J. J. CHAPIN.

TYPE WRITER PAPER FEED MECHANISM.

APPLICATION FILED SEPT. 2, 1908.

1,067,304.

Patented July 15, 1913.

3 SHEETS—SHEET 1.

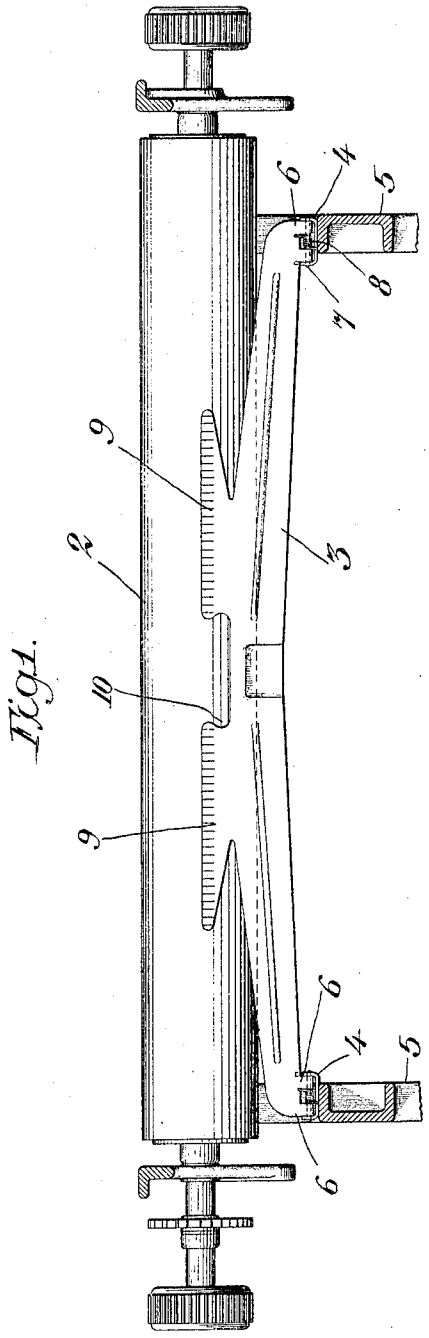


Fig. 1.

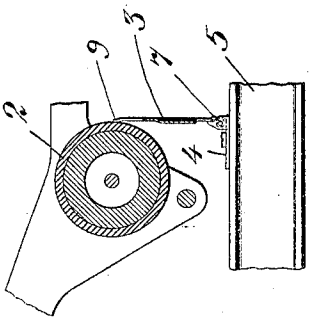


Fig. 3.

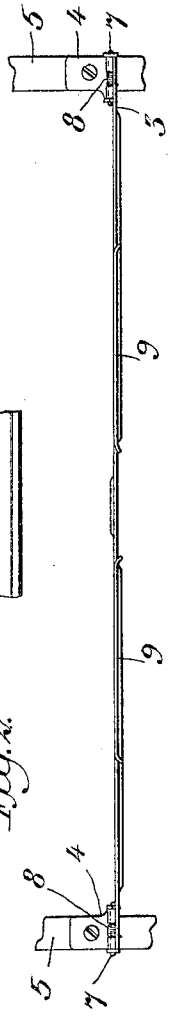


Fig. 2.

Witnesses:
E. W. Bartlett
Louis B. Ewin

Inventor
John J. Chapin
by Victor J. Evans & Co.
his Attys.

J. J. CHAPIN.

TYPE WRITER PAPER FEED MECHANISM.

APPLICATION FILED SEPT. 2, 1908.

1,067,304.

Patented July 15, 1913.

3 SHEETS—SHEET 2.

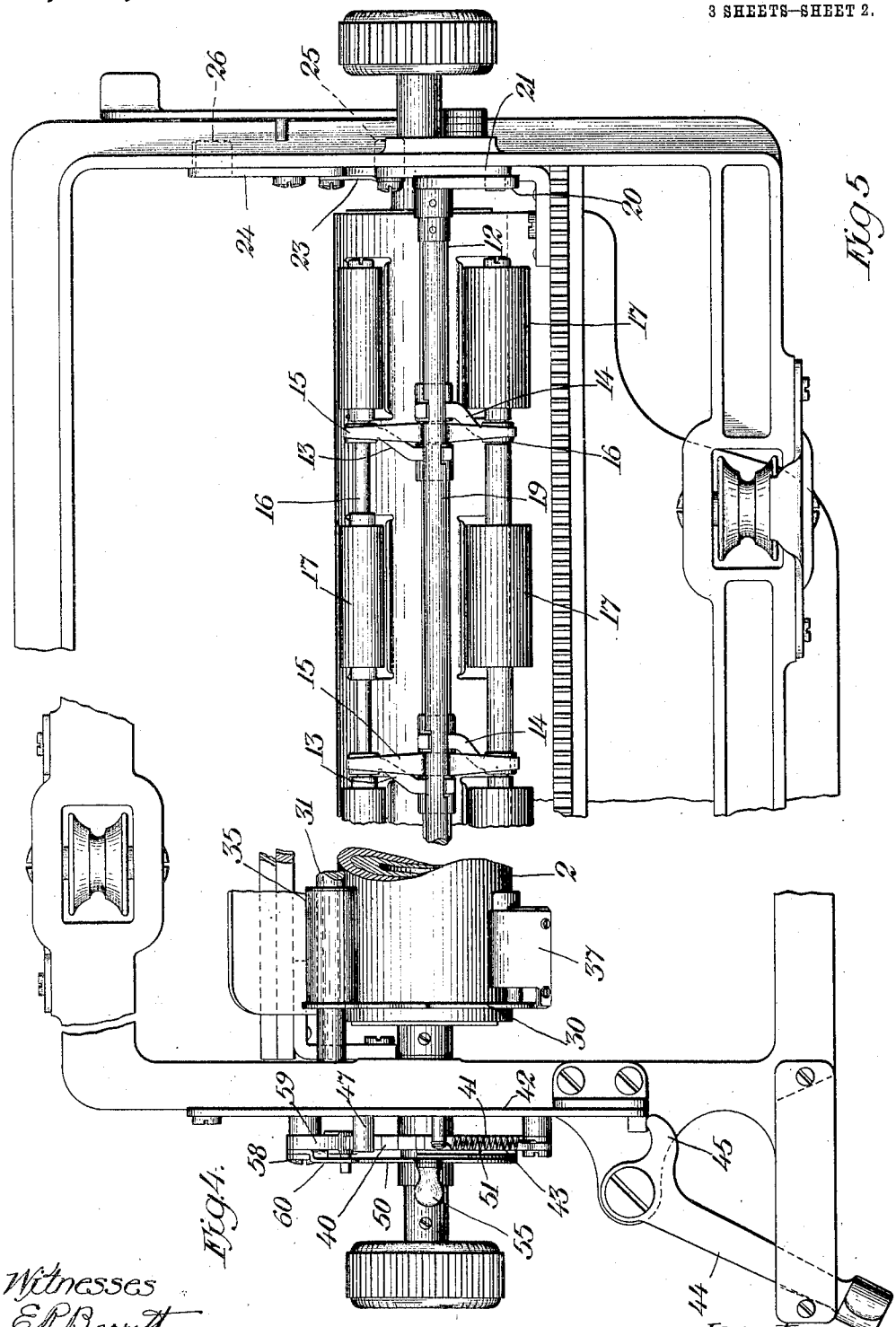


Fig. 5

Fig. 4.

Witnesses
E. R. Barrett
Louis B. Erwin

Inventor
John J. Chapin
by Peckham Peckham & Davis his Atty's.

J. J. CHAPIN.

TYPE WRITER PAPER FEED MECHANISM.

APPLICATION FILED SEPT. 2, 1908.

1,067,304.

Patented July 15, 1913.

3 SHEETS—SHEET 3.

Fig. 6.

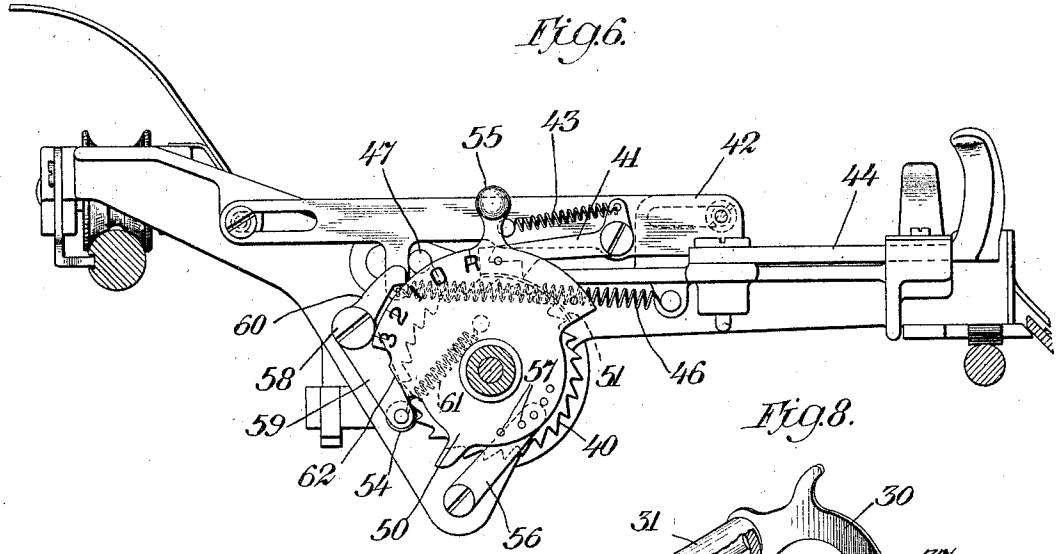


Fig. 8.

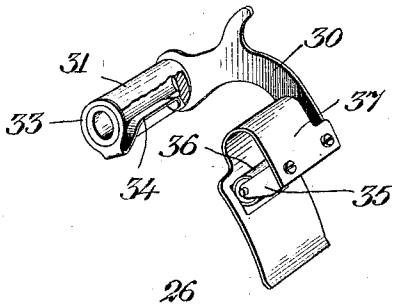


Fig. 7.

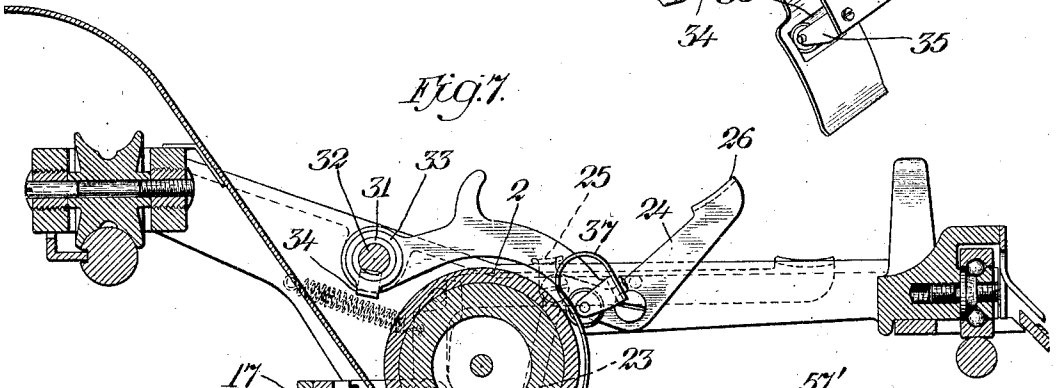


Fig. 10

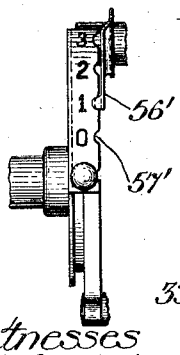
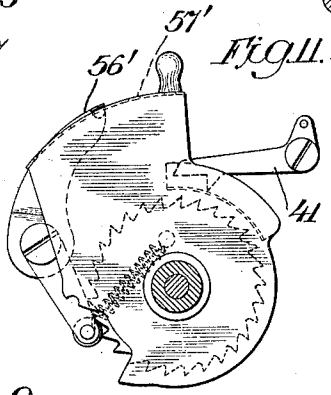


Fig. 11.



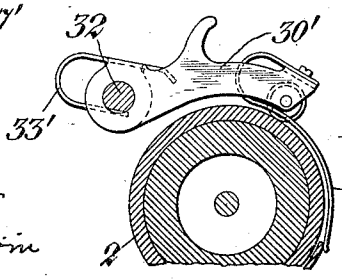


Fig. 9

Witnesses
E. R. Barrett
Louis B. Erwin

Inventor
John J. Chapin
by Peck & Hobson Davis
his Atty's.

UNITED STATES PATENT OFFICE.

JOHN J. CHAPIN, OF DETROIT, MICHIGAN, ASSIGNOR TO BURROUGHS ADDING MACHINE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

TYPE-WRITER PAPER-FEED MECHANISM.

1,067,304. Specification of Letters Patent. Patented July 15, 1913.

Application filed September 2, 1908. Serial No. 451,364.

To all whom it may concern:

Be it known that I, JOHN J. CHAPIN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Type-Writer Paper-Feed Mechanism, of which the following is a specification.

The present invention relates to devices employed in connection with the feed and control of paper in a typewriting machine and one object is to provide a constant line gage to assist the operator in adjusting the paper.

Another object is to simplify the construction for pressing the feed rolls against the paper overlying the platen.

A further object is to increase the effectiveness and facility of operation of the means for relieving the paper of the pressure of the feed rolls.

A further object is to provide a form of paper clamp improved in points of simplicity and effectiveness.

With these and incidental objects in view the invention consists in certain novel features of construction and combinations of parts, the essential elements whereof are recited in the appended claims and a preferred form of embodiment of which is described in detail hereinafter and fully illustrated in the accompanying drawings forming a part of this specification.

Of said drawings Figure 1 represents in front elevation the roller platen and the constant line gage with portions of the framework in cross section; Fig. 2 is a top plan view of the gage and parts of the supporting frame; Fig. 3 is a cross section of the same; Fig. 4 is a fragmentary top plan view of the typewriter carriage; Fig. 5 is a fragmentary bottom plan view of the same; Fig. 6 is a left side elevation of the carriage with track-bars shown in cross section; Fig. 7 is a cross section of the carriage from front to rear; Fig. 8 is a detached perspective view of the paper clamp appearing in Figs. 4 and 7, one portion of the same being represented as broken away; Fig. 9 is a side elevation of a modified form of paper clamp, the supporting shaft being shown in section as also the roller platen; Fig. 10 is a top plan view of a modified form of line-spacing regulating devices; and Fig. 11 is a left side elevation of the same.

Referring first to the constant line gage the numeral 2 in Figs. 1, 2 and 3, designates the roller platen which is supported in any suitable manner in a laterally-shifting frame. It is to be understod that the typewriting machine to which this line gage is attached is of the front strike character. The line gage comprises a thin metal plate 3 which extends from side to side of the frame of the machine and is pivotally mounted upon the latter. Hinge members 4 are secured to side bars 5 of the supporting frame and down-turned portions 6 of the gage plate are coupled to these hinge members by suitable pintles 7. Spiral springs 8 surrounding the pintles and engaged with the hinge members 4 and the gage plate serve to press the latter forward and against the platen. Its own resiliency also assists in pressing the plate against the platen. The gage plate extends on a slight angle upwardly toward the center and its upper central portion comprises two straight edge wings 9 marked with subdivisions for letter space gaging. These wings are separated by a depression 10 in the plate which provides for the striking of the type against the paper and the running of the ink ribbon close to the platen. The extremities of the wings 9 are bent outward slightly as shown in Fig. 2 so that paper clamps will readily pass under or behind the gage plate slightly displacing the latter through its own resiliency.

It will be seen that the above-described gage is of very simple construction and arrangement and serves as a ready and accurate means for adjusting the paper for the line on which writing is to be done as well as for the location of the individual imprints. The form and arrangement makes it possible to have a single piece gage of such extent as to provide for adjusting to long as well as short lines and locating letter spaces, without changing the position of the carriage.

Passing to the feed rolls for the paper there is carried in suitable brackets depending from the sides of the carriage a supporting rod 12 on which are loosely mounted in pairs a series of arms 13 and 14. The hubs of the arms of each pair are spaced apart on the shaft and a flat spring 15 overlies the upper side of the latter between said hubs, said spring projecting forward

and rearward from the shaft and underlying the outer portion of the arms which are offset from the hubs as shown in Fig. 5. This spring thus presses the arms toward the platen while serving as a spacing saddle between the arms. The arms in their outer ends are notched to form bearings for shafts 16 carrying the feed rollers 17. For the purpose of releasing the paper from the pressure of these feed rollers the arms 13 and 14 are formed with downward extensions 18, the extensions of a pair of the arms extending on opposite sides of a rock shaft 19 which is flattened where such extensions engage it, the extensions lying in cross grooves of the shaft. Each extension lies on the side of the shaft opposite that where its arm extends and it will be obvious that a right-angle turn of the shaft will result in forcing the arms and the said rollers away from the platen against the tension of the spring 15. The means for so turning said shaft are of the following description: There is secured to the right-hand end of the shaft an arm 20 which is bifurcated and notched in the lower side of the bifurcation as shown in Fig. 7. Loosely mounted upon the shaft 12 intermediate its length is a lever 21 which at its rear end carries a roller stud 22 occupying the bifurcation of the arm 20 and adapted to act with a camming effect upon the lower side of the said bifurcation to rock the shaft 19 and release the paper. The engagement with said roller stud of the notch in the lower side of the bifurcation serves to detain the parts in positions for leaving the paper free. The forwardly-projecting arm of the lever 21 is connected by a link 23 with a handle lever 24 pivoted intermediate its length upon the right side bar of the carriage frame. Said link is connected to said lever in rear of its pivot and the lever is formed at both ends with finger pieces or handles 25 and 26. Normally the handle 26 is elevated and the handle 25 lowered. Pressure upon the handle 26 obviously will serve to release the paper whereas pressure upon the handle 25 will restore the said pressure devices to normal.

Referring next to the paper clamps, in Figs. 7 and 8, one of such devices is illustrated comprising a rigid body portion 30 having secured to it a sleeve 31 adapted to slide upon a shaft 32 which extends between the side bars of the carriage frame. This shaft is flattened on the underside and there is secured to one end of the sleeve 31 a collet 33 having formed integrally with it a flat spring 34 occupying a slot in the sleeve and engaging the flattened underside of said shaft 32, thus holding the clamp yieldingly at normal or against the platen. The forward end of the body portion 30 is formed as a hanger 35 to support a pressure roller 36. Secured to the back of this hanger portion is a spring plate 37 which is curved around under the roller and cut out for the passage of the latter, said spring plate thence extending for contact with the paper.

A modified form of paper clamp is illustrated in Fig. 9. The construction at the forward end is the same but at the rear end instead of there being a sleeve embracing the shaft 32 there is an integral portion of the metal forming the body 30′ which is bent over and curved around under the shaft 32 as shown at 33′ to engage the flattened side of the shaft. In either construction the engagement of the spring with the flattened side of the shaft is sufficient to hold the clamps normally down upon the paper. At the same time it will be obvious that these clamps can be thrown back at any time, turning upon the shaft 32 when it is desired to get at the paper and furthermore the clamps can be readily slid along the shaft to adjust them to different widths of paper.

The mechanism for advancing the paper step by step comprises a ratchet wheel 40 on the platen, a pawl 41 pivoted to a slide 42 and drawn by a spring 43 toward the ratchet wheel, and a handle lever 44 pivoted to the carriage frame and working in a horizontal plane and having a finger 45 bearing against said slide 42. The latter is retracted by a spring 46 normally holding the pawl 41 away from the ratchet. Upon operation of the handle lever 44 the pawl is thrust rearward and a projecting portion of the same engages under a fixed stud 47 to prevent overthrow of the platen. A disk 50 loose on the platen journal has a guard flange 51 for regulating the extent of action of the pawl upon the ratchet. This disk 50 is adapted to assume one of five positions, for determining respectively whether the feed shall be of three, two or one of the teeth of the ratchet, whether the feed shall be discontinued entirely and whether the ratchet shall be relieved from the pressure of the usual detaining roller 54. The disk is suitably inscribed either on the side as shown in Fig. 6 or on a top flange as shown in Fig. 10 and is equipped with a handle 55 by which to shift it. A spring plate 56 with a pin for engaging holes 57 in the disk serves to retain the disk in any one of its different positions, in the construction shown in Fig. 6. In the construction shown in Figs. 10 and 11 a spring plate 56′ engages notches 57′ in one edge of the index flange and this same spring plate serves as an index finger. In the construction shown in Fig. 6 an index finger 60 is secured to the stud 58 which supports the arm 59 carrying the roller 54. A spring 61 connects said arm 59 with a stud on the carriage frame. A notched cam edge 62 on the disk 50 is adapted to engage the journal stud of said roller 54 to move

and hold the latter away from the ratchet when the disk is moved to one extreme position.

What I claim is:

1. In a machine of the character described, the combination with the supporting frame having side members 5, and the laterally shiftable paper carriage having a roller platen; of a single-piece line gage extending between and pivotally mounted at opposite ends upon the sides of said frame respectively and constantly bearing with yielding pressure against the roller platen.

2. In a machine of the character described paper feed mechanism comprising, in combination with a roller platen, a central supporting shaft, a pair of oppositely projecting arms loosely mounted thereon, and offset toward each other intermediate their ends so that the free ends thereof are brought into substantially the same transverse plane, feed roller carrying shafts supported by said arms and a spring straddling the central shaft intermediate the mountings of the arms thereon and engaging the arms on the sides of the latter away from the platen.

3. In a machine of the character described, paper feed mechanism comprising in combination with a roller platen, a central supporting shaft, a pair of oppositely projecting arms loosely mounted thereon, feed roller carrying shafts supported by said arms, and a spring straddling the central shaft between the arms on the side of the shaft toward the platen and projecting for engagement with the outer ends of said arms on the sides thereof away from the platen.

4. In a machine of the character described, the combination with a roller platen; of feed rollers yieldingly engaging the same, and means for separating said rollers from the platen, the same including a lever pivoted intermediate its ends and having a handle on each end.

5. In a machine of the character described, the combination with a roller platen; of paper feed mechanism comprising a central supporting shaft, arms loosely mounted thereon and spring-pressed toward the platen, feed roller carrying shafts supported by said arms, a spreader shaft engaging the arms, a controlling lever pivoted intermediate its ends and having a handle on each end and operating connections between said spreader shaft and said controlling lever.

6. In a machine of the character described, the combination with a roller platen, of independently mounted front and rear feed rollers yieldingly engaging the same, and means for separating said rollers from the platen, said means including a manipulative lever, a member for directly effecting a separation of the rollers from the platen, having a cam surface, and means operated by the lever engaging said surface.

7. In a machine of the character described, the combination with a roller platen; of feed rollers yieldingly engaging the same, and means for separating said rollers from the platen, the same including a lever pivoted intermediate its ends and having a handle on each end, and a cam arm operated by said lever and through the medium of which the separation is effected.

8. In a machine of the character described, the combination with a roller platen, of independently mounted front and rear feed rollers yieldingly engaging the same, and means for separating said rollers from the platen, said means including a manipulative lever and an arm having a pin and slot connection therewith operated thereby and through which the separation is effected, the slot having a retaining notch.

9. In a machine of the character described, the combination with a roller platen; of feed rollers yieldingly engaging the same, and means for separating said rollers from the platen, said means including a manipulative lever, a second lever pivoted below the platen operatively connected to the first-named lever, and a cam arm operated by said second lever and through the medium of which the separation is effected.

10. In a machine of the character described, the combination with a roller platen; of feed rollers yieldingly engaging the same, and means for separating said rollers from the platen, said means including a manipulative lever, a second lever operatively connected therewith, and a cam arm operated by said second lever and through the medium of which the separation is effected, said cam arm having a retaining notch.

11. In a machine of the character described, the combination with a roller platen; of paper feed mechanism comprising a central supporting shaft, arms loosely mounted thereon and spring-pressed toward the platen, feed roller carrying shafts supported by said arms, a spreader shaft engaging the arms, a controlling lever pivoted intermediate its ends and equipped at each end for manipulation, and operating connections between said spreader shaft and said controlling lever comprising a cam-arm on the spreader shaft with a retaining notch and a lever having a pin acting on said cam arm.

12. In a machine of the character described, the combination with a roller platen; of paper feed mechanism comprising a central supporting shaft, arms loosely mounted thereon and spring-pressed toward the platen, feed roller carrying shafts supported by said arms, a spreader shaft engaging the arms, a controlling lever pivoted intermediate its ends and equipped at each end for manipulation, and operating con-

nections between said spreader shaft and said controlling lever comprising a second lever linked to said controlling lever and journaled on the central shaft and having a laterally projecting pin or stud and a cam-arm secured to the spreader shaft and engaged by said stud and having a detaining notch.

13. In a machine of the character described, the combination of a roller platen, a supporting shaft flattened along one side, and a paper clamp comprising a sleeve adapted to turn on said shaft, and slotted lengthwise, a spring secured to said sleeve and extending within said slot into contact with the shaft to yieldingly hold the paper clamp toward the platen.

14. In a machine of the character described, in combination with a roller platen, a supporting shaft flattened along one side, and a paper clamp having a sleeve surrounding said shaft and a spring extending lengthwise the sleeve to engage the flattened side of the shaft for yieldingly holding the paper clamp toward the platen.

15. In a machine of the character described, in combination with a roller platen, a supporting shaft flattened along one side and a paper clamp comprising a spring longitudinally engaging the shaft and having a collar surrounding the latter.

16. In a machine of the character described, in combination with a roller platen, a supporting shaft flattened along one side, and a paper clamp having a sheet metal spring for engaging the shaft, the anchored end of which spring is bent substantially at right angles to the body thereof and surrounds the shaft.

JOHN J. CHAPIN.

Witnesses:
J. G. VINCENT,
R. S. MIELERT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."