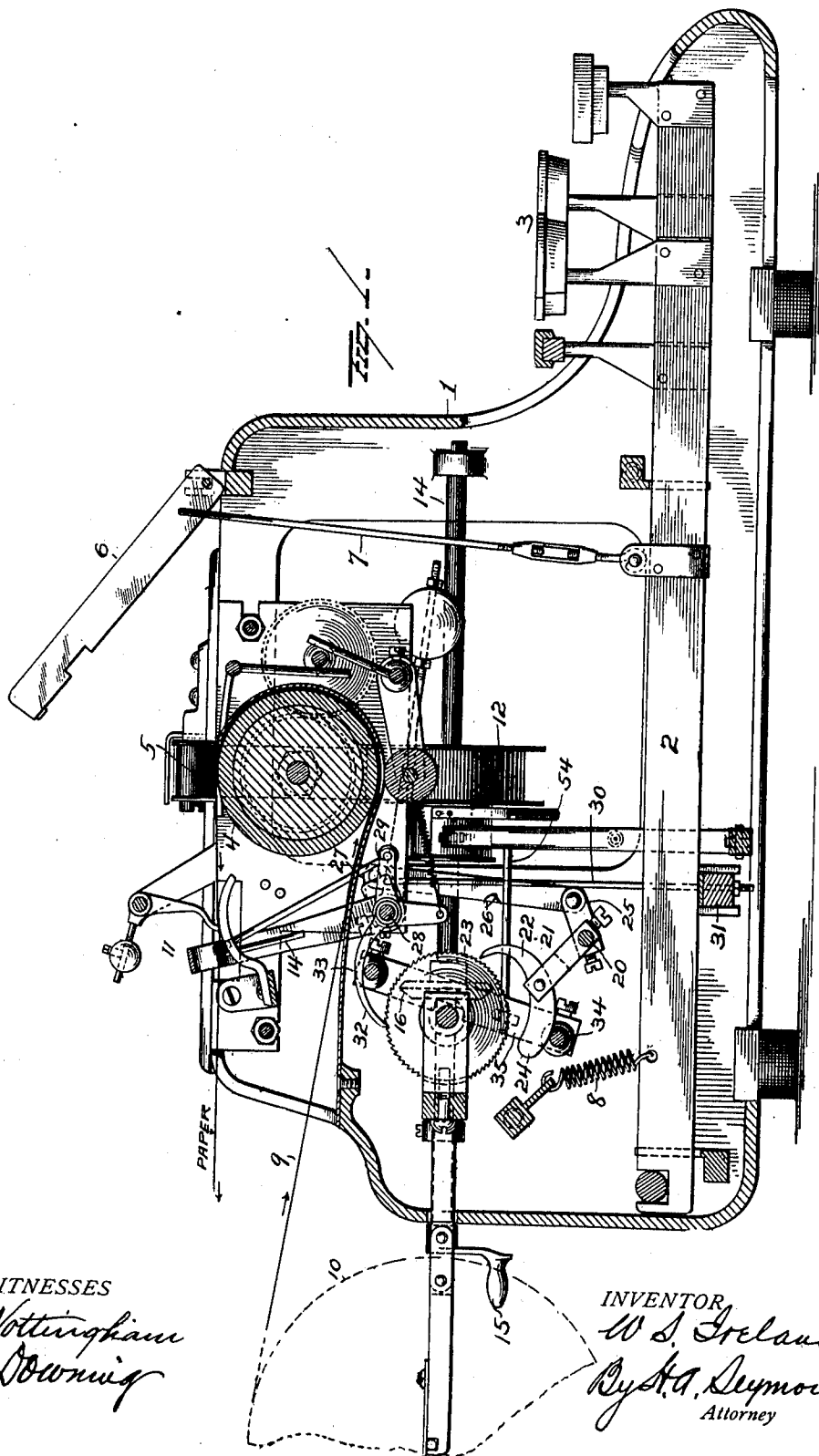


980,276.

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

Patented Jan. 3, 1911.

3 SHEETS—SHEET 1.



WITNESSES  
*E. Nottingham*  
*G. J. Downing*

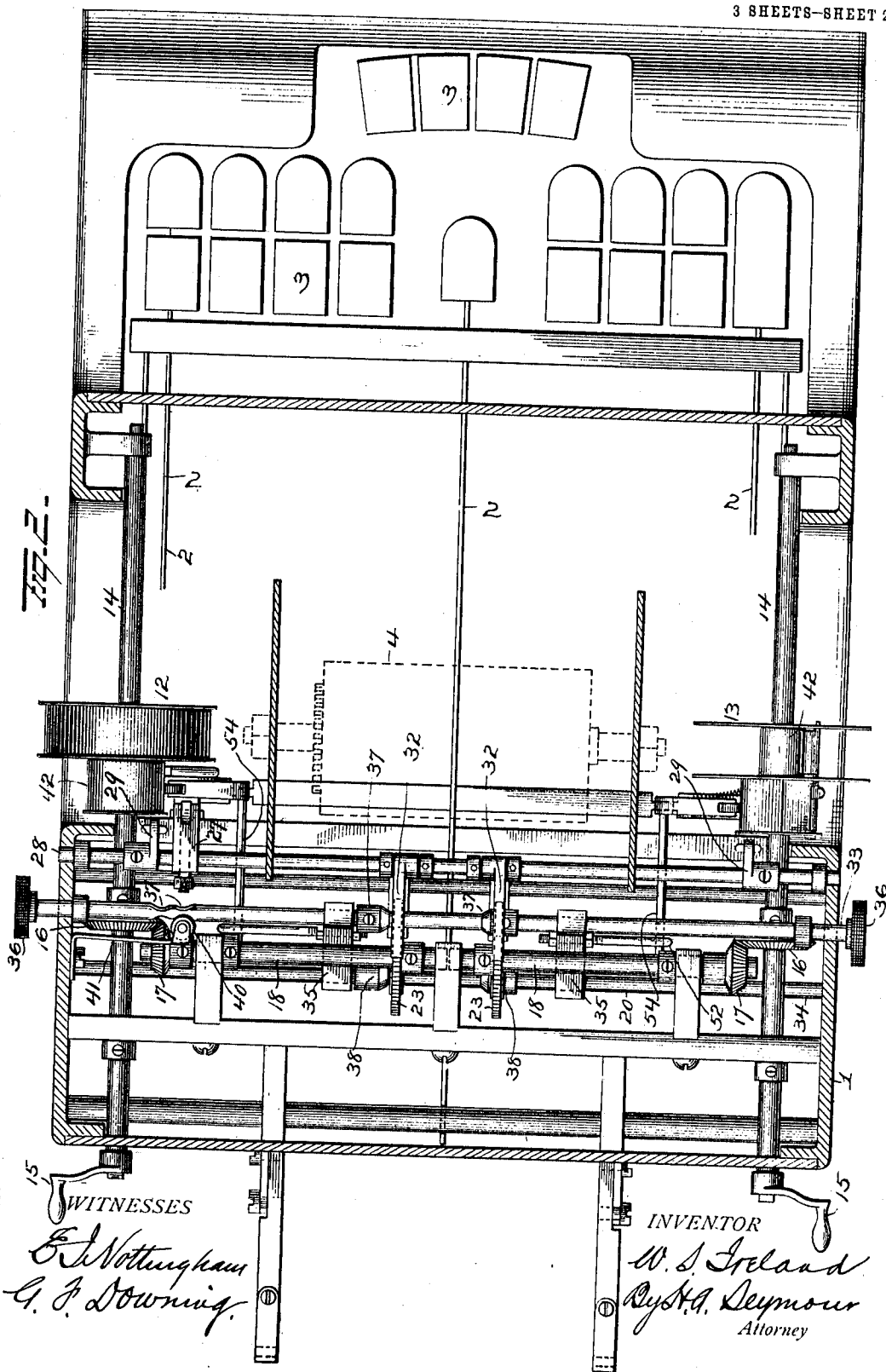
INVENTOR  
*W. S. Ireland*  
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3 SHEETS-SHEET 2

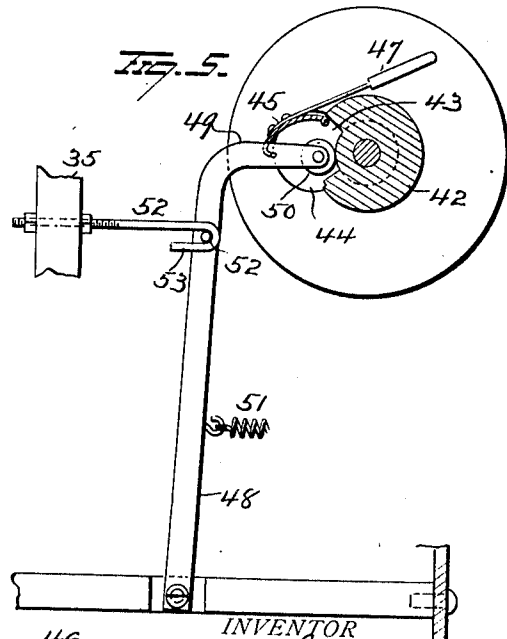
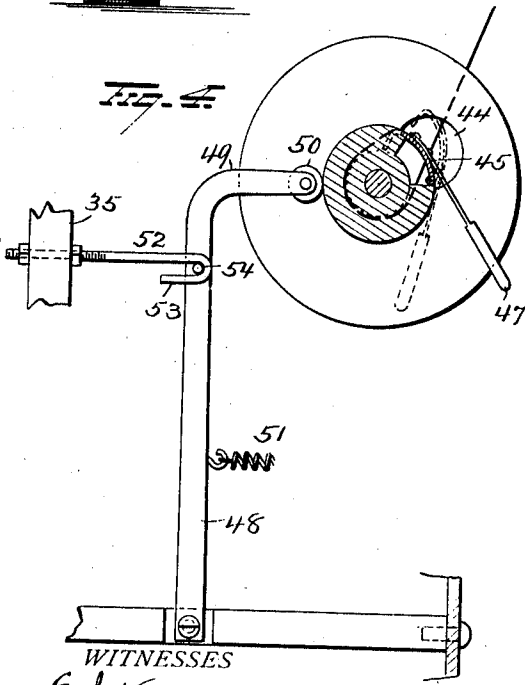
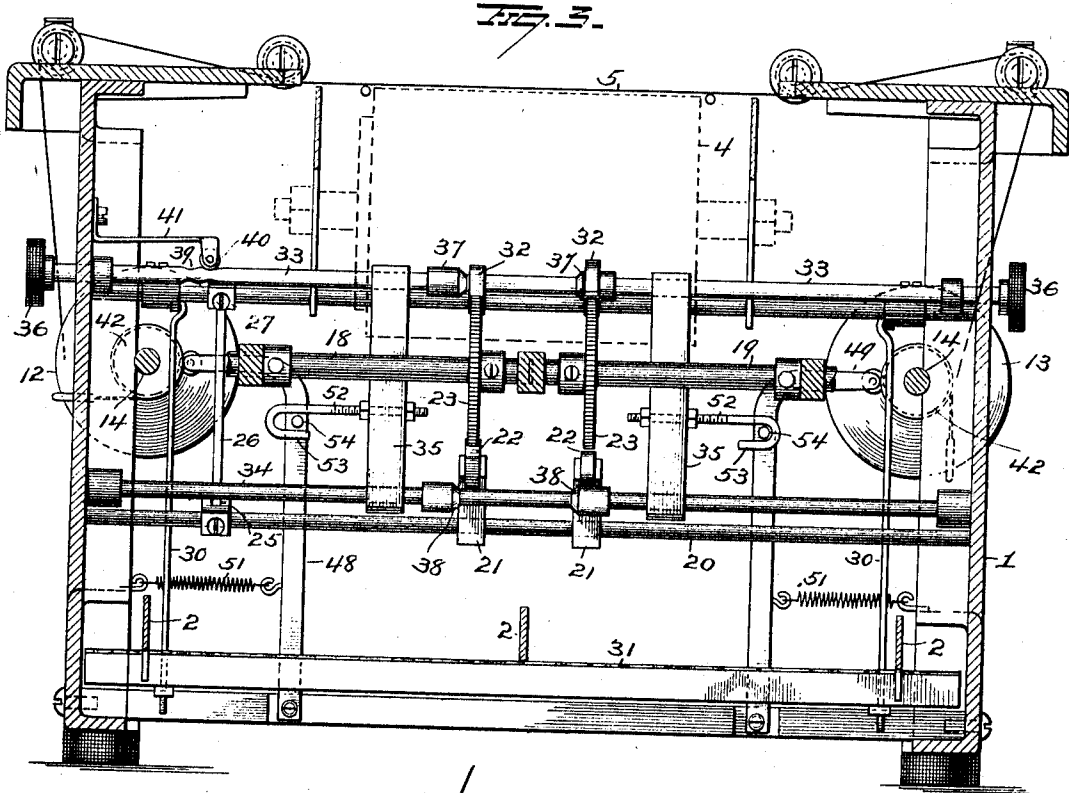


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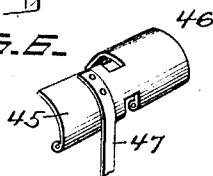
Patented Jan. 3, 1911.

3 SHEETS-SHEET 3.



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FIG. 6.



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# UNITED STATES PATENT OFFICE.

WARD S. IRELAND, OF DALLAS, TEXAS.

TYPE-WRITING MACHINE.

980,276.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed April 5, 1910. Serial No. 553,498.

*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 ribbon mechanism therefor, the same being shown in the present instance on a  
15 machine adapted for stenographic writing.

The object of the invention is to provide simple and efficient means for feeding the inking ribbon and for insuring the reversal of the feed.

20 With this object 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.

25 In the accompanying drawings, Figure 1 is a longitudinal sectional view of a stenographic typewriting machine having my improvements applied thereto. Fig. 2 is a plan view with the frame of the machine in section. Fig. 3 is a transverse sectional  
30 view, and Figs. 4, 5 and 6 are detail views.

1 represents the frame of the machine in which a series of key-levers 2 is mounted and provided with suitable keys or buttons 3. A platen roller 4 is mounted in the upper portion of the frame near the central portion thereof and above this platen an inking ribbon 5 is adapted to pass. Type-bars 6 are pivotally mounted upon the  
40 frame 1 and connected by adjustable rods 7 with the key-levers 2. The key-levers are sustained in their normal position by means of springs 8 and these same springs serve, through the medium of the key-levers and  
45 the rods 7, to maintain the type-bars in their elevated positions as shown in Fig. 1. It is apparent that when a key is depressed, a type-bar will be moved downwardly and its type caused to strike the inking ribbon  
50 and print a character upon a strip or sheet of paper on the platen roller 4. The paper strip or sheet 9 from a supply roll 10 passes about the platen roller as clearly shown in Fig. 1 and a paper feed mechanism 11 is  
55 shown in the drawing for feeding the paper after each manipulation of a key or keys,

but as this mechanism forms no part of the invention to be hereinafter pointed out in the claims, it need not be further described.

Reels 12—13 for the inking ribbon 5 are  
60 carried by shafts 14 mounted in the frame 1 and these shafts are projected beyond the rear end of said frame and provided with crank-arms 15 for turning said shafts and the reels thereon to manually wind the ink-  
65 ing ribbon on to one of said reels from the other. Each reel shaft 14 has secured thereto a beveled pinion 16 to mesh with beveled pinions 17 at or near the outer ends of two shaft sections 18—19 mounted in suitable  
70 bearings in the framework. Mounted in a plane below that of the shaft sections 18—19, is a shaft 20 provided with arms 21—21 in which pawls 22 are pivotally supported for coöperation with ratchet wheels 23—23  
75 secured respectively to the shaft sections 18—19. Each pawl 22 is made with a weighted tail member 24 for a purpose hereinafter explained. The shaft 20 is provided with an arm 25, to which the lower end of  
80 a rod or pitman 26 is pivotally attached,—the upper end of said rod or pitman being connected with an arm 27 on a shaft 28. The shaft 28 is also provided with arms 29 connected by means of rods 30 with a uni-  
85 versal bar 31 disposed under the key-levers. From this construction it is apparent that when a key-lever is depressed, motion will be imparted through the medium of the universal bar and rods 30 to the shaft 28 and  
90 from the latter, through the medium of the rod or pitman 26 to the arm 25 on the shaft 20 for oscillating the latter and operating the pawls 22. The mechanism is such however that when the pawls are thus operated,  
95 only one of them will coöperate with the adjacent ratchet wheel 23 and therefore only one of the reel shafts (18 or 19) will be positively actuated to reel the inking ribbon and cause the same to be fed over the platen  
100 roll 4, from one ribbon reel to the other. In order to prevent retrograde rotation of the reel shafts, they are engaged by dogs 32 loosely mounted on the shaft 28, but the dog  
32 which engages the ratchet wheel which is  
105 not being positively actuated will be held out of coöperative relation to said ratchet wheel. For the purpose of shifting the pawls 22 and dogs 32, the devices now to be explained are employed.

Two longitudinally movable shafts or rods  
33—34 are mounted in the sides of the frame  
110

1 and are connected by cross-bars 35 which cause said rods or shafts to move together and for moving them manually, one of said rods or shafts is extended at both ends beyond the sides of the frame 1 and provided with knobs 36. The rod or shaft 33 is provided with two cams 37 and the rod or shaft 34 is provided with two cams 38, the cams on each of said shafts being so disposed that when the shafts are moved in one direction, the pawl 32 which engages one of the ratchet wheels 23 will be raised out of cooperative relation with said ratchet wheel and one of the cams on the rod or shaft 34 cooperating with the tail 24 will move the pawl 22 out of operative relation with the same ratchet wheel. At the same movement of the shafts 33-34, the other cams thereon will operate to permit the dogs or pawls 22 and 32 to cooperate with the ratchet wheel 23 on the other reel shaft. The rod or shaft 33 is made near one end with recesses 39 to be engaged by a small roller 40 carried at the end of a spring arm 41 for retaining the shift shafts or rods 33-34 in the position to which they may be moved.

Having described the manner of operating the inking ribbon reels when the key-levers are operated, and also the manner of manually shifting this mechanism to cause one or the other of the ribbon reels to be positively actuated, I will proceed to describe the means whereby this shifting is effected automatically when the inking ribbon shall have been fully unwound from one of the reels.

Each ribbon reel is provided with a hub 42 projecting laterally therefrom and provided with a recess 43 and adjacent to the base of this recess, one head or disk of the reel is provided with an opening 44. The recess 43 is normally covered (when ribbon is wound on the reel) by a trip-plate 45 as shown in Fig. 4, and this trip-plate is made with an extension 46 projecting through the opening 44 in the reel disk and partially embracing the core of the reel. The trip-plate is pivotally attached at one end to one end of the hub 42 and the extension 46 of said trip-plate is pivotally supported at its free end in the reel disk opposite the one having the opening 44. Each trip-plate 45 is provided with a weighted arm 47 so that when the inking ribbon shall have been fully unwound and therefore the extension 46 of the trip-plate has been released, the weighted arm 47 will act to turn said trip-plate and open the recess 43 in the hub 42. Two arms 48 are pivotally supported at their lower ends in the lower portion of the framework and provided at their upper ends with lateral extensions 49 carrying rollers 50 to normally run against the peripheries of the hubs 42 of the ribbon reels, as clearly shown in Fig. 4, and these rollers are pressed

against said hubs by the action of springs 51 attached to the arms 48 and to a fixed part of the framework. Arms 52 are adjustably secured to the cross-bars 35 and provided at their free ends with hooks 53 to cooperate with pins 54 on the arms 48.

When the inking ribbon shall have become exhausted from one of the reels and the trip-plate or gate shall have been swung outwardly by the action of its weighted arm 47, the laterally projecting portion 49 of the arm 48 will enter the recess 43 in the reel hub 42, being caused to thus move by the action of the spring 51. When the arm 48 is thus permitted to move, the pin 54 engaging the hooked end of the adjacent arm 52 will cause the shafts 33-34 to be moved longitudinally and thus shift the reel operating mechanism in the manner before explained. The reel which has just caused the automatic shifting of the operating mechanism, will at once begin to turn in the reverse direction as the key-levers are operated and the trip-plate or gate 45 moving away from the position indicated in Fig. 5 will become closed after the roller end of the lateral extension 49 of arm 48 has been moved out of the recess 43 in the reel hub 42 by the engagement of one end wall of said recess with the roller 50. During the continued reeling of the ribbon on this reel, the gate will be maintained closed by the winding of the ribbon over the extension 46 thereof, as clearly indicated in Fig. 4.

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

1. In a ribbon feeding mechanism, the combination with ribbon reels, two shaft sections, a ratchet wheel on each shaft section, and means for transmitting motion from the shaft sections to the ribbon reels, of a rod or shaft, arms thereon, dogs or pawls carried by said arms for cooperating with said ratchet wheels, a longitudinally movable rod, two cams carried by said rod for moving one of said dogs or pawls into and the other out of operative relation to the adjacent ratchet wheel, and means for oscillating the shaft carrying said dogs or pawls.

2. In a ribbon feeding mechanism, the combination with ribbon reels, two shaft sections, a ratchet wheel on each shaft section, and means for transmitting motion from the shaft sections to the ribbon reels, of an oscillatory shaft, dogs or pawls carried by said shaft for cooperation with said ratchet wheels, loosely mounted dogs or pawls for cooperation with said ratchet wheels to prevent retrograde movement thereof, two connected longitudinally movable rods, and two cams carried by each of said rods for moving the dogs or pawls of one ratchet wheel out of cooperative relation therewith and the dogs or pawls of the other ratchet wheel

into coöperative relation therewith for shifting the direction of travel of the inking ribbon between the reels.

3. In a ribbon feeding mechanism, the combination with two reels, operating means for each of said reels and shifting devices for said operating mechanism, of recessed hubs carried by said reels, a hinged trip-plate or gate for normally closing the recess of each hub and having an extension entering the reel, a weighted arm on each trip-plate or gate for opening the latter when the ribbon has been exhausted from the reel, a spring actuated arm to enter the recess in the reel hub when said trip-plate or gate is open, and means for transmitting the movement of said arm to the shifting devices of the reel operating mechanism.

4. In a ribbon feeding mechanism, the combination with two reels, shaft sections, and means for transmitting motion from the shaft sections to the reels, of a ratchet wheel carried by each shaft section, dogs or pawls for coöperation with the respective ratchet wheels, longitudinally movable rods, cross-bars connecting said rods, cams carried by each of said rods for moving the pawls or dogs of one ratchet wheel into coöperative relation therewith and the pawls or dogs of

the other ratchet wheel out of coöperative relation with the same, hubs rotatable with said reels and each having a recess, weighted gates closing the recesses of the hubs and provided with extensions entering the reels, pivoted arms provided with rollers to run on said hubs, springs connected with said arms and causing the rollers to enter the recesses in the hubs when the gates are open, and connections between said pivoted arm and the cross-bars connecting the longitudinally movable rods, whereby, when the ribbon has become exhausted from one reel the weighted gate thereon will be released and the pivoted arm permitted to be moved into the recess of the hub by the action of the spring attached to said pivoted arm and motion be transmitted to the longitudinally movable rods for shifting the dogs or pawls to change the direction of travel of the inking ribbon between the reels.

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

WARD S. IRELAND.

Witnesses:

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