

No. 836,858.

PATENTED NOV. 27, 1906.

A. T. BROWN.  
TYPE WRITING MACHINE.

APPLICATION FILED OCT. 16, 1902. RENEWED JUNE 21, 1906.

3 SHEETS—SHEET 1.

FIG. 1.

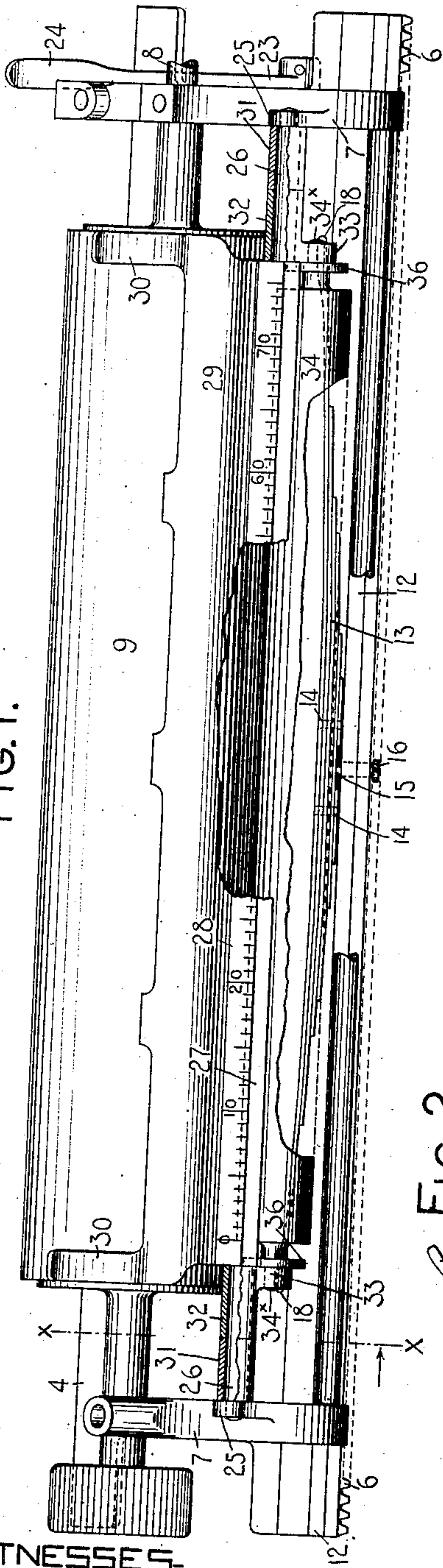


FIG. 3.

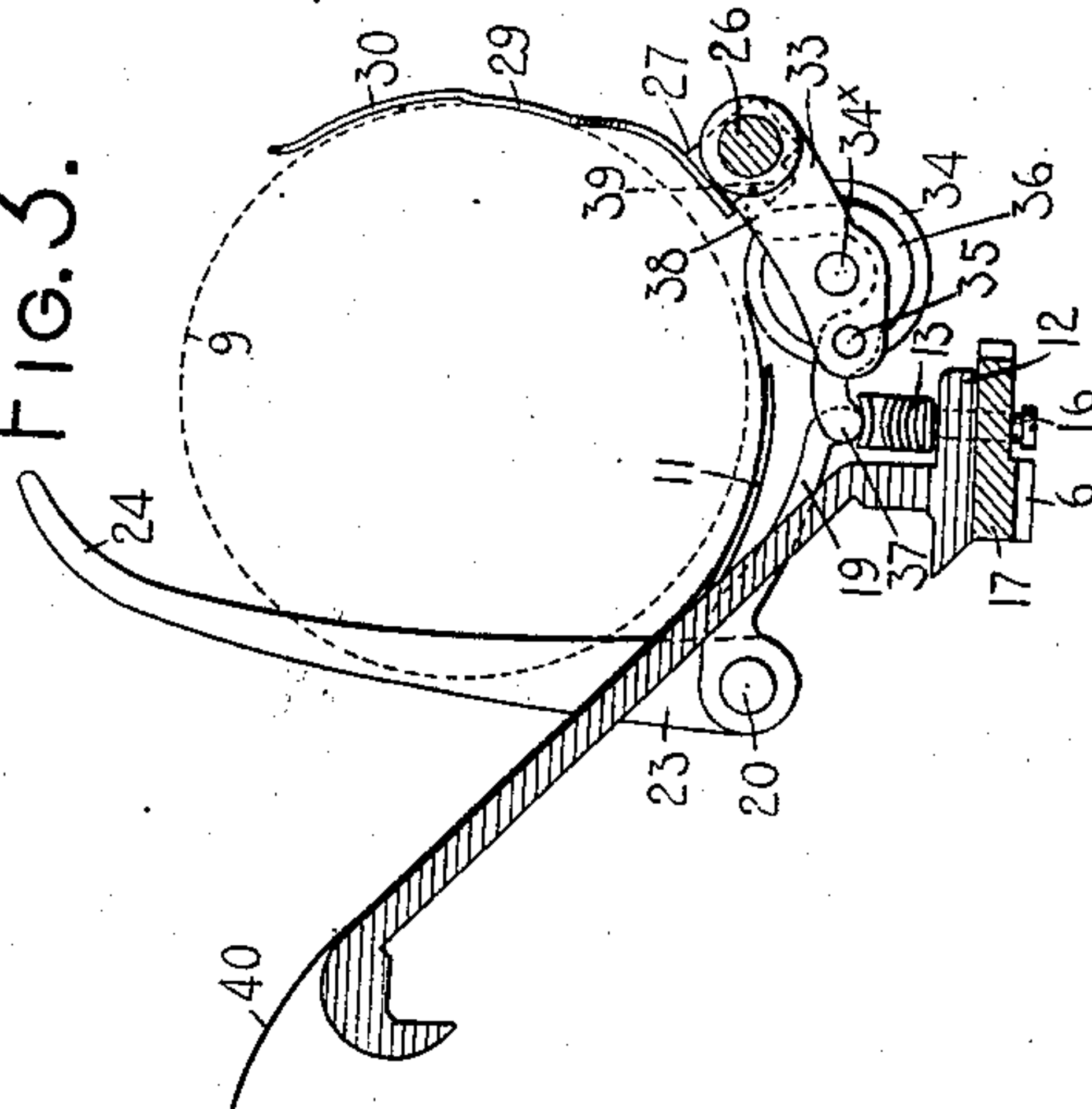
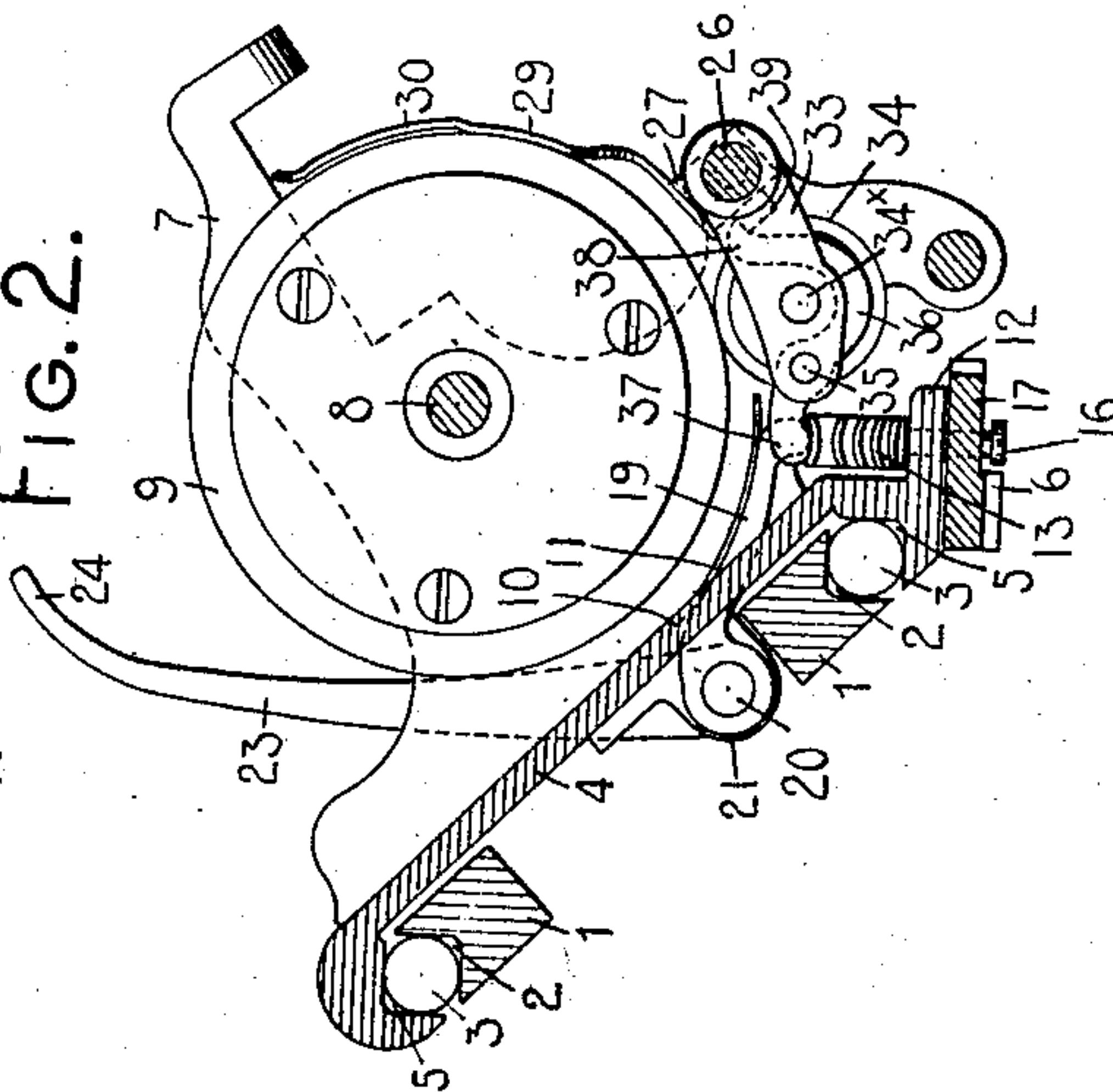


FIG. 2.



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3 SHEETS—SHEET 2.

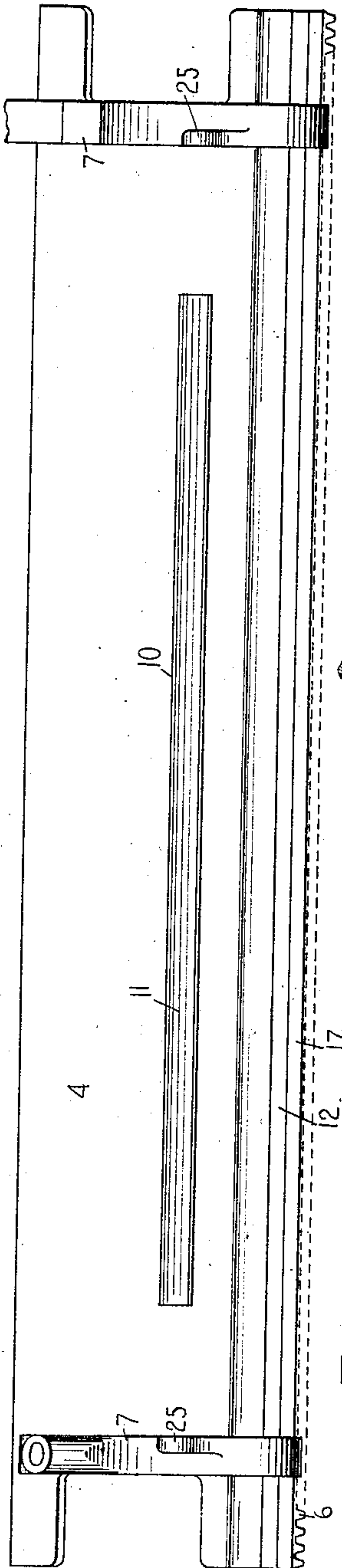


FIG. 4.

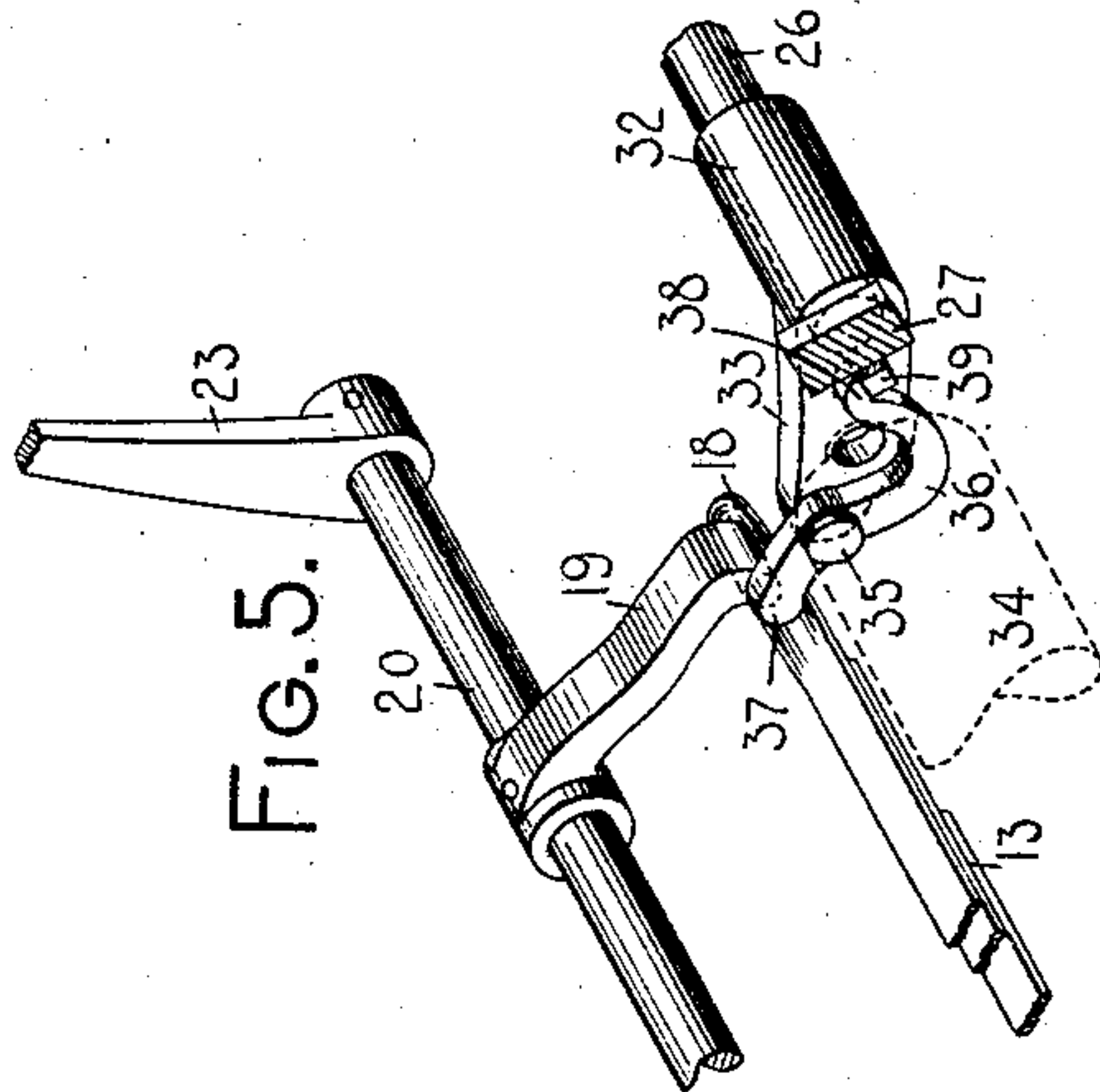


FIG. 5.

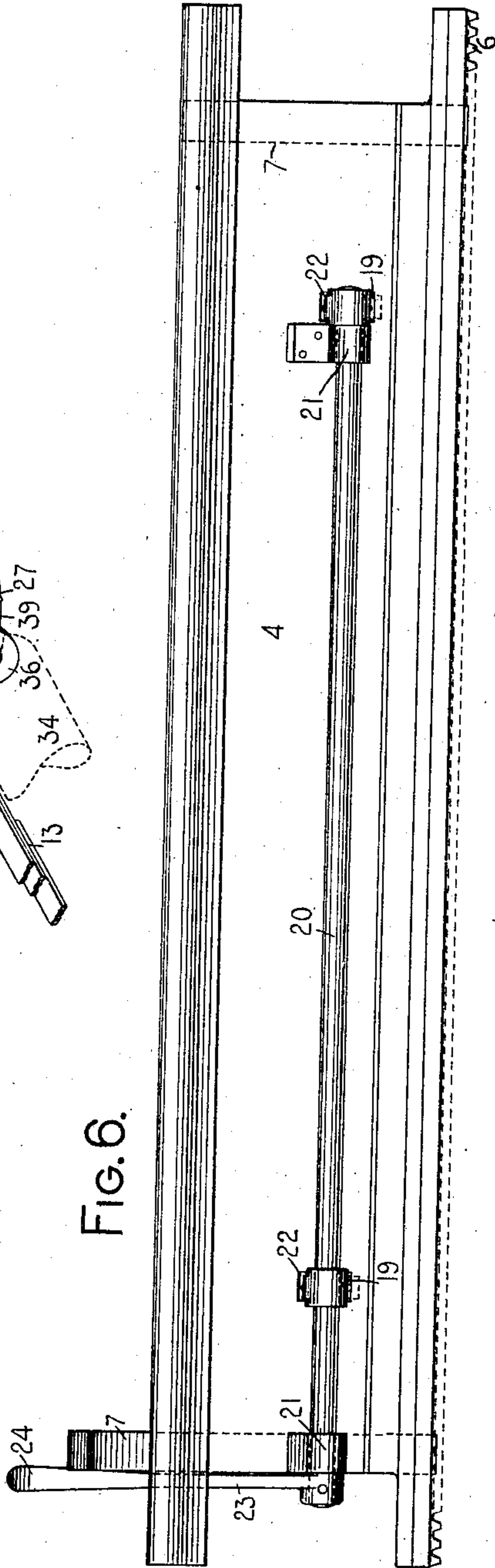


FIG. 6.

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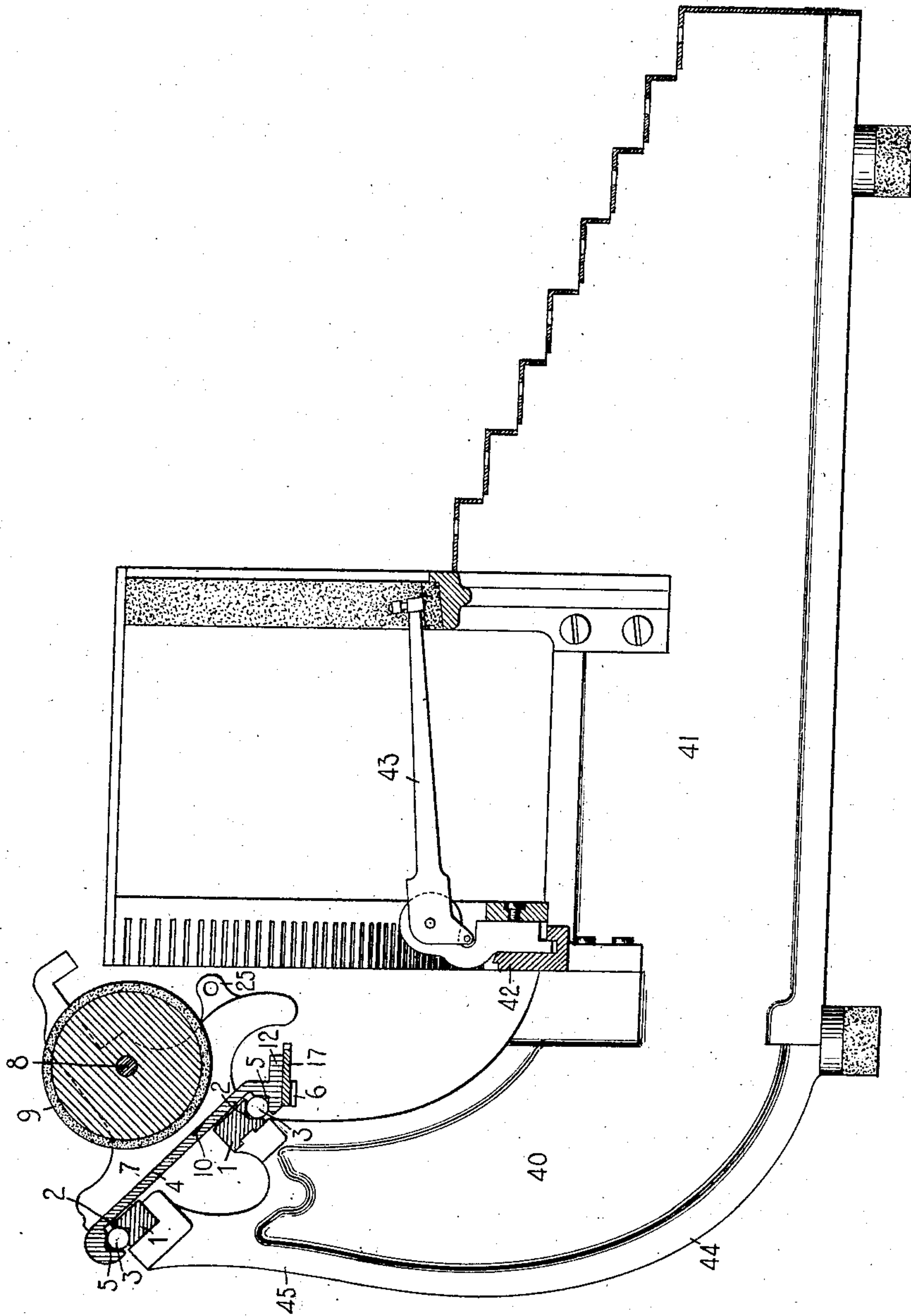
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3 SHEETS—SHEET 3.

FIG. 7.



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INVENTOR:

*Alexander T. Brown*  
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# UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

## TYPE-WRITING MACHINE.

No. 836,858.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed October 16, 1902. Renewed June 21, 1906. Serial No. 322,699.

*To all whom it may concern:*

Be it known that I, ALEXANDER T. BROWN, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to paper feeding and guiding devices for type-writing machines; and the object of said invention is to provide simple and efficient means of the character specified.

To the above and other ends, which will hereinafter appear, my invention consists in the novel constructions of features, arrangements of parts, and combinations of elements to be hereinafter described and claimed.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a front view, partly broken away, of a sufficient number of parts of a type-writing machine to illustrate certain features of my invention. Fig. 2 is a transverse sectional view of the same, taken on the line *xx* of Fig. 1 and looking in the direction of the arrow in said figure. Fig. 3 is a like view of the same, showing the feed-roller moved away from the platen. Fig. 4 is a detail front view of the carriage-frame. Fig. 5 is a fragmentary detail perspective view of the paper-feed-roller-supporting means and spring at one end of the feed-roller. Fig. 6 is a rear elevation of the carriage with the platen removed. Fig. 7 is a front to rear sectional view of one form of type-writing machine to which my invention is applied and which illustrates features thereof not shown in the other figures.

Referring particularly to Fig. 2, 1 indicates guide and supporting rails, which are set in an inclined plane and are secured to the frame of the machine. These guide-rails are grooved in opposite directions, as shown at 2, to form raceways for antifriction-balls 3. The carriage comprises a base-plate 4, the plane of which is inclined, and the base is provided with oppositely-disposed grooved raceways 5, which extend throughout the length thereof and are preferably formed integral therewith. The carriage is likewise provided with a feed-rack 6, which extends throughout its length and is adapted to be engaged by a suitable gear-wheel (not shown) that

constitutes a part of any desired form of carriage-escapement mechanism. The base 4 has forwardly-extending end plates 7, which are apertured to provide bearings for the shaft 8 of the platen 9. The base 4 of the carriage is countersunk or recessed at 10 for the reception of one edge of a paper-apron 11. The recess 10 extends longitudinally of the carriage throughout the length of the paper-apron 11 and is of such depth as to enable one edge of the paper-apron to be secured therein and to maintain the upper surface of the paper-apron flush with the upper surface of the base.

The carriage is provided with a forwardly-projecting flange 12, which preferably extends throughout the length thereof and constitutes a bearing for a leaf or semi-elliptic spring 13. This spring is preferably made up of a plurality of superposed leaf-springs of different lengths, the shortest leaf being at the center and bottom of the spring, whereas the longest leaf is preferably the uppermost one. The various leaves may be riveted together, as indicated at 14, and one or more of the lower leaves are provided with apertures 15 at the central portion of the spring and in which the free end of a set-screw 16 is received and bears against one of the upper leaves, thus preventing a displacement of the spring from the end of the screw. The stem of this screw 16 is received in and projects through a threaded opening in the flange 12, as well as the plate 17, that constitutes a portion of the feed-rack 6. The set-screw thus affords means for adjusting the tension of the spring, as will hereinafter more clearly appear. The ends of the uppermost leaf of the spring are each recessed at 18 for the reception of the terminal of a crank-arm 19, that is rigidly secured to and projects from a rock-shaft 20, which is received and turns in bearing-ears 21, projecting from the under side of the base-plate 4 of the carriage. The base-plate itself is apertured at 22 to permit the crank-arms 19 to project from the rock-shaft at the rear or under side of the base, forwardly through the base 4 of the carriage, and beneath the paper-apron 11. The rock-shaft 20 is provided at one end thereof and outside of an end plate 7 of the carriage with a crank-arm 23, that terminates in a finger-piece 24. A forward movement of the crank-arm 23 will cause



the forward ends of the crank-arms 19 to be depressed, thereby depressing both ends of the leaf-spring 13 against its tension.

Each end plate of the carriage is provided with a forwardly-extending ear 25, that is apertured to form a bearing for the cylindrical end 26 of a rock-shaft, the central portion 27 of which is preferably angular in cross-section and may be provided with a scale 28 on the forward or exposed face thereof. Secured to one side of this angular portion 28 of the rock-shaft is a paper-guide 29, that extends throughout or substantially throughout the length of the platen and is provided at or near its terminals with upwardly-extending resilient paper-guide fingers 30. The paper-guide fingers and guide proper, 29, are curved to conform to the curvature of the platen. A spacing-sleeve 31 is seated on each cylindrical portion 26 of the rock-shaft and maintains the supporting-sleeves 32 against outward longitudinal movement thereon. These supporting-sleeves are seated on the cylindrical portions of the rock-shaft and are prevented from movement toward the center of the platen by the abutments formed by angular portion of the rock-shaft where it joins the cylindrical ends. Each supporting-sleeve 32 is provided with a depending rearwardly-projecting roller carrying ear or arm 33, that is apertured to provide a bearing for a shaft 34 of the paper-feed roller 34. The paper-feed roller may be a single roller that extends throughout or substantially throughout the length of the platen, as shown, or it may be divided at intervals throughout its length, so as to provide a series of independent feed-rollers on the same shaft, and it should be understood that where a paper-feed roller is referred to herein it is intended to apply either to a single roller of the character shown or to a divided roller of the character described. The depending ears or arms 33 are projected beyond the shaft 34\* and are each apertured to receive a headed pin or pivot 35 for a lever 36. Each of these levers 36 is therefore carried by an arm or ear 33 and bears at one end 37 within a recessed portion 18 of the leaf-spring and at its opposite end 38 bears against an offset projection 39 on the rock-shaft which carries the paper-guide 29. The levers 36 are thus pivoted intermediate of their ends on the pivoted roller-carrying arms 33, and the tension of the leaf-spring 13 is exerted through the levers to force the feed-roller into contact with the platen or the paper thereon, as shown in Fig. 2. This same pressure of the spring on the levers tends to turn the rock-shaft, which carries the paper-guide 29, so as to force the paper-guide into contact with the platen or the paper thereon. The disposition of the parts, however, is such that the pressure of

the spring on the feed-roller is considerably greater than that exerted on the independently mounted and movable paper-guide, an end which is desirable in constructions of the character to which this invention relates.

From the foregoing description it will be understood that in the normal disposition of the parts (represented in Fig. 2) the paper-guide 29 and feed-roller 34 will be maintained in contact with the platen or the paper thereon. When, however, the finger-piece 24 is moved forward, both ends of the spring 13 will be simultaneously compressed against its tension, thereby relieving the levers 36 of the tension of said spring, thus enabling the feed-roller to move by its own weight and the weight of the parts connected thereto from the position shown in Fig. 2 to that indicated in Fig. 3. This same movement of the feed-roller and the levers 36 frees the paper-guide 29 from pressure and the paper at this time may be inserted or withdrawn without obstruction from the feed-roller or paper-guide. When the paper 40 has been properly positioned in the machine, the finger-piece 24 may be released, thereby permitting the spring 13 to exert its pressure upon the parts through the levers 36.

The leaf-spring 13 may be regarded as a single spring and, in fact, may be made of a single piece, though I prefer to make up a spring of a series of superposed leaves, as shown and described. It will be observed that a single spring exerts a uniform tension at or near both ends of the feed-roller and at the same time a single spring is effective to afford a differential pressure on the feed-roller and paper-guide. It will likewise be seen that an adjustment of a single screw will effectively vary the tension of the spring and that the variation of the tension is evenly distributed, so that an accurate feed of the paper is provided even though the thickness of the paper may be greater near one end of the platen than at the other. The construction, therefore, affords simple and efficient devices for feeding the paper.

The inclined base 4 of the carriage constitutes a paper table or guide which extends upwardly and rearwardly from the platen for directing the paper to the platen, as well as forming the body of the carriage, by which it is supported and which supports the platen and other parts of the carriage structure.

Upon reference to Fig. 7 it will be observed that the guide-rails 1 are supported in an inclined position upon and constitute a connection between the rearwardly-directed rockers 40, that are preferably formed integral with the side plates 41 of the machine-frame. The side plates are likewise united by a segment 42, in which the type-bars 43 are mounted. The rear edges of the rocker-



arms 40 are curved upwardly and rearwardly at 44 from the base of the machine to the rear portion thereof, where they each terminate in a flattened portion 45, but this construction is made the subject-matter of a divisional application filed by me June 13, 1903, Serial No. 161,262.

While I have shown the features of my invention applied to a front-strike type-writing machine, it should be understood that from certain aspects of my invention the various features may be applied to other characters of writing-machines, that certain features of the invention may be employed without others, and that various changes in construction may be made without departing from the spirit of my invention. Thus, for instance, it is immaterial from certain aspects of my invention what character of paper-guiding device is employed in conjunction with the feed-roller, and it is immaterial, so far as certain features of my invention are concerned, whether the paper-guiding device be maintained under tension of the same spring which exerts a pressure on the paper-feed roller.

The paper-carriage construction and mounting herein shown are claimed in my application, Serial No. 305,053, filed March 9, 1906, which is a division of the present application. The type action and type-bar segment construction partially set forth herein are more fully described and are claimed in my application, Serial No. 127,536, filed October 16, 1902.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a platen, a paper-feed roller, pivoted arms or hangers for supporting said feed-roller, levers that cooperate with said pivoted arms and a leaf-spring that cooperates with said levers and applies pressure on the feed-roller at both ends of the platen, and provides for an equal disposition of pressure on the feed-roller.

2. In a type-writing machine, the combination of a platen, a paper-feed roller, a leaf-spring that extends in the direction and substantially throughout the length of the platen and that applies pressure on the feed-roller near the ends thereof, and means for adjusting the tension of said spring.

3. In a type-writing machine, the combination of a carriage, a platen carried thereby, a paper-feed roller, a leaf-spring that extends substantially throughout the length of the platen and the free ends of which are adapted to bear on the paper-feed-roller support to apply pressure thereto, and means for supporting the said spring at or near the center thereof on the carriage, and for varying the tension of the spring.

4. In a type-writing machine, the combination of a platen, a paper-guide that cooperates with the platen, a paper-feed roller mounted independently of the paper-guide, and a single spring that applies pressure on the feed-roller at both ends of the platen and to the paper-guide.

5. In a type-writing machine, the combination of a platen, paper-guide fingers that cooperate with the platen at or near the ends thereof, a paper-feed roller mounted to move independently of the paper-guide fingers, and a single spring which applies pressure to said guide-fingers and feed-rollers.

6. In a type-writing machine, the combination of a platen, a paper-guide that cooperates therewith, an independently-mounted paper-feed roller, a single spring which applies pressure to the paper-guide and an equal pressure at both ends of paper-feed roller, means for adjusting the tension of said spring, and hand-operated means for simultaneously relieving the spring-pressure on said paper-guide and feed-roller.

7. In a type-writing machine, the combination of a platen, a paper-guide that extends substantially throughout the length of the platen and cooperates therewith, a paper-feed roller, a semi-elliptical spring that extends lengthwise in the direction of the length of the platen and exerts a pressure on said paper-guide and paper-feed roller and distributes the pressure equally at both ends thereof, adjusting means for varying the tension of said spring, and hand-operated means for affording a removal of the pressure of said paper-guide and feed-roller from the platen.

8. In a type-writing machine, the combination of a platen, a paper-guide, a paper-feed roller, a single spring for applying pressure to said paper-guide and feed-roller, and means for affording a greater pressure from said spring on the feed-roller than that applied to paper-guide.

9. In a type-writing machine, the combination of a platen, a paper-guide which extends substantially throughout the length of the platen and is curved to conform generally to the curve of the platen where it cooperates therewith, a paper-feed roller, a single spring, and means for applying the pressure of said spring to the paper-guide and feed-roller and at or near the ends of the latter and for affording a greater pressure from said spring on the feed-roller than is applied to the paper-guide.

10. In a type-writing machine, the combination of a platen, a paper-feed roller, a paper-guide which extends substantially throughout the length of the platen and conforms generally to the contour of the platen where it cooperates therewith, paper-guide fingers at or near the ends of said paper-guide, a semi-elliptic spring that extends through-



out or substantially throughout the length of the platen, means for adjusting the tension of said spring, means for applying the pressure of said spring to the paper-guide and feed-roller and for affording a greater pressure from said spring on the feed-roller than is applied to the paper-guide.

11. In a type-writing machine, the combination of a carriage, a platen, a paper-feed roller, a paper-guide which extends substantially throughout the length of the platen and conforms generally to the contour of the platen where it coöperates therewith, paper-guide fingers carried by said paper-guide, a semi-elliptic spring that extends throughout or substantially throughout the length of the platen, means for supporting said spring at or near the center thereof on the carriage and for adjusting the tension of said spring, means for applying the pressure of said spring to the paper-guide and feed-roller, and at or near the ends of the latter and for affording a greater pressure from said spring on the feed-roller than is applied to the paper-guide, and hand-operated means for compressing said spring so that the pressure of the paper-guide and feed on the platen may be relieved.

12. In a type-writing machine, the combination of a platen, a paper-guide, a paper-feed roller and a spring-pressed lever which conveys the pressure of the spring to said feed-roller and to said paper-guide and which applies a greater pressure to the feed-roller than is applied through said lever to the paper-guide.

13. In a type-writing machine, the combination of a carriage, a platen mounted therein, a rock-shaft mounted in said carriage, a paper-guide carried by said rock-shaft, pivoted roller-carrying arms, a paper-feed roller carried thereby, and spring-pressed levers that are pivoted to said roller-carrying arms.

14. In a type-writing machine, the combination of a carriage, a platen mounted therein, a rock-shaft mounted in said carriage, a paper-guide coöperating with the platen and carried by said rock-shaft, pivoted roller-carrying arms, a paper-feed roller carried thereby, levers that are pivoted to said roller-carrying arms intermediate of the ends of said levers and each of which bears at one end on a projection that extends from said rock-shaft, and a spring which bears upon the opposite ends of said levers.

15. In a type-writing machine, the combination of a carriage, a platen mounted therein, a rock-shaft mounted in said carriage, a paper-guide coöperating with the platen and secured to said rock-shaft, pivoted roller-carrying arms, a paper-feed roller carried thereby, spring-pressed levers that are carried by and pivoted to said roller-carrying arms intermediate the ends of said levers and

coöperating with the rock-shaft, whereby the pressure applied to the feed-roller is greater than that applied to the paper-guide, and hand-operated means for relieving said levers of spring-pressure.

16. In a type-writing machine, the combination of a carriage, a platen mounted therein, a rock-shaft mounted in the carriage, a paper-guide carried by the rock-shaft and coöperating with the platen, pivoted roller-carrying arms, a paper-feed roller carried by said arms, a lever pivoted to each of said arms intermediate the length of said lever and bearing at one end against a lateral projection on the rock-shaft, a single leaf-spring that extends substantially throughout the length of the platen and bears upon one end of each of said levers, adjustable means for varying the tension of said leaf-spring, and hand-operated means for effecting a release of the pressure of the paper-guide and feed-roller on the platen.

17. In a type-writing machine, the combination of a platen, a paper-feed roller, a leaf-spring that extends longitudinally of the platen and substantially throughout the length of the feed-roller so as to apply pressure at or near both ends thereof, a hand-operated rock-shaft, and means connected thereto for compressing the spring to relieve the feed-roller of pressure on the platen.

18. In a type-writing machine, the combination of a platen, a paper-feed roller, a leaf-spring that extends longitudinally of the platen, and substantially throughout the length of the feed-roller so as to apply pressure at or near both ends thereof, a paper-guide on which said spring exerts a pressure when pressure is applied to the paper-feed roller, a hand-operated rock-shaft, and means connected thereto for compressing the spring to relieve the feed-roller and paper-guide of pressure.

19. In a type-writing machine, the combination of a platen, a paper-feed roller, a single semi-elliptic spring that extends longitudinally of the platen, and substantially throughout the length of the feed-roller so as to apply pressure at or near both ends thereof, adjusting means at or near the center of said spring for varying the tension thereof, a paper-guide on which said spring exerts a pressure when pressure is applied to the paper-feed roller, a hand-operated rock-shaft, and means connected thereto for moving the free ends of the spring against their tension to relieve the feed-roller and paper-guide from pressure.

20. In a type-writing machine, the combination of a carriage, a platen, a rock-shaft mounted in the carriage, and having lateral extensions, a paper-guide moved by the rock shaft, pivoted roller-carrying arms, a paper-feed roller carried thereby, levers



that are pivoted to said arms and bear upon the extensions of said rock-shaft, and a leaf-spring that extends longitudinally of the platen, and substantially throughout the length of the feed-roller, so as to apply pressure at or near both ends thereof and which bears upon the said levers.

21. In a type-writing machine, the combination of a carriage, a platen, a rock-shaft mounted in the carriage, and having lateral extensions, a paper-guide moved by the rock-shaft, pivoted roller-carrying arms, a paper-feed roller carried thereby, levers that are pivoted to said arms and bear upon the extensions of said rock-shaft, and a leaf-spring that extends longitudinally of the platen, and substantially throughout the length of the feed-roller, so as to apply pressure at or near both ends thereof and which bears upon the said levers, whereby the pressure of the spring applied to the feed-roller is greater than that applied to the paper-guide, means for adjusting the tension of the spring, and hand-operated means for relieving the pressure thereof.

22. In a type-writing machine, the combination of a carriage, a platen, a rock-shaft mounted in the carriage, and having lateral extensions, a paper-guide that extends sub-

stantially throughout the length of the platen and has paper-guiding fingers at or near the ends thereof, which guide is moved by the rock-shaft, pivoted roller-carrying arms, a paper-feed roller carried thereby, levers that are pivoted to said arms and bear upon the extensions of said rock-shaft, a semi-elliptic spring that extends longitudinally of the platen, and substantially throughout the length of the feed-roller so as to apply pressure at or near both ends thereof, and which bears upon the said levers at the free ends thereof, whereby the pressure of the spring applied to the feed-roller is greater than that applied to the paper-guide, adjusting means at the central portion of said spring for adjusting the tension of the spring, and a hand-operated rock-shaft with arms thereon that are adapted to bear upon the free ends of said spring for relieving the pressure thereof on the feed roller and guide.

Signed at Syracuse, in the county of Onondaga and State of New York, this 2d day of October, A. D. 1902.

ALEXANDER T. BROWN.

Witnesses:

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