

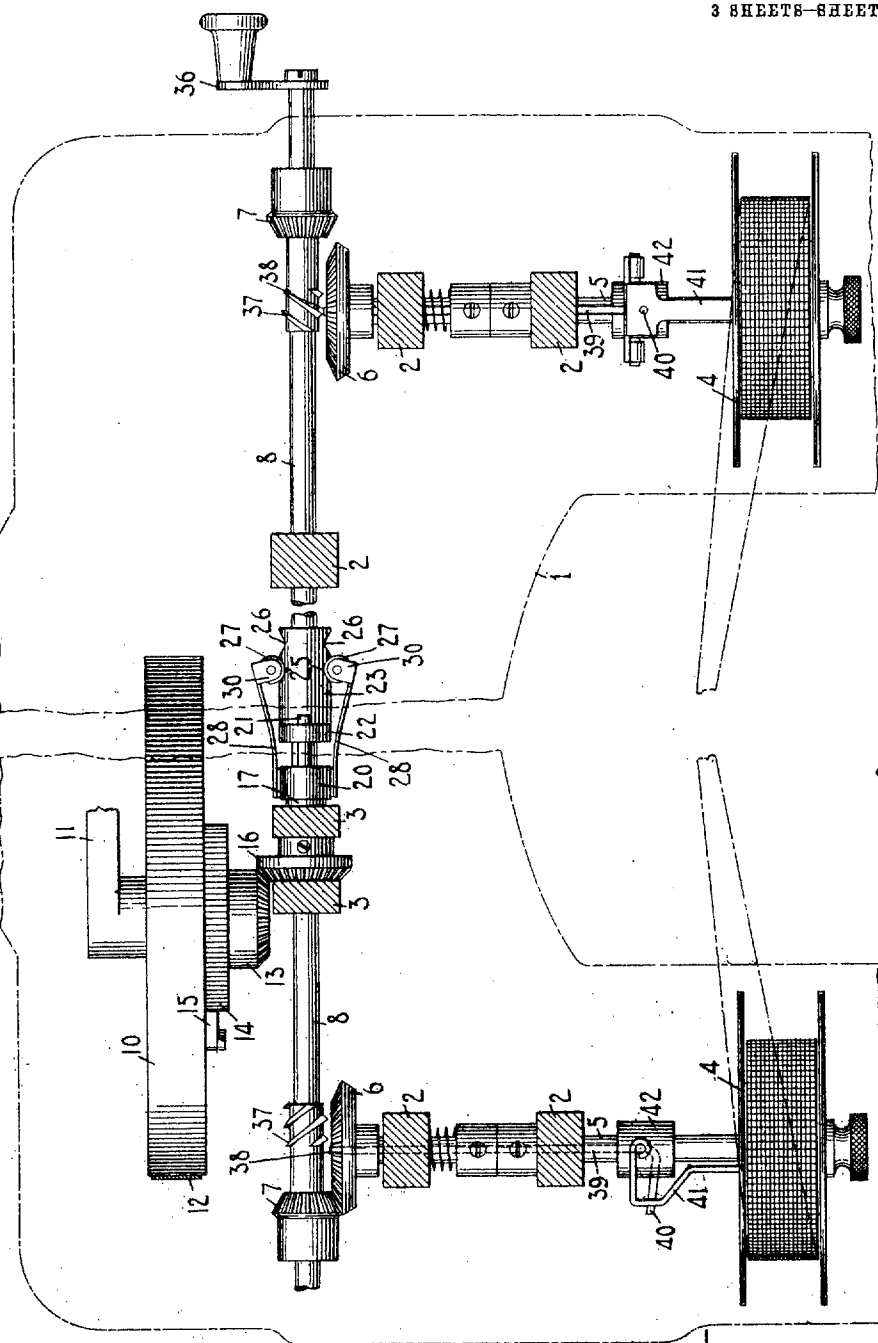
A. W. STEIGER.
TYPE WRITING MACHINE.
APPLICATION FILED NOV. 12, 1909.

975,086.

Patented Nov. 8, 1910.

3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

E. M. Wells

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INVENTOR:

Andrew W. Steiger

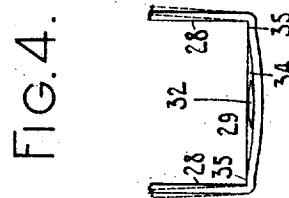
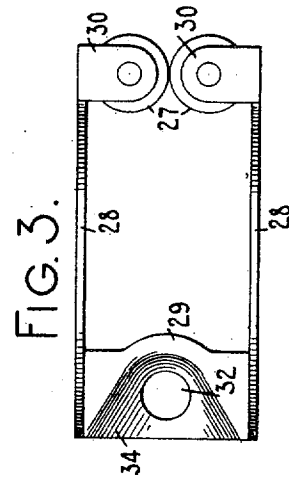
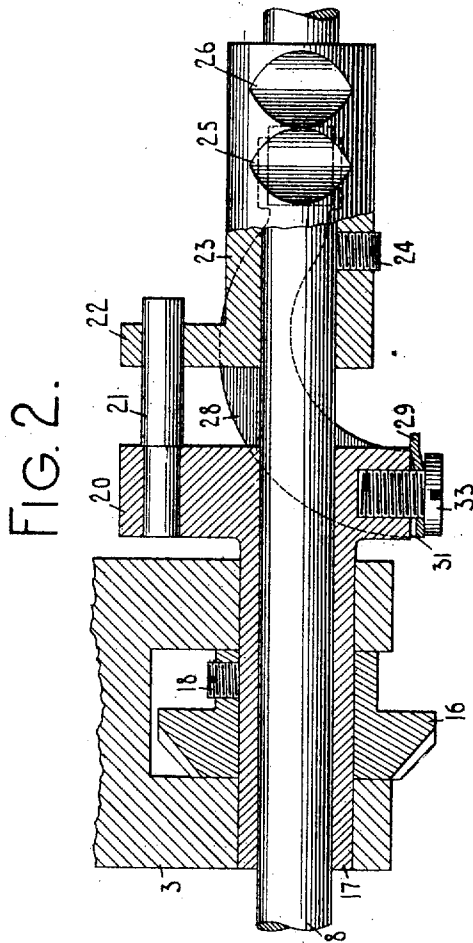
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

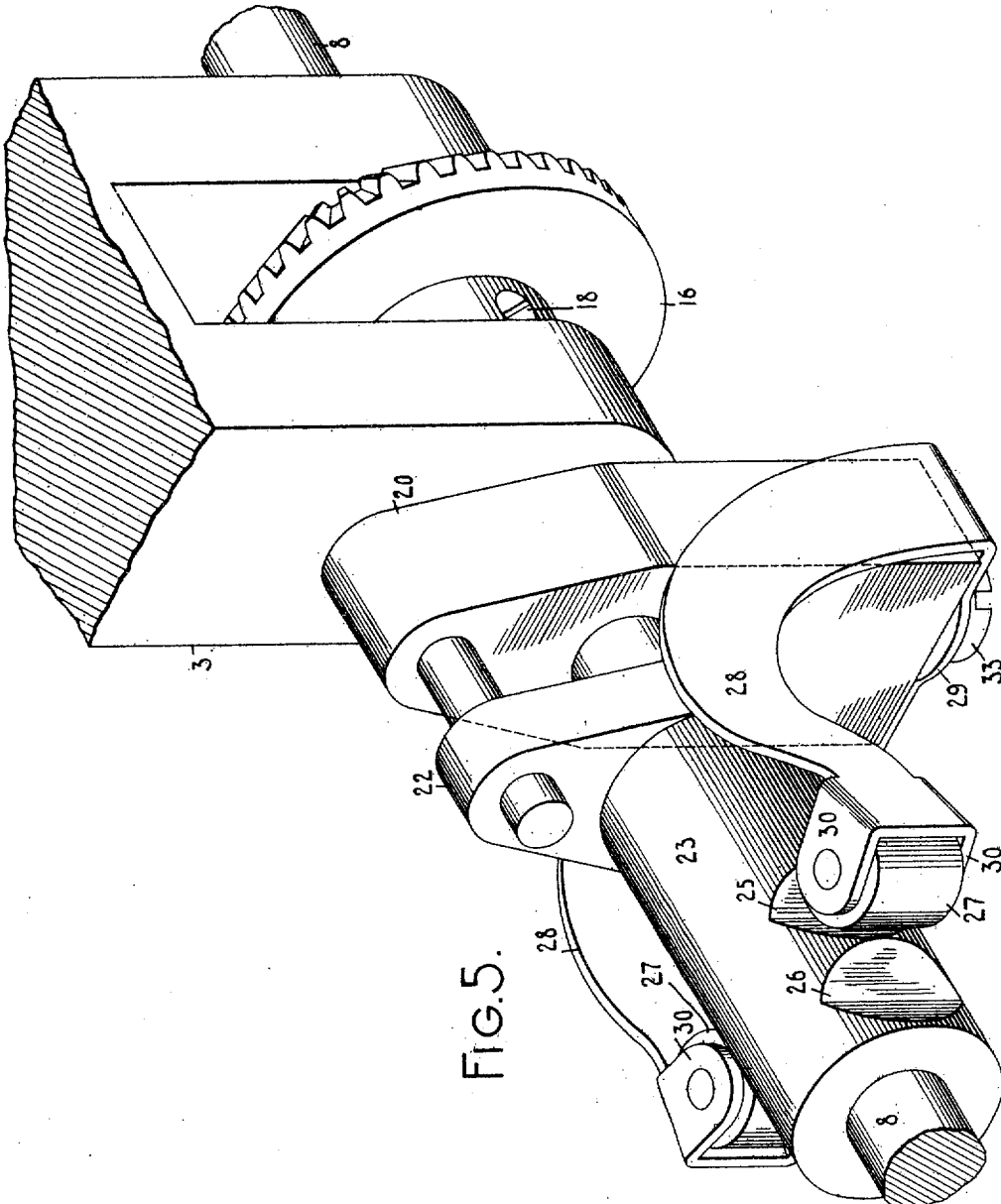


FIG. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ANDREW W. STEIGER, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO UNION TYPE-WRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

975,086.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed November 12, 1909. Serial No. 527,628.

To all whom it may concern:

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

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

My invention has for its principal object to provide an improved detent for the shiftable driving shaft that communicates motion to the ribbon spools and is shiftable endwise to reverse the direction of ribbon feed.

I have provided a very simple and efficient detent for holding the shaft in either of its shifted positions.

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

In the accompanying drawings, Figure 1 is a top plan view of the ribbon feed mechanism of a typewriting machine having my invention embodied therein, the top plate being sectioned away and parts shown broken. Fig. 2 is a view in vertical section on a plane through the axis of the driving shaft and showing the detent and connected parts on an enlarged scale. Fig. 3 is a view of the detent rollers and their mounting disconnected from the machine. Fig. 4 is a fragmentary end view of the same but with the arms carrying the detent rollers broken away. Figs. 3 and 4 are on the same scale as Fig. 2. Fig. 5 is a much enlarged isometric view of the detent and associated parts.

For the purpose of illustration I have shown my invention applied to a Remington visible typewriter. This machine comprises a top plate 1, indicated by broken lines in Fig. 1, from which depend a number of lugs or hangers 2 having certain shafts journaled therein and another hanger 3 which is bifurcated at its lower part. Ribbon spools 4 are mounted on the forward ends of horizontal shafts 5 which are journaled in the hangers 2 and said shafts at their rear ends carry beveled gears 6, which beveled gears are adapted to mesh alternately with beveled

pinions 7 mounted on a driving shaft 8, which driving shaft extends transversely of the machine and is shiftable lengthwise to bring one or the other of the pinions 7 into mesh with the adjacent gear 6. The shaft 8 is driven by a spring drum 10 which is mounted on a bracket 11 depending from the top plate 1, said drum being connected to the carriage by means of a strap 12 in a well known manner. A beveled gear 13 is mounted coaxially with the spring drum 10 and has rigid therewith a ratchet wheel 14 that is engaged by a pawl 15 mounted on said spring drum, the construction being such that said ratchet wheel and beveled gear are turned with the spring drum when the carriage is moving toward the left but are not turned when the carriage is moving toward the right. The gear 13 meshes with a beveled gear 16 that is loosely mounted on the driving shaft 8, and which is prevented from partaking from the endwise shifting motion of said shaft by reason of the fact that said beveled gear is mounted between the two arms of the bifurcated hanger 3. As shown in the present instance the gear 16 is not mounted directly on the shaft 8 but is mounted on a sleeve or hub 17 which loosely surrounds said shaft 8 and which is journaled in the arms of the hanger 3, the beveled gear being rigidly connected with said sleeve 17 by means of a set screw 18. The shaft 8 is journaled in the sleeve 17 which constitutes the support for one end of said shaft, the other end of the shaft being journaled in one of the hangers 2.

In order to cause the shaft to turn with the sleeve 17 said sleeve has formed thereon outside of the hanger 3 an arm or block 20 in which is rigidly mounted a shouldered pin 21 parallel with the shaft 8 and passing loosely through a hole in an arm 22 projecting from a collar or hub 23 mounted on the shaft 8 and rigidly connected therewith by means of a set screw 24 so that the hub or collar 23 constitutes in effect a part of said shaft. When the gear 16 and hub 17 are turned by the spring drum, the pin 21 causes the shaft to turn with them and when the shaft is shifted endwise the arm 22 slips along the pin 21.

My improved means for retaining the shaft yieldingly in either of its shifted positions, comprises two pairs of notches 25 and 26 cut on opposite sides of the collar 23

which is somewhat elongated for the purpose. Said notches are engaged by two detent rollers 27 mounted respectively on spring arms 28 forming parts of a sheet metal spring, said arms 28 being connected together by an integral yoke 29. The arms 28 are formed with ears 30 in which the rollers 27 are journaled. In order to secure the detent rollers and their spring mounting to the sleeve 17 the block 20 is formed on the side of the shaft 8 opposite the pin 21 with a flat face 31 against which the yoke 29 bears. Said yoke is formed with a hole 32 through which passes a screw 33 that is threaded into the block 20, said screw having a rather wide flat head that bears against the yoke 29.

When the spring support for the detent rollers is detached from the machine, it has the form shown in Fig. 3; and when it is put into the machine the arms 28 straddle the shaft 8 and are sprung apart as shown in Fig. 1, thus placing said arms under tension, pressing the two rollers toward each other and into the notches 25 and 26.

In order to provide for regulating the tension of the spring arms 28, the yoke 29 is dished on one side away from the flat face 31 of the block 20. The side or edge of said yoke nearest the rollers 27 is made straight and flat and the dished part 34 extends nearly but not quite across the width of the yoke at the edge more remote from the rollers 27. Preferably the extreme ends of the yoke next the arms 28 are made flat as shown in Fig. 4 at 35. The dished part of the yoke extends in a sort of narrowing arch so as to include the part through which the hole 32 is formed, as indicated by the shade lines in Fig. 3 and as indicated also in Fig. 2. By turning the screw 33 more tightly into the block 20 the dished part 34 of the yoke is flattened, which causes the part of said yoke remote from the rollers 27 to become elongated, thus forcing the arms 28 farther apart at their extreme ends. As the other side of the yoke is flat it does not partake of this elongation but forms a sort of pivot about which the arms 28 turn. It will be seen that the effect of tightening the screw 33 is to increase the tension on the arms 28 and to increase the force with which the rollers 27 are pressed into the notches 25 and 26.

It will be perceived that the tightening of the screw 33 has a tendency to throw the arms 28 outward in the manner indicated by dotted lines in Fig. 4. This has a tendency to cramp the rollers 27 so that they do not bear evenly in the notches. In order to counteract this cramping tendency the arms 28 are made curved or arched as shown in the drawings. As shown in Fig. 2, for example, these arms do not extend from the rollers 27 in a direction parallel with the shaft 8 but they are first arched upward and

thence downward to the yoke 29. This upward arch of the arms has a torque of its own which, when the tension on the arms 28 is increased, tends to counteract the cramping action above referred to so that the rollers always bear evenly in the notches. It will be perceived that the rollers are on opposite sides of the shaft and that they are mounted on a spring comprising arms that straddle the shaft and are connected by a yoke that is secured to the sleeve 17 and that said yoke is dished along one side to provide adjustable means to regulate the tension on the rollers and that the spring arms are arched to compensate for the cramping tendency of said adjustable means.

The shaft 8 is provided with the usual hand crank 36 and it can be shifted endwise to reverse the ribbon feed by hand if desired. There is also shown in the drawings an automatic reverse which comprises worms 37 formed on the elongated hubs of the pinions 7 and adapted to be engaged by the ends 38 of wires 39 that lie in grooves in the shafts 5. Each of these wires is formed with a bent-out end 40 that passes through a hole in an angled lever 41 that is pivoted to a collar 42 fixed on the shaft 5. These levers 41 pass through slots in the ribbon spools and their free or forward ends are weighted. The construction is such that the levers are normally held in close to the shafts as shown in Fig. 1 by the ribbon on the spools; but when the ribbon is exhausted from one of the spools the lever 41 drops downward which slides the wire 39 toward the rear of the machine and brings its end 38 into engagement with the corresponding worm 37 which, by the continued turning of the shaft 8, shifts the shaft endwise until the rollers 27 have been lifted out of one of the pairs of notches 25, 26 and has started into the other pair of notches, after which said rollers, impelled by their spring arms 28, will complete the shifting of the shaft or assist in completing it.

It will of course be understood that the spring arms and detent rollers can be mounted on the shaft and the notches be made in the hub 17 of the pinion 16, if preferred, this being a mere reversal of the arrangement shown. Various other changes can be made in the details of construction and arrangement without departing from my invention.

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

1. In a typewriting machine and in ribbon mechanism, the combination of a spring comprising a pair of arms and a yoke connecting said arms, said yoke being dished on one side, a support for said spring, and a screw passing through said yoke and having a head bearing against the dished part of said yoke, whereby the tension of said arms

can be regulated by tightening or loosening said screw.

2. In a typewriting machine and in ribbon mechanism, the combination of a spring comprising a pair of arms and a yoke connecting said arms, said yoke being dished on one side, a support for said spring, and a screw passing through said yoke and having a head bearing against the dished part of said yoke, whereby the tension of said arms can be regulated by tightening or loosening said screw, said arms being arched to compensate for the cramping action due to the adjustment of said screw.

3. In a typewriting machine and in ribbon mechanism, the combination of a spring comprising a pair of arms under tension toward each other, and a yoke connecting said arms, said yoke being flat along one edge and dished along the opposite edge, a flat support for said yoke, and a screw passing through said yoke and having its head bearing against the dished part of said yoke, whereby the tension of said spring arms can be regulated by adjusting said screw.

4. In a typewriting machine and in ribbon mechanism, the combination of a spring comprising a pair of arms under tension toward each other, and a yoke connecting said arms, said yoke being flat along one edge and dished along the opposite edge, a flat support for said yoke, and a screw passing through said yoke and having its head bearing against the dished part of said yoke, whereby the tension of said spring arms can be regulated by adjusting said screw, said arms being arched to compensate for the cramping action due to the adjustment of said screw.

5. In a typewriting machine and in ribbon mechanism, the combination of a shaft, a part mounted coaxially with said shaft and having a flat face the plane of which is parallel to the axis of said shaft, means for causing said part and shaft to turn together but allowing them freedom of relative motion lengthwise of said shaft, a spring mounted on said part and comprising a pair of arms and a yoke connecting said arms, said yoke lying against said flat face and being dished at one side, detents on said arms engaging notches on opposite sides of said shaft, and a screw passing through said yoke and having its head bearing on said dished part, whereby the tension of said spring arms can be regulated by adjusting said screw.

6. In a typewriting machine and in ribbon mechanism, the combination of a pair of ribbon spools, means for driving said spools

comprising as parts thereof a shaft shiftable lengthwise to gear it to one or the other of said spools and a gear coaxial with said shaft, means for causing said shaft to turn with said gear but leaving said shaft free to move lengthwise independently of said gear, and a detent device for holding said shaft in either of its shifted positions, said detent device comprising a plate spring having a yoke-piece and two arms projecting therefrom and carrying detents, said yoke-piece being rigidly connected with one of said parts and the other of said parts having notches engaged by said detents.

7. In a typewriting machine and in ribbon mechanism, the combination of a pair of ribbon spools, means for driving said spools comprising as parts thereof a shaft shiftable lengthwise to gear it to one or the other of the spools and a gear coaxial with said shaft, means for causing the shaft and gear to turn together but leaving said shaft free to be shifted endwise independently of the gear, one of said parts having a flat face, the plane of which is parallel to the axis of the shaft, a yoke-piece secured to said flat face and having two spring arms projecting therefrom on opposite sides of said shaft, and detents carried by said spring arms and engaging notches in the other of said parts to retain the shaft in either of its shifted positions.

8. In a typewriting machine and in ribbon mechanism, the combination of a pair of ribbon spools, means for driving said spools comprising as parts thereof a shaft shiftable lengthwise to gear it to one or the other of the spools and a gear coaxial with said shaft, means for causing the shaft and gear to turn together but leaving said shaft free to be shifted endwise independently of the gear, one of said parts having a flat face, the plane of which is parallel to the axis of the shaft, a yoke-piece secured to said flat face and having two spring arms projecting therefrom on opposite sides of said shaft, and detents carried by said spring arms and engaging notches in the other of said parts to retain the shaft in either of its shifted positions, said arms being arched to compensate for the cramping action due to the adjustment of said screw.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York this 11th day of November A. D. 1909.

ANDREW W. STEIGER.

Witnesses:

CHARLES E. SMITH,
J. B. DEEVES.