

C. GIBBS & J. SOKOLOV.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 15, 1908.

979,000.

Patented Dec. 20, 1910.

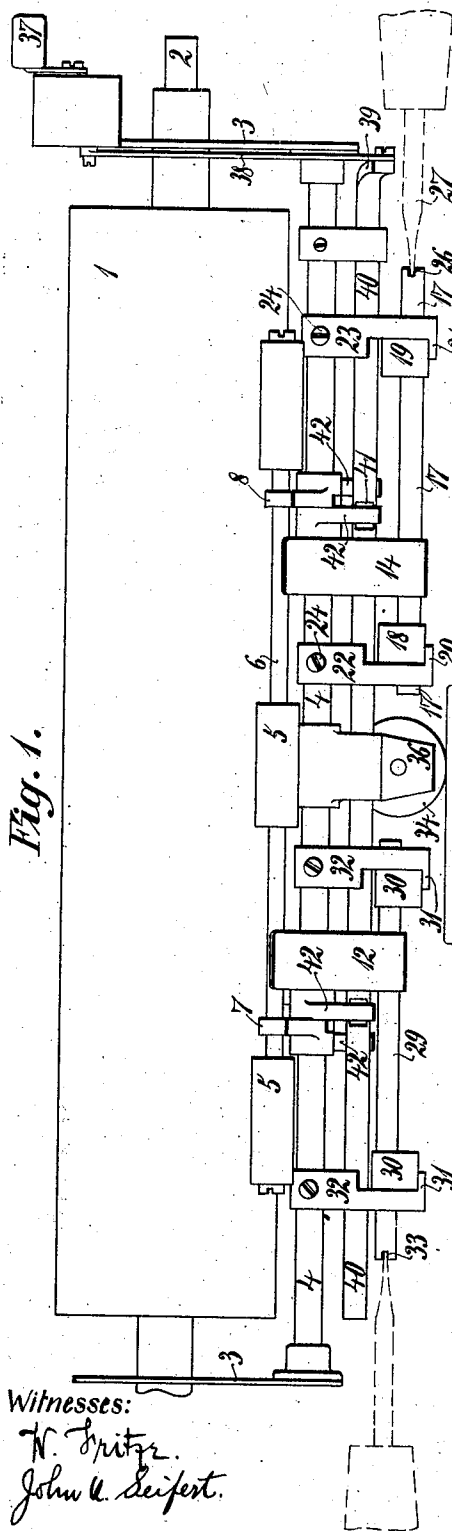


Fig. 2.

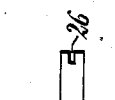


Fig. 3.

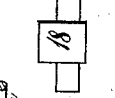


Fig. 4.

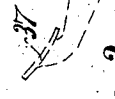


Fig. 5.

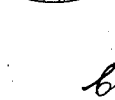


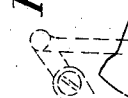
Fig. 6.



Fig. 7.



Fig. 8.



Witnesses:
N. Fritz.
John A. Seifert.

Inventors:
Charles Gibbs and Jacob Sokolov
By *W. B. Stickney*
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES GIBBS AND JACOB SOKOLOV, OF NEW YORK, N. Y., ASSIGNORS TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

979,000.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed July 15, 1908. Serial No. 443,581.

To all whom it may concern:

Be it known that we, CHARLES GIBBS, a citizen of the United States, residing in the borough of Bronx, city, county, and State of New York, and JACOB SOKOLOV, a subject of the Czar of Russia, residing in the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to paper-feeding rolls of typewriting machines, and its object is to improve the means for putting the desired tension upon the rolls.

In some type of machines, especially the Underwood type, forward and rear rolls are arranged to run upon the underside of a cylindrical platen, for feeding the paper forwardly around the under side of the platen and upwardly to the printing point. Usually the forward rolls are carried upon a shaft which is hung in rock-arms, and the rear rolls are similarly mounted in other rock-arms. It is usual to provide a separate spring for each of the rock arms. The springs are fixed upon collars which are secured upon a common fixed rod, provision being made for adjusting the tension of each of the springs separately, to get the required pressure of the rolls against the platen. It is found that when the machine is put into use, occasional readjustment of the tension of the springs is found desirable. In order to effect this adjustment conveniently, it is necessary to remove the platen frame from the typewriting machine, to give the mechanic access to the screws which are used for adjusting the springs.

The principal object of the present improvements is to simplify the construction and operation of the tension-adjusting means, particularly with a view to rendering it possible to adjust the tension of the rolls at either end of the platen quickly and accurately, and without necessity of removing the platen and frame, or otherwise dismantling any part of the typewriting machine.

In carrying out the present improvements a single spring structure is employed at each end of the platen to bear upon both front and rear roll axles. This spring structure comprises two spring arms which are hung or pivotally supported upon a shaft, the

arms diverging from the shaft, and at their free ends bearing upon the roll axles. Each spring structure, comprising such divergent spring arms, is pivoted as aforesaid for the purpose of equalizing or properly distributing the pressure between front and rear roll axles. Each of the spring shafts may be adjusted independently of the other, either to increase or diminish the tension of its spring arms or springs. Each of said shafts extends longitudinally of the platen, and is provided at its ends with eccentric bosses to serve as journals for the shaft, whereby it is hung in brackets suitably supported upon the platen frame. By simply turning either of these spring shafts, it may be brought nearer to the platen, and hence caused to press its spring arms more firmly against the roll axles. Each of these shafts is provided at its outer end with a nick or other device, to fit a screw driver or wrench, which may be inserted horizontally, at either end of the platen frame, to engage and turn the shaft, without the necessity of removing the platen frame from the machine. Thus when the mechanic finds that the sheet is held too firmly on one side, he may instantly reduce the pressure of all the rolls at the corresponding end of the platen by simply introducing and turning a screw driver; and the same method may be employed to increase the pressure at either end of the platen.

In the accompanying drawings, Figure 1 is a front elevation of the platen, platen frame and pressure roll devices of an Underwood front strike writing machine, showing the rolls in normal positions; the roll tension being strong at the left hand end of the platen and weak at the right hand end thereof. Fig. 2 is a cross-section to show the pressure of the rolls diminished as at the right hand end of Fig. 1. Fig. 3 is a cross-sectional view of the platen and pressure rolls, the latter in normal positions and operating under medium pressure. Fig. 4 is a view of a shaft to regulate the spring pressure. Fig. 5 is a view similar to Fig. 2, but showing the spring-pressure at the maximum, as at the left hand end of Fig. 1. Fig. 6 is a view similar to Fig. 3, but showing the pressure rolls released, and also showing the spring regulator a trifle more regulated than at Fig. 3. Fig. 7 is a perspective view of the pressure roll devices at one

end of the platen frame. Fig. 8 is an end elevation of one of the hangers that carry the spring-regulating shafts.

A cylindrical platen 1 is mounted by an axle 2 in a platen frame comprising ends 3 and a horizontal bolt or stay-rod 4. Front rolls 5 are mounted upon an axle 6 carried in a pair of rock-arms 7, 8, which are pivoted upon the rod 4 and extend forwardly therefrom to said axle. Rear rolls 9 are carried upon an axle 10 which is hung upon arms 11 pivoted upon said rod 4. Springs 12 and 13 bear upon the axles 6 and 10 at the left hand end of the platen, and springs 14 and 15 perform a similar function at the right hand end of the platen.

It will be seen at Fig. 7 that the springs 14 and 15 may be formed in one piece, with a U-shape socket 16 at their junction, to fit loosely or pivot upon a supporting shaft 17. Of course the springs may be otherwise formed, supported and connected, but the form illustrated embodies one convenient means for pivotally balancing the springs upon the supporting shaft 17, so that the pressure may be equally or suitably apportioned between the roll axles 6 and 10. It will be seen that a single piece of spring metal is folded and curved to form the pivot or socket portion 16; but this form of pivoting or supporting is not insisted upon. The springs 14 and 15 flare outwardly at their upper ends sufficiently to produce an upward pressure against the axles, to cause the rolls to bear properly against the platen.

Upon the ends of the supporting shaft 17 are formed or provided collars or bosses 18, 19 concentric with each other but eccentric to the shaft, and serving as journals therefor, said journals resting on suitable steps or bearings 20, 21 formed in the lower parts of hangers 22, 23 secured by screws 24 upon the fixed rod 4 of the platen frame. Because of the eccentricity of these journals, it follows that when the shaft 17 is rotated, it rises and falls bodily, thereby either forcing the springs 14, 15 with greater pressure against the roll axle or relieving such pressure; and it is manifest that the shaft may be set to any point between its extreme up and down positions, thereby regulating the spring pressure to a nicety upon both roll axles at one end of the platen. The ends of the spring-supporting shaft 17 are fitted in and extended through vertical slots 25 in the hangers to guide the shaft as it rises and falls; and it will be understood that the bearings 20 and 21 are in the form of flat or horizontal steps, so that the eccentric bosses 18, 19 are at liberty to move from side to side, while the shaft 17 moves straight up or down. The outer end of the shaft 17 is provided with a nick 26 to receive the point of a screw driver 27, which it will be noted may be readily thrust horizontally be-

neath the platen frame to engage said nick, without disturbing the mounting of the platen frame in the machine, which is a great convenience. It will be seen that the springs 14, 15 are preferably mounted on the shaft 17 between its bearings 18, 19, and the latter preferably confined between the hangers 22, 23, and serving as buffer collars to prevent endwise displacement of the shaft.

The springs 12, 13 are mounted and adjusted in the manner already described in respect to springs 14 and 15; being pivotally supported by a socket 28 upon a shaft 29 having eccentric bearing bosses 30 resting on steps 31 formed on hangers 32 secured upon the rod 4, the outer end of the shaft 29 formed with a nick 33 for a screw driver, or otherwise formed to be operated by a suitable key. It will be seen that the two sets of spring devices may depend from the platen frame one at each side of the usual roll 34, which runs upon the usual shift rail 35, said roll 34 mounted on the lower end of a dependent bracket 36, which is fixed upon the rod 4. Thus it will be seen that the spring shaft hangers occupy practically no extra room in the machine, since during the travel of the carriage they move along the path followed by the roll 34 and hanger 36.

It will be seen that either end of the double set of rolls may be caused to grip the paper either more or less firmly by means of a simple twist of a screw driver, so that much economy and time is effected in making the original adjustment as well as readjustment from time to time; while the operation may be readily performed by an unskilled person.

Any suitable release key 37 may be provided for the pressure rolls, the key being shown connected by a link 38 and a crank 39 on a rock-shaft 40 having cams 41 to engage arms 42 formed on the arms 7, 8, which carry the roll axles.

So far as the pressure-regulating devices are concerned it is not essential in all cases that springs 14 and 15 be fixed or connected to each other, or that means be employed to divide the pressure of one spring device between two rolls or roll axles; since many variations may be resorted to within the scope of the invention. Portions of the improvements may be used without others.

Having thus described our invention, we claim:

1. In a typewriting machine, the combination of paper feed rollers mounted upon a shaft, a spring for regulating the tension of the feed roller on the paper, and an eccentric cam for adjusting the tension of said spring.

2. In a typewriting machine, the combination of paper feed rollers mounted upon a shaft, a spring mounted near each end of said shaft and bearing against the same for

regulating the tension of the rollers on the paper, and an independent cam for each of said springs for regulating the tension thereof.

5 3. In a typewriting machine, the combination of a plurality of paper feed roller shafts having feed rollers mounted thereon, springs bearing against each end of said shafts, and a plurality of eccentric cams
10 connected by a shaft for each of said springs which are adapted to be adjusted by a tool inserted from the end of the platen frame.

15 4. In a typewriting machine, the combination of a plurality of paper-feed roller shafts, a spring pressing against each of said shafts near the ends thereof, a shaft for sustaining and actuating each of said springs, and a cam on each side of each of said
20 springs for regulating the position of the spring carrying shaft for varying the tension of the spring upon the paper-feed roller shafts.

25 5. In a typewriting machine, the combination of a plurality of paper feed roller carrying shafts, a spring positioned near each end of said shafts for regulating the tension of the paper-feed rollers upon the paper, each of said springs being bent upon
30 itself centrally for forming a seat for receiving a cam shaft, a cam shaft for each of said springs, an eccentric cam for each of said shafts for regulating the position of said shafts, and the tension of the spring upon said paper roller shafts.

35 6. In a typewriting machine, the combination of a paper feed roller mounted upon a shaft, a spring positioned near each end of said shaft and bearing against the same for regulating the tension of the paper feed
40 roller carried thereby, and an independent eccentrically-mounted shaft for each of said springs and so arranged as to be adjusted by an instrument inserted at the end of the platen frame.

45 7. In a typewriting machine, the combination of a plurality of paper feed roller shafts provided with paper feed rollers, a spring engaging each of said shafts near each end thereof and formed with a seat for
50 holding the spring in place, an eccentrically mounted shaft positioned in the seat on each of said springs and arranged in axial alignment, whereby each shaft may be adjustable independently by a tool inserted from each
55 end of the platen frame for varying the tension of the springs upon said paper feed roller shafts.

60 8. In a typewriting machine, the combination of a paper-feed roller shaft, a plurality of springs for each shaft, and an independently operated eccentrically mounted shaft for each of said springs arranged in axial alignment and formed with a tool-receiving notch whereby a tool may be in-
65 serted at each end of the platen frame for

adjusting independently the position of said eccentrically mounted shafts and the tension of each of said springs.

9. In a typewriting machine, the combination of a plurality of paper-feed roller shafts, a spring mounted near the ends of said shafts, each of said springs bearing against both paper feed roller shafts, an eccentrically mounted shaft for each of said
70 springs for regulating the tension thereof, and supports for said eccentrically mounted shafts formed with seats which co-act with said shafts for permitting said shafts to rotate eccentrically and vary the tension of
75 said spring.

80 10. In a typewriting machine, the combination of paper-feed roller shafts, springs mounted near each end of said shafts, each spring bearing against both the roll shafts, and an eccentrically mounted shaft engaging
85 the central portion of each of said springs and formed with a tool-receiving notch in the end, whereby a tool may be inserted from the end of the platen frame for adjusting the position of said eccentric shaft
90 and the tension of said springs.

11. In a typewriting machine, the combination of a plurality of paper feed roller shafts, springs for pressing against said shafts, eccentric cams for regulating the
95 tension of said springs, rotatable shafts upon which said cams are mounted, and supports formed with seats for said cams and with guiding slots for said cam shafts.

12. In a typewriting machine, the combination of a plurality of paper-feed roller shafts, springs pressing against said shafts near the ends thereof, a plurality of eccentrically mounted cams for each of said
100 springs connected by a shaft that projects beyond said cams, and supports for said cams formed with a slot for receiving the projecting ends of said cam shafts and for guiding said cams.

13. In a typewriting machine, the combination of a plurality of paper-feed roller shafts, springs pressing against said shafts near the ends thereof, a plurality of eccentrically mounted cams for each of said
110 springs connected by a shaft that projects beyond said cams, and supports for said cams formed with a slot for receiving the projecting ends of said cam shafts and for guiding said cams, said cam supports holding
115 said cams and said cam shafts in a position which will permit the use of a tool inserted from the end of the platen frame for adjusting the position of said cams and the tension of said springs.

14. In a typewriting machine having a platen revolvably mounted in a platen frame, the combination with front and rear rolls having axles, of a single spring structure at each end of the platen to bear upon both
120 front and rear roll axles, each spring struc-

ture comprising two spring arms pivotally supported upon a shaft, the arms diverging from the shaft and at their free ends bearing upon the roll devices, each of the spring shafts adjustable independently of the other to vary the tension of its spring arms.

15. In a typewriting machine having a platen revolubly mounted in a platen frame, the combination with front and rear rolls having axles, of a single spring structure at each end of the platen to bear upon both front and rear roll axles, each spring structure comprising two spring arms pivotally supported upon a shaft, the arms diverging from the shaft and at their free ends bearing upon the roll devices, each of the spring shafts adjustable independently of the other to vary the tension of its spring arms, each of said shafts extending longitudinally of the platen, and provided at its ends with eccentric bosses to serve as journals for the shafts whereby it is mounted upon suitable supports.

16. In a typewriting machine having a platen revolubly mounted in a platen frame, the combination with front and rear rolls having axles, of a single spring structure at each end of the platen to bear upon both front and rear roll axles, each spring structure comprising two spring arms pivotally supported upon a shaft, the arms diverging from the shaft and at their free ends bearing upon the roll devices, each of the spring shafts adjustable independently of the other to vary the tension of its spring arms, each of said shafts extending longitudinally of

the platen, and provided at its ends with eccentric bosses to serve as journals for the shafts whereby it is mounted upon suitable supports, each shaft provided at its outer end with a nick or device to fit a screw driver or tool.

17. In a typewriting machine having a platen revolubly mounted in a platen frame, the combination with a pressure roll axle extending along the platen, of springs at the ends of the platen for pressing the axle or roll against the platen, and independent spring-adjusting shafts at the ends of the platen, each shaft eccentrically journaled on the platen frame and provided with a nick or device, whereby it is turned by a tool, to regulate the tension of its spring.

18. In a typewriting machine having a platen revolubly mounted in a platen frame, the combination with a plurality of axles extending along the platen and carrying pressure rolls, of springs at the ends of the platen for pressing the axles or rolls against the platen, and shafts one at each end of the platen, each shaft capable of adjusting the springs at its end of the platen, each shaft eccentrically journaled on the platen frame and provided with a nick or device whereby it is turned by a tool to regulate the tension of its springs.

CHARLES GIBBS.
JACOB SOKOLOV.

Witnesses:

JOHN O. SEIFERT,
K. FRANKFORT.