No. 890,370. PATENTED JUNE 9, 1908.

J. C. McLAUGHLIN.

TYPE WRITING MACHINE.

APPLICATION FILED FEB. 26, 1907.

3 SHEETS—SHEET 1.

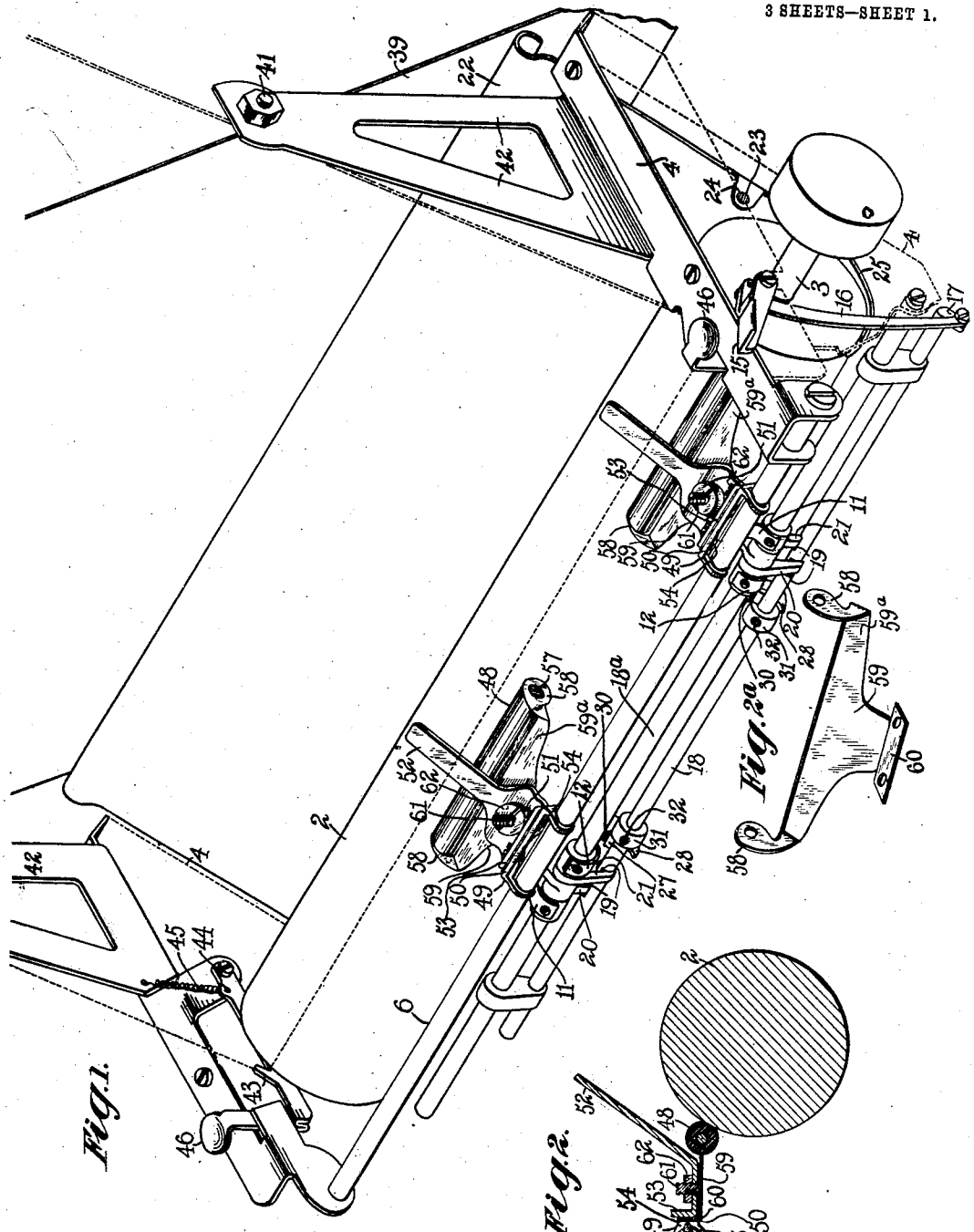


Fig. 1.

Fig. 2a.

Fig. 2.

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By his Attorney,
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3 SHEETS—SHEET 2.

Fig. 4a

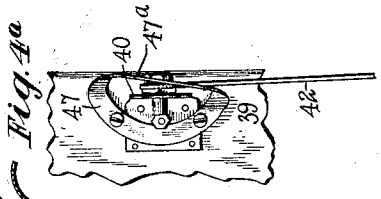


Fig. 4

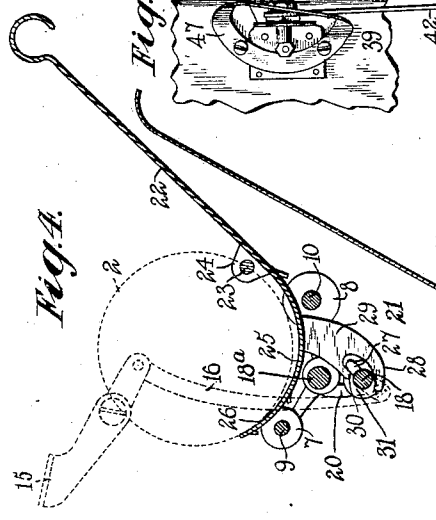


Fig. 6.

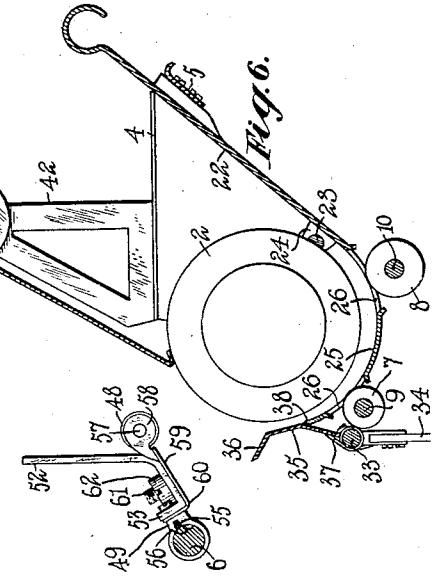


Fig. 3.

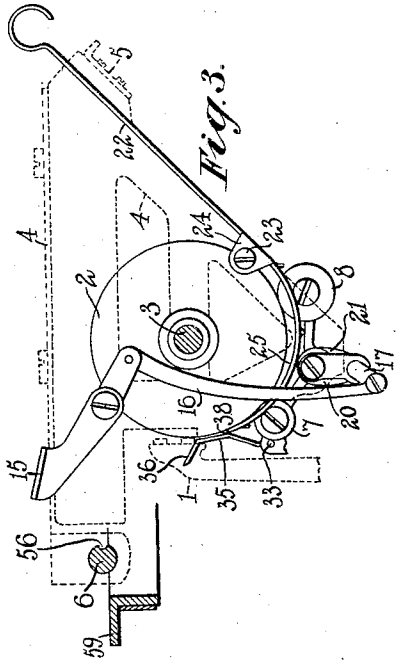
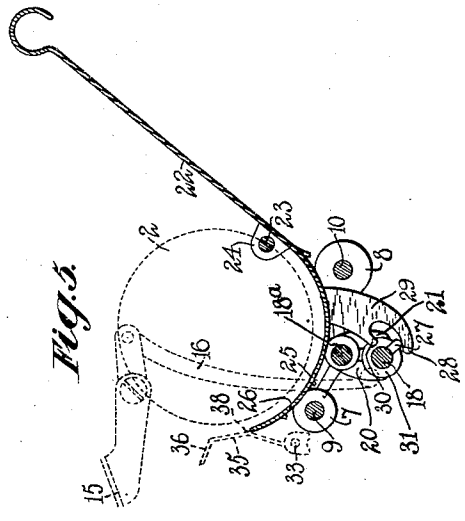


Fig. 5.



WITNESSES

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3 SHEETS—SHEET 3.

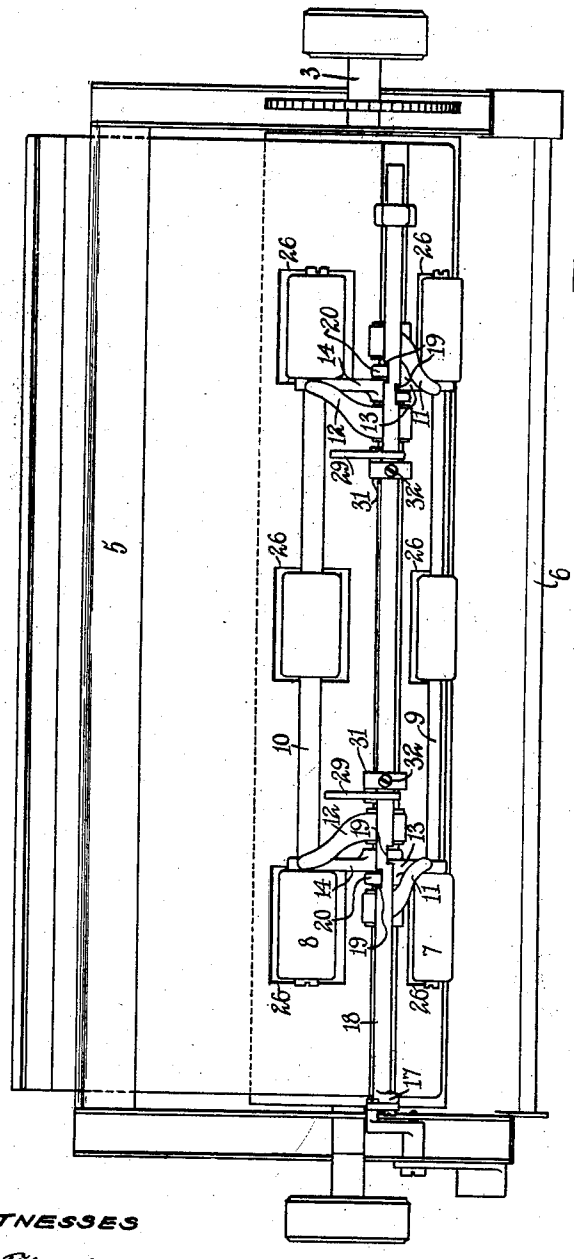


Fig. 7.

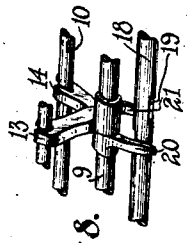


Fig. 8.

WITNESSES

H. E. Fleischer

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UNITED STATES PATENT OFFICE.

JOHN C. McLAUGHLIN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 890,370. Specification of Letters Patent. Patented June 9, 1908.

Application filed February 26, 1907. Serial No. 359,451.

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 the devices in a type-writing machine which feed, guide, control or support the sheets of paper, and particularly to machines in which, in addition to the usual rear paper shelf at the introductory side of the platen, there is provided a board of extensive area extending upwardly and rearwardly from the front side of the platen upon which to rest or support sheets, especially when the latter are introduced downwardly at the front side of the platen, and pass rearwardly around the same.

In the well known Underwood front strike writing machine, the usual inclined paper shelf in rear of the platen is curved forwardly to deflect the paper around the under side of the platen to the front thereof, and paper-feeding rolls press upwardly against the platen, openings being formed in the curved portion of said paper shelf to accommodate the rolls.

According to the present invention, I so arrange the said deflector and platen relative to each other as to cause the front edge or portion of said deflector or curved plate to bear against the platen or lie close thereto, so as to give proper support to the sheet of paper near the line of writing, and otherwise properly control the sheet, and at the same time said front portion is made movable away from the platen at the will of the operator, so that a clear channel is left between the same and the platen for the introduction of sheets downwardly and backwardly at the front of the platen; the deflector and paper shelf for this purpose being mounted in the embodiment of the invention herein disclosed, upon the platen frame by means of hinges directly in rear of the platen, and preferably at the lower portion of the main paper shelf or near the point where the paper shelf merges into the deflector plate which curves forwardly around the platen. Said swinging curved deflector plate is connected to the key which in the Underwood machine releases said pressure rolls, so that when the rolls are released the curved deflector is swung downwardly away from the platen; or in other words by a single movement of said key all of the paper guiding and pressure devices are dropped from the platen, so that it is rendered very convenient to introduce sheets downwardly at the front of the platen; and since the release key in said machine is usually detained mechanically in roll-releasing position, it will be seen that the said deflector is likewise maintained by the key away from the platen, thus leaving both hands of the operator free to manipulate the sheets.

In the style of Underwood machines above referred to, it is customary to provide upon the machine a frame and scale or pair of scales, which lie against the front side of the platen, but do not travel therewith in letter feeding direction; said scales usually in the form of plates sloping upwardly and forwardly from the front side of the platen and constituting directrices to facilitate introducing sheets downwardly into the machine.

According to the present invention, the release key acts through the curved paper-guiding plate heretofore referred to, to swing said scale or scales forwardly away from the platen, to make a substantial opening to receive the sheets. When the key is restored to normal position, the pressure rolls and deflector plate or apron and the said platen scales are returned to their normal positions and control the sheets that have been introduced.

Another feature of the invention provides for conveniently tipping a sheet-supporting board backwardly behind the rear paper shelf and out of the way to leave the platen uncovered, so that the operator may conveniently get at the rear of the platen for manipulating the sheets; provision being made for latching the sheet-supporting board in its normal position.

In the specific variety of machine above referred to, it has been the practice to provide a series of rolls to run upon the front of the platen just below the bottom edge of the sheet-supporting board. It is desirable to have these rolls press quite hard against the paper, and they have been mounted upon brackets carried by a rod in front of the platen and adjustable along the rod. Said rod has

been fixed at its ends to end-pieces provided upon the platen frame, but the latter, in said machine, is of light sheet metal constructed in order to keep the weight of the carriage at a minimum to conduce to speedy operation, and for the same reason, it is customary to make said rod of light construction. Generally the machines used for the described purposes are "wide carriage machines", in which the platen and platen frame are of extraordinary length, and the length of said rod is correspondingly increased, and its strength correspondingly diminished. Usually, however, four roll-carrying brackets are mounted upon said rod, and it is found that owing to the weakness and lack of rigidity of the latter, the rolls carried upon the middle portion thereof, do not press with sufficient or uniform force against the platen, and each of the rolls carried by the rod are bound to press unevenly upon the platen.

One feature of the present invention aims to overcome these objections by mounting the rolls yieldingly upon the brackets so that the ends of each roll shall bear accurately and with uniform pressure alike upon the platen. Provision is also made for regulating at will the pressure of each roll, so that all of the rolls may be brought to bear with the proper pressure upon the platen.

Other improvements and advantages will be hereinafter set forth.

In the accompanying drawings, Figure 1 is a perspective view of the platen and platen frame of an "Underwood" front strike writing machine with the present improvements applied thereto; the sheet-supporting board being shown by dotted lines in normal position, and by full lines as thrown back to give access to the rear side of the platen. Fig. 2 is a sectional elevation taken transversely of the platen and showing the details of construction of the front pressure roll supports. Fig. 2ª is a perspective view of a roll-carrying spring-plate. Fig. 3 is an end view of the platen frame and platen, showing the rear paper shelf and the pressure rolls in normal positions. Fig. 4 is a sectional view illustrating parts seen in Fig. 3, said parts being in normal positions. Fig. 4ª illustrates a friction-washer or loop bearing against a standard, to afford opposition to the turning of the sheet-board. Fig. 5 is a view similar to Fig. 4, but showing the key depressed to release the paper rolls and swing the deflector or under curved plate away from the platen. Fig. 6 is an end elevation of the platen and related parts showing one of the supports for the front sheet-supporting board and one of the indicating scales. Fig. 7 is a plan of the platen frame inverted. Fig. 8 is a plan of the yielding roll-carrying part of the adjustable front roll brackets.

Type bars 1 (Fig. 3,) strike rearwardly against the front side of a revoluble platen 2 mounted by means of an axle 3 in the ends 4 of the platen frame, said ends rigidly connected at their rear portions by a bar and at their front ends by a rod 6.

Front and rear rolls 7, 8, are mounted upon axles 9, 10, suitably journaled, to run upon the under side of the platen. Springs 11, 12, acting through arms 13, 14, press said rolls against the platen. The rolls are released by means of a key 15 connected by a link 16, to a crank 17 upon a rock shaft 18, which shaft has cut-away or cam-devices 19 to engage arms 20, 21, mounted on a rod 18ª above the rock-shaft, said arms 20, 21, being formed integral with the arms 13, 14, respectively, but at right angles thereto, so that when the shaft 18 is rocked, the arms 20, 21 are cammed away from one another and the arms 13, 14 are forced downwardly from the platen, carrying downwardly and releasing the pressure of the shafts 9, 10 and rolls 7, 8 upon the platen. The shaft 18 makes a quarter turn at the depression of said key 15, thereby causing the arms 20, 21 to rest upon the cylindrical or uncut portion of said rock shaft 18, whereby the arms are held mechanically in roll-releasing position. Said roll-releasing mechanism is in common use on the Underwood machine. The paper shelf 22 in this instance, is pivoted or hinged at 23 by means of a pair of ears 24 to the opposite sides of the platen frame 4. The paper shelf extends upwardly and rearwardly from said hinge (which is located at the lower rear side of the platen), and also curves forwardly at 25 to form a deflector extending from said hinge around the under side of the platen and up in front thereof, and is provided with apertures 26 to receive the rolls 7, 8. Normally the front portion of the curved plate 25 may lie close to or in contact with the platen as at Figs. 3 and 4, but by the depression of the release key 15 said curved plate 25 is swung away from the platen by means of a pin 27 fixed upon the rock shaft 18, and engaging a finger 28 formed upon an arm 29 extending downwardly from the under side of the plate 25. Normally the rolls 7 and 8 and deflector 25 coöperate to guide and feed the sheets around the platen line by line, but when said key 15 is depressed, the plate 25 and rolls 7 and 8 are thrown away from the platen to provide an unobstructed channel for the insertion of paper either downwardly at the front side of the platen, or forwardly from the rear of the platen, as may be desired. The rolls 7, 8, may drop to or below the top surface of the deflector when the parts are moved away from the platen; and in some cases may be omitted, thereby avoiding the necessity of forming apertures 26 in the plate. When the key 15 is restored to normal position, the pin 27 engages an opposite finger 30 on said arm 29 to restore the plate

25 to normal position. Two arms 29 and two projections 27 may be provided, and said projections may be formed upon collars 31 secured by screws 32 upon the rock shaft 18, said screws admitting the adjustment of the axles around the shaft 18 sufficient to produce a slight normal pressure of the forward part of the plate 25 against the platen; such pressure being produced by the springs 11, and 12, which act through the arms 20, 21, hereinbefore described, normally to hold the shaft 18 against rotation, the resistance of said springs being overcome by the depression of the key 15.

Pivoted at 33 upon the framework 34 of the machine and extending up in front of the platen is a pair of plates 35 having at their upper edges flanges 36 inclined forwardly and upwardly to serve as directrices for introducing sheets, and usually marked with graduations to form platen scales. These plates are pressed backwardly by a spring or springs 37, and lie normally close to the platen. The plates 35 are formed with angular ribbed portions 38 engageable directly by the front edge portion of the deflector 25, so that when the latter is swung down, the plates 35 are pushed forwardly thereby, to the position seen at Figs. 5 and 6, thereby making an opening between the scales and the platen to receive the sheets to be introduced downwardly around the platen. When the key 15 is released, the spring or springs 37 throws the scale plate or plates 35 against the platen again.

A board 39 of great area extends upwardly and rearwardly from the front top side of the platen to support the sheets while being introduced downwardly in front of the platen, and also while feeding line by line upwardly. Said board is hinged by ears 40 and pintles 41 upon a pair of standards 42 erected one upon each end of the platen frame 4. The hinge is so placed that the upper part of the board overbalances the lower part in its forward position, (see dotted lines, Fig. 1,) and said board may swing downwardly behind the paper shelf 22, as seen at Fig. 1 in full lines. Latches 43 pivoted at 44 upon the platen frame and drawn up by springs 45, catch over the lower edge of the board 39 to retain the same in normal position, one latch being provided at each end of the platen frame. Each latch is extended to form a finger-piece or key 46, by the depression of which the latches 43 are caused to drop and release the board, the overbalanced upper portion of which immediately drops while the front portion, being lighter than the rear portion, rises. A friction washer or loop 47 may be provided to bear against one of the standards 42 to afford some opposition to the turning of the board and brake its descent, and it may be skewed as at 47^a Fig. 4^a so that it is operative at the last part of the movement of the board to abnormal position to slow down the fall and reduce the shock of the board 39 when it strikes the paper shelf 22.

Upon the front side of the platen just below the sheet-supporting board 39 are rolls 48 which may be adjusted along the platen, being slidably mounted upon the rod 6, in a manner which will now be described, and a description of one roll with its appurtenances will suffice for all. A bracket comprising a pair of ears 49 and a connecting bar 50 is mounted upon the rod 6, said ears being perforated to fit upon the latter. Fixed to the bracket by screws 51 is a finger-piece 52, the latter being bent up at one end to form an ear 53 through which said screws pass. By means of said finger-piece, the bracket may be slid along the rod 6 or turned forwardly from the platen to release the rolls. Each bracket has a bow-spring 54 which presses a cylindrical pin 55 into a shallow groove 56 extending along the rear side of the bar 6. The pin 55 acts as a key and holds the roll 48 yieldingly against the platen, but it may be forced out of the groove by a forward pull on the finger piece 52 so as to leave a space in front of the platen for the downward introduction of the sheets, as at Fig. 6. The roll 48 is mounted upon an axle 57 carried in a pair of ears 58 turned upon a thin plate 59, the latter at its forward end being bent up to form a flange 60, which is confined between the flange 53 and the bar 50 that is secured by the screws 51. This plate 59 is thin and yielding and is formed of springy metal. Its general form resembles the letter T, the broad parts 59^a bearing the ears 58, and the stem part 59 being so narrow and thin as to be capable of twisting to accommodate the position of the platen, or to compensate for any discrepancy in the shapes or structures of the various parts so that the ends of the roll 48 shall rest and run with the same uniform pressure upon the platen 2.

For the purpose of adjustment, a screw 61 is threaded down through the base of the finger 52, and its lower end bears down upon the spring plate 59, whereby the roll 48 carried by said spring plate, may as a whole be caused to bear with any desired degree of pressure upon the platen, the screw 61 being held by a jam-nut 62.

The invention is not limited to the details shown and described, and the disclosure here made is to be regarded merely as illustrative and not restrictive of my invention; and obviously portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting-machine and in combination, a revoluble platen, a pivotally-mounted sheet-supporting board extending upwardly and rearwardly from the upper

front side of said platen, and a latch to hold said board in normal position said board being over-balanced at its top so as to automatically swing to an inclined position in rear of said platen when released, from the control of said latch.

2. In a typewriting machine provided with a revoluble platen, the combination of a sheet-supporting board extending upwardly and rearwardly from the upper front side of the platen, means being provided to cause the lower portion of said board to swing upwardly and rearwardly to give access to the rear of the platen, and a latch for preventing such swinging movement.

3. In a typewriting machine provided with a platen frame, a platen revolubly mounted thereon, and a paper shelf extending upwardly and rearwardly from the platen, the combination of a pair of fixed standards erected upon the platen frame, a sheet-supporting board extending upwardly and rearwardly from the platen and hinged between its top and bottom edges upon said standards, means being provided to cause automatic movement of the top edge of the board downwardly and back of said paper shelf and of the bottom edge of the board upwardly to give access to the rear side of the platen, and a latch to prevent the sheet-supporting board from making such movement.

4. In a typewriting machine provided with a revoluble platen and a paper shelf in rear thereof, the combination with a sheet supporting board extending upwardly and rearwardly from the top of the platen, of supports whereon said board is hinged between its top and bottom edges, so that the part above the hinge overbalances the part below the hinge, and so that the upper part of the board may swing downwardly behind the paper shelf while the lower part of the board swings upwardly to give access to the rear of the platen, and a latch to restrain the swinging of the board.

5. In a typewriting machine provided with a revoluble platen and a paper shelf in rear thereof, the combination with a sheet-supporting board extending upwardly and rearwardly from the top of the platen, of supports whereon said board is hinged between its top and bottom edges, so that the part above the hinge overbalances the part below the hinge, to cause the upper part of the board to swing downwardly behind the paper shelf and the lower part of the board to swing upwardly to give access to the rear of the platen, means frictionally opposing the swinging movement of said board, and a latch to restrain the board from making such movement.

6. In a typewriting machine provided with a revoluble platen, a platen frame, and a paper shelf in rear of the platen, the combination with a sheet-supporting board extending upwardly and rearwardly from the top of the platen and movable backwardly over the top of the platen to give access to the rear side of the platen, means detaining said board in normal position, and keys upon the platen frame for releasing said board, the latter acting to move from over the platen, when released.

7. In a typewriting machine provided with a revoluble platen, the combination with a sheet-supporting board extending forwardly and rearwardly from the top of the platen and movable backwardly over the top of the platen to give access to the rear side of the platen, means detaining said board in normal position, and keys upon the platen frame for releasing said board, the latter acting to move from over the platen, when released; said detaining means being in the form of latches movable by the board, to permit the free return of the latter to normal position, and having springs to cause them to latch the board in normal position.

8. In a typewriting machine, the combination with a platen, of a pressure roll to run thereon, and a flexible resilient arm supported at one end and carrying said roll at the other end and constructed to equalize the pressure on the ends of the roll, the length of said roll being greatly in excess of the width of said arm, and the roll extending crosswise of the arm, and the arm constructed to permit either end of the roll to be raised from the platen while the other end remains pressed against the platen by said arm.

9. In a typewriting machine, the combination with a revoluble platen, of a pressure roll to run thereon, and a support for said roll in the form of a pressure-equalizing arm of thin yielding spring metal and a cross bar having at its ends means whereon the roll is journaled, the arm torsionally flexible to adjust the roll automatically to the surface of the platen, while pressing the roll against the platen, and the length of said roll being sufficient to permit one end to be raised from the platen while the other end remains pressed against the platen by said arm.

10. In a typewriting machine, the combination with a platen, of a pressure roll to run thereon, and an arm supported at one end and carrying said roll at the other end, the length of said roll being greatly in excess of the width of said arm, and the roll extending crosswise of the arm, and the arm being constructed to permit either end of the roll to move towards or from the platen axis independently of the other end, and means to adjust the pressure of the roll against the platen.

11. In a typewriting machine, the combination with a platen, of a pressure roll to run thereon, and an arm supported at one end and carrying said roll at the other end, the length of said roll being greatly in excess of the width of said arm, and the roll extending

crosswise of the arm, and the arm being constructed to permit either end of the roll to move towards or from the platen axis independently of the other end; said arm being formed of thin sheet metal sufficiently flexible to permit one end of the roll to move towards or from the platen axis independently of the other, and means to adjust the pressure of the roll against the platen.

12. In a typewriting machine, the combination with a platen, of a pressure roll to run thereon, and an arm supported at one end and carrying said roll at the other end, the length of said roll being greatly in excess of the width of said arm, and the roll extending crosswise of the arm, and the arm being constructed to permit either end of the roll to move towards or from the platen axis independently of the other end; said arm being formed of thin sheet metal sufficiently flexible to permit one end of the roll to move towards or from the platen axis independently of the other, means to adjust the pressure of the roll against the platen, a bracket whereon the end of said arm is fixed, and adjustable means upon said bracket to bear upon said arm to regulate the pressure of the roll upon the platen.

13. In a typewriting machine, the combination with a revoluble platen, of a rod extending along the platen, brackets adjustable along said rod, a pressure-equalizing arm adjustable along the platen, and a long roll mounted upon the end of said arm to bear upon the platen, said arm having a yielding construction to permit either end of the roll to be raised away from the platen while the other end remains pressed against the platen by said arm.

14. In a typewriting machine, the combination with a revoluble platen, of a rod extending along the platen, brackets adjustable along said rod, an arm mounted along the platen, a long roll mounted upon the end of said arm to bear upon the platen, said arm having a yielding construction to permit either end of the roll to move towards or away from the platen axis independently of the other end, and adjustable means carried by said bracket to regulate the pressure of said roll upon the platen.

15. In a typewriting machine, the combination with a revoluble platen and a rod extending therealong, of a series of brackets adjustable along said rod, a thin sheet metal arm extending from each of said brackets and having a long cross-head or bar, a roll mounted in the ends of said cross bar or head, to bear upon the platen, and said arm being constructed to yield axially to permit either end of the roll to move towards or from the platen axis independently of the other end, and adjustable means upon said bracket to bear upon said arm to regulate the pressure of the roll upon the platen.

16. In a typewriting machine, the combination with a revoluble platen and a rod extending along the platen, of a series of brackets mounted upon said rod and adjustable therealong independently of each other, finger-pieces secured upon said brackets, thin sheet metal spring arms also secured upon said brackets, said arms extending toward the platen and formed with cross bars at their rear ends, pressure rolls mounted in said cross bars and held by said arms against the platen, and releasable means between said brackets and said rod for yieldingly pressing the brackets in a direction to cause the rolls to bear against the platen; each of said spring arms being sufficiently yielding to permit one end of its roll to be raised from the platen while the other end remains pressed by said arm against the platen.

17. In a typewriting machine, the combination with a revoluble platen and a rod extending along the platen, of a series of brackets mounted upon said rod and adjustable therealong independently of each other, finger-pieces secured upon said brackets, thin sheet metal arms also secured upon said brackets, said arms extending toward the platen and formed with cross bars at their rear ends, pressure rolls mounted in said cross bars and held by said arms against the platen, releasable means between said brackets and said rod for yieldingly pressing the brackets in a direction to cause the rolls to bear against the platen, and screws threaded through said finger-piece to bear upon said arms to regulate the pressure rolls upon the platen, the arms and cross bars being sufficiently flexible to cause the ends of each roll to bear upon the platen.

18. In a typewriting machine, the combination with a revoluble platen, of a bracket, a thin sheet metal spring arm secured upon said bracket, said arm extending toward the platen and formed with a cross bar, a pressure roll mounted in said cross bar and held by said arm against the platen, and adjustable means to bear upon said arm to regulate the pressure of the rolls upon the platen, the arm and cross bars being sufficiently flexible to cause the ends of the roll to bear alike upon the platen.

19. In a typewriting machine, the combination with a revoluble platen and a rod extending along the front of the platen, of a series of brackets mounted upon said rod and adjustable therealong independently of each other, finger-pieces having ears whereby they are secured upon said brackets, thin sheet metal spring arms having ears whereby they are secured upon said brackets, said arms extending toward the platen and formed with cross bars at their rear ends, and pressure rolls mounted in said cross bars and held by said arms against the platen, means between said brackets and said rod for yield-

ingly pressing the brackets in a direction to cause the rolls to bear against the platen, and screw threaded through said finger-pieces to bear upon said arms to regulate the pressure of the rolls upon the platen, and nuts to hold said screws where adjusted; the arm and cross bars being sufficiently flexible to cause the ends of each roll to bear alike upon the platen.

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