

UNITED STATES PATENT OFFICE.

FRANZ X. WAGNER, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 794,437, dated July 11, 1905.

Application filed March 27, 1905. Serial No. 252,381.

To all whom it may concern:

Be it known that I, FRANZ X. WAGNER, a citizen of the United States, residing in Bronx borough, New York city, in the county of New York 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 devices of type-writing machines, and particularly to the small pressure-rolls which run in contact with the platen and hold the paper thereagainst.

In the well-known "Underwood" type-writing machine it is usual to mount beneath the platen two sets of small pressure-rolls, one set in advance of the other, the rear set to receive the leading edge of the paper as it is inserted at the back of the platen, and the forward set adapted to coöperate with the rear set in feeding the paper around the platen and also serving to feed the sheet after the rear edge of the latter has passed by the rear rolls. It is also usual in said machine to cast off or release all of said rollers by means of a single key mounted upon the platen-frame. All of the rolls in each of said sets are usually mounted or journaled upon a single shaft, and means act upon said shaft to press the rolls against the platen; but it is found, particularly in wide-carriage machines, that there is often an unevenness of pressure upon the rolls journaled upon a single shaft, so that some of the rolls act properly, while others do not, and as a result there is a tendency to cause the paper to feed faster along one of its side edges than along the other thereof. Moreover, when narrow sheets are used, so that one or more rolls run upon the platen while another or others run upon the sheet, the roller-shaft tends to become skewed, and the pressure is unevenly distributed upon the several rolls, thus tending to uneven feeding of the paper around the platen. This difficulty is particularly noticeable when several narrow sheets are inserted together into the machine.

The objects of my invention are principally to overcome these difficulties and to provide a simple and efficient roller-releasing means.

I aim to provide for these purposes a mechanism simple, effective, and inexpensive to apply to the machine. To these ends I journal each roll independently of the other rolls, in each of the forward and rear sets, and I also press each roll against the platen independently of the other rolls. I also provide for even pressure of both ends of each roll against the platen or the paper, even when the roll runs partly upon the paper and partly upon the platen, as when narrow sheets are used, this provision also serving to compensate for slight irregularities in the curvature of roll or platen or slight inaccuracies in their relative positions or setting or other slight faults of manufacture. I also contrive to release all of the independently-mounted rolls in both sets by means of a single release-key. I further provide for rendering the rolls detachable, whereby they may be easily assembled or detached and replaced. I also provide for the utmost freedom of action of the rolls under all conditions.

In the accompanying drawings, Figure 1 is a front view of the platen and platen-frame of an Underwood type-writing machine provided with my improvements. Fig. 2 is a transverse section taken at the line X X of Fig. 1. Fig. 3 shows a roll. Fig. 4 shows one of the bails in which the rolls are journaled, also a rocker-arm to which said bail, between its ends, is swiveled. Fig. 5 is a sectional view illustrating a detail of the swiveling of the bail. Fig. 6 shows in perspective a roll and its axle. Fig. 7 is an inverted view showing the relation of the front and rear rolls.

In the present machine I illustrate three front rolls and the same number of rear rolls; but it will be understood that in a wide-carriage machine more than three rolls in each set may be used.

The usual cylindrical platen 1 is journaled by its axle 2 in the ends 3 4 of a platen-frame, the latter also comprising a rear plate or paper-shelf 5 back of the platen and curving beneath the same at 6 to form a deflector for guiding the paper forwardly beneath the platen.

Beneath the platen and pressing up thereagainst are two sets of individual rolls, those

in the rear set indicated as 7 and those in the forward set as 8. Each roll, which is usually made of soft rubber, is provided with a hollow metal core or bushing 9 to receive loosely an axle 10, which is reduced at its ends to form gudgeons 11, the latter being received in slots 12, formed in opposite arms 13 of a bail. It will be noted that said slots are open toward the platen, and by lifting the bail away from the platen the roll may be readily slipped out or replaced. The purpose of mounting the axle 10 loosely in the bushing 9 is to insure that the roll may still turn freely even if the axle should stick from any cause. The bail also comprises a plate 14, connecting the arms 13. It will be understood that for supporting or controlling the individual rolls other devices or frames equivalent to bails may be employed. Midway between its ends the plate 14 is swiveled upon the end of an arm 15, the axis of the swiveling motion being perpendicular to that of the roll and tangential to the platen, so as to permit one end of the roll to rock away from the platen independently of the other, thus not only compensating for slight imperfections in the form of either the platen or the roll, but also permitting the roll to ride partly upon the edge of a sheet and partly upon the platen without detracting from the effectiveness of the roll and tending to secure accuracy of feeding of the paper under all the varying conditions. The member 14 of the bail or frame is preferably riveted at 16 to the head of a screw 17, which is threaded axially into the end of said arm 15, the screw being freely revoluble in said arm, so that the bail may rock and the screw-threads preventing detachment of the bail while in the machine, but permitting ready detachment thereof when the arm 15 is removed from the machine or ready attachment to the arm for insertion in the machine. Said arm 15 is formed with a hub 15^a, whereby it is pivoted upon a rod 15^b, which is fixed at its ends in bosses 18, provided upon the platen-frame ends 3 and 4. It will be seen that while the arms 15 of the rear rolls project rearwardly from said rod 15^b the arms 15^c of the front rolls project forwardly from said rod. Preferably the rolls 7 8 are in line with each other circumferentially of the platen, or, in other words, roll 7 is directly behind roll 8, there being three rolls in each of the forward and rear sets. Adjoining hubs are cut away at 19, so as to overlap each other, each hub being bored at 20 to fit loosely upon the rod 15^b. Each of the rolls is pressed against the platen by an individual spring 21, coiled around the rod 15^b, secured at one end to the hub 15^a and at the other end to a ratchet-collar 22, loose upon the rod 15^b and provided with holes 23, whereby the collar may be turned upon the rod to adjust the tension of the spring. Each collar 22 is provided with a cooperating ratchet-collar 24, fixed upon the

rod 15^b. The spring constantly acts upon the rocker-arm 15 or 15^c, as the case may be, to press the bail, and hence the roll 7 or 8, against the platen, and since each spring acts independently of the other springs it will be seen that the action of each of the six rolls is independent of that of the remaining rolls, so that both wide and narrow sheets, either singly or in packs, may be fed accurately around the platen. Owing to the swiveling of each roll there is practically no tendency on its part to cause the paper to feed unevenly, while the provision of both forward and rear sets of individually-mounted and independently-pressed rolls, each of which bears evenly at both ends upon the paper, all tendencies whatever to uneven feeding of the paper are overcome or avoided. The invention, moreover, is of considerable advantage where it is desired to feed through a single sheet at one end of the platen simultaneously with a pack of sheets at the other end, since under all conditions each roll is fully operative. For releasing the rolls I provide upon each hub 15^a a depending lug 25, said lugs occupying recesses 26, formed alternately upon opposite sides of the rock-shaft 27, which is journaled in hangers 28 29, dependent from said rod 15^b and secured thereto. When said rock-shaft is turned, the lugs are forced out of said recesses and caused to bear upon the periphery of the rock-shaft, and during such movement the bails are forced away from the platen in opposition to the tension of the springs 21. It will be seen at Fig. 2 that the forward lugs 25 are formed upon the hubs 15^a, which carry the rear rolls 7, while the rear lugs are formed upon the hubs which carry the forward rolls 8, so that by a single movement of the rock-shaft all of the bails are thrown away from the platen, such movement being effected by a key 30, mounted upon the platen-frame and connected by a link 31 to a crank 32, formed upon the end of said rock-shaft. Upon lifting the key all the parts are restored to normal position, as at Fig. 2.

The platen-frame is provided with a supporting-roll 33, which runs upon a track 34. In this instance the roll is mounted in the bottom part of a U-shaped bracket 35, the arms 36 of which are fastened to and depend from the rod 15^b, said arms being secured by pins 37 or otherwise. Said arms 36 are well separated and inclose the middle rocking members with their associated springs and collars. The rock-shaft 22 extends through and is journaled in said arms 36, whereby additional supports for said shaft are afforded and springing thereof is avoided. Thus the necessary support for the roll 33 does not interfere with mounting the pressure-rolls where required along the fixed rod 15^b, while the frame is rendered firmer and more serviceable.

Variations may be resorted to within the

scope of my invention and portions of my improvements may be used without others.

Having thus described my invention, I claim—

5 1. In a type-writing machine, the combination with a platen, of a set of rolls extending along the platen, a bail in which each roll is journaled, a rocking member upon which each bail between its ends is transversely swiveled,
10 a spring for pressing each roll against the platen, and key-controlled means for turning all of said rocking members so as to release the rolls.

2. In a type-writing machine, the combination of a platen, a roll to bear upon the platen,
15 a bail in which said roll is journaled, a rocking member to which said bail between its ends is transversely swiveled, a spring acting upon said rocking member to press said roll against the platen, and a key-controlled device for turning said rocking member to release the roll.

3. In a type-writing machine, the combination with a platen, of a platen-frame, a rod
25 mounted in the platen-frame and extending along the platen, a series of members mounted to rock upon said rod, a bail swiveled transversely between its ends to each of said rocking members, a roll journaled in each bail, and a spring acting upon each rocking member to press its roll against the platen.
30

4. In a type-writing machine, the combination with a platen, of a platen-frame, a rod
35 mounted in the platen-frame, and extending along the platen; a series of members mounted to rock upon said rod, a bail swiveled transversely between its ends to each of said rocking members, a roll journaled in each bail, a spring acting upon each rocking member to press its roll against the platen, a rock-shaft
40 mounted in said platen-frame parallel with said rod, means for enabling said rock-shaft to cause said rocking members to release said rolls, and a key to operate said rock-shaft.

45 5. In a type-writing machine, the combination with a platen, of a series of rocking members arranged along the platen, a bail swiveled between its ends to each of said rocking members, a roll journaled in each bail, a spring
50 for causing each roll to bear against the platen, a release-arm provided upon each rocking member, and a shaft extending along the platen and having means to operate each release-arm.

55 6. In a type-writing machine, the combination with a platen, of a series of rolls extending end to end along the platen, a swiveled device in which each roll is journaled, means for pressing each roll against the platen, a key-
60 controlled rock-shaft extending along the platen, and means for enabling said rock-shaft to release all of said rolls simultaneously.

7. In a type-writing machine, the combination with a platen, of a pressure-roll having a
65 hollow metal core, an axle loosely inserted in

said core and reduced at its ends to form trunnions, a bail having slots to receive said trunnions, said slots being open at the ends thereof which adjoin the platen, a rocking member upon which said bail between its ends is
70 transversely swiveled, and a spring pressing said bail toward the platen.

8. In a type-writing machine, the combination with a platen, of a set of rolls extending
75 end to end along the platen, a bail in which each roll is detachably journaled, a support upon which each bail between its ends is transversely swiveled, means for pressing each bail toward the platen, and means for releasing said
80 rolls.

9. In a type-writing machine, the combination with a platen, of a set of rolls, extending
85 along the platen, a bail in which each roller is journaled, a rocking member upon which each bail between its ends is transversely swiveled, a rod upon which said rocking members are pivoted, and springs for pressing the rolls against the platen.

10. In a type-writing machine, the combination of a platen, a roll to run upon the platen,
90 a bail in which said roll is detachably journaled, a rocking member to which said bail between its ends is pivoted, and a spring acting upon said rocking member to press said roll against the platen.
95

11. In a type-writing machine, the combination with a platen, of a platen-frame, a rod
100 mounted in the platen-frame and extending along the platen, a series of members mounted to rock upon said rod, a bail swiveled between its ends to each of said rocking members, a roller detachably journaled in each bail, and a spring for pressing each roll against the platen.

12. In a type-writing machine, the combination, with a platen, of a platen-frame, a rod
105 mounted in the platen-frame, and extending along the platen; a series of members mounted to rock upon said rod, a bail swiveled between its ends to each of said rocking members, a roll journaled in each bail, an adjustable spring acting upon each rocking member to press its roll against the platen; and
110 means for causing said rocking members to release said rolls.
115

13. In a type-writing machine, the combination with a platen, of two sets of rocking members arranged along the platen, a bail swiveled between its ends to each of said rocking
120 members, a roll journaled in each bail, a spring for causing each roll to bear against the platen, a release-arm provided upon each rocking member, and a rock-shaft extending along the platen and having means to operate all said release-arms.
125

14. In a type-writing machine, the combination with a platen, of two sets of rolls extending
130 along the platen end to end, one set forward of the other, a swiveled device in which each roll is journaled, means for pressing each

roll against the platen; a key-controlled rocking shaft extending along the platen, and means for enabling said rock-shaft to release all of said rolls simultaneously.

5 15. In a type-writing machine, the combination with a platen of a series of journaled rolls extending end to end along the platen, each roll journaled in a device which is swiveled to turn upon a transverse axis and is also mounted
10 to swing away from the platen, and a key having means to release all of said rolls.

16. In a type-writing machine, the combination with a platen, of two parallel sets of rolls, each set extending along the platen, one set in
15 front of the other set, a bail in which each roller is mounted, a rocking member on which each bail between its ends is transversely swiveled, an individual spring for pressing each roll against the platen independently of the
20 other rolls, a key, and means controlled by said key for turning all of said rocking members to release the rolls.

17. In a type-writing machine, the combination with a platen, of a rod extending along
25 the platen, a forwardly-extending set of arms pivoted upon said rod, a rearwardly-extending set of arms also pivoted upon said rod, bails swiveled upon said arms, rolls journaled in said bails and extending end to end along the
30 platen, springs upon said rod, one for each of said arms, and a key-controlled rock-shaft having means for turning all of said arms to release said rolls.

18. In a type-writing machine, the combination with a platen, of a rod extending along
35 the platen, sets of arms extending forwardly and rearwardly from said rod, each arm independently pivoted upon said rod, springs coiled upon said rod, and pressing said arms
40 toward the platen, bails swiveled upon said arms, and rollers journaled in said bails.

19. In a type-writing machine, the combination with a platen, of a rod extending along
45 the platen, sets of arms extending forwardly and rearwardly from said rod, each arm independently pivoted upon said rod, springs coiled upon said rod, and pressing said arms toward the platen, ratchet-collars upon said
50 rod for adjusting each of said springs, bails swiveled upon said arms, and rollers journaled in said bails.

20. In a type-writing machine, the combination with a platen, of a rod extending along
55 the platen, a forwardly-extending set of arms pivoted upon said rod, a rearwardly-extending set of arms also pivoted upon said rod, bails swiveled upon said arms, rolls journaled in said bails and springs pressing said arms toward the platen.

60 21. In a type-writing machine, the combina-

tion with a platen, of a rod extending along the platen, sets of arms extending forwardly and rearwardly from said rod and independently pivoted thereon, springs upon said rod pressing said arms toward the platen, bails
65 transversely swiveled upon said arms, rolls journaled in said bails, a key, and means controlled by said key for releasing all of said rolls.

22. In a type-writing machine, the combination with a platen, of a rod extending along the platen, sets of arms extending forwardly and rearwardly from said rod and independently pivoted thereon, independently-adjustable
70 springs upon said rod pressing said arms toward the platen, bails swiveled upon said arms, rolls journaled in said bails, a key and means controlled by said key for releasing all of said rolls.

23. In a type-writing machine, the combination with a platen and platen-frame, of a rod beneath the platen and fixed at its ends in the platen-frame, two sets of rock-arms pivoted upon said rod and extending forwardly and rearwardly therefrom, springs upon said rod
85 for pressing said rock-arms toward the platen, ratchet-collars upon said rod for adjusting the tension of the springs independently of one another, bails swiveled upon said arms, rollers journaled in said bails, a U-shaped bracket
90 secured to said rod and depending therefrom, one or more of said rock-arms, being inclosed between the arms of said U-bracket, and a wheel mounted upon said U-bracket, for supporting the platen-frame.

24. In a type-writing machine, the combination with a platen and platen-frame, of a rod beneath the platen and fixed at its ends in the platen-frame, two sets of rock-arms pivoted upon said rod and extending forwardly and
100 rearwardly therefrom, springs upon said rod for pressing said rock-arms toward the platen, ratchet-collars upon said rod for adjusting the tension of the springs independently of one another, bails swiveled upon said arms, rollers
105 journaled in said bails, a U-shaped bracket secured to said rod and depending therefrom, one or more of said rock-arms being inclosed between the arms of said U-bracket and a wheel mounted upon said U-bracket for supporting
110 the platen-frame; hangers depending from the ends of said rod, a rock-shaft extending through said hangers and through the arms of said U-bracket, a key for turning said rock-shaft
115 to turn said arms away from the platen.

FRANZ X. WAGNER.

Witnesses:

B. C. STICKNEY,
ALBERT NATHAN.