds the frame 50 in its extreme right-hand position. This frame 50 is normally tilted back about its trunnions 51 in the position shown in Fig. 1, but it is capable of being thrown up by means of the right-hand or special key 33 into the position shown in Fig. 4. The spring 53 is utilized to assist in throwing this frame back to its normal tilted position. To this end the rear end of said spring is bent into a V-shape, which engages a V-shaped notch 55 in the end of the trunnion. When the frame 50 is in its upper position shown, for example, in Fig. 6 the spring 53 is forced part way out of the notch 55 by reason of the turning of the trunnion and the tension of said spring tends to throw the frame back. In order to throw the frame 50 up from the position shown in Fig. 2 to that shown in Fig. 4 the right-hand bar 26 is formed with a rearwardly directed arm 56, the rear end 57 of which is bent up to form a sort of cam. It will be seen in Fig. 2 that the extremity of this cam arm 57 is in contact with the lower rear corner of the cross bar of the frame 50. When the right-hand key 33 is operated this bar is elevated as shown in Fig. 3 and forces the frame 50 up to its operative position.

In order to hold the frame 50 up in the position shown in Fig. 4, the right-hand arm



of said frame is formed with a hole 58, (Fig. 12) and this hole when the frame is elevated registers with a hole 60 (Fig. 13) in the frame 38. A pin 61 (Figs. 6 and 10) is secured to the rear end of a flat spring 62 which is secured to the frame 38 by screws 63, said pin lying in the hole 60 and being pressed inward by the spring 62 so that when the frame 50 is moved to its elevated position this pin snaps into the hole 58 and retains the frame in such position.

A slide bar 64 (Fig. 11) is mounted on the frame 50, said slide bar being of the angular construction shown, one branch of said bar lying on top of the frame and the other branch in front thereof. Said slide bar is formed with a long slot 65 through which passes a guide screw 66 (Fig. 5) threaded into a hole 67 (Fig. 12). A second screw 68 is threaded into a second hole 70 and said second screw in addition to guiding the bar 64 also serves as a pivot for a lever 71 which lies on top of the bar 64. Said lever has a rearwardly extending arm 72 to which at 73 is pivoted a pawl 74 adapted to engage ratchet teeth 75 formed in the rear edge of the bar 64. Said pawl 74 and the lever 71 are both controlled by a spring 76 which tends to hold the pawl in engagement with the ratchet and to hold the free end of the lever 71 toward the front of the machine. The motion of said lever under the impulse of said spring is limited by a stop lug 77 (Fig. 10) which is bent down from the lever 71 into position to engage the rear edge of the plate or bar 64. The right-hand end of the lever 71 is formed with a forwardly projecting nose or stop 78 which, when the parts are in the position shown, for example, in Figs. 4 and 6, stands in the path of the column stops 24.

The forward angle of the bar 64 projects somewhat below the cross bar of the frame 50, as indicated in Fig. 3, except where a notch 79 (Fig. 11) is cut therein, just above the special bar 49. Each of the denominational stops 25 has above the bar 41 a rearward projection 80, best shown in Fig. 4, and this projection has in its upper edge a notch 81, Fig. 2, which, when the column stop is elevated by the depression of the corresponding key 33, is adapted to receive the lower edge of the bar 64 for a purpose that will presently appear. Said bar 64 normally stands in its extreme left-hand position shown in Fig. 5 to which it is drawn by means of a spring 82 which at one end is connected with a post 83 projecting from said bar and at the other end to a part of the frame 50. The bar 64 is adapted to be fed to the right by means of the pawl 74 and to be retained in position by means of a retaining pawl 84 which is pivoted on a screw 85 (Fig. 10) which is here shown co-axial with the trunnions 51. As shown in Fig. 11 the bar

64 is formed near its left-hand end with a stop lug 86 adapted as the bar is fed along to be arrested by one of the denominational stops 25.

When it is desired to use the column selecting mechanism the right-hand or special key 33 is operated to throw the frame 50 up to operative position as shown in Fig. 3 and this key is then released, the frame being locked in its operative position by the pin 61. Some one of the denominational keys 33 is depressed, depending on how many columns it is desired to skip. If the extreme left-hand denominational key is depressed the carriage will be arrested by the first column stop that reaches the nose 78. If the second key 33 is operated the carriage will be arrested by the second column stop and so on. When the denominational key is operated the denominational stop is unable to remove far enough to come into the path of the column stops 24, said denominational stop being arrested by the bar 64 as indicated in Fig. 4. The operation of this denominational stop releases the carriage, however, as the incline 43 is so designed as to move the bar 44 to its full extent by this short motion of the bar 26.

In the drawings I have lettered the four column stops 24 that are shown, *a*, *b*, *c* and *d*, to facilitate comparison of the different views. The first column stop that strikes the nose 78, rocks the lever 71 and operates the pawl 74 and moves the bar 64 the space of one tooth toward the right, and each succeeding column stop moves said bar a like distance. The teeth 75 on the bar 64 are spaced a letter space distance apart so that this stepping of said bar brings the top lug 86 into register with one after another of the denominational stops 25. If, as indicated in Fig. 7, it is the fourth denominational stop that has been operated, then after three denominational stops have passed the nose 78 the lug 86 will be substantially in contact with the projected denominational stop 25 as shown in Fig. 7. When the next succeeding column stop strikes the nose 78 the bar 64 is unable to move farther toward the right and the lever 71 therefore is unable to rock about its pivot. The entire frame 50 and the parts carried thereby are therefore moved to the left against the tension of the spring 53 until arrested by the left-hand one of the arms 40 as indicated in Fig. 8. When the parts arrive at this position the lever 71 is positively held against turning motion by means of a hook 87 which is pivoted at 88 on a standard or bracket 90 (Fig. 12) of the frame 50, this hook acting as a special arresting device which takes the shock of the arrest of the carriage. Said hook is normally out of the path of the lever 71 as shown in Figs. 6 and 7, being so held by means of a spring 91, Fig. 9. As



shown in said Fig. 9 the pivot screw 88 is received in a counter-bored hole in the bracket 90 and the spring 91 is coiled about said screw within said hole. The motion of the hook or latch 87 under the impulse of its spring 91 is limited by an arm 92 of said hook which is adapted to contact with the lever 71 as shown in Fig. 6. The left-hand edge of the hook 87 is formed as a cam 93 which when the frame 50 is in its upper position coöperates with a pin 94 projecting upward from the frame 38. The construction is such that when the frame 50 is forced toward the left by the last one of the column stops 24 the pin 94, acting on the cam 93, turns the hook 87 to the position shown in Fig. 8 where it locks the lever 71 against turning. It will thus be seen that the shock of the arrest of the carriage does not come on the relatively delicate parts of the pawl and ratchet mechanism 74, 75 nor does it come on the denominational stop 25 but that this shock is taken by the hook 87. This is one of the most important improvements of the present invention over the mechanism shown in my prior applications.

By comparing Figs. 7 and 8 it will be seen that when the frame 50 is moved to the left by the last column stop it carries the stop lug 86 away from the projected denominational stop 25. The plate or bar 64 and the pawl and ratchet mechanism are therefore under no strain at all in this operation, except such as is necessary to bend the spring 53.

When the frame 50 is moved to the left to the position shown in Fig. 8 it moves away from the pin 61 which had been retaining said frame in its upper position. It is for this reason that the notch 81 is formed in the upper edge of the denominational stop so that this notch prevents the frame 50 from immediately falling back to its inoperative position shown in Fig. 2. As soon as the denominational key 33 is released and the stop 25 drops down, the frame is, however, free to fall back and immediately does so under the impulse partly of gravity and partly of the spring 53, so that at the end of a column selecting operation the parts are automatically restored to the normal position shown in Fig. 2.

In order that the parts be ready for another column selecting operation it is necessary to withdraw the pawls 74 and 84 from the ratchet teeth 75. To this end, as best shown in Figs. 2, 3 and 10, a lever 95 is pivoted to the side of the pawl 84 at 96. As shown in Fig. 10 the lever 95 is pivoted on a post 97 projecting from the pawl 84 and the pivot screw 96 is threaded into said post. A spring 98 is coiled about the post 97 and connected at one end with the pawl 84 and at the other end with the lever 95, the tension of this spring being exerted in

such direction that if the parts were free to move the rear upper end of the lever 95 would move toward the rear and downward. At its upper end the lever 95 is formed with a nose 100 that contacts with the rear face of the frame 50 and the forward end of said lever is made with the curved outline shown and presses against the back of the bar 41. It will be seen that the tension of the spring 98 is exerted to press this lever against the bar 41 and the spring therefore presses the pawl 84 into engagement with the ratchet teeth 75. When the frame drops down to the position shown in Fig. 2 said frame, pressing against the nose 100, forces the lever 95 back to the position shown in said Fig. 2 and as the forward end of said lever cannot move upward on account of the bar 41 the pivot 96 is forced downward and toward the back, thus forcing the pawl 84 out of engagement with the teeth 75 as indicated in Figs. 2 and 5. As this pawl lies directly in front of the pawl 74 it also forces said pawl 74 out of engagement with the ratchet teeth, thus leaving the bar 64 free to be withdrawn to its normal position by the spring 82. Said bar is arrested in normal position by the end of the slot 65 coming against the screw 66.

It will be noted that the frame 50 which carries the column selecting devices, is mounted directly on the frame 38 of the denominational stops, so that the column selecting mechanism adds but little to the width of the denominational tabulator. The arrangement is more compact than in my prior cases hereinbefore referred to.

Various changes can be made in the details of construction and arrangement without departing from my invention.

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

1. In tabulator mechanism for typewriting machines, the combination with a plurality of stops, a single coöperating stop, the stops when coöperating yielding one to the other, and means for preventing said yielding when said single stop coöperates with a predetermined stop of said plurality of stops, of a special arresting device brought into operation by the coöperation of said yielding stop with the predetermined one of said plurality of stops.

2. In tabulator mechanism for typewriting machines, the combination of a plurality of stops, a single coöperating stop yieldable to said plurality of stops, means for preventing said yielding stop from yielding to a predetermined one of said plurality of stops, and a special arresting device brought into operation by the coöperation of said predetermined stop and said yielding stop.

3. In tabulator mechanism for typewriting machines, the combination of a plu-



5 rality of column stops adjustably arranged  
 on the carriage of a machine, a column se-  
 lecting stop on the frame of the machine,  
 said selecting stop being yieldable to certain  
 10 of said column stops when the carriage is  
 released, means for preventing said single  
 stop from yielding to a predetermined col-  
 umn stop, so as to arrest the carriage in a  
 predetermined columnar position, and a  
 15 special arresting device brought into op-  
 eration by the coöperation of said selecting  
 stop and said predetermined column stop.

4. In tabulator mechanism for typewrit-  
 ing machines comprising a set of column  
 15 stops, key controlled stops coöperative di-  
 rectly with said column stops to obtain pre-  
 determined denominational positions in col-  
 umns, and another stop movable to coöper-  
 ate with said column stops and said denomi-  
 20 national stops to assist in selecting particu-  
 lar columns in which to write, the combina-  
 tion with the parts of said tabulator mech-  
 anism above recited, of a special arresting  
 device brought into operation by said parts.

25 5. In tabulator mechanism for typewrit-  
 ing machines, the combination with a series  
 of column stops, a series of denominational  
 stops for coöperation with said column  
 stops, a yielding stop arranged to yield to  
 30 said column stops, and means controlled by  
 said denominational stops for variably limit-  
 ing the number of column stops to which  
 said yielding stop can yield, of a special ar-  
 resting device brought into the path of said  
 35 yielding stop by the selected column stop.

6. In the tabulator mechanism of a type-  
 writing machine, the combination of a series  
 of column stops, a yielding stop normally  
 out of the path of said column stops, means  
 40 for moving said yielding stop into the path  
 of said column stops, means for variably  
 limiting the number of column stops to  
 which said yielding stop can yield at a  
 given operation so as to cause said yielding  
 45 stop to arrest a predetermined one of said  
 column stops, and a latch moved into the  
 path of said yielding stop when the latter  
 is struck by said predetermined column stop.

7. In the tabulator mechanism of a type-  
 50 writing machine, the combination of a series  
 of column stops, a support, a yielding stop  
 yieldingly mounted on said support, said  
 support being movable to bring said yield-  
 ing stop into or out of the path of said  
 55 column stops, and said support being also  
 movable in another direction, means for  
 variably limiting the number of column  
 stops to which said yielding stop can yield  
 so as to select a predetermined one of said  
 60 column stops, and a special arresting device  
 for said yielding stop brought into opera-  
 tion by a movement of said support in said  
 other direction under the impulse of said  
 predetermined column stop.

65 8. In the tabulator mechanism of a type-

writing machine, the combination with col-  
 umn stops, coöperating denominational stops  
 and column selecting devices including a  
 progressively movable part co-acting with  
 said denominational stops, of a special ar- 70  
 resting device for taking the shock of arrest  
 off of said denominational stop.

9. In the tabulator mechanism of a type-  
 writing machine, the combination of a series  
 of column stops, a yielding stop for coöp- 75  
 eration with said column stops, a movably  
 mounted support for said yielding stop, said  
 support being movable in two directions, its  
 movement in one direction bringing the  
 yielding stop into the path of the column 80  
 stop and its movement in the other direc-  
 tion being under the impulse of one of said  
 column stops, means for moving said sup-  
 port to bring said yielding stop into the  
 path of the column stops, and a latch for 85  
 retaining said support in its operative posi-  
 tion, said latch being released by the move-  
 ment of said support under the impulse of  
 the column stop.

10. In the tabulator mechanism of a type- 90  
 writing machine, the combination of a series  
 of column stops, a support pivotally mounted  
 and movable about its pivot and also longi-  
 tudinally of its pivot, a stop movably  
 mounted on said support so as to yield to 95  
 the column stops, means for turning said  
 support about its pivot to bring said yield-  
 ing stop into the path of the column stops,  
 a latch for retaining said support in its op-  
 erative position, and means for preventing 100  
 said yielding stop from being moved on its  
 support by a predetermined column stop  
 whereby said predetermined column stop is  
 caused to move said support itself longi-  
 tudinally of its pivot and such longitudinal 105  
 motion of said support operating to release  
 said latch.

11. In a typewriting machine, the com-  
 bination of a carriage, a denominational  
 tabulator, column selecting devices, a frame 110  
 carrying part of said column selecting de-  
 vices and movable to bring said devices to  
 operative or to inoperative position, and  
 means for retaining said frame in operative  
 position, said retaining means being released 115  
 automatically by said carriage.

12. In the tabulator mechanism of a type-  
 writing machine, the combination of a series  
 of column stops, a yielding stop, means for  
 variably limiting the number of column 120  
 stops to which said yielding stop can yield,  
 and a support on which said yielding stop  
 is yieldingly mounted, said support being  
 movable to bring said yielding stop into or  
 out of the path of said column stops. 125

13. In the tabulator mechanism of a type-  
 writing machine, the combination of a series  
 of column stops, a movable frame, a yield-  
 ing stop yieldingly mounted on said frame,  
 a part mounted on said frame and movable 130



progressively by said yielding stop when the latter is operated by said column stops, means for variably limiting such progressive movement of said part, and means for moving said frame to bring said yielding stop into or out of the path of said column stops.

14. In the tabulator mechanism of a typewriting machine, the combination of a series of column stops, a series of denominational stops for coöperation with said column stops, a pivoted frame, a yielding stop yieldably mounted on said pivoted frame and movable into and out of the path of said column stops by a movement of said frame about its pivot, and a part movable progressively by said yielding stop as the latter yields to the column stops, said progressively movable part being brought into position to coöperate with said denominational stops by the same movement of said pivoted frame that brings said yielding stop into the path of said column stops.

15. In the tabulator mechanism of a typewriting machine, the combination of a series of column stops, a series of coöperating denominational stops, a frame pivoted to be swung into the paths of said denominational stops, a yielding stop mounted on said frame and moved by a movement of said frame into the paths of said column stops, a bar on said frame and movable with said frame into coöperative relation with said denominational stops, and a pawl operated by said yielding stop and operating said bar.

16. In the tabulator mechanism of a typewriting machine, the combination of a series of column stops, a movable frame, a stop arranged to yield to said column stops, a rack bar mounted on said movable frame, a pawl operated by said yielding stop and operating said rack bar, a returning pawl for said rack bar, means for variably arresting said rack bar, means for moving said frame to and from operative position, and means operated by the movement of said frame from operative position for releasing said pawls from said rack bar.

17. In the tabulator mechanism of a typewriting machine, the combination of a series of column stops, a series of denominational stops for coöperation with said column stops, a yielding stop movable into and out of position to coöperate with said column stops, means for variably limiting the number of column stops to which said yielding stop can yield, said means including a device that coöperates with said denominational stops, and means whereby the operated denomina-

tional stop temporarily holds said yielding stop in operative position.

18. In the tabulator mechanism of a typewriting machine, the combination of a series of column stops, a series of denominational stops for coöperation with said column stops, a yielding stop, a support for said yielding stop, said support being movable to bring said yielding stop into or out of the path of said column stops, a detent for holding said frame in operative position, means including a series of key-controlled stops for variably limiting the number of column stops to which said yielding stop can yield, means whereby the selected column stop releases said support from said detent, and means whereby the operated one of said key-controlled stops temporarily holds said support in operative position.

19. In the tabulator mechanism of a typewriting machine, the combination of a series of column stops, a coöperating stop, a support for said coöperating stop, trunnions on which said support is pivotally mounted, a V notch in one of said trunnions, a spring engaging in said notch, and means for swinging said support on said trunnions to bring said coöperating stop into the path of said column stops, said spring tending to restore said frame.

20. In a typewriting machine, the combination of a carriage, a series of column stops, denominational tabulator devices for coöperation with said column stops, column selecting devices capable of coöperation with said column stops and controlled by said denominational devices, means for throwing said column selecting devices into and out of operation, said column selecting devices when in operation limiting the movement of said denominational devices so as to prevent direct coöperation between the latter and said column stops, and carriage release mechanism including a cam operated by said denominational devices and a follower operated by said cam, said cam being arranged to impart a full operation to said follower by a limited operation of said denominational device.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 16th day of March, A. D. 1910.

ANDREW W. STEIGER.

Witnesses:

CHARLES E. SMITH,  
E. M. WELLS.