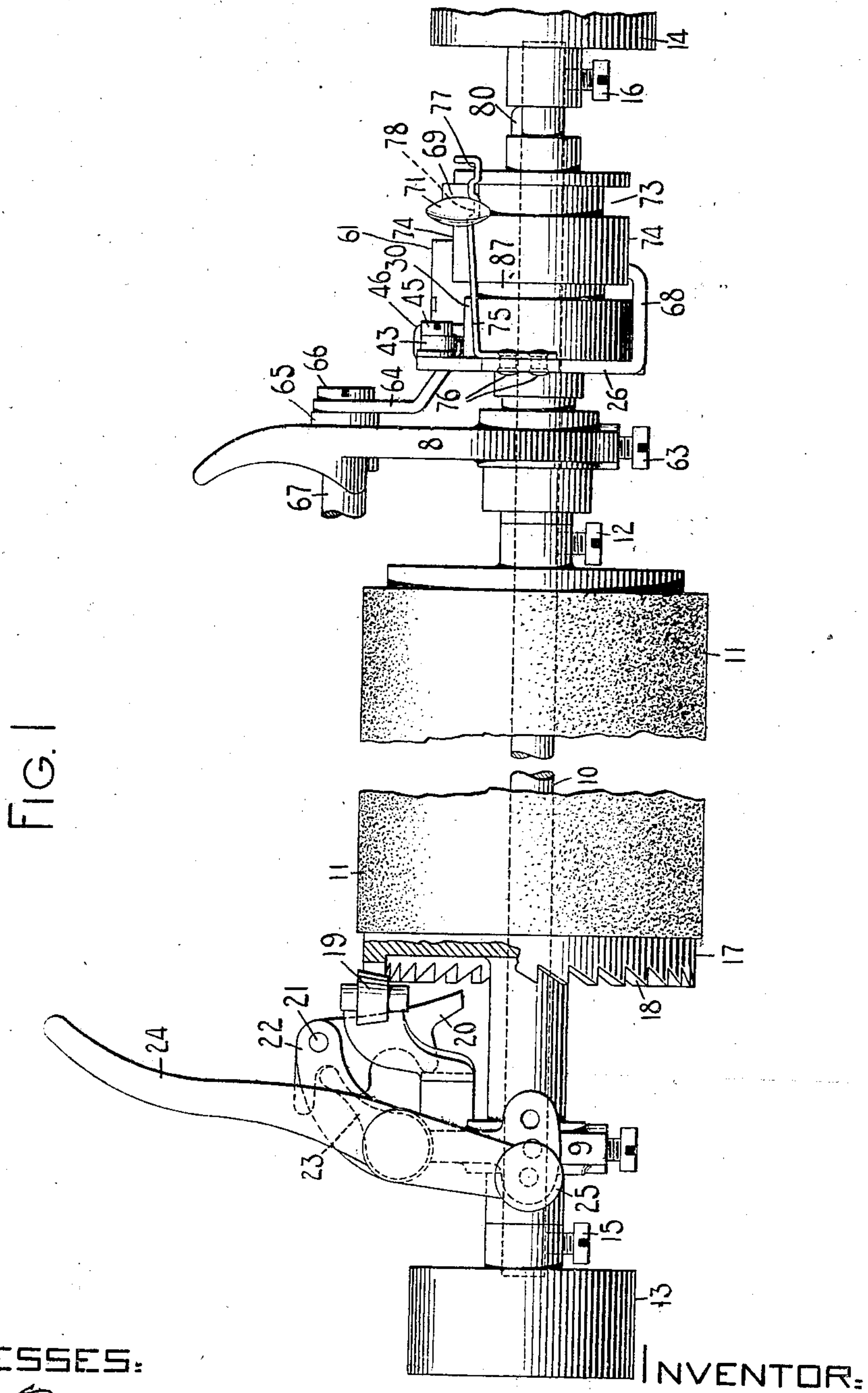


921,662.

E. E. BARNEY.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 25, 1909.

Patented May 18, 1909.
4 SHEETS—SHEET 1.



WITNESSES:

E. M. Wells.

Charles E. Smith

INVENTOR:

Edwin E. Barney

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4 SHEETS—SHEET 2.



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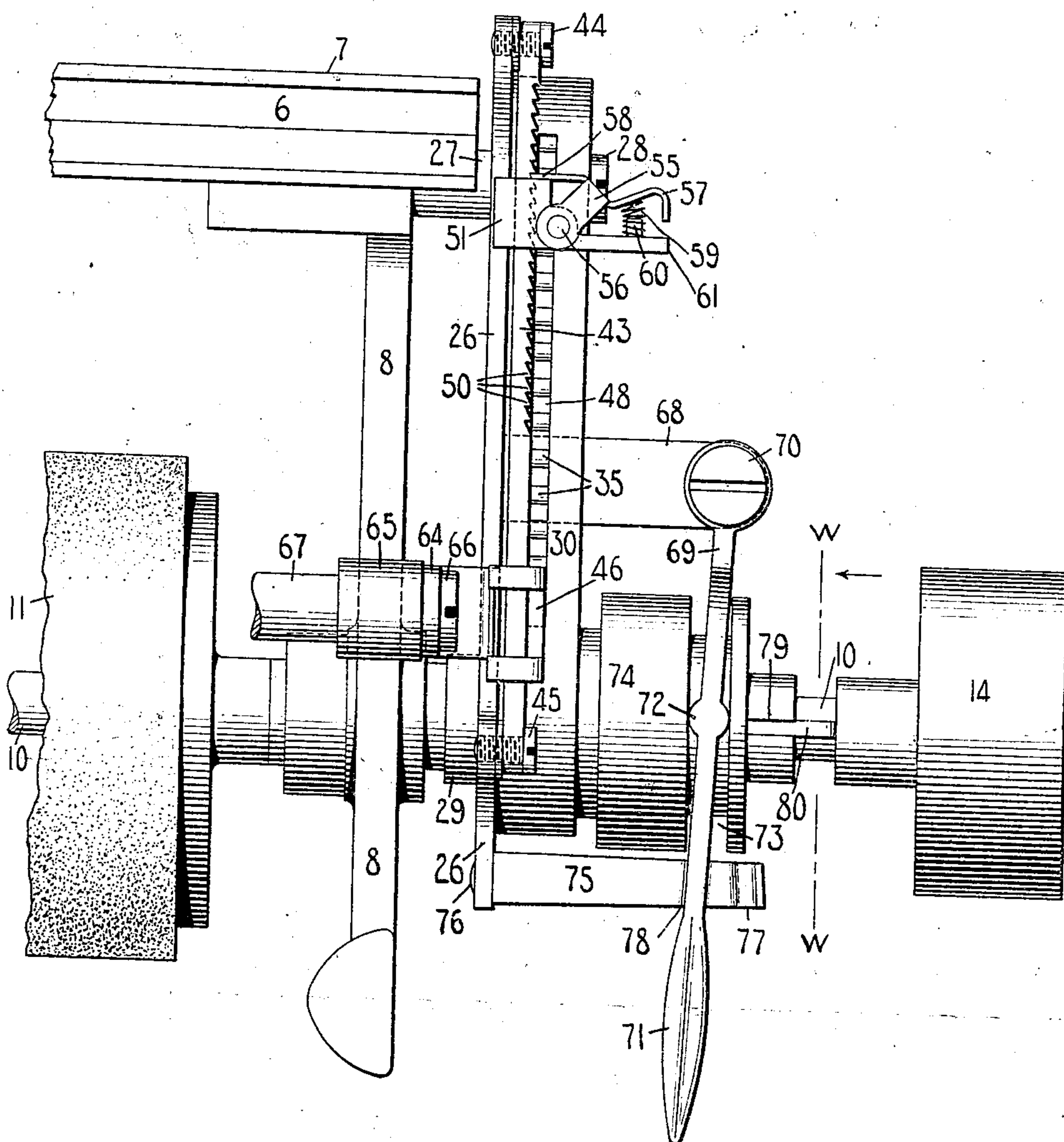
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4 SHEETS—SHEET 3.

FIG. 3.



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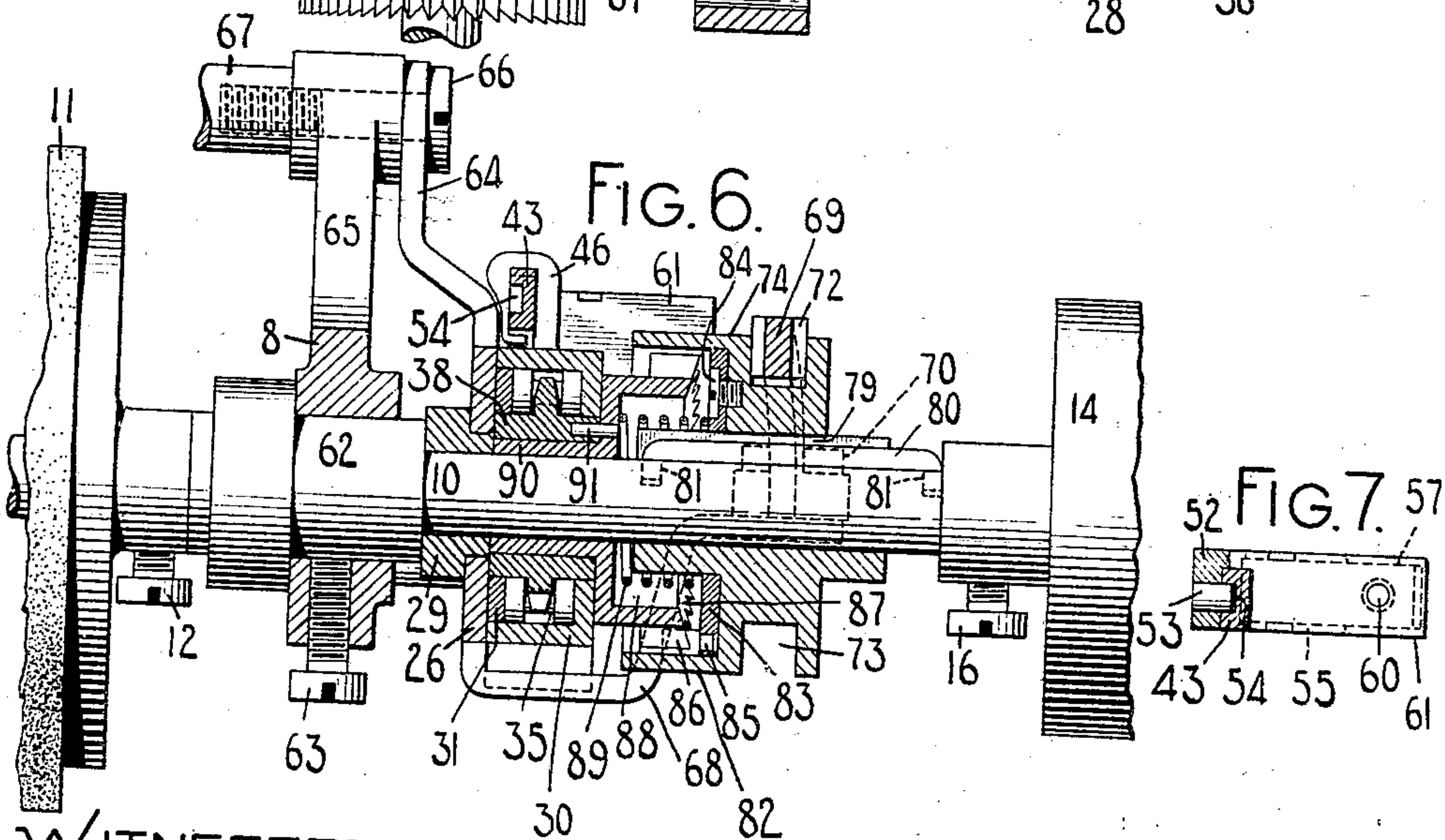
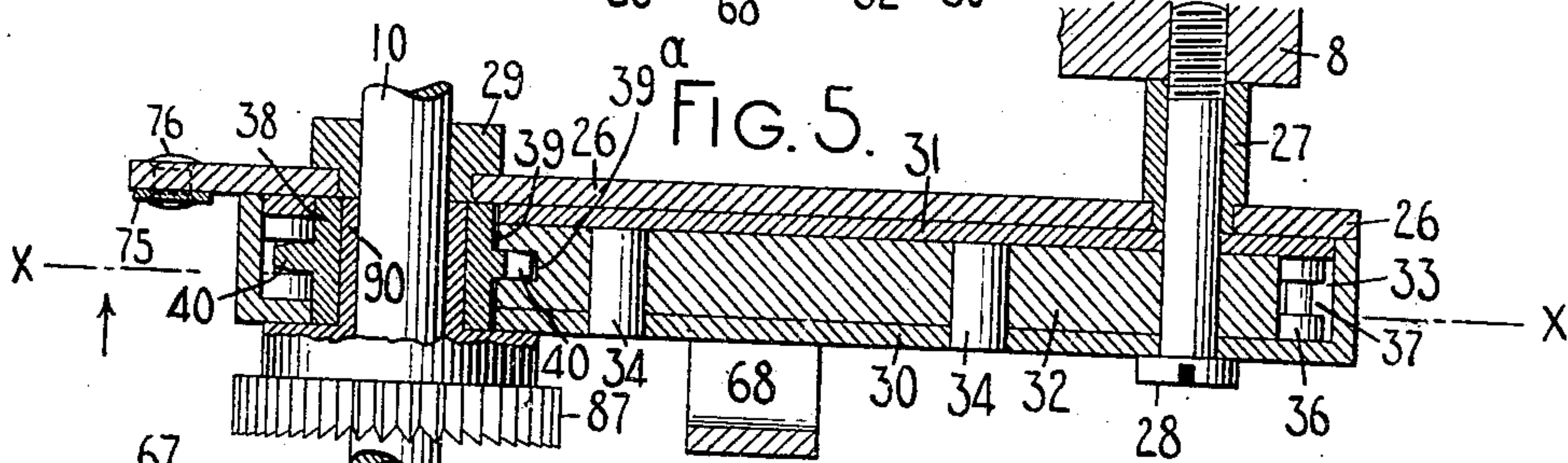
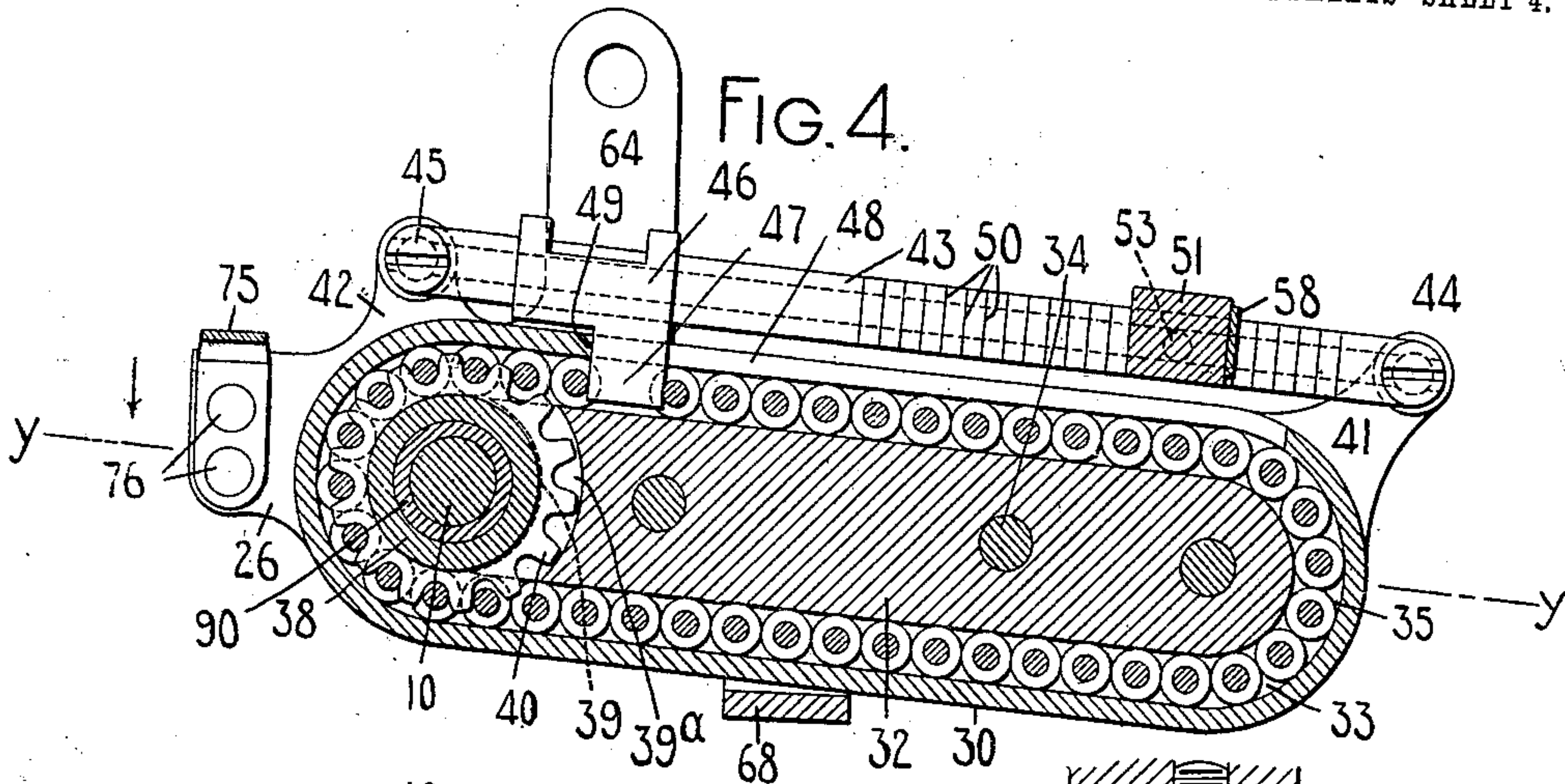
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WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN E. BARNEY, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 921,662.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed February 25, 1909. Serial No. 479,867.

To all whom it may concern:

Be it known that I, EDWIN E. BARNEY, a citizen of the United States, and 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 typewriting machines and more particularly to billing mechanism for such machines and one object of said invention is to provide efficient billing mechanism adapted more particularly for condensed record work.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is an enlarged front elevation with parts omitted, parts in section and parts broken away of the carriage of a Monarch machine equipped with the devices of my invention. Fig. 2 is an enlarged end elevation of the same looking from the right and with the right-hand finger wheel sectioned away, the section being taken on the line *w—w* of Fig. 3 and looking in the direction of the arrow at said line. Fig. 3 is a fragmentary top plan view of the same. Fig. 4 is a detail vertical sectional view of the billing devices on an enlarged scale, the section being taken on the line *x—x* of Fig. 5 and looking in the direction of the arrow at said line. Fig. 5 is a horizontal sectional view of the same taken on the line *y—y* of Fig. 4 and looking in the direction of the arrow at said line. Fig. 6 is a fragmentary vertical sectional view of the same, the section being taken on the line *z—z* of Fig. 2 and looking in the direction of the arrow at said line. Fig. 7 is an enlarged detail end view of the adjustable stop, the supporting bar which carries it being shown in section.

While the devices of my invention are intended more particularly for condensed record billing work, it should be understood that they may be employed in connection with other kinds of billing work.

I have shown my invention embodied in a Monarch machine to which the novel devices

of my invention may be readily applied without changing or materially changing the structural features of said machine, although it should be understood that the invention may be embodied in other styles of typewriting machines.

The corner posts 1 of the machine support a top plate 2 from which risers 3 project. These risers or brackets support oppositely grooved fixed carriage rails 4 which receive anti-friction balls or rollers 5 that are also received in oppositely grooved faces 6 of a transverse carriage bar 7 to support the carriage in its movement from side to side of the machine over the top plate. End plates 8 and 9 project forwardly from the transverse slide bar 7 and with it constitute the platen frame or carriage of the machine. The end bars 8 and 9 have bearing openings to receive a platen shaft 10 to which a rotative cylindrical platen 11 is secured by a set screw 12. The ends of the platen shaft have finger wheels 13 and 14 secured thereto by screws 15 and 16 respectively which extend through threaded openings in the hubs of said finger wheels and bear at their inner ends against the platen shaft. The left-hand platen head 17 is formed with crown ratchet teeth 18 which constitute a line spacing wheel with which a spring-pressed roller detent 19 coöperates. A line spacing pawl 20 is pivoted at 21 to a pivoted arm 22. A crank arm 23 is operatively connected to a rock shaft which carries a finger piece 24 at the forward end thereof. The crank arm 22 coöperates with a line spacing pawl 20 to effect a step-by-step rotation of the line spacing wheel and the platen. A regulating device 25 is provided for regulating the extent of the line spacing movement. The parts thus far described are or may be of the usual construction embodied in the Monarch machine and further detailed description thereof is deemed unnecessary.

A supporting bracket plate 26 is located to the right of the right-hand end plate 8 of the carriage and extends parallel therewith. From an inspection of Fig. 5 it will be seen that a spacing sleeve 27 is riveted to the bracket plate 26 and that a screw 28 passes through the spacing sleeve and other parts to be hereinafter described and takes, at its threaded end, into a tapped opening in the end plate 8 to secure the bracket in place and maintain it properly spaced from the

right-hand end plate. A second sleeve or collar 29 is riveted to the bracket 26 and surrounds the platen shaft 10. A housing 30 is provided with a cover plate 31 received in an opening at one side of the housing to inclose a central bearing member 32 between which and the housing an endless channel or chamber 33 is formed. The bearing member 32 is supported in place on the outer side wall of the housing by supporting pins or rivets 34 which, however, do not extend through the cover plate 31 so that when the parts are detached the cover plate may be removed to give access to the interior channel or chamber and the parts received therein. The endless channel 33 receives an endless series of disconnected rollers 35, each of which has peripheral bearings 36 and a central recess or circumferential groove 37. The diameter of each bearing portion of a roller is substantially equal to the width of the endless channel 33 in which the rollers are received, so that each of the rollers bears at one side against the endless wall of the housing and at its other side against the centrally located bearing member 32. The bearing rollers are sufficient in number to fill or substantially fill the channel 33 so that a bodily movement of any roller is effective to transmit movement to the remaining rollers in the channel and there is no independent bodily movement between the rollers. The platen shaft 10 extends through the housing near one end thereof and has a spur or toothed wheel 38 mounted thereon within the housing. The bearing member 32 is cut away at 39 to receive the spur wheel and is channeled at 39^a to receive the teeth of the spur wheel. The diameter of the wheel is such as to substantially fill the space at one end portion of the housing so that the teeth 40 of the spur wheel are adapted to be received in the recess 37 and to extend between the rollers and thus provide an effective engagement with the rollers as they reach the spur wheel. The effect of this operative connection between the spur wheel and the rollers is to produce a movement of the entire series of rollers by a rotation of the spur wheel as will hereinafter more clearly appear.

The bracket plate 26 has upwardly extending projections 41 and 42 to which a slide or stop supporting bar 43 is secured by screws 44 and 45 respectively. A traveling stop 46 almost completely surrounds the bar 43 as shown in Fig. 6 and has a depending portion 47 which extends into the housing and between a pair of adjacent non-contacting rollers 35 as indicated in Fig. 4. If desired, the entire set of rollers may be brought into contact one with another and the stop 46 provided with a depending projection 47 fitted within the recesses 37 between a pair of adjacent contacting rollers. I prefer, however, to arrange the parts as shown in Fig. 4

in order to provide more stock in the depending portion 47 and obtain greater strength and rigidity. The depending portion 47 of the traveling stop 46 projects through a slot 48 in the upper side of the housing and is, of course, carried along by the movements of the rolls. The length of this slot should correspond to the extreme extent of travel of the stop 46. The forward end 49 of the slot 48 constitutes a fixed stop with which the depending portion 47 of the traveling stop coöperates to limit the forward movement of said traveling stop. The outer face of the bar 43 is provided with ratchet teeth 50, the sloping faces of which extend from the straight faces toward the rear of the machine. An adjustable stop 51, which is shown in detail in Fig. 7, comprises a body portion 52 provided with an outwardly projecting pin 53 received in a longitudinal groove 54 in the inner face or side of the bar 43. A pawl or latch 55 is pivoted at 56 to the body of the stop and has a finger piece 57 by which the engaging nose 58 of the pawl may be released from the rack teeth 50 and resists a rearward movement of the stop along the bar. A coiled expansion spring 59 surrounds a stud or pin 60 carried by an extension 61 on the stop 51 and bears at one end against the extension and at the other end against the finger piece 57. By compressing the finger piece 57 and the extension 61 together, the pawl may be disengaged from the rack and adjusted to any desired position along the supporting bar 43. The adjustable stop 51 coöperates with the traveling stop during the latter's rearward movement to arrest the traveling stop and the parts controlled thereby, whereas the forward movement of the traveling stop, as hereinbefore pointed out, is arrested by the end wall 49 of the slot 48.

From an inspection of Fig. 6 it will be seen that the spacing sleeve 29 bears at its inner end against a collar 62 secured in an opening in the end plate 8 by a set screw 63. This collar receives the platen shaft 10 and constitutes a part of the usual thrust bearing for the platen, provided in the Monarch machine. It will be seen therefore that the spacing collar 29 abuts the part 62 and thus maintains the parts carried by the housing properly spaced from the end plate 8 at the forward portion of the housing. The bracket plate 26, hereinbefore described, has an upwardly extending projection 64 which is secured to the upward extension 65, usually provided in the Monarch machine, by the usual screw 66 which secures the cross bar or rod 67 to the extension 65, thus giving more efficient support and greater rigidity to the bracket plate 26 and the parts supported thereby. Another arm 68 extends to the right from the bracket plate 26 and then upwardly to form a bearing for a clutch lever 69, pivoted to the bracket 68 on a

shouldered screw 70, threaded at its end into a tapped opening in the bracket. This lever extends forwardly from the bracket and is provided at its forward end with a finger piece 71 and an intermediate rounded bearing portion 72 which is received within a peripheral groove 73 in a clutch member 74. A leaf spring 75 is riveted at one end as at 76 to the forward end of the bracket plate 26. The leaf or detent spring extends to the right of the bracket plate beneath the forward end portion of the clutch lever 69. The spring has two locking recesses 77 and 78 in one of which the lever 69 is adapted to be seated when in either of the two positions to which it may be moved, in order to retain the lever against accidental displacement. The clutch member 74 surrounds the shaft 10 and has a spline groove 79 which receives a spline 80 provided with bent ends 81 received in openings in the platen shaft so as to rigidly connect the spline to the shaft. The spline and groove thus connect the clutch member 74 and the shaft to rotate together but to afford a movement of the clutch member longitudinally of the platen shaft. A cylindrical housing 82 extends to the left from the clutch member and contains a plate 83 secured in the bottom of the housing by screws 84. This plate has riveted thereto at 85 a clutch tooth 86. The clutch tooth 86 is adapted to cooperate with the teeth of a clutch wheel 87 to connect the two to rotate together. The teeth of the clutch wheel preferably correspond in number with the teeth of the line spacing wheel of the machine in order that the clutch members will be in position to engage one with the other at any line spacing position of the platen. The clutch wheel 87 is contained within the cylindrical housing 82 and is preferably formed with a central opening 88 which receives a coiled expansion spring 89 that bears at one end against the bottom wall of the opening 88 of the clutch wheel and at its opposite end against the plate 83 in the clutch member 74, thus tending to separate the clutch members. It should be understood that the pressure of the spring 89 is insufficient to overcome the pressure of the detent spring 75. The clutch wheel 87 is provided with a hub 90 that surrounds the platen shaft and constitutes a support for the driving or spur wheel 38 and a pin 91 is employed to unite the driving wheel with the clutch member 87 so that the two will rotate together.

From the foregoing description it will be understood that when the clutch lever 69 is received in the locking recess 78 of the spring 75 as indicated in Fig. 3, the clutch members 74 and 87 will be connected. Therefore the driving wheel 38 and the series of rollers 35 and traveling stop 46 will be operatively connected with the platen so that the said parts

will move concurrently therewith during the rotative movements of the platen. When, however, the finger piece 71 of the clutch lever is moved to the right, so that the lever is received in the locking recess 77 of the detent spring, then the clutch members 74 and 87 are disconnected and the platen is free to be rotated independently of the stops, the series of rollers, the driving wheel 38 therefor and the clutch member 87; the clutch member 74 at this time turning with the platen shaft but rotating independently of its companion clutch member.

In the operation of the mechanism for condensed record billing work the clutch lever is thrown to the position shown in Fig. 3 to effect an engagement between the clutch members 74 and 87 and the platen is given a backward rotation in the direction of the concentric arrow in Fig. 2 until the traveling stop 46, carried by the set of rollers, is arrested by engaging the forward fixed stop or end 49 of the slot 48. The record sheet, invoice sheet and interposed carbon sheet are then introduced into the machine and the platen is turned forwardly until the bill sheet is in a position to receive the first line of writing. This forward movement of the platen is effective to move the traveling stop 46 in a rectilinear path from the forward end of its travel rearwardly along the bar 43 a distance which corresponds to that which is necessary to introduce a bill sheet into the machine and position it to receive the first line of writing. The adjustable stop 51 is then moved forwardly along the stop bar 43 until it is brought into engagement with the traveling stop 46. This effects a setting of the stops and there is no necessity for further adjustment of the adjustable stop until invoice sheets with printed bill heads of different spacing are employed. The operator next throws the clutch to the releasing position and proceeds with the writing until the bill is completed. Two or three line space movements of the platen are then given in order to provide proper spacing between the last line of the copy of the bill just produced on the record sheet and the first line of the copy of the next succeeding bill. The bill sheet is then removed without disturbing the carbon and record sheets. The clutch is then again thrown to the engaging position and the platen is given a reverse or backward rotation until it is arrested through the cooperation of the traveling stop 46 with the forward fixed stop 49. A new bill sheet may then be introduced into the machine and the platen given a forward rotation until the traveling stop is brought into contact with the adjustable stop 51 when the platen will be arrested. The clutch is then released and the operator may proceed with the writing as before and so on the operation continues until the record

sheet is filled. A new record, carbon and invoice sheet may then be introduced as previously described, except that at this time no adjustment of the stop 51 is necessary.

I have referred to the members 35 as rollers and have specifically described the particular character of rollers employed but it should be understood that I employ the term "roller" in a generic sense and intend by the term to cover various kinds of rollers.

Various changes may be made without departing from my invention.

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

1. In a typewriting machine, the combination of a rotative platen, a series of rollers having a bodily movement concurrently with the rotative movements of the platen, and stops for arresting the platen, one of said stops being moved by said rollers.

2. In a typewriting machine, the combination of a rotative platen, an endless series of rollers contacting one with another, means for moving the rollers concurrently with the rotative movements of the platen, and stop devices which cooperate with one another and with said rollers to arrest the platen.

3. In a typewriting machine, the combination of a rotative platen, an endless series of rollers contacting one with another, means for moving the rollers concurrently with the rotative movements of the platen, stop devices which cooperate with one another and with said rollers to arrest the platen, and means for rendering said stop devices and rollers inoperative to arrest the platen.

4. In a typewriting machine, the combination of a rotative platen, an endless series of loosely mounted traveling rollers contacting one with another and movable bodily by such contact, means for moving the rollers concurrently with the rotative movements of the platen, stop devices which cooperate with one another and with said rollers to arrest the platen, and hand actuated means operable at will for rendering said stop devices and rollers inoperative to arrest the platen.

5. In a typewriting machine, the combination of a rotative platen, a rotative device, means operable at will for operatively connecting said rotative device to turn concurrently with the platen, a series of disconnected rollers which are moved by said rotative device, and stop devices cooperative one with another and with said rollers to arrest the platen.

6. In a typewriting machine, the combination of a rotative platen, a chamber, a series of rollers loosely contained in said chamber for movement in it, a driving device for moving said rollers in said chamber, means for operatively connecting said driving device and the platen, and stops cooperative one

with another and with said rollers to arrest the rotative movement of the platen.

7. In a typewriting machine, the combination of a rotative platen, a chamber, a series of rollers loosely contained in said chamber for movement in it, a driving device for moving said rollers in said chamber, a hand actuated clutch operable at will for operatively connecting said driving device and the platen, and stops cooperative one with another and with said rollers to arrest the rotative movement of the platen.

8. In a typewriting machine, the combination of a rotative platen, an endless chamber, an endless series of rollers contained in and adapted to move bodily within said endless chamber, a spur gear, the teeth of which enter between said rollers, means operable at will for operatively connecting said spur gear and the platen, and stops for arresting the platen, one of said stops being moved by said rollers.

9. In a typewriting machine, the combination of a rotative platen, an endless chamber, an endless series of rollers contained in and adapted to roll bodily within said endless chamber, a spur gear the teeth of which enter between said rollers, a hand actuated clutch operable at will for operatively connecting said spur gear and the platen, stops for arresting the platen, one of said stops being moved by said rollers, and means for effecting a relative adjustment between certain of said stops.

10. In a typewriting machine, the combination of a platen frame, a rotative platen, a platen shaft, an endless chamber on the platen frame, an endless series of rollers contained within said chamber, a wheel on the platen shaft and operative on said rollers to move them in the chamber, stops for arresting the platen, one of said stops being moved by said rollers, and means operable at will for rendering said stops inoperative to arrest the platen.

11. In a typewriting machine, the combination of a platen frame, a rotative platen, a platen shaft, an endless chamber on the platen frame, an endless series of rollers contained within said chamber, a spur wheel on the platen shaft, the teeth of said wheel passing between the rollers, a hand actuated clutch for connecting the spur wheel to rotate concurrently with the platen, and stops for arresting the platen, one of said stops being moved by said rollers.

12. In a typewriting machine, the combination of a platen frame, a rotative platen, a platen shaft, an endless chamber on the platen frame, an endless series of rollers contained within said chamber, a spur wheel on the platen shaft, the teeth of said wheel passing between the rollers and moving them concurrently with the platen during

both the forward and backward rotations of the platen, a hand actuated clutch for connecting the spur wheel to rotate concurrently with the platen, and stops for arresting the platen in both its forward and backward rotations, certain of said stops being moved by said rollers, certain of said stops being fixed to the platen frame, and certain of said stops being adjustable.

13. In a typewriting machine, the combination of a platen frame, a rotative platen, a platen shaft, an endless chamber on the platen frame, an endless series of rollers contained within said chamber, a spur wheel on the platen shaft, the teeth of said wheel passing between the rollers, a hand actuated clutch for connecting the spur wheel to rotate concurrently with the platen, and stops for arresting the platen in both its forward and backward rotations, two of said stops being relatively adjustable and fixed to the platen frame and the third of said stops being mounted for movement by said rollers in a rectilinear path between said two relatively adjustable stops.

14. In a typewriting machine, the combination of a rotative platen, an endless series of disconnected rollers adapted to move concurrently with the rotative movement of the platen, said rollers being recessed to provide spaces between them, a spur gear, the teeth of which pass into the spaces between said rollers, stops for arresting the platen, one of said stops being arranged between certain of the rollers so as to be moved thereby, and means operable at will for rendering said stops inoperative to arrest the platen.

15. In a typewriting machine, the combination of a rotative platen, a series of rolls adapted to be driven by the turning of the platen, a stop adapted to be reciprocated by the movements of said rolls, and a cooperating stop.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 20th day of February A. D. 1909.

EDWIN E. BARNEY.

Witnesses:

JOHN S. MITCHELL,
G. B. BRAND.