

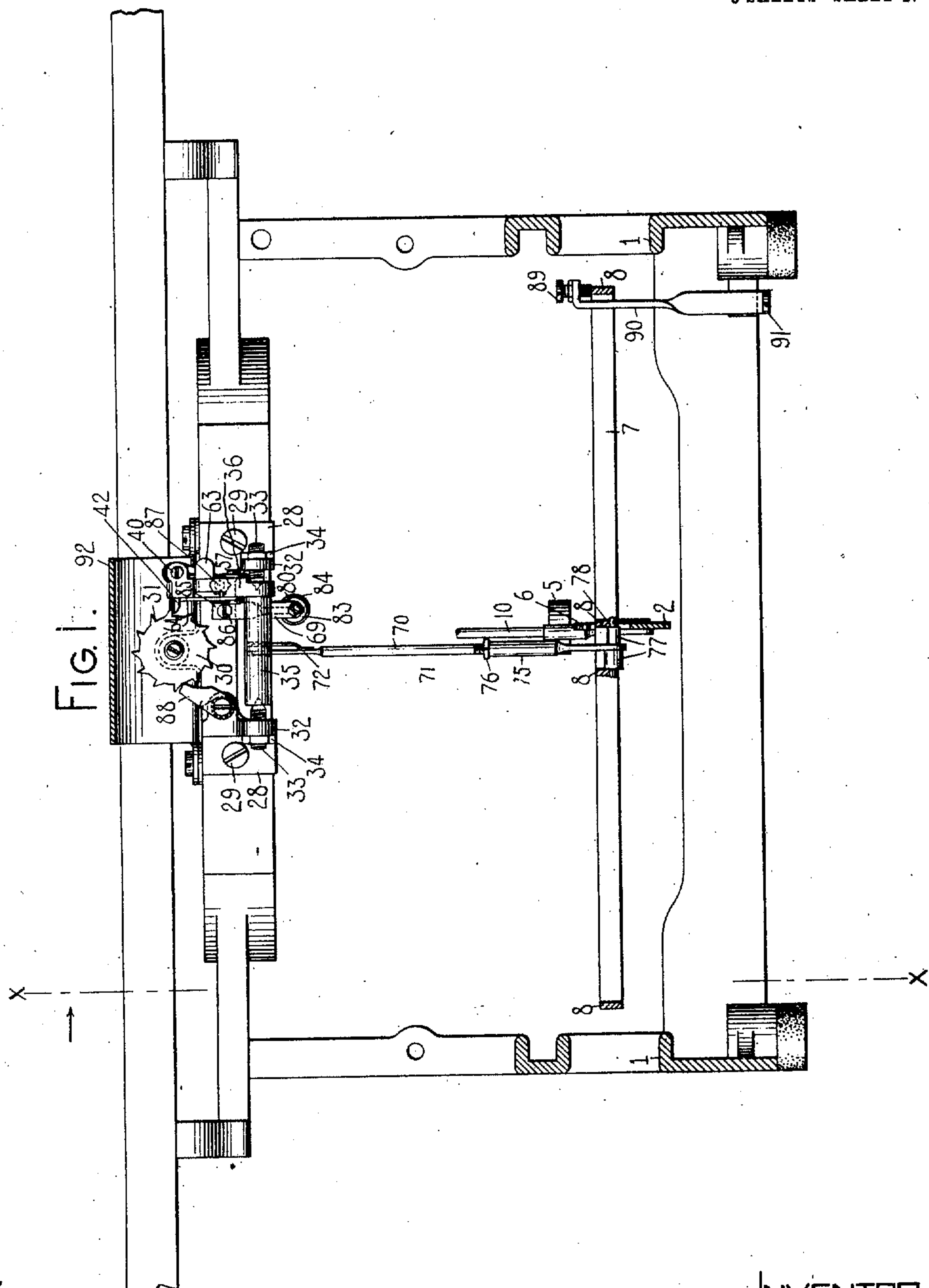
No. 850,187.

PATENTED APR. 16, 1907.

G. H. SMITH.
TYPE WRITING MACHINE.

APPLICATION FILED JAN. 24, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

M. W. Pool
W. J. Harnacher

INVENTOR:

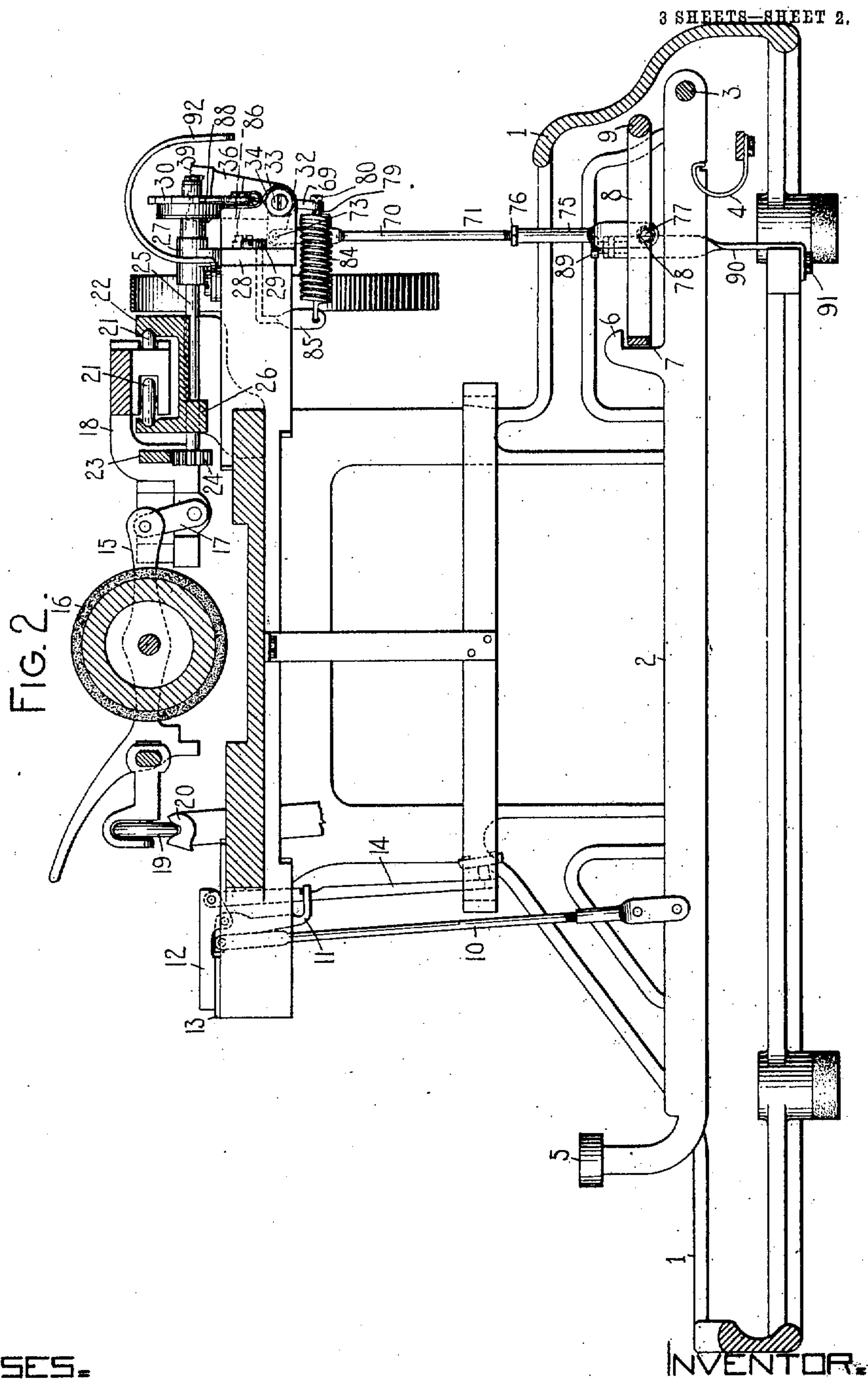
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

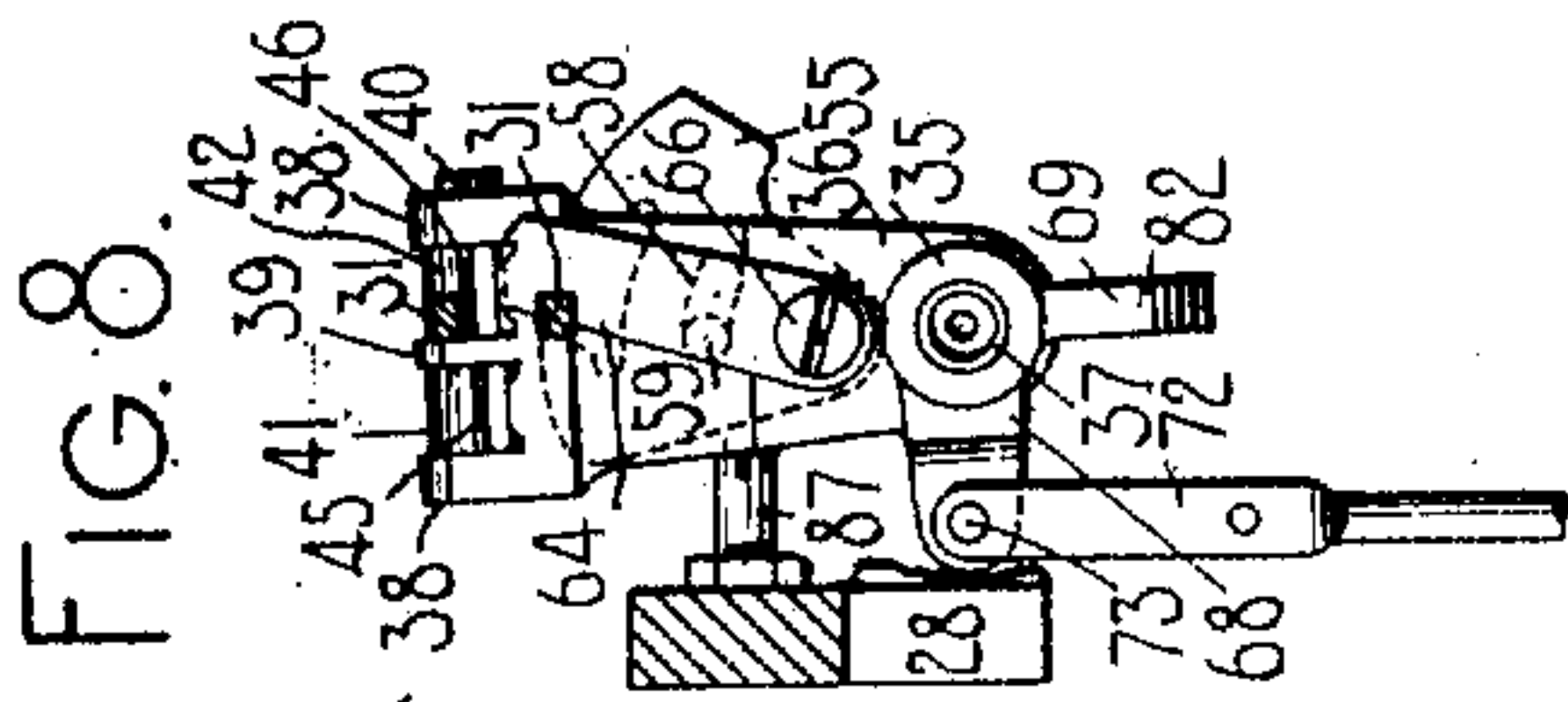


FIG. 8.

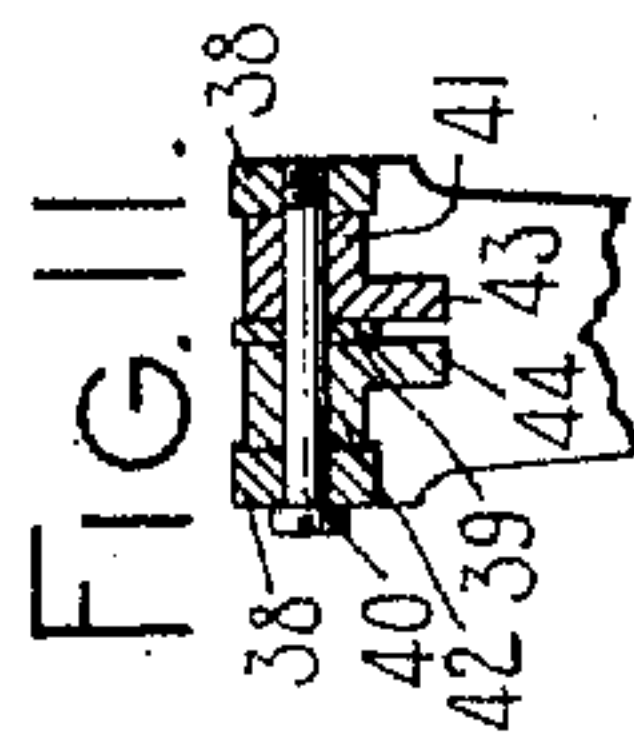


FIG. 11.

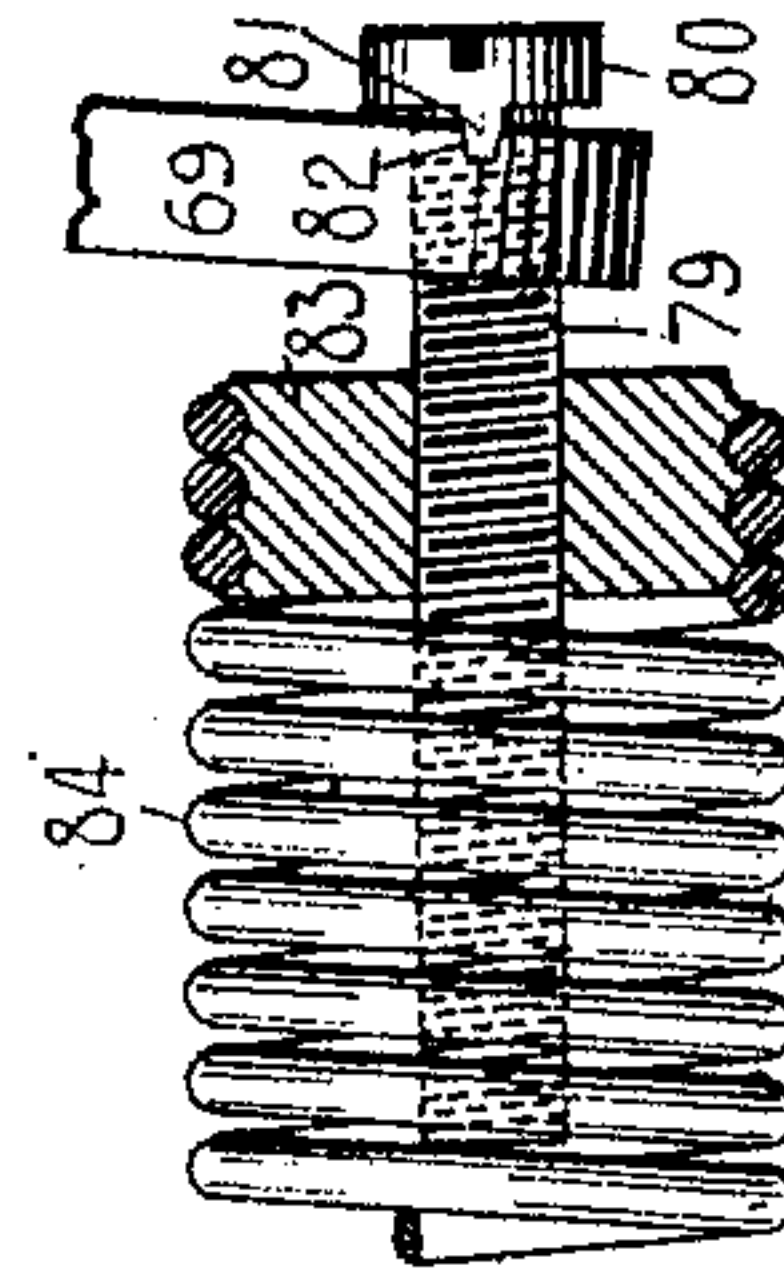


FIG. 12.

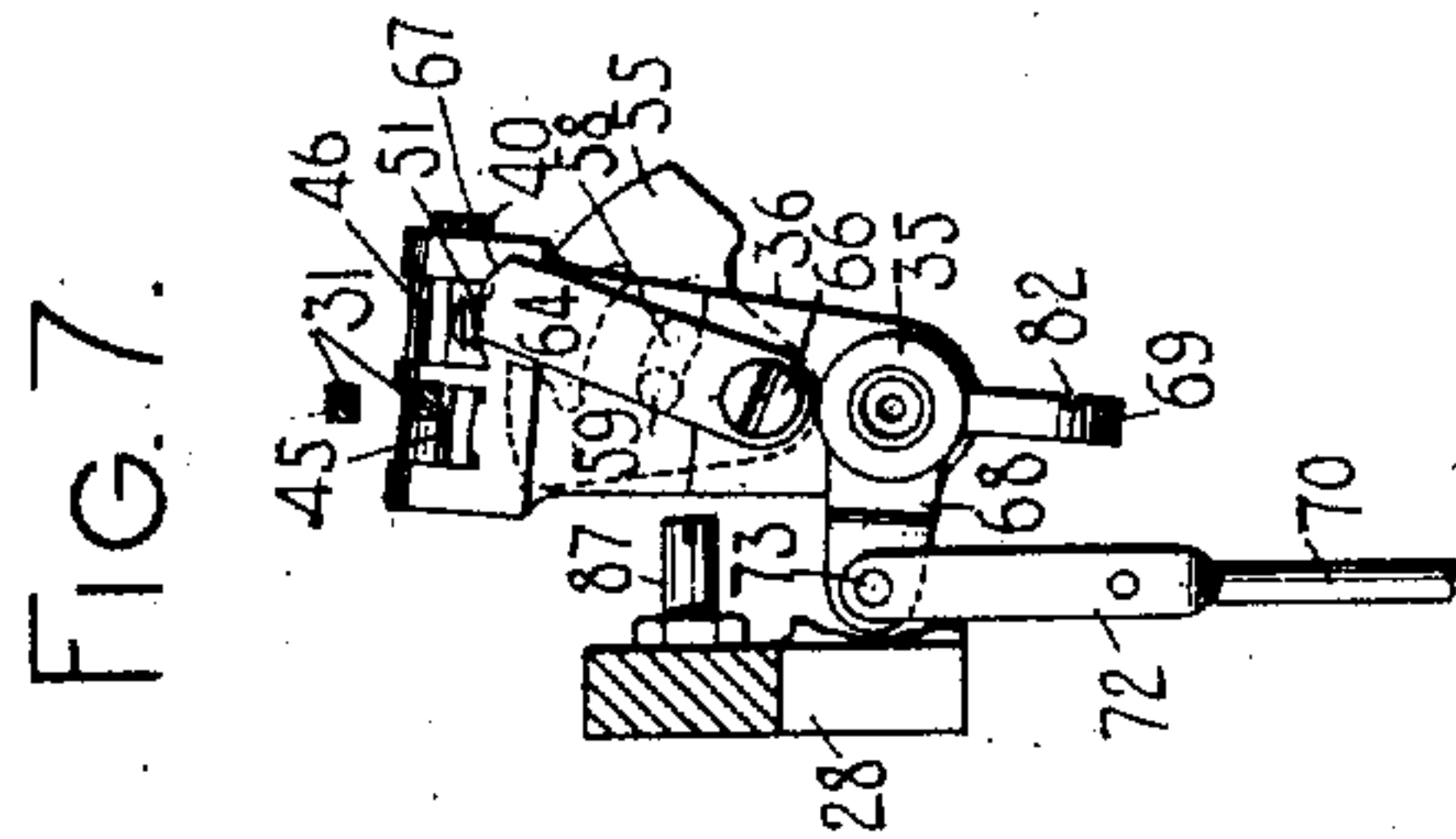


FIG. 7.

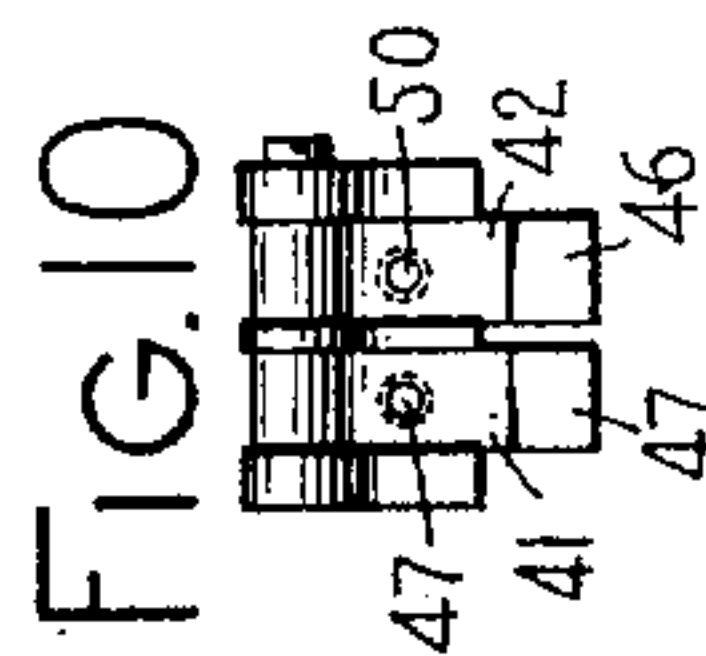


FIG. 10.

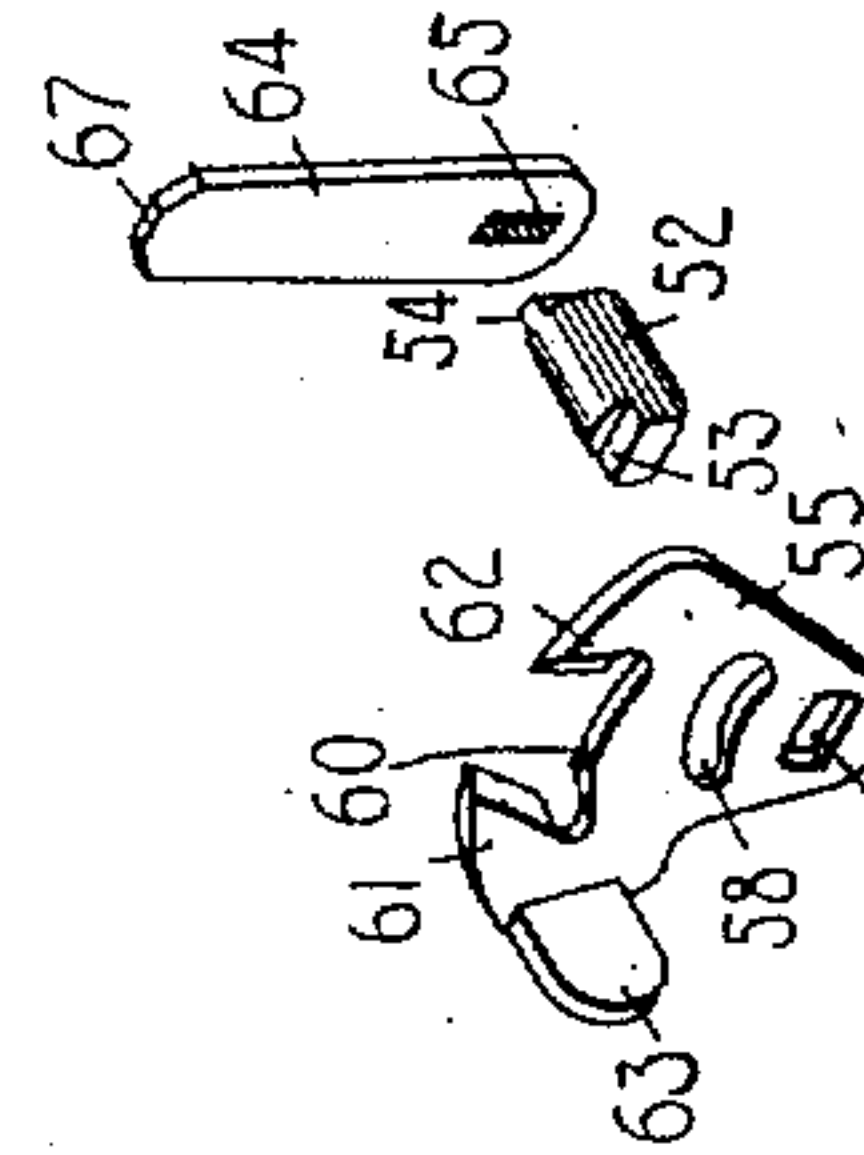


FIG. 13.

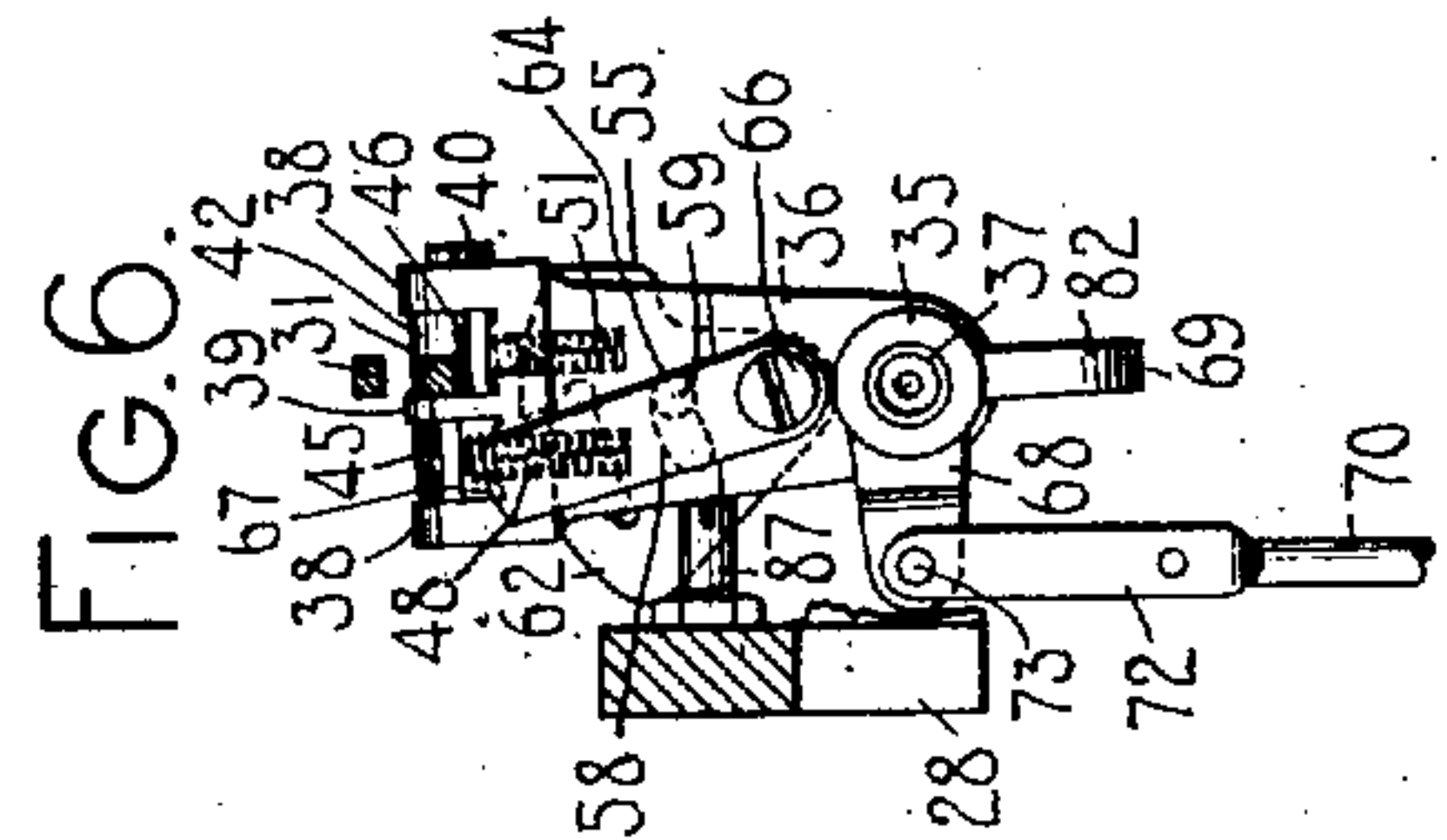


FIG. 6.

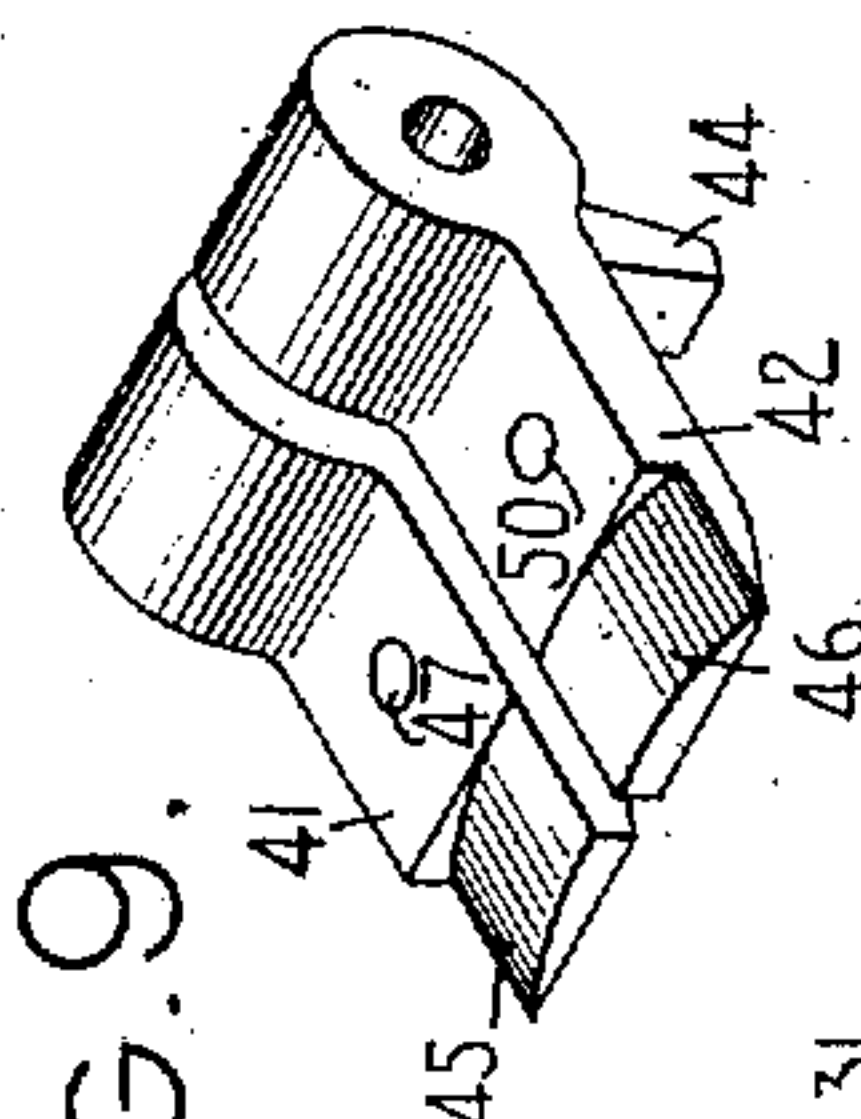


FIG. 9.

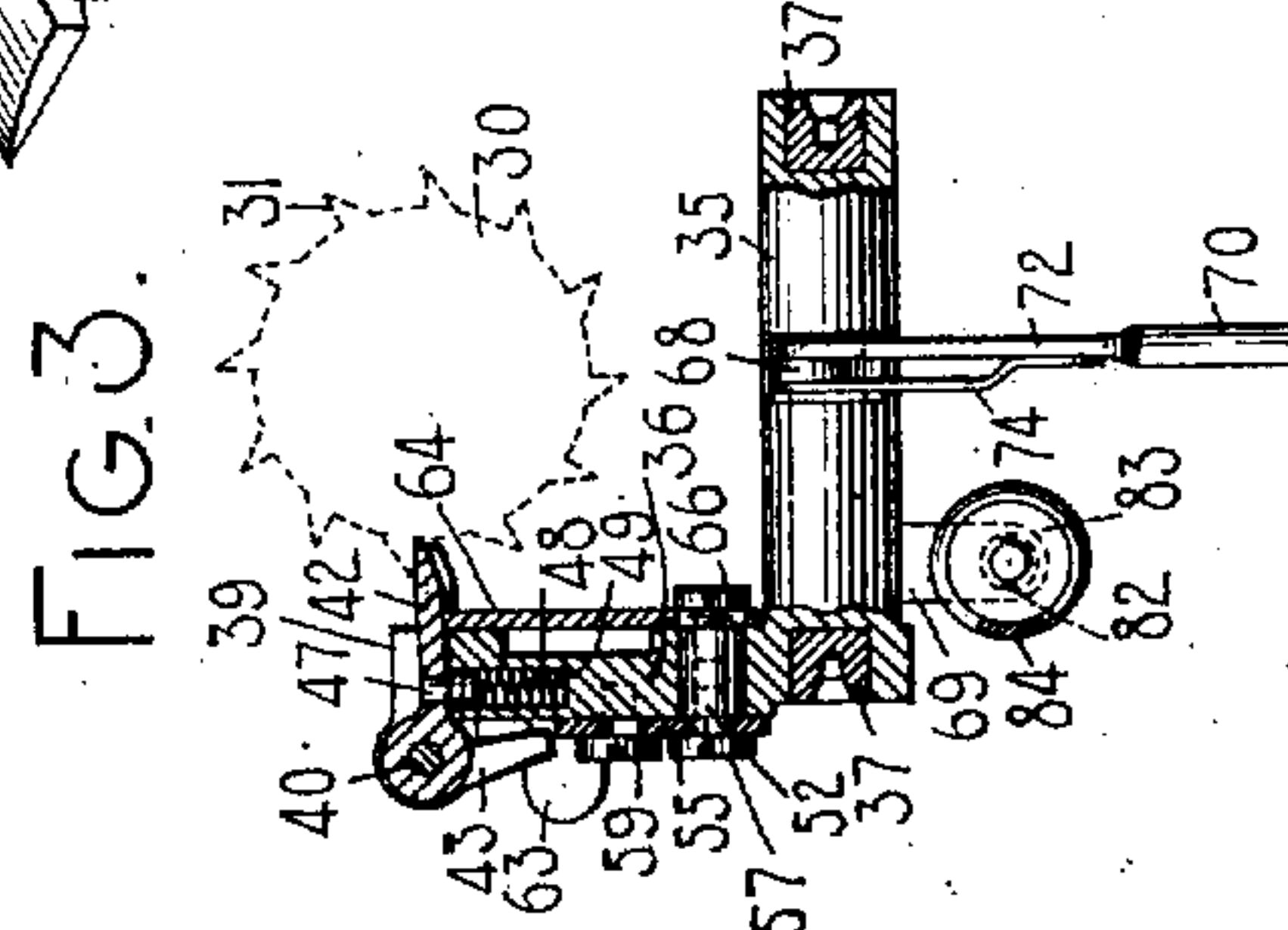


FIG. 3.

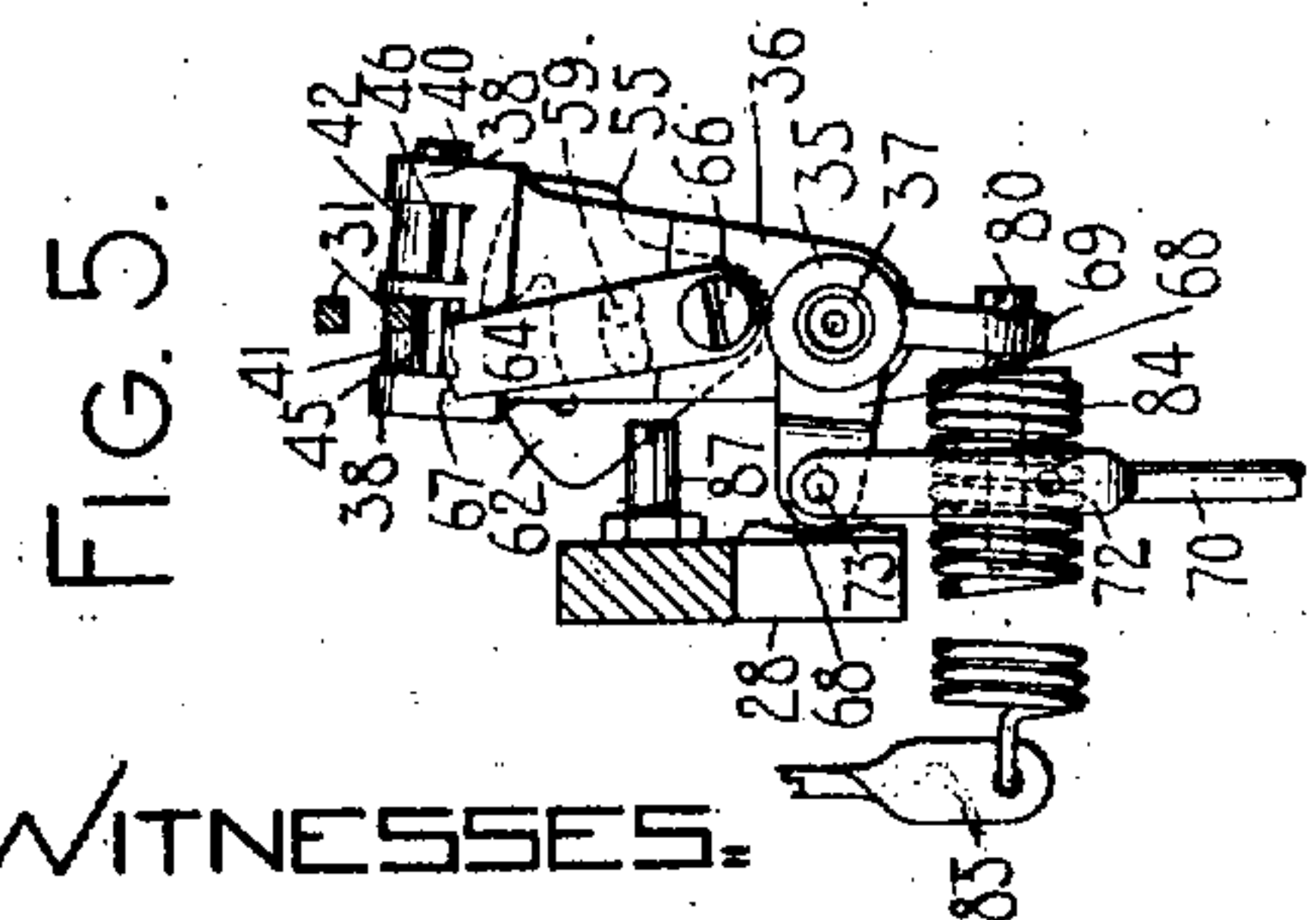


FIG. 5.

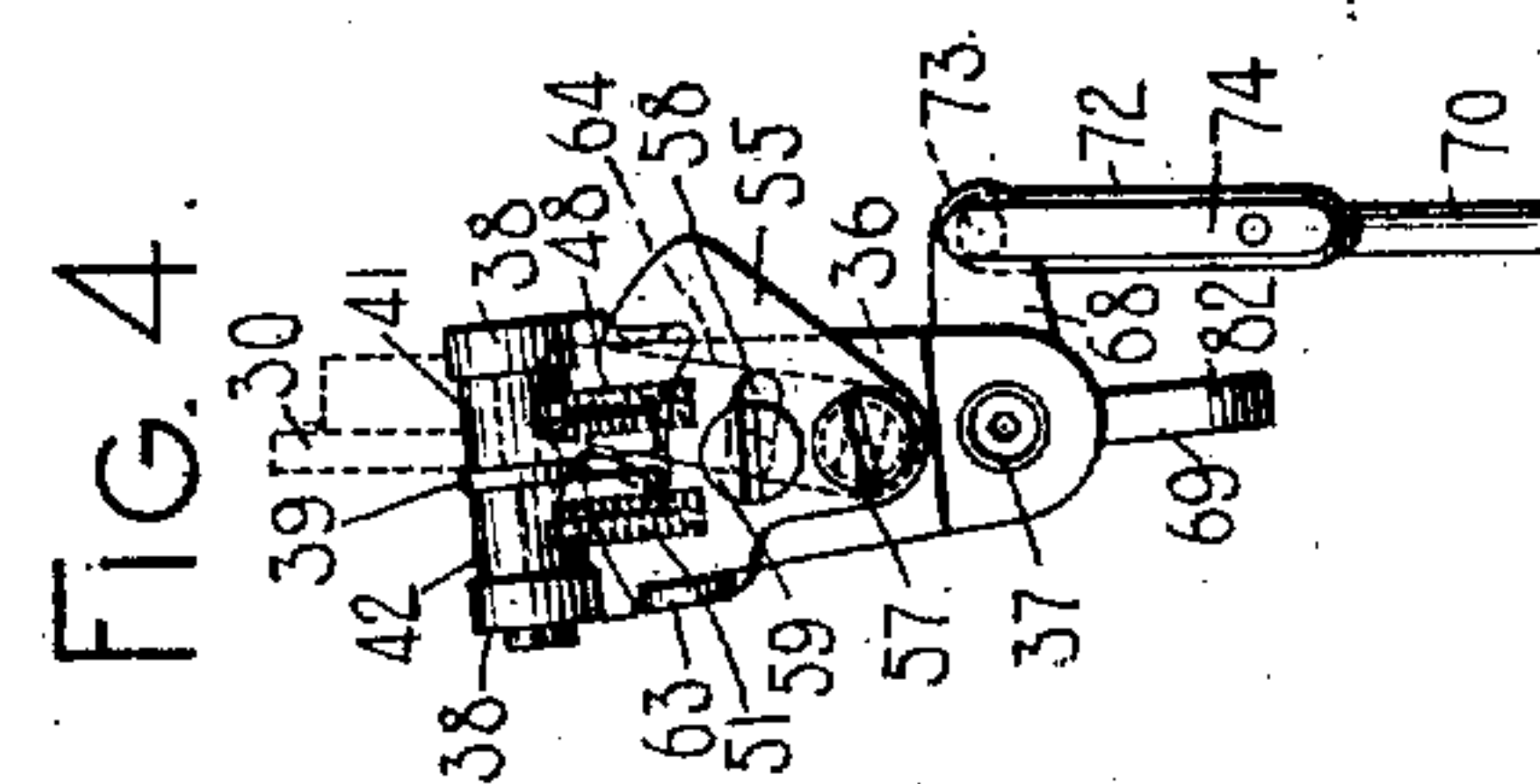


FIG. 4.

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W. F. Hammer

INVENTOR:

George H. Smith
By Jacob Falbel
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE H. SMITH, OF EVANSTON, ILLINOIS, ASSIGNOR TO DENSMORE TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 850,187.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed January 24, 1905. Serial No. 242,472.

To all whom it may concern:

Be it known that I, GEORGE H. SMITH, a citizen of the United States, and a resident of Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines, and more especially to the carriage-feed mechanism of such machines.

The main object of the invention is to provide an efficient and comparatively simple escapement mechanism which may be adjusted to feed the carriage either on the down-stroke or on the upstroke of a key-lever.

A second object is to provide an improved connection between the universal bar and the dog-rocker.

A third object is to provide an improved dog-rocker spring.

Other objects will subsequently appear.

To the above ends the invention consists of the features of construction, combinations of devices, and arrangements of parts to be hereinafter more specifically described, and particularly pointed out in the concluding claims.

In the accompanying drawings, Figure 1 is a rear elevation, partly in section, of so much of a type-writing machine as is necessary to illustrate my invention. Fig. 2 is a sectional view taken on a plane represented by the line *x x* in Fig. 1. Fig. 3 is an enlarged detail front elevation, partly in section, of a portion of the structure illustrating the carriage-feed mechanism as it appears when set to feed on the upstroke of a key-lever. Fig. 4 is a view of the structure shown in Fig. 3 as it appears when viewed from the left-hand side. Fig. 5 is a view of Fig. 3 looked at from the right-hand side. Fig. 6 is a view of the parts shown in Fig. 5 as they appear when a key-lever is depressed. Fig. 7 is a view corresponding to Fig. 5, but with the parts set to cause the feed of the carriage on the down-stroke of a key-lever instead of on the upstroke. Fig. 8 is a view of the parts shown in Fig. 7 as they appear when a key-lever is depressed. Figs. 9, 10, and 11 are detail views in perspective, top plan, and vertical section, respectively, of the dog members of the escapement. Figs. 12 and 13 are detail views of other parts of the escapement mechanism.

In the drawings, 1 indicates the frame of the machine; 2, one of a series of key-levers fulcrumed on a fixed rod 3, each key-lever being provided with a restoring-spring 4 and a key-cap 5. Integral with each key-lever is a hook-like member 6, which is adapted to co-act with a universal bar 7, the latter being provided at its ends and near its center with rearwardly-extending horizontal arms 8, which are rigidly connected with a shaft 9, having its bearings in the side of the frame. A connecting rod or wire 10 connects the key-lever with a sublever 11, pivoted in a hanger 12, the latter being one of a radially-arranged series supported upon a type-ring 13. Pivoted in each hanger and adapted to be actuated by its associate sublever is a type-bar 14. A platen-carrier 15, carrying a platen 16, is connected by links 17 to a carriage-truck 18. The platen-carrier is provided with a roller 19, which runs in a groove formed in the shift-rail 20, and the carriage-truck is provided with rollers 21, which engage with grooves in the fixed way or track 22 at the rear of the machine. Mounted on the carriage-truck is a feed-rack 23, which normally engages with a pinion 24, secured to the forward end of a shaft 25, the latter having a forward bearing 26, integral with the track 22, and a rear bearing 27 at the top of a bracket 28, which latter is secured to the frame by screws 29. Secured to the rear end of the shaft 25 is a circular escapement-rack or escapement-wheel 30, having teeth 31.

The bracket 28 is formed at each side with a rearwardly-projecting ear 32, Fig. 1, which receives a screw-pivot 33, provided with a check-nut 34. The inner or pivot ends of the screw-pivot support the shaft 35 of a pivoted carriage-feeding element, commonly called a "dog-rocker" or "carrier" 36, which projects vertically upward from the left-hand end of the shaft portion 35 as viewed in Fig. 3. The end of the shaft portion 35 of the dog-rocker is provided with hardened-metal cups 37, which coact with the pivots 33. The top of the dog-rocker terminates in three ears, the two outer ears 38 being somewhat thicker than the central ear 39. The three ears are perforated, and the perforation in the forward ear, Fig. 11, is tapped for the reception of a pivot-screw 40, upon which are coaxially pivoted or mounted two dog members 41 and 42, which are separated by the

central ear 39 and which coöperate with the teeth of the escapement-wheel 30 at the left side of the latter as viewed in Fig. 3. The forward dog member is provided with a tail 43 at substantially right angles to the body portion of the dog, and the rear dog member is provided with a similar tail 44. The working face of the forward dog is rounded off from rear to front at 45, Fig. 9, to conform to the arc in which it moves about the pivot 33 of the dog-rocker or carrier, and the working face of the rear dog is similarly rounded off from front to rear at 46. Driven downward through the top of the forward dog is a pin 47, which serves as a guide for the upper portion of a vertically-disposed contractile spring 48, which is seated in a well-like depression 49 in the top of the dog-rocker, Fig. 3. A pin 50 in the rear dog serves to guide a similarly-disposed contractile spring 51.

Close to its junction with the shaft portion 35 the dog-rocker 36 is perforated to receive a short pivot-pin 52, Figs. 3 and 13, which has squared end portions 53 and 54. Mounted on the left-hand end of the pivot end 52 as viewed in Fig. 3 is a locking or switch member 55, the lower portion whereof is formed with a rectangular opening 56, which fits over the squared end 53 of the pivot-pin 52. A screw 57 screws into the end of the pivot-pin, serving to retain the switch in place. Above the opening 56 the locking or switch member is formed with an elongated slot 58, through which passes a screw 59, which screws into the side of the dog-rocker. The upper portion of the switch is cut away or depressed centrally at 60, and the sides of the depression are sharpened or beveled at their edges, thereby forming beveled fingers 61 and 62, which coöperate with the tails of the dog members. At the rear and near the top the switch is provided with a finger-piece 63. The right-hand end of the pivot 52 as viewed in Figs. 3 and 13 supports a stop member 64, the lower portion of which is formed with a rectangular opening 65, in which the squared end 54 of the pin 52 fits, the stop member being secured in place by screw 66, which screws into the end of the pivot-pin 52. The upper portion of the stop member 64 terminates in a top 67, which is shaped to coöperate with the under side of the body portions of the dog members. The shaft 35 of the dog-rocker is formed centrally of its length with a forwardly-projecting short arm or lug 68 and near its left-hand end as viewed in Fig. 3 with a downwardly-projecting lug 69.

Pivotally connected with the forward arm 68 of the dog-rocker is the upper portion 70 of a connecting-rod 71. The upper end of the portion 70 is flattened at 72 and is provided with a pin 73, which enters a hole in the end of the arm 68 and is retained in position by a flat locking-spring 74, which is

riveted to the flattened portion 72. The lower end of the portion 70 of the connecting-rod is threaded and screws into the top of the lower portion 75 of the connecting-rod, a check-nut 76 serving to maintain the two parts 70 and 75 in a fixed relation. The lower end of the portion 75 is provided with a pivot-pin 77 at right angles to the body portion of the rod, and the ends of the pivot-pin 77 engage with rounded cut-aways or slots 78, formed in the under side of the two central arms 8 of the universal bar.

The end of the depending arm 69 of the dog-rocker is formed with a hole to receive an adjusting-screw 79, the threaded shank of which passes freely through the hole. The innerface of the head 80 of said screw is formed with lugs 81, Fig. 12, which coöperate with a slot or nick 82 in the arm 69. A nut member 83, Figs. 2, 5, and 12, is threaded upon the screw 79, and suitably secured to the nut member, as by soldering, is the rear end of an expansible coiled spring 84, which surrounds the screw 79 and has its forward end secured to a Z-shaped arm 85, which is fixed to the frame of the machine by a screw 86.

An adjustable stop 87 of the usual or any preferred construction limits the forward movement of the dog-rocker. A spring-mounted locking-pawl 88 prevents backward rotation of the escapement-wheel when the carriage is released. An adjustable screw-stop 89, supported in an arm 90, which is secured to the framework of the machine by a screw 91, serves to limit the upward movement of the universal bar 7. The escapement mechanism is protected by a U-shaped shield 92, secured to the framework of the machine.

When arranged for the "ordinary" feed—that is, for feeding the carriage on the up-stroke of the key-levers—the normal position of the parts of the escapement mechanism will be that shown in Figs. 3, 4, and 5. When the key-cap 5 is adequately depressed, the type-bar 14 will be actuated to the printing position in a manner well understood, and the hook portion 6 of the key-lever 2 contacting with the universal bar 7 will swing the latter downwardly about its pivot 9, causing the connecting-rod 71 to move in a downward direction and swinging the dog-rocker forward of its pivot to the position shown in Fig. 6. As soon as the forward dog 41, which in this case is the feed-dog, is freed from the tooth 31 of the escapement-wheel it swings upwardly about its pivot 40 under the influence of its spring 48 into the path of the next succeeding tooth 31 of the escapement-wheel, so that as the parts return to normal position under the influence of the spring 84 and as soon as the dog 42 has moved backward out of the path of the escapement-wheel the latter under the influence of the usual carriage-spring, (not shown,) which

acts upon the escapement-wheel through shaft 25, pinion 24, rack 23, and carriage-truck 18, will overcome the influence of the spring 48 and cause the carriage to feed forward one tooth of the escapement-wheel.

In the figures now under consideration—namely, Figs. 3 to 6, inclusive—the locking member or shifter 55 is shown pushed forward as far as possible upon the dog-carrier. The forward movement of the shifter is limited by the contact of the rear wall of the slot 58 with the body of the screw 59, and when the shifter has been moved to this forward position by means of the finger-piece 63 it is maintained therein by the frictional contact between the under side of the head of the screw 59 and the face of the shifter. During this forward movement of the shifter upon the dog-rocker the edge of the beveled finger 61 of the former passes between the tail of the dog 42 and the face of the dog-rocker and gradually pushing the tail outward depresses the dog against the influence of its spring 51 until said dog contacts with the top of the dog-rocker between the central ear 39 and the rear ear 38.

The shift member or shifter 55 being mounted upon the squared end 53 of the pivot-pin 52, the latter is caused to rotate with the shifter under the influence of the force exerted against the finger-piece 63, and as the stop member 64 is mounted upon the opposite squared end 54 of the pivot-pin 52 the said stop member 64 will likewise participate in the rotary movement of the shifter, so that when the latter has reached the limit of its forward movement the top 67 of the stop member will be underneath the dog 41. Generally stated, the stopping element and the locking element of the combined switch and stop are positioned simultaneously to act one upon each dog at opposite sides of the common axis of the dogs. As clearly appears from an inspection of Figs. 5 and 6, the top 67 of the stop member is somewhat higher than that portion of the top of the dog-rocker which is between the ears 38 and 39, so that in normal position when the forward dog is in contact with the top 67 of the stop member and the rear dog is in contact with that portion of the top of the dog-rocker which is between the rear ear 38 and the central ear 39 the working face of the forward dog is slightly higher than or in advance of the working face of the rear dog. When, therefore, the dog-rocker is rotated forwardly from normal position, an easy and certain entrance of the rear dog into the path of the teeth of the escapement-wheel is effected, and this result is assured even though the forward dog may have become slightly worn in use.

When it is desired to feed the carriage during the downward movement of a key-lever, or, in other words, when it is desired to use

the "reverse" feed, the shifter 55 is pulled rearwardly by means of the finger-piece 63 until the forward wall of the slot 58 contacts with the body of the screw 59. During this rearward rotary movement of the shifter upon the dog-rocker the beveled edged finger 61 passes out from between the tail 44 of the dog 42 and the face of the dog-rocker, allowing the dog 42 to be rotated upward under the influence of its spring 51. At the same time the beveled finger 62 passes between the tail 43 and the face of the dog-rocker, rotating the dog 41 downward against the influence of its spring 48, until the under face of said dog contacts with the top of the dog-rocker between the ears 38 and 39. The stop member 64 has moved rearwardly with the shifter 55, so that the top 67 of said stop member will now serve to limit the downward movement of the dog 42. The parts will now be in a position shown in Fig. 7. If now a key-lever be adequately depressed, the dog-rocker will be rotated forwardly to the position shown in Fig. 8. During the forward movement of the dog-rocker the working face of the dog 41, which is now the holding-dog, moves out of the path of the teeth 31 of the escapement-wheel, and when this occurs the dog 42, which is now the feed-dog, having at the same time moved into the plane of the escapement-wheel between the next two succeeding teeth will be depressed against the top 67 of the stop member 64 under the influence of the carriage-spring, thereby causing the carriage to move forward one space. As the dog-rocker returns from the forward position shown in Fig. 8 to the normal position shown in Fig. 7, mainly under the influence of the spring 84, the working face of the dog 41 effects an easy entrance into the path of the teeth of the escapement-wheel, since the rear dog 42, which now rests upon the top 67 of the stop member, is in advance of or in somewhat a higher plane than the forward dog 41.

It will be noted that I have provided a combined shifter and stop member exceedingly simple in construction and adjustment as well as effective in operation. When it is employed, all that is required in order to change from the ordinary to the reverse feed or vice versa is to actuate the shift member or shifter back and forth by means of the finger-piece 63.

In order to increase or diminish the tension of the expansible dog-rocker spring 84, it is only necessary to turn the screw 79 in or out by the aid of a screw-driver or other suitable means. This will cause the nut 83 to move backward or forward along the screw 79, thereby increasing or diminishing the tension of the dog-rocker spring. At every half-turn of the screw 79 the lugs 81 on the inner face of its head engage with the slot or nick 82 in the arms or lugs 69, thereby locking the

screw and preventing accidental rotation thereof. The device is a simple one and provides a readily accessible and operable means for varying the dog-rocker tension to a slight or greater degree.

The connection 71 between the dog-rocker and the universal bar may be readily disconnected and taken out of the machine in order to vary its length. To accomplish this, it is only necessary to pull the locking-spring 74 away from the head of the pin 73 far enough to allow the latter to be slipped out of the hole in the rocker-arm 68, after which the pivot 77 is pushed downward out of the cut-away 78 in the arms 8 of the universal bar. The check-nut 76 may now be loosened and the upper portion 70 of the connection screwed in or out of the lower portion 75 as far as the case may require, after which the check-nut 76 is screwed down tight and the entire connection 71 returned to its place in the machine.

I do not of course desire to be limited to the specific construction and arrangement of parts as I have described them.

Various changes in these and other respects may be effected without departing from the spirit or scope of my invention, and some parts of the invention may be used without employing other parts.

Parts of the machine have been omitted from the drawings, and other parts shown therein have not been described in detail. These various parts comprise the subject-matter of other applications for Letters Patent.

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

1. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted on said carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; and a shift member mounted upon the dog-carrier and adapted to coact with the tail of either dog to hold the dog in a fixed relation with the dog-carrier.

2. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted on said carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; a spring coacting with each dog; and a shift member mounted upon the dog-carrier and adapted to coact with the tail of either dog to overcome the force of its spring.

3. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted on said carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; a spring coacting with each dog; and a shift member mounted upon the dog-carrier and adapted to coact with the tail of either dog to overcome the force of its spring

and to hold the dog in a fixed relation with the dog-carrier.

4. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted in the top of said dog-carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; a contractile spring adapted to cooperate with each of said dogs to swing it away from the dog-carrier; and a shift member mounted upon the dog-carrier and adapted to coact with the tail of either of said dogs to overcome the force of its contractile spring and hold the dog in a fixed relation with the dog-carrier.

5. In a type-writing machine, the combination of an escapement-wheel; a dog-rocker pivoted to rock transversely of said wheel; a pair of dogs pivoted upon said dog-rocker and adapted to cooperate with said escapement-wheel at the side thereof; a contractile spring cooperating with each dog and constantly tending to swing said dog upward about its pivot; and a shift member adapted to cooperate with either dog to overcome the force of its contractile spring and to maintain the dog in a fixed relation with the dog-rocker.

6. In a type-writing machine, the combination of an escapement-wheel; a dog-rocker pivoted to rock transversely of said escapement-wheel; a pair of dogs pivoted in the top of said dog-rocker and adapted to cooperate with said escapement-wheel at the side thereof, each of said dogs having a tail or extension; a contractile spring adapted to cooperate with each dog member to swing it upward about its pivot; and a shift member mounted upon said dog-rocker and adapted to be interposed between the face of the dog-rocker and the tail of either dog to overcome the force of the contractile spring as associated with said dog and to hold said dog in a fixed relation with said dog-rocker.

7. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted on said carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; a shift member mounted upon the dog-carrier and adapted to coact with the tail of either dog to hold the dog in a fixed relation with the dog-carrier; and a stop member adapted to be simultaneously positioned to limit the movement of the other dog.

8. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted on said carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; and a combined shift and stop member which is mounted upon the dog-carrier and cooperates with the dogs, one part of said member being adapted to coact with the tail of either dog to hold the dog in a fixed rela-

tion with the dog-carrier while at the same time another part of said member is positioned to limit the movement of the other dog.

5 9. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted on said carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; means coacting with the tail of
10 either dog to lock the dog against movement; and means combined with said first-named means and coacting with the body portion of the unlocked dog for simultaneously limiting
15 the movement of the unlocked dog in one direction; so that the working face of said unlocked dog will at all times be in advance of the working face of the locked dog.

10 10. In a type-writing machine, the combination of an escapement-rack; a dog-carrier; a pair of dogs pivoted on said carrier and adapted to cooperate with said escapement-rack, each of said dogs having a tail or extension; a spring coacting with each dog; a
25 shift member mounted on the dog-carrier and adapted to coact with the tail of either dog to overcome the force of its spring and to lock the dog in a fixed relation with the dog-carrier; and a stop member combined with said
30 shift member and adapted to limit the movement of the unlocked dog so that the working face of said unlocked dog will be in advance of the working face of the locked dog at all times.

35 11. In a type-writing machine, the combination of an escapement-wheel; a dog-rocker pivoted to rock transversely of said wheel; a pair of dogs pivoted on said dog-rocker and adapted to cooperate with said escapement-
40 wheel at the side thereof, a contractile spring cooperating with each dog, each spring constantly tending to swing its dog upward about its pivot; a shift member adapted to cooperate with either dog to overcome the
45 force of its contractile spring and to lock the dog in a fixed relation with the dog-rocker; and a stop member combined with said shift member and adapted to cooperate with the unlocked dog to limit the downward move-
50 ment of said dog, the combined shift and stop members serving to maintain the working face of the unlocked dog above the working face of the locked dog at all times.

55 12. In a type-writing machine, the combination of an escapement-wheel; a dog-rocker pivoted to vibrate transversely of said escapement-wheel; a pair of dogs pivoted in ears in the top of said dog-rocker and adapted to contact with the top of the dog-rocker be-
60 tween the ears; means for locking either of said dogs in contact with the top of the dog-rocker; and means for stopping the movement of the unlocked dog before it contacts with the top of the dog-rocker, so that the
65 working face of the unlocked dog will be in

advance of the working face of the locked dog at all times.

13. In a type-writing machine, the combination of a vertically-disposed escapement-wheel; a dog-rocker pivoted to vibrate trans- 70
versely of said wheel; a pair of dogs pivoted coaxially in said dog-rocker and adapted to cooperate with said escapement-wheel at the side thereof; a contractile spring cooperating with each dog and constantly tending to 75
swing the dog upward about its pivot; a combined shift and stop member pivoted in said dog-rocker and adapted to coact with one dog on one side of its axis to lock said dog from movement and at the same time to 80
cooperate with the other dog at the opposite side of its axis to limit the movement of said dog; and manually-operated means for swing-
ing said member about its pivot to cause its locking and stopping elements to act alter- 85
nately upon the dogs.

14. In a type-writing machine, and in an escapement mechanism, the combination of an escapement-rack; a dog-carrier pivoted to vibrate transversely of said rack; and a 90
pair of dogs mounted upon said carrier and adapted to cooperate with said escapement-rack, the working faces of said dogs being shaped to conform substantially to the arc in which they move about the pivot of the dog- 95
carrier.

15. In a type-writing machine and in an escapement mechanism, the combination of an escapement-wheel; a dog-rocker pivoted to vibrate transversely of said escapement- 100
wheel; and a pair of dogs pivoted on said dog-rocker and adapted to coact with the teeth of said escapement-wheel at the side thereof; the working faces of said dogs being rounded or shaped to conform substantially 105
to the arc in which they move about the pivot of the dog-rocker.

16. In a type-writing machine, the combination of a universal bar, means for actuating said bar, a carriage-feeding element, a 110
connecting-rod detachably connected with said carriage-feeding element at one end and provided at the other end with a pivot portion which pivotally engages with the under side of said universal bar. 115

17. In a type-writing machine, the combination of a universal bar; means for actuating said bar; a feed-dog carrier; a connect- 120
ing-rod detachably connected with said feed-dog carrier at one end and provided at the other end with a transverse pivot-pin which engages with cut-aways in the under side of said universal bar.

18. In a type-writing machine, the combination of a universal bar, means for actuating 125
the same, a feed-dog carrier, a two-piece, longitudinally-adjustable connecting-rod detachably connected with said feed-dog carrier at one end and provided at the other end with a transverse pivot-pin which engages 130

with cut-aways in the under side of said universal bar, the construction being such that the connecting-rod may be readily removed and adjusted.

5 19. In a type-writing machine, the combination of a pivoted dog-rocker having a depending arm; means for actuating said dog-rocker; an expansible spring having one end connected with a fixed part of the machine
10 and having a nut member secured in its other end; and a tension-adjusting screw passing through the depending arm of said dog-rocker and engaging with the nut in the end of said spring, the arrangement being such
15 that when the dog-rocker is actuated from normal position the spring is expanded and thereafter upon contracting serves to restore the dog-rocker to normal position.

20 20. In a type-writing machine, the combination of a dog-rocker having a perforated depending arm; means for actuating said dog-rocker; an expansible spring connected at one end with a fixed part of the machine; a
25 nut member connected with said spring; a headed tension - adjusting screw passing through the perforation in the depending arm of said dog-rocker and engaging with said nut member; and means for preventing
accidental rotation of said screw.

30 21. In a type-writing machine, the combination of a dog-rocker having a perforated depending arm; means for actuating said dog-rocker; an expansible spring connected at

one end with a fixed part of the machine; a
nut member connected with said spring; a 35
headed tension - adjusting screw passing through the perforation in the depending arm of said dog-rocker and engaging with
said nut member; the inner face of the head
of said screw being formed with lugs or pro- 40
jections which engage with depressions or nicks in the depending arm of the dog-rocker, the construction serving to prevent the accidental rotation of said screw.

22. In a type-writing machine, the combination of a pivoted dog-rocker; means for
45 actuating the same; a coiled expansible spring having one end connected with a fixed part of the machine; a nut member connected
with said spring and within its coils; a tension- 50
adjusting screw cooperating with said nut member and adapted to pass through said spring, said screw adjustably engaging with
the dog-rocker, the arrangement being such
that as the dog-rocker is actuated from nor- 55
mal position said spring is expanded, and thereafter serves, as it contracts, to restore the dog-rocker to normal position.

Signed at Evanston, in the county of Cook
and State of Illinois, this 21st day of Janu- 60
ary, A. D. 1905.

GEORGE H. SMITH.

Witnesses:

CHAS. HOPPER,
HAZEL GRANT BOYD.