

J. C. McLAUGHLIN.
 TYPE WRITING MACHINE.
 APPLICATION FILED FEB. 18, 1910.

1,062,569.

Patented May 20, 1913.

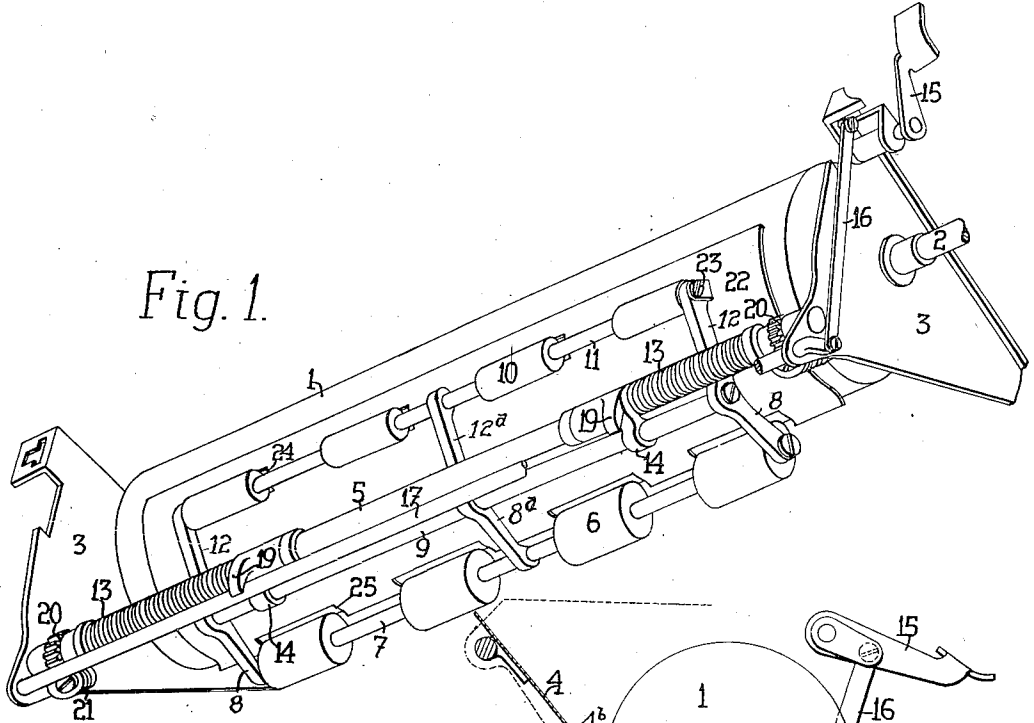


Fig. 1.

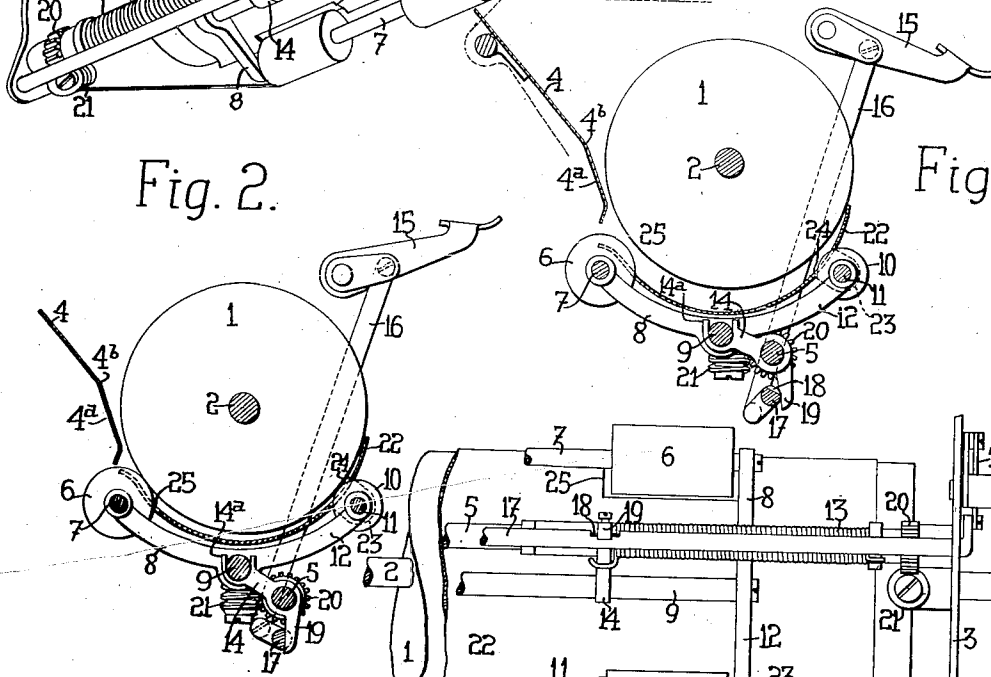


Fig. 2.

Fig. 3.

Fig. 4.

Witnesses.
Lynn Schiff
John A. Kermie

Inventor.
John C. McLaughlin
 By *B. B. Stetson*
 Attorney.

UNITED STATES PATENT OFFICE.

JOHN C. McLAUGHLIN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,062,569.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed February 18, 1910. Serial No. 544,543.

To all whom it may concern:

Be it known that I, JOHN C. McLAUGHLIN, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to devices for guiding and feeding paper around the cylindrical platens of typewriting machines, and particularly to feeding mechanisms which employ forward and rear rolls, as for instance in the well known Underwood typewriting machine.

One of the main objects of the present invention is to assure proper action of the feed rolls under all usual conditions, and particularly to secure even feed of the paper; and to accomplish these results by the employment of a simplified mechanism.

In carrying out my invention I mount both forward and rear rolls upon a single frame which itself is swiveled upon the platen frame along a line between said forward and rear rolls; and the swivel shaft of said frame is pressed toward the platen by suitable spring devices. This insures that both the forward and rear rolls shall run truly upon the platen and feed the paper accurately. The frame is preferably of such construction as to admit of its yielding at any of its four corners while the remaining three corners remain in normal positions, whereby a thick card or pack of sheets may be carried around the platen near one end of the latter without throwing the rolls off the other end of the platen.

The spring mechanism comprises two springs, one to bear against each end of the swiveled roll frame, and suitable devices are provided for regulating the tension of each spring.

The structure is preferably constructed in such a manner that it is easily removed from the platen frame.

In the accompanying drawings, Figure 1 is a perspective view of the platen frame of an Underwood typewriting machine, equipped with my invention. Fig. 2 is a cross-sectional view showing the parts in normal position. Fig. 3 is a similar view showing the rolls and deflector cast off from the platen. Fig. 4 is an enlarged detail

bottom plan view of one end of the platen frame.

A platen 1 has an axle 2 by which it is journaled in the ends 3 of a platen frame. Rigidly connecting said ends is a tie rod 5. Said ends are also connected by a rigid paper shaft 4, inclining downwardly and forwardly toward the platen. The lower portion 4^a of the paper shelf may be bent slightly backwardly, forming a ridge 4^b across the paper shelf which serves as a bearing for the sheet, which bends backwardly as it is dropped into the throat between the paper shelf and platen, so as to throw the leading edge of the sheet forwardly toward the platen directly into the bite between the usual rear feed rolls 6 and the platen.

The sheets are gripped between the platen and the rear feed rolls 6, which are mounted on a shaft 7, the latter journaled in rearwardly extending arms 8, 8^a, which are swiveled by means of a shaft 9 upon a pair of rock arms 14, the latter journaled loosely on the tie-rod 5, to permit movement of one arm independently of the other.

The forward rolls 10, to which the sheets are fed by the rear rolls 6, are carried by a shaft 11, the latter journaled in the outer ends of arms 12, 12^a, projecting forwardly from the shaft 9, and preferably integral with the arms 8, 8^a, which together with the arms 12, 12^a form pressure distributing levers, each pivoted about midway of its length.

The shafts 7 and 11 form the sides of a frame, whose ends are each formed by a lever 8, 12; the swiveling shaft 9 extending parallel with and about midway between the two roll-carrying shafts. This frame is preferably rendered flexible by loosely mounting the shafts 7 and 11 upon the levers, thereby forming a loosely-jointed frame, the levers also being loose on the shaft 9 so that one end or the other of either roll-carrying shaft can rock slightly away from the platen to permit the rolls to accommodate themselves to inequalities in the thickness of the paper at different portions of the platen.

The rolls are pressed against the platen by springs 13, coiled around the tie rod 5, one at each end of said rod, there being preferably only two springs for all of the

rolls. The pressure of these springs is divided between the front and rear roll-carrying shafts 7 and 11, by reason of the levers 8, 12 being journaled loosely between their ends and swiveled on the rock arms 14 which are loosely journaled on the tie-rod 5 and are engaged by the springs 13, which tend to force them toward the platen. The loose connection between the spring pressed arms and the shaft 9 not only enables the roll-carrying frame to conform itself to the curvature of the platen so as to set both series of rolls evenly against the platen, but also distributes the spring-pressure about equally to both series of rolls. The shaft 9 is a distributor shaft through which the pressure is distributed to the rolls.

The roll frame may be provided midway of its length with a cross-brace 8^a, 12^a, firmly connecting the shafts 7, 9 and 11, to strengthen the roll-frame and insure that the middle rolls shall press firmly against the platen. The roll frame is detachably fitted in the supporting arms 14 to admit of its removal with the rolls from the platen, when desired, the main shaft 9 being cradled in yokes 14^a on the arms 14, from which it can readily be detached, together with the remainder of the roll frame.

By the depression of a release key 15, a link 16 turns a shaft 17 on which are formed flats or cams 18 to engage releasing arms 19 rigidly connected with or formed upon the spring pressed roll frame supporting arms 14. By means of these flats or cams, the arms 14 are turned on the rod 5 against the tension of the springs 13, and the roll-carrying frame and rolls are dropped from the platen. When the rolls return, and should one set strike the platen in advance of the other, the fulcrum thus afforded would enable the roll carrying frame to swing up until both sets of rolls press evenly against the platen.

The tension of each spring 13 may be regulated by a gear 20 and worm 21, whereby the general roll-pressure at either end of the roll-frame may be readily regulated independently of the other end.

A yielding paper deflector 22 lies beneath the platen, its front portion being hinged to the forward roll shaft at 23. The springs 13 serve to hold the deflector in place, the engagement or bearing of the front edge of the deflector against the platen enabling the springs to hold up the rear edge of the deflector also. The forward portion of the deflector is apertured, as at 24, to permit the forward rolls to engage the platen. The rear edge of the deflector may be recessed, as at 25, for the rear rolls.

In the cast-off positions of the rolls, the parts assume the positions shown in Fig. 3, the rear ends of the levers 8 dropping down, and the forward edge of the deflector 22

coming against the face of the platen. There is thus formed a wide gap between the rear edge of the deflector and the platen, so as to facilitate the introduction of the paper. When the presser rolls are set against the platen, it will be seen that the levers 8, 12 operate as equalizer bars, so as to distribute the pressure between the front and rear rolls; and attention is called to the fact that the pressure upon the deflector is exerted at a single pivotal point, so that the deflector can shift on its pivot point and adapt itself to the face of the paper on the platen.

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 platen frame and a platen therein, of a rod fixed in said frame, two levers pivoted about midway of their length on a shaft on swinging arms journaled on said fixed rod, shafts loosely connecting the ends of said levers, feed rolls for said platen on said shafts, and springs on said fixed rod and moving said swinging shaft to press said rolls against said platen.

2. In a typewriting machine, the combination with a platen frame and a platen therein, of a rod fixed in said frame, rock arms journaled on said rod, a distributor shaft resting on said rock arms and removable therefrom by lifting, a spring urging each rock arm against the platen, and feed rolls supported by said distributor shaft.

3. In a typewriting machine, the combination with a platen frame and a platen therein, of a rod fixed in said frame, rock arms journaled on said rod, a distributor shaft resting on said rock arms and removable therefrom by lifting, a spring for each arm encircling said rod and having adjustable tensioning means, and feed rolls supported by said distributor shaft.

4. In a typewriting machine, in combination, a platen frame, a platen mounted thereon, a roll-frame mounted in said platen frame, feed rolls carried by said roll-frame and engaging the surface of the platen on the front and rear sides thereof, said roll-frame comprising a swiveling shaft disposed between said rolls, the ends of the roll-frame being mounted for independent swiveling movement on the shaft, separate means for resiliently pressing each end of said shaft upwardly to apply said feed rolls to said platen, means for withdrawing said shaft so as to cast off the feed rolls, and a curved deflector conforming to the curvature of said platen, and supported on said roll-frame on a single axis of rotation.

5. In a typewriting machine, in combination, a platen frame, a platen mounted there-

on, a roll-frame disposed under said platen, feed rolls carried by said roll-frame to contact with the surface of the platen at its forward and rear sides, said roll-frame comprising pressure distributing levers connecting said forward and rear feed rolls, rock arms in which the roll-frame is seated, means engaging said rock arms for forcing said arms and roll-frame upwardly, a curved deflector plate conforming to the curvature of said platen and pivotally attached at the forward edge thereof to said roll-frame, and means for withdrawing said roll-frame from said platen to cast off said feed rolls.

6. In a typewriting machine, in combination, a platen frame and a platen mounted thereon, a roll-frame disposed under said platen, forward feed rolls mounted on said roll-frame, rear feed rolls mounted on said roll-frame, said roll-frame comprising pressure distributing levers connecting said forward and rear feed rolls, rock arms in which the roll-frame is seated and from which the roll-frame is removable, means to apply pressure to said levers to force said roll-frame toward said platen, a curved deflector plate conforming to the curvature of said

platen, and a pivotal attachment connecting said deflector plate to said roll-frame on the axis of said forward feed rolls, said pivotal attachment and platen being the only supports for said deflector plate.

7. In a typewriting machine, in combination, a platen frame, a platen mounted thereon, a distributor shaft disposed longitudinally under said platen, levers having forwardly extending arms and rearwardly extending arms pivoted on said shaft, roll shafts loosely mounted in the ends of said arms, each roll-shaft extending in opposite directions from the middle of the platen, feed rolls carried by said shafts, separate coil springs tending to force each end of said distributor shaft upwardly, a shaft on which said springs are mounted, rock arms loosely mounted on said last-named shaft and forming means to transmit the tension of said springs to the distributor shaft, and means for causing said distributor shaft to be depressed to cast off said feed rolls.

JOHN C. McLAUGHLIN.

Witnesses:

K. FRANKFORT,
RALPH S. WARFIELD.