

J. J. COOPER.
TYPE WRITING MACHINE.
APPLICATION FILED APR. 30, 1909.

930,731.

Patented Aug. 10, 1909.

2 SHEETS—SHEET 1.

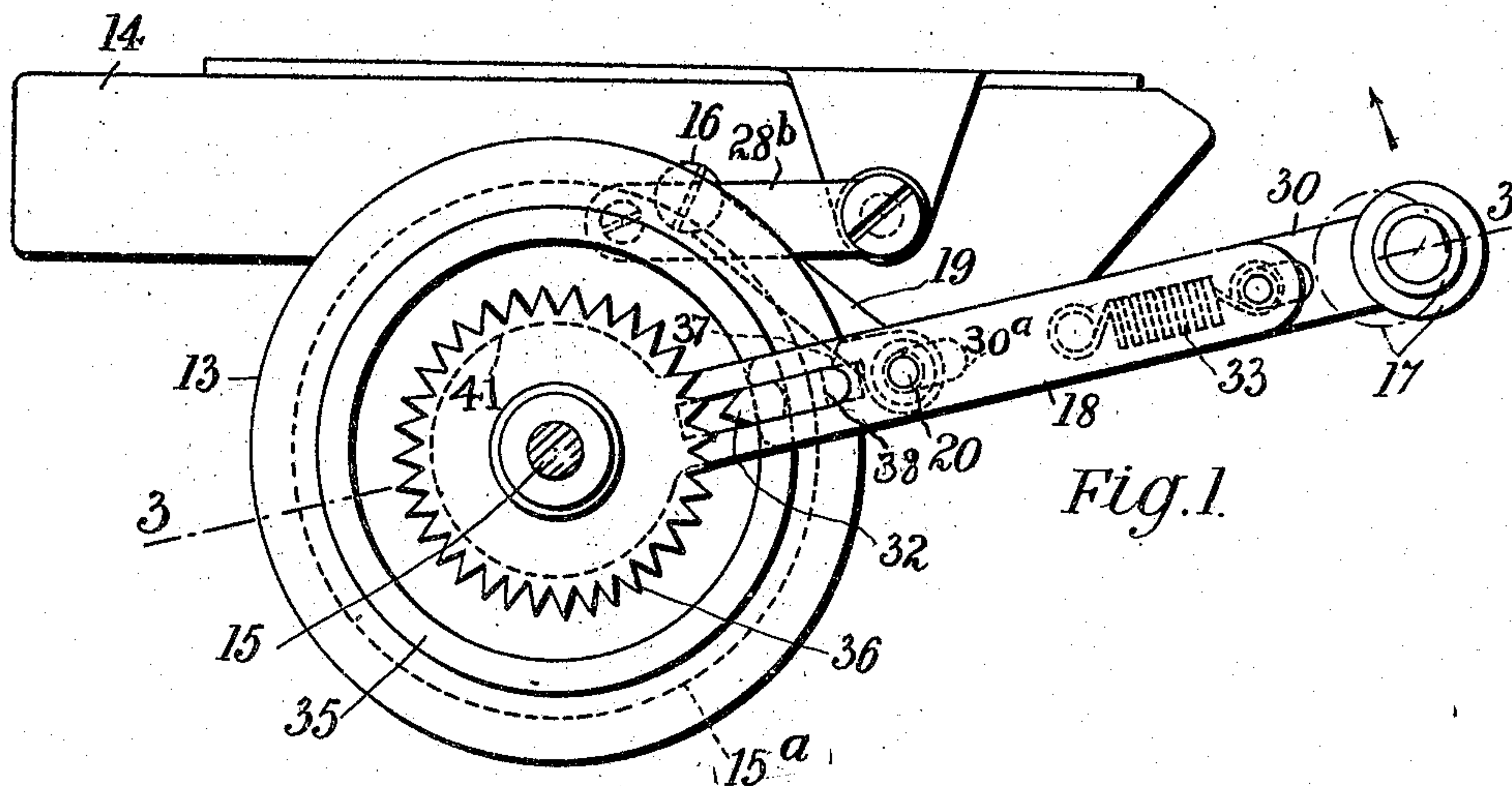


Fig. 1.

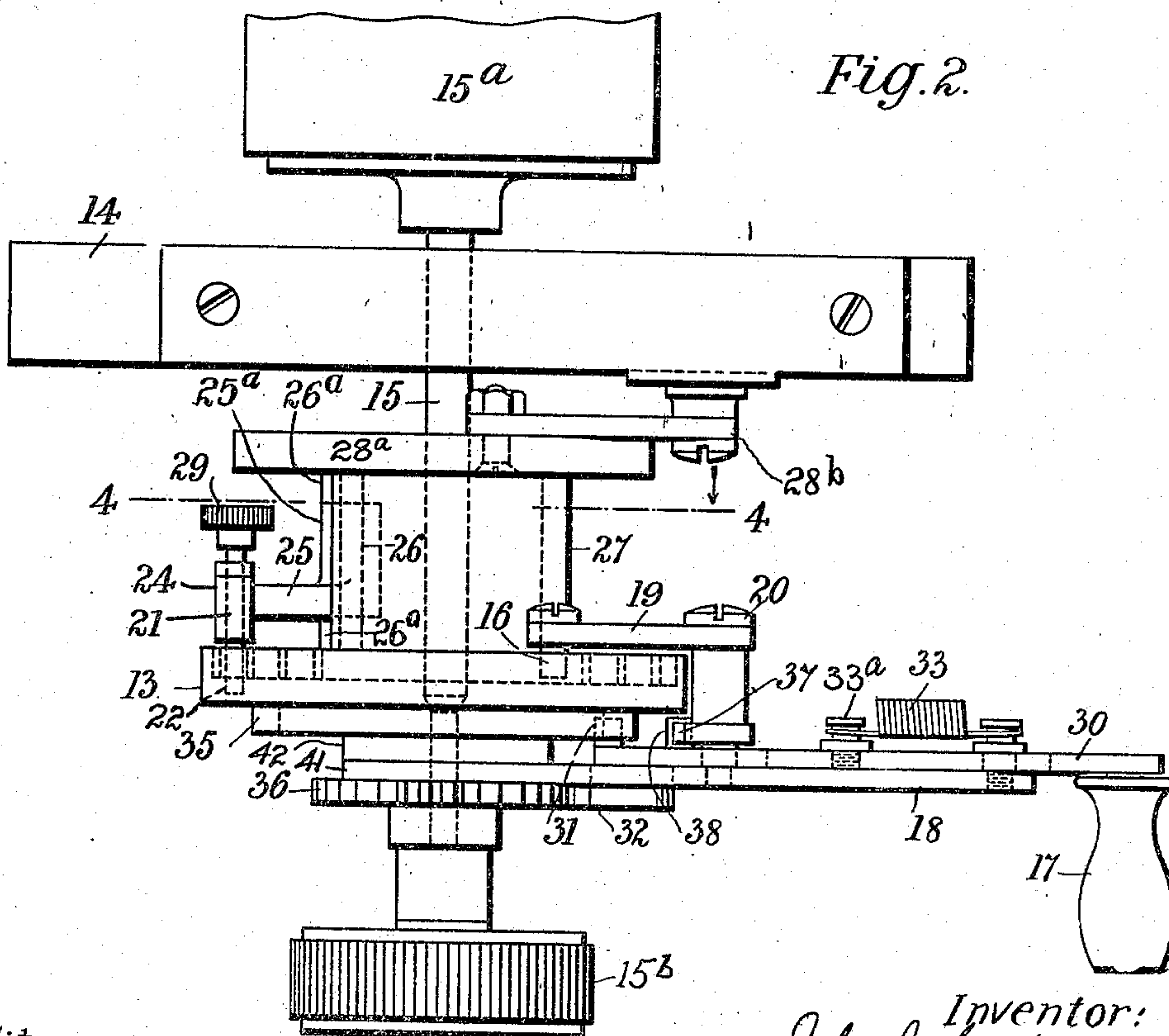


Fig. 2.

Witnesses:
John C. Seifert.
K. Frankfort

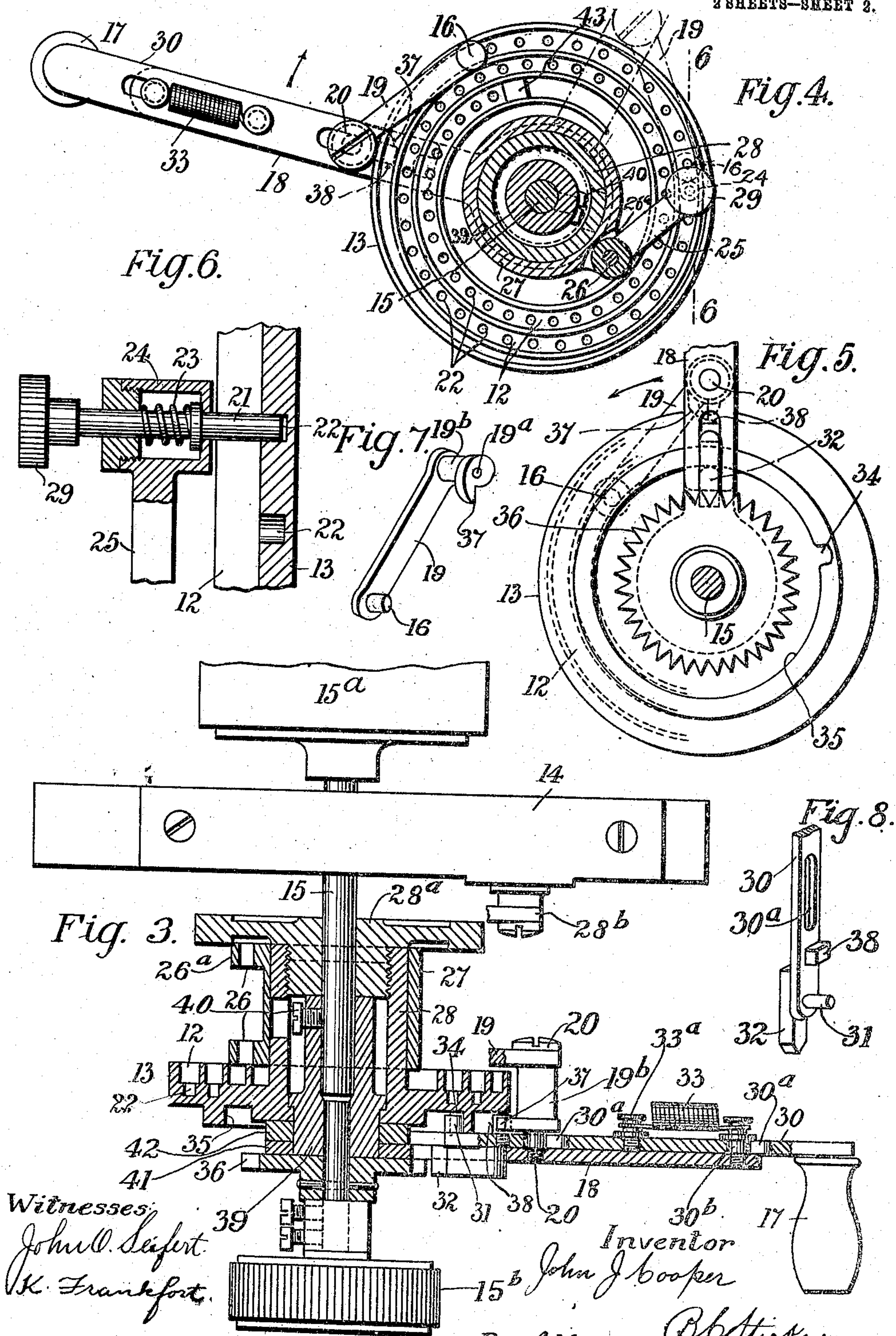
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UNITED STATES PATENT OFFICE.

JOHN JOSEPH COOPER, OF LONDON, ENGLAND, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 930,731.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed April 30, 1909. Serial No. 493,078.

To all whom it may concern:

Be it known that I, JOHN JOSEPH COOPER, a subject of the King of Great Britain, residing in the city of London, England, have
5 invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to typewriting machines which are especially constructed to
10 facilitate the writing of bills and simultaneously recording them in a manner commonly known as "condensed charging".

Provisional application for Letters Patent in Great Britain on this invention was filed
15 July 21, 1908, No. 15,441 of 1908, and complete specification was filed thereon January 21, 1909.

By means of the usual condensed billing attachment, the rotary platen of the type-
20 writer, after one bill has been written and withdrawn, may be given an idle backward rotation to an extent corresponding to the depth of the printed heading on the bill, and after the subsequent insertion of a fresh bill,
25 the platen may be turned forwardly to bring it to position for writing the first line on the bill; whereby the carbon copies of the successive bills are written in close order upon the long record sheet, which remains in the
30 machine. This special backward and forward rotation of the platen is usually effected by a crank, which rotates about the platen axis, playing between stops provided upon the platen frame. The rotation of this crank
35 is limited to a little less than an entire revolution; but in practice this is found sufficient for ordinary bill heads.

Where the depth of the printed portion of the bill head exceeds the circumference of
40 the platen, and it is consequently necessary for the platen to turn backwardly more than an entire revolution at a single stroke, it has been proposed to employ movement-multiplying gearing between the crank and the
45 platen, so that a stroke of the crank through less than an entire revolution will turn the platen through more than an entire revolution.

One of the principal objects of the present
50 invention is to provide simple and effective means for the rotation of the platen-driving crank itself through more than an entire revolution at one stroke, so that it may be

connected directly to the platen, thus avoiding the necessity of employing gearing; and
55 to provide relatively adjustable stops for limiting the throw of the crank.

In carrying out the present invention, a scroll guide is fixed to the platen frame, and the stop is made adjustable along said scroll
60 guide for arresting the platen after the latter has turned through either more or less than an entire revolution at a single stroke. The scroll guide is in the form of a disk fixed to the platen frame and having on one
65 side a scroll; and the disk is perforated at intervals to receive a releasable pin carried by the stop. By means of the pin the stop may be set at intervals agreeing with the
70 pitch of the teeth of the usual line-space wheel.

Upon the platen-driving crank is provided a follower which fits in said scroll guide and is adapted to engage said stop, thereby
75 to limit the initial stroke of the crank and platen. This arrest of the platen occurs after it has turned through either less or more than an entire revolution, according to the position to which the stop is adjusted
80 along the scroll guide. When the stop is adjusted to a point on the inner portion of the scroll, said follower is enabled to pass freely by said stop during the first revolution of the platen from initial position, and
85 also during the return of the platen to initial position.

The connection between the driving crank and platen is effected by means of a notched wheel fastened to the platen axle, and a
90 movable dog carried by the crank. This dog is normally held out of engagement with the wheel, but may be moved into engagement therewith, and then held in such position during the rotation of the platen back-
95 wardly and forwardly by means of a circular guide which is provided on one side of the disk that constitutes the body of the scroll guide. Upon the return of the platen and crank to initial positions, a spring snaps
100 the dog out of engagement with the wheel and into a notch or opening formed in said circular guide. To permit the dog to pass said notch or opening when it is desired to turn the platen through more than an entire
105 revolution, a latch is provided upon the crank or guide; and the latch is rendered

effective by means of the rotation of the crank, so that the dog is held in engagement with the wheel and not allowed to re-enter said opening in the circular guide until the crank returns to initial position.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is an end elevation of the platen frame and associated parts of an Underwood front strike writing machine, showing my improvements applied thereto; the parts being shown in normal positions and the crank disconnected from the platen. Fig. 2 is a plan of the mechanism seen at Fig. 1. Fig. 3 is a part-sectional plan of the parts seen at Fig. 2; the section being taken along the line 3—3 of Fig. 1. Fig. 4 is a sectional elevation taken along the line 4—4 of Fig. 2, but looking in the opposite direction from Fig. 1. Fig. 5 is a view similar to Fig. 1, but showing the driving crank connected to the platen. Fig. 6 is a fragmentary sectional view of the platen-stop, taken along the line 6—6 of Fig. 4. Fig. 7 is a perspective view of the link which is attached to the driving crank and carries at one end a scroll-follower and at the other end a latch for holding the crank dog in engagement with the platen wheel. Fig. 8 is a perspective view of the crank-dog and associated parts.

The scroll-guide above referred to is made by forming a scroll-groove 12 along one side of a disk 13, which is fixed to the platen frame 14 (only one end of which is shown) of the typewriting machine. Said disk surrounds the axle 15 of the usual platen 15^a. Said axle is journaled in the platen frame ends 14, and carries on its projecting end the usual hand wheel 15^b. A follower 16, in the form of a pin fitting in the scroll-groove 12, is loosely connected to a crank, the latter being provided with a handle 17 for rotating the platen. The crank turns freely about the platen axle 15, but is normally disconnected therefrom. The crank proper is designated as 18, said handle 17 being provided upon a slide (30) mounted on said crank. Said follower 16 projects from one end of a link 19, the other end of the latter being pivoted by means of a perforation 19^a (Fig. 7) upon a stud 20, which projects from the crank 18 just outside of the scroll guide 13; said guide being located between the link 19 and the crank 18, and the link having a long hub 19^b fitting upon the stud 20. The link 19 stands about tangentially to the periphery of the disk 14 at Fig. 4.

During the rotation of the platen by the crank, the follower 16 follows the scroll groove 12 until arrested by a stop, the latter adjustable along said scroll-groove to determine the length of stroke of the crank and platen. If the stroke is to be more than an

entire revolution, the follower will, during the first revolution of the platen, pass freely by the stop. Said stop is carried on the end of a link 25, which is pivoted at one end at 26 to a short arm 26^a. Said arm has a large hub 27, freely rotatable upon a barrel 28, (Fig. 3) which is formed upon the scroll disk 13 and threaded at its inner end to a head 28^a, the latter having a central bearing for the axle 15, and fixed by a link 28^b to the platen frame 14. The short arm 26^a is seen at Figs. 2 and 3 divided into two parts, between which is confined a hub 25^a of the link 25. Upon the other end of the link 25 is carried a head or housing (24) to receive a pin (21) to fit in any of a series of holes (22) formed in the body of the disk 13, that is, in the bottom of the scroll-groove 12, at angular intervals agreeing with the pitch of the usual line-space wheel (not shown). The pin 21 is held in any of the holes 22 by a spring 23, Fig. 6, and may be withdrawn by a button 29, for adjustment along the series of holes, which, it will be seen, constitute a scroll-rack for the stop 24, which is provided upon the end of the link 19 for engagement with the head of the follower 16 to arrest the crank. The handle 17 is shown mounted upon a slide 30 movable along the crank, said slide having radial guide slots 30^a, one of which fits upon the base of the stud 20, and the other of which fits on a stud 30^b, also fixed in the outer end of the crank 18.

Extending from the inner end of the slide 30, toward the scroll-disk 13, is a projection 31; and upon the opposite face of said slide 30 is a dog 32. A drawspring 33, connected at one end to a stud 33^a upon the slide 30, and at the other end to the stud 30^b, tends constantly to move the dog 32 radially outward or away from the platen axle 15; and the projection 31 on said dog is held by said spring normally in a notch or opening 34 (Fig. 5) provided in a circular guide 35, the latter formed on the face of the disk 13 opposite from the scroll-groove 12.

Normally the platen may be rotated freely in either direction by means of the usual thumb-wheel 15^b; but at any time the crank 18 may be connected with the platen to control the same, by simply pressing the handle 17 radially inward or toward the platen axle 15, thus carrying the dog 32 into engagement with the teeth of the notched wheel 36, which is fixed to the platen axle 15, and has the same number of teeth as the usual line-space wheel (not shown). This radial movement of the slide 30 carries the projection or stop 31 out of the notch 34, so that the crank may now be freely rotated together with the wheel 36 and platen. The engagement of the dog 32 with the wheel 36 is at first maintained by the circular guide 35. It will be understood that the rotation of the crank and platen continues until the engagement of

the follower 16 (or the end of the follower link 19) with the adjustable stop 24, as shown in dotted lines at Fig. 4.

In order to enable the opening 34 in the guide wall 35 to be passed without liability of the dog being snapped out of engagement with the wheel by the spring 33, there is provided a dog latch 37, which is formed upon the inner end of the hub 19^b (Fig. 7). This latch is out of use when the parts are in normal positions, as at Fig. 1; but during the inward swing of the link 19 to the position at Fig. 5, caused by the follower 16 traversing the scroll guide 12, the latch is swung to the position at Fig. 5, above a lug 38 fixed upon the dog slide 30, so as to lock the dog against retraction from the wheel by the spring 33. Hence the dog can safely pass the opening 24, and thus a positive drive of the platen through more than an entire revolution is permitted. Upon the return of the crank to normal position, the latch 37 again swings to ineffective position, thus releasing the dog 32 and permitting it to be snapped away from the wheel by the spring 33, when the projection 31 arrives opposite the notch 34, so that the crank is detained in normal position, as at Fig. 1.

It will be seen that a boss 39 is secured by a screw 40 upon the platen axle between the wheel 36 and the head 28^a; the boss fitting the bore of the disk 13, to permit the boss to turn freely within the disk. The hub 41 of the crank 18 may turn freely about the boss 39 upon which it is mounted; said hub 41 being confined between the wheel 36 and the disk 13, a washer 42 intervening between said hub and said disk. A lug 43 is mounted in a scroll 12 at the innermost portion thereof to limit the adjustment of the stop 24.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a rotatable crank or driver, a follower connected to said driver to rotate therewith, a fixed scroll guide for said follower, and a stop adjustable along said guide to cooperate with said follower to arrest the crank and platen.

2. In a typewriting machine, the combination with a revoluble platen and a platen frame, of a rotatable crank or driver mounted to turn about the platen axis, a follower loosely connected to said driver to rotate therewith, a scroll guide for said follower, and a stop to arrest said follower, together with the driver and platen, after the latter have turned through more than an entire revolution at one stroke.

3. In a typewriting machine, the combination with a revoluble platen, of a rotatable

crank or driver, a scroll guide, a link pivoted at one end to said driver and at the other end having a follower fitting in said scroll guide, and a stop adjustable along said scroll guide to engage said follower for limiting the stroke of the driver to either more or less than an entire revolution at will.

4. In a typewriting machine, the combination with a revoluble platen, of a rotatable crank or driver, a scroll guide, a link pivoted at one end to said driver and at the other end having a follower fitting in said scroll guide, and a stop adjustable along said scroll guide to engage said follower for limiting the stroke of the driver to either more or less than an entire revolution, at will, said scroll guide carried by a disk, and the disk having perforations along the scroll to form a scroll rack, and said stop having releasable means to engage the perforations.

5. In a typewriting machine, the combination with a revoluble platen, of a rotatable crank or driver, a follower loosely connected to said driver, a fixed scroll guide for said follower, a rotatable arm, and a link pivoted at one end to said arm and carrying at the other end a stop within said scroll guide; a series of perforations being formed in the guide, and said stop having a releasable pin for engaging the perforations.

6. In a typewriting machine, the combination with a revoluble platen, of a rotatable crank or driver, a notched wheel connected to the platen, a dog carried by said driver, means normally holding the dog away from said wheel, means for engaging the dog with the wheel, and a latch upon the driver capable of holding the dog in engagement with the wheel.

7. In a typewriting machine, the combination with a revoluble platen, of a rotatable crank or driver, a notched wheel connected to the platen, a dog carried by said driver, a projection upon said dog, a circular guide to be engaged by said projection to hold said dog in engagement with said wheel, said guide provided with a notch or opening, a spring to snap said projection into said notch and withdraw the dog from the wheel, a latch upon said crank, and means dependent upon the rotation of the crank for moving said latch to hold the dog in engagement with the wheel, to enable the crank to turn the platen through more than an entire revolution at one stroke.

8. In a typewriting machine, the combination with a revoluble platen, of a rotatable crank or driver, a notched wheel connected to the platen, a dog carried by said driver, means normally holding the dog away from said wheel, means for engaging the dog with the wheel, a projection upon said dog, a circular guide to engage said projection for holding the dog in engagement with the wheel, said guide having an

opening, a spring to withdraw the dog from the wheel and cause said projection to occupy said opening, a link pivoted at one end upon said driver, a follower upon the other end of said link, a scroll guide in which said follower fits, a latch upon said link caused by the swinging thereof to engage said dog to hold it in engagement with the notched wheel, and a stop adjustable along said scroll guide to engage said follower for arresting the driver and platen.

9. In a typewriting machine, the combination with a revoluble platen, of a platen driver rotatable about the axis of the platen, a volute rack, a stop adjustable along said rack, a cooperating stop member connected to said driver to rotate therewith, and means to cause the last-mentioned stop member to follow said rack during the rotation of the driver.

10. In a typewriting machine, the combination with a revoluble platen, of a platen driver rotatable about the axis of the platen, a stop member connected to said driver to rotate therewith, means to cause said stop member to follow a volute path during the rotation of the driver, and a fixed stop member arranged in said path to be engaged by the first stop member during the second revolution of the driver in the same direction at one stroke.

11. In a typewriting machine, the combination with a revoluble platen, of a platen driver rotatable about the axis of the platen, a stop member connected to said driver to rotate therewith, means to cause said stop member to follow a volute path during the rotation of the driver, a fixed stop member arranged in said path to be engaged by the first stop member during the second revolution of the driver in the same direction at one stroke, said platen having a notched wheel, said driver having a pawl or dog normally disconnected from said wheel, and means to cause the dog to engage the wheel and maintain such engagement during more than an entire revolution of the platen at a single stroke.

12. In a typewriting machine, the combination with a revoluble platen, of a rotatable

crank or driver, a notched wheel connected to the platen, a dog carried by said driver, means normally holding the dog away from said wheel, means for engaging the dog with the wheel, a latch upon the driver capable of holding the dog in engagement with the wheel, means to move said latch into effective position, and means for automatically releasing said latch upon the return of the driver to initial position.

13. In a typewriting machine, the combination with a revoluble platen, of a platen driver rotatable about the axis of the platen, a volute rack, a stop adjustable along said rack, a cooperating stop member connected to said driver to rotate therewith, means to cause the last-mentioned stop member to follow said rack during the rotation of the driver, a notched wheel connected to the platen, a dog carried by said driver, means normally holding the dog away from said wheel, means for engaging the dog with the wheel, a latch upon the driver capable of holding the dog in engagement with the wheel, means to move said latch into effective position, and means for automatically releasing said latch upon the return of the driver to initial position.

14. In a typewriting machine, the combination with a revoluble platen, of a platen driver rotatable about the axis of the platen, a volute rack, a stop adjustable along said rack, a cooperating stop member connected to said driver to rotate therewith, means to cause the last-mentioned stop member to follow said rack during the rotation of the driver, a notched wheel connected to the platen, a dog carried by said driver, means normally holding the dog away from said wheel, means for engaging the dog with the wheel, and means to maintain the engagement of the dog with the wheel during a rotation of the driver through more than an entire revolution and back to initial position.

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Witnesses:

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