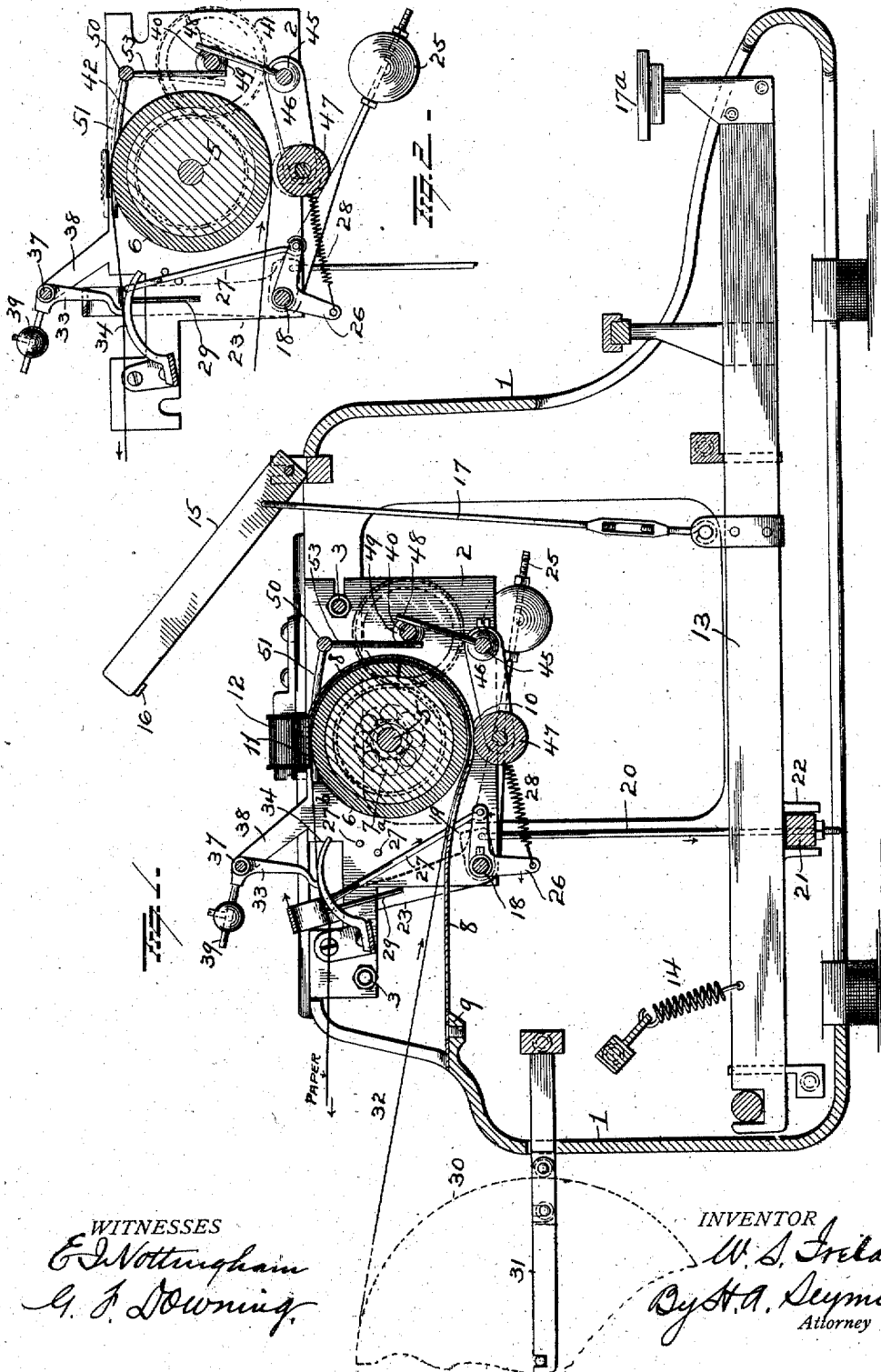


W. S. IRELAND.
TYPE WRITING MACHINE.
APPLICATION FILED APR. 5, 1910.

Patented Jan. 3, 1911.

2 SHEETS-SHEET 1.



WITNESSES
E. Nottingham
G. J. Downing.

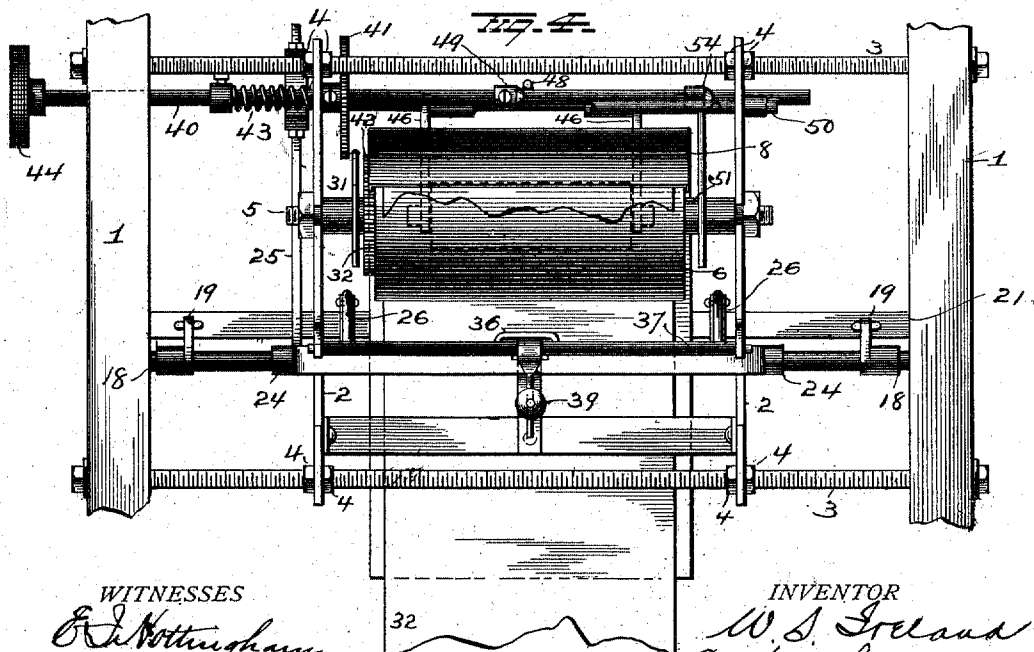
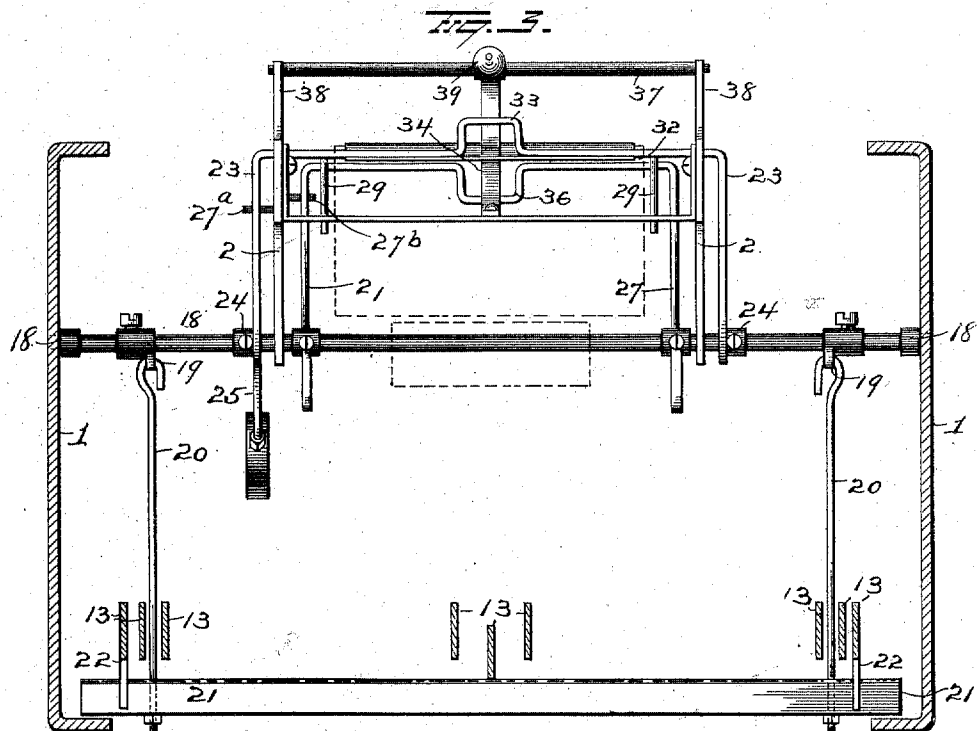
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WARD S. IRELAND, OF DALLAS, TEXAS.

TYPE-WRITING MACHINE.

980,273.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed April 5, 1910. Serial No. 553,495.

To all whom it may concern:

Be it known that I, WARD S. IRELAND, of Dallas, in the county of Dallas and State of Texas, have invented certain new and useful
5 Improvements in Type-Writing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and
10 use the same.

This invention relates to improvements in typewriting machines and more particularly to such as are adapted for stenographic writing,—the object of my present invention being
15 to provide simple and efficient means for feeding the paper sheet or strip progressively at each manipulation of a key or keys.

A further object is to provide efficient means for feeding the paper into the machine and at the same time avoid conflict between the paper and the inking ribbon.

With these and other objects in view the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional view showing a portion of a typewriting machine and illustrating the application of my improvements thereto. Fig. 2 is a detail sectional view of the feed mechanism showing parts in position to grip the paper sheet or strip for feeding the same over the platen, and also showing
35 different positions of the devices for raising the inking ribbon and for operating the platen to feed the paper strip into the machine. Fig. 3 is a view showing a portion of the frame in section and the paper feed mechanism in rear elevation, and Fig. 4 is a plan view.

1 represents the main frame of the machine, within which a supplemental frame 2 is supported by means of transverse rods 3, the latter being secured at their respective
45 ends to the side walls of the main frame. These transverse rods 3 may be threaded for the accommodation of nuts 4 whereby the supplemental frame 2 can be properly adjusted and secured within the main frame of the machine. The side plates of the frame 2 are provided with bearings for a shaft 5 which is rigidly secured near its ends to said side
50 plates and assists in maintaining the latter rigid. A platen roller 6 is mounted to freely rotate on the shaft 5 and in order to reduce

the resistance to the rotation of this roller, ball bearings 7 will preferably be provided, as shown in dotted lines in Fig. 1. A sheet metal guide plate 8 partially embraces the platen
60 roller 6 and, extending rearwardly therefrom, is secured to a flange 9 near the rear end of the main frame 1 and this guide plate is provided, directly under the platen roller, with an elongated slot 10, for a purpose
65 hereinafter explained.

An inking ribbon 11 passes over the platen roller 6 and under guide wheels, such as indicated at 12, but the mechanism for operating this inking ribbon is not shown and will
70 not be described as the same constitutes no part of the invention embodied in this application.

A series of key-bars, one of which is shown in elevation at 13, Fig. 1, is mounted
75 in the lower portion of the frame-work and maintained normally elevated by means of springs such as shown at 14. Type-bars 15 are pivotally mounted in the upper forward portion of the framework and project over
80 the platen roller 6,—said type-bars being provided at their free ends with suitable letters or characters, as shown at 16 Fig. 1. The type-bars are connected with the key-bars by means of adjustable rods 17 and the
85 springs 14 which retain the key-bars elevated also serve to maintain the type-bars normally raised. The key-bars are provided with finger pieces or buttons, as at 17^a for operating them to cause the type-bars to
90 descend and, engaging the inking ribbon, cause an impression to be made upon the paper strip passing over the platen roller.

A transverse shaft 18 is mounted at its ends in the side walls of the main frame 1
95 and passes through the rear lower portion of the supplemental frame 2. This shaft is provided with two fixed arms 19 near the respective ends thereof and with these arms the upper ends of rods 20 are connected,—
100 the lower ends of said rods being attached to a universal bar 21 extending transversely across the lower portion of the machine directly under the key-bars 13 and maintained against displacement by means of lugs 22
105 depending from the key-bars 13 at respective ends of the series of key-bars.

The depending arms of a frame 23 are loosely mounted at their lower ends upon the shaft 18 adjacent to but outside of the
110 side plates of the frame 2 and in order to prevent lateral displacement of this loosely

mounted frame 23, collars 24 are secured to the shaft 18, as shown in Fig. 3. The frame 23 is also provided with a weighted arm 25 projecting forwardly from the lower portion of one of the arms of said frame 23 and normally tending to swing the latter forwardly. Bell-cranks 26 are secured to the shaft 18 and to one arm of each of these bell-cranks the depending arm of a frame 27 is pivotally attached. Springs 28 are suitably attached at one end to a fixed part of the framework and at their other ends to the depending arms of the bell-cranks 26,—said springs normally tending to turn the bell-cranks in a direction to press the cross-bar of the frame 27 upwardly against the cross-bar of the loosely mounted frame 23. Movement of the cross-bar of frame 27 rearwardly beyond the cross-bar of frame 23 is prevented by means of pins 29 depending from the latter, and forward movement of said frames 23—27 is limited by fixed pins 27^a and 27^b.

Paper enters the machine from a supply roll 30 having its trunnions mounted in arms 31 attached to the rear portion of the main frame 1 and is guided around the platen roller and under the inking ribbon by means of the sheet metal guide 8. The paper strip or sheet 32, after passing over the platen roller, as shown in Fig. 1, is carried through the frames 23 and 27 so that the cross-bars of these frames will be disposed respectively above and below said paper strip or sheet. The frames 23 and 27 cooperate to constitute a gripping paper feed. When one or any number of the key-bars 13 is depressed, motion will be transmitted through the medium of the universal bar 21, rods 20 and arms 19 to the shaft 18 for turning the latter. The bell-cranks 26, being secured to the shaft 18, will also be turned and the frame 27 will be moved downwardly and carried forwardly, the loosely mounted frame 23 being caused to follow it by the action of the weighted arm 25. Thus when a key-bar is depressed the cross-bar of the frame 27 will be moved away from the cross-bar of the frame 23 and both of said frames caused to move forwardly without active engagement with the paper sheet or strip. As soon as the key-bar has been released, the frame 27 will be caused to move upwardly by the action of the springs 28 and its cross-bar to cooperate with the cross-bar of the frame 23 to grip the paper and press the latter against the cross-bar of the frame 23 sufficiently to cause the latter to move rearwardly with the frame 27. During such rearward movement of the frames 23 and 27 with the paper sheet or strip gripped between their cross-bars, said paper strip or sheet will be fed the distance of one line of writing. In order to prevent retrograde movement of the paper sheet or strip

when the gripping frames are moving forwardly toward the platen roller, a dog or gripping finger 33 to cooperate with a fixed finger 34 is provided and to accommodate these fingers the cross-bars of the gripping frames are offset as shown at 35—36 Fig. 3. The gripping finger 33 is mounted on a rod 37 attached at its ends to arms 38 on the frame 2 and said finger 33 is maintained yieldingly in contact with the paper passing over the finger 34, by means of a weighted arm 39, as clearly shown in Figs. 1 and 2. From this construction and arrangement of parts, it is apparent that the paper strip or sheet will pass freely between the fingers 33 and 34 during the rearward feeding movement of the gripping frames 23 and 27, but that said fingers will effectually prevent movement of the strip or sheet when the gripping frames are moving toward the platen roller.

In order to facilitate the ready insertion of the paper into the machine in the first instance, the devices now to be described will be employed. It will be recalled that the platen roller, during the normal operation of the machine is free to rotate but when the paper is to be inserted into the machine it is desirable to cause the positive rotation of the said platen roller and to raise the inking ribbon out of the way of the incoming edge or end of the paper sheet or strip. A longitudinally movable shaft 40 is mounted in the side plates of the frame 2 and provided with a spur wheel 41 to mesh with a similar wheel 42 on the platen roller 6. During the normal operation of the machine, the shaft 40 is pressed in a direction to retain the wheel 41 out of mesh with the wheel 42, by means of a spring 43. The shaft 40 is extended beyond the side of the main frame and provided at its end with a knob 44 for moving it longitudinally to cause the wheel 41 to mesh with the wheel 42 and to turn said wheel for positively imparting motion to the platen roller. Below the shaft 40, a shaft 45 is located and provided with rearwardly projecting arms 46 in the free ends of which a roller 47 is mounted and this roller is maintained, during the normal operation of the machine, out of contact with the platen roller by the engagement of arm 48 projecting from the shaft 45 with the shaft 40. A cam collar 49 is secured to the shaft 40 so that when the latter is moved longitudinally, the engagement of said cam with the arm 48 will cause the shaft 45 to be turned and the roller 47 to be raised sufficiently to enter the slot or opening 10 in the guide plate 8 and engage the platen roller. When the shaft 40 is rotated the paper strip, with its end presented at the juncture of the platen roller with the roller 47 will be moved positively by the rotation of these rollers and,

guided by the curved portion of the plate 8 will be moved around and over the platen roller; under the inking ribbon and it can then be readily threaded through the gripping frames 23-27.

A shaft 50 is loosely mounted in the frame 2 near the platen roller and provided with rearwardly projecting arms 51 disposed beyond the ends of the platen roller and under the inking ribbon. The shaft 50 is also provided with a depending arm 53 which passes beyond the shaft 40 and in the path of movement of a cam 54 on said shaft. When the shaft 40 is moved longitudinally for positively operating the platen roller as above explained, the cam 54 will engage the arm 53 so as to turn the shaft 50 and raise the arms 51 to elevate the inking ribbon out of the way of the incoming edge of the paper strip or sheet and permit the latter to freely pass under the inking ribbon without danger of conflict with the latter.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope and hence I do not wish to restrict myself to the precise details herein set forth.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is,—

1. A gripping paper feed, comprising two frames mounted independently of each other and one movable relatively to the other to grip the paper between them, and means for positively moving one frame relatively to the other.

2. In a paper feed mechanism, the combination of two frames mounted independently of each other, means connected with one of said frames for positively operating it toward and away from the other to grip or release a paper strip or sheet, and means for moving said frames simultaneously in one direction or the other.

3. In a paper feed mechanism, the combination with a shaft, a frame loosely mounted thereon, means normally tending to swing said frame forwardly, crank arms fixed to said shaft, a frame connected with said crank-arms and cooperating with the loosely mounted frame, means for moving the cross-bar of one of said frames relatively to the cross-bar of the other to grip or release a paper strip or sheet, and means for moving both of said frames simultaneously in one direction or the other.

4. In a paper feeding mechanism, the combination with a shaft and means for oscillating the same, of two gripping frames having their cross-bars in position to cooperate with each other, one of said gripping frames mounted loosely on said shaft and provided with a weighted arm, bell-cranks secured to said shaft and connected with the

other gripping frame, and springs connected with the other arms of said bell-cranks.

5. In a paper feeding mechanism, the combination with a shaft and means for oscillating the same, of bell-cranks attached to said shaft, two gripping frames, one mounted loosely on the shaft and the other connected with said bell-cranks, the cross-bar of the last mentioned frame adapted to cooperate with the cross-bar of the loosely mounted frame to grip a paper strip and move said loosely mounted frame rearwardly with the paper strip, means tending normally to move the loosely mounted frame forwardly, and springs connected with said bell-cranks.

6. In a paper feeding mechanism, the combination with two gripping frames mounted independently of each other, of means for positively moving one of said gripping frames relatively to the other to grip or release a paper strip, and means for oscillating said gripping frames simultaneously.

7. In a paper feeding mechanism, the combination with two independently mounted frames having their cross-bars disposed to cooperate to grip a paper strip, pins projecting from the cross-bar of one frame to be engaged by the cross-bar of the other frame, means for moving one of said frames relatively to the other to grip or release the paper strip, and means for oscillating said frames simultaneously.

8. In a paper feeding mechanism, the combination with oscillatory feeding devices for gripping a strip of paper to feed the same step by step in one direction, of means for preventing movement of the strip in reverse direction, said means comprising a fixed finger over which the strip of paper passes, and a weighted finger to press upon the paper over the fixed finger.

9. In paper feeding mechanism for type-writing machines, the combination with a platen roller mounted to rotate freely during the normal operation of the machine, and means for feeding a paper strip past said freely rotatable platen roller, of means for positively rotating said platen roller to start the feeding of a strip of paper over the same, and means for retaining said platen operating means normally out of operative relation to the platen.

10. In paper feeding mechanism for type-writing machines, the combination with a platen roller mounted to rotate freely and means for moving a strip of paper past said platen roller to feed said strip step by step, of a guide partially embracing the platen roller and having an opening therein, a roller disposed below said opening and normally out of engagement with the platen roller, a spur wheel on the platen roller, a shaft mounted adjacent to the platen roller,

a spur wheel on said shaft, means for normally maintaining said spur wheels out of mesh, means for moving said shaft longitudinally to place said spur wheels into mesh with each other, and means cooperating with said shaft to raise the roller below the platen roller to cooperate with the latter to feed the paper strip around the platen roller when said shaft is rotated.

- 10 11. In paper feeding mechanism for type-writing machines, the combination with a platen roller mounted to normally rotate freely, and a spur wheel carried by said platen roller, of a guide plate partially embracing said platen and provided with an opening below the same, a longitudinally movable shaft, a spur wheel thereon normally out of mesh with the spur wheel on the platen roller, a cam on said shaft, a shaft
15 mounted below the first mentioned shaft and provided with rearwardly projecting arms and with an upwardly projecting arm, the latter being disposed in position to be moved

by the cam on the first mentioned shaft, and a roller carried by said rearwardly projecting arms and adapted to enter the opening in the guide plate and cooperate with the platen roller to positively feed a paper strip between the same and the guide plate. 25

12. In paper feeding mechanism for type-writing machines, the combination with a platen roller normally mounted to rotate freely and an inking ribbon over said platen roller, a feed roller, means for positively rotating the platen roller, means for raising
30 the inking ribbon, means for moving all of said first mentioned means into operative positions, and means for normally retaining them out of operative position. 35

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses. 40

WARD S. IRELAND.

Witnesses:

S. G. NOTTINGHAM,
GEO. F. DOWNING.