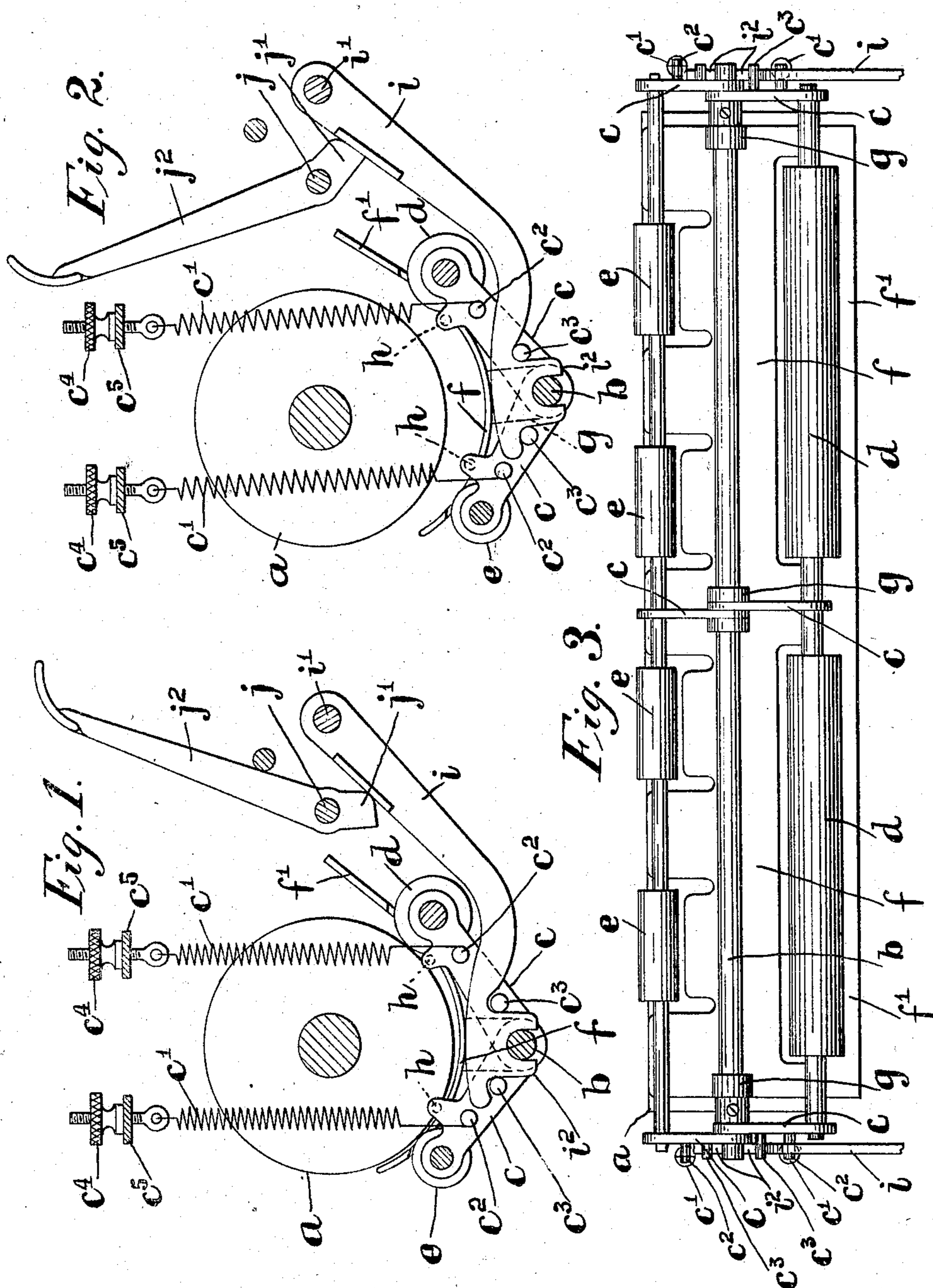


924,460.

Patented June 8, 1909.

2 SHEETS—SHEET 1.



WITNESSES:
 L. F. Browning
 E. Mitchell

INVENTOR
 Edward B. Hess
 BY
 Edward C. Davidson
 ATTORNEY

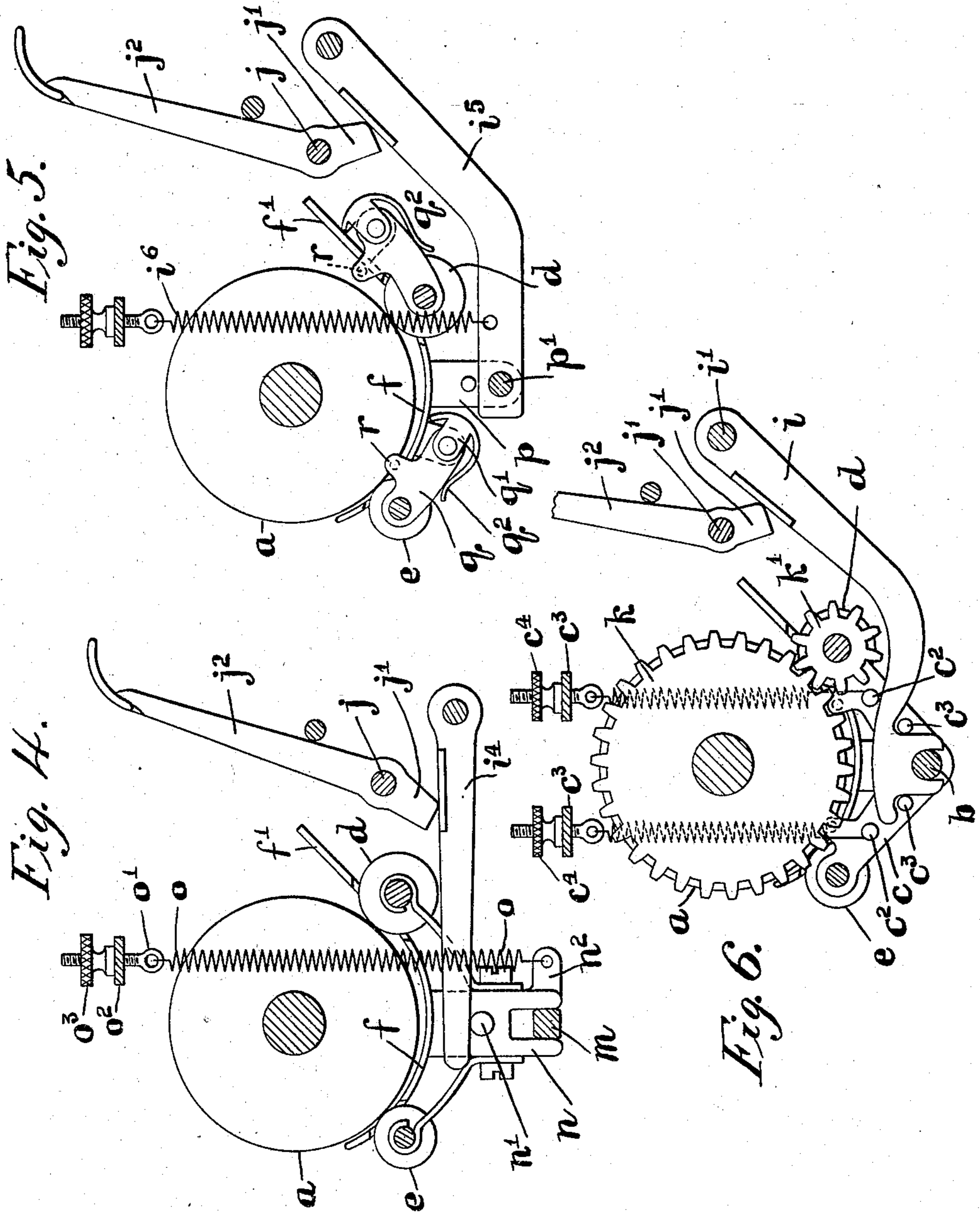
E. B. HESS.
 WRITING MACHINE.

APPLICATION FILED AUG. 20, 1907.

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UNITED STATES PATENT OFFICE.

EDWARD B. HESS, OF NEW YORK, N. Y., ASSIGNOR TO ROYAL TYPEWRITER COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

WRITING-MACHINE.

No. 924,460.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed August 20, 1907. Serial No. 389,356.

To all whom it may concern:

Be it known that I, EDWARD B. HESS, a citizen of the United States of America, residing in the borough of Brooklyn, city and State of New York, have invented certain Improvements in Writing-Machines, of which the following is a specification.

This invention relates to paper feed devices primarily adapted to visible front strike machines.

It comprises feed or pressure rolls independently spring pressed toward the platen and yet combined with paper guide devices such as a pan which with the pressure roll devices is capable of being moved bodily away from the platen. The organization is such that the feed devices, comprising an independently spring pressed rear feed roll and preferably also an independently spring-pressed front feed roll and interposed paper guiding means, such as a sheet metal pan, are capable of movement bodily toward and from the platen. This arrangement insures uniform contact between the pressure rolls and the platen, and is particularly adapted to manifold work where a plurality of sheets is employed.

The invention constitutes an improvement upon the paper feed devices disclosed in my United States Letters Patent No. 861978, dated July 30, 1907.

In the accompanying drawings, Figure 1 is a partial end elevation partly in section: Fig. 2, a similar view showing the parts in different position: Fig. 3, a bottom plan view: Fig. 4, a partial end elevation partly in section showing a modified construction: Fig. 5, a similar view showing still another modification: and Fig. 6, a similar view showing the construction depicted in Fig. 1, with the addition that the rear feed roll is positively driven from the platen.

The invention is shown applied to a front strike machine.

Referring to Figs. 1, 2 and 3, *a* is the platen. Below it, and mounted in the side plates of the carriage to be capable of vertical movement is a frame shown as a shaft *b* arranged parallel with the axis of the platen. At each end of the carriage and midway below the platen, there are pairs of arms *c*, *c* projecting from the shaft *b* in opposite directions and rocking thereon. The arms of each end pair are normally drawn upwardly by coiled springs *c'*, *c'* attached

to projecting pins *c²*, *c²* on the arms and connected at their upper ends to adjustable eye bolts passing through fixed plates or parts *c⁵* of the carriage frame and having applied to their threaded ends adjusting nuts *c⁴*, *c⁴*. The receiving or rear feed or pressure roll *d*, shown as composed of two sections, has its shaft mounted in the rearwardly projecting arms *c* of each pair and the front or delivery feed or pressure roll *e*, shown as composed of four sections has its shaft mounted in the forwardly projecting arms *c* of each pair. Reaction of springs *c'* serves to draw the rolls into contact with the platen. There is also a paper guiding device shown in the form of a sheet metal pan in recesses in the front edge of which the sections of the front feed roll work and there are apertures in the rear portion through which the rear or receiving feed roll works. The part *f* of the pan occupies the space between the pressure rolls and the part *f'* extends rearwardly and upwardly for the reception of the paper to be guided into the machine. From the under side of the central portion of the pan near each end and at the middle are downward projections or lugs *g* apertured to receive the transverse shaft *b* that constitutes a carrying frame. On each of the arms *c*, *c* of the pairs located at the extreme sides or ends of the carriage there are laterally projecting pins *h* that project over the edges of the part *f* of the pan, thus more or less positively uniting the arms that carry the rolls and the pans. At each side of the carriage there is a lever arm *i* pivoted at *i'* on the carriage in rear of the platen and extending forward under it. These arms have downwardly extended forked portion *i²* that straddles the rod *b* and, on each side are so formed as to afford seats for lateral pins *c³*, *c³*, projecting from the sides of the arms *c*, *c*. From this it will be seen that the reaction of spring *c'* draws the front and rear rolls into contact with the surface of the platen and supports the shaft *b* and with it the paper guiding device or pan. When it is desired to depress the feed devices to permit free manipulation of the paper sheets some appropriate means of depressing the rolls is required. This may be conveniently accomplished as follows. In rear of the platen is a transverse rock shaft *j* rocking in the side plates of the carriage and having projecting from it at each

side opposite each lever arm i a cam projection j' and from one of these projections, preferably at the right hand end of the carriage, there extends upwardly a lever arm j^2 , which when operated rocks the shaft j and the cam projections j' press the lever arms i downward. The fork projections i^2 of those arms carry downward the shaft b , and with it the arms c , c by reason of engagement of the arms with the pin c^3 . The pan is positively carried down because its projections g brace the shaft b but also because the pins h on the arms c overhang its edges. These latter pins, however, serve primarily to limit rocking of the pan on the supporting shaft or frame. The cam projections j' are formed with squared ends so that when the lever arm j^2 is moved into the position shown in Fig. 2, the feed rolls will remain depressed or out of operative relation to the platen. When the feed devices are depressed as seen in Fig. 2 the entire structure moves bodily away from the platen.

Fig. 6 shows an arrangement such as has been described with the addition that there is mounted concentrically with the platen a gear k engaged by a pinion k' on the shaft of the rear feed roll d . The proportion and relation of the gears is such that the roll is driven at the same surface speed as that of the platen; and the depth of the teeth is to be such that when the feed devices are bodily depressed the gears will not pass out of engagement.

In the construction shown in Fig. 4 there is a transverse bar m shown as substantially rectangular in cross section. It is to be fixed to the end plates of the carriage. Mounted to straddle it are two or more forked downward projections n from the paper pan to the sides of which are secured by screws or otherwise spring arms n^2 in which are mounted the shafts of the front and rear feed rolls. The same general arrangement of lever arm j^2 , rock shaft j and cam projections j' is retained except that in this instance the lever arms corresponding with i , and marked i^4 , in Fig. 4, are shown as horizontally disposed and engage lateral projections or lugs n' on the sides of the downward projections n . To a rearward projection n^2 from these downwardly extended bifurcated projections n' , at each end of the platen, there is attached the lower end of a coiled spring o whose upper end is attached to an adjustable screw eye bolt o' passing through a fixed part o^2 of the frame and having applied to its threaded end an adjusting nut o^3 . One such spring at each side or end is deemed sufficient.

In Fig. 5, the pan is supported by downwardly extending projections p therefrom, through apertures in which extends a depressible transverse shaft p' which is also embraced by lever arms i^5 corresponding in

operation with lever arm i^4 and located as are those other arms at the ends of the carriage. In this instance, the front and rear feed rolls d and e are carried upon shafts mounted in swinging arms q pivoted in brackets q' secured to or integral with the pan f and projecting from the bottom side thereof. Springs q^2 attached to or forming part of the brackets bear upon the arms q and by their tension tend to force the feed rolls into engagement with the platen. Each swinging arm by preference has a lateral projection or pin r that overlies the edge of the pan and more or less positively connects the arms and pan. Springs i^5 one at each end of the carriage are applied to the lever arms i^5 and by their reaction tend to carry the whole feed structure into operative relation to the platen.

A paper feed organization having the behavior described is new, so far as I am aware.

I claim:

1. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame movable toward and from the platen, and front and rear feed rolls spring pressed against the platen and mounted to move independently on their supporting frame.
2. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame movable bodily in a straight line toward and from the platen, front and rear feed rolls spring pressed against the platen and mounted on said frame to move independently thereof.
3. Paper feed devices for front strike writing machine comprising a platen, a vertically movable spring supported frame located below the platen, spring supported arms pivoted thereon and front and rear feed rolls carried by such arms and spring pressed into engagement with the platen.
4. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame movable toward and from the platen, front and rear feed rolls spring pressed against the platen and mounted to move independently on their supporting frames and a paper guide pan arranged between the feed rolls.
5. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame movable bodily in a straight line toward and from the platen, front and rear feed rolls spring pressed against the platen and mounted on said frame to move independently thereof and a paper guide pan arranged between the feed rolls.
6. Paper feed devices for front strike writing machine comprising a platen, a vertically movable spring supported frame located below the platen, spring supported arms pivoted thereon, front and rear feed

rolls carried by such arms and spring pressed into engagement with the platen, and a paper guide pan arranged between the feed rolls.

5 7. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame located below the platen and movable up and down, spring supported front and rear feed rolls carried by the frame and mounted to move independently thereon and a paper guide pan located between the feed rolls, pivoted on the frame and capable of limited rocking movement.

15 8. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame movable toward and from the platen, front and rear feed rolls spring pressed against the platen and mounted to move independently on their supporting frame and means for moving and locking the feed devices out of operative relation to the platen.

25 9. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame movable bodily toward and from the platen, front and rear feed rolls spring pressed against the platen and mounted on said frame to move independently thereof and means for moving and locking the feed devices out of operative relation to the platen.

35 10. Paper feed devices for a visible writing machine comprising a platen, a spring supported frame movable in a straight line toward and from the platen, front and rear feed rolls spring pressed against the platen and mounted on said frame to move independently thereof and means for moving and locking the feed devices out of operative relation to the platen.

45 11. Paper feed devices for a front strike writing machine comprising a platen, a spring supported frame mounted below the platen and adapted to move up and down and spring pressed front and rear feed rolls carried by the frame capable of independent movement thereon and means for moving and locking the feed devices out of operative relation to the platen.

50 12. Paper feed devices for front-strike writing machines comprising a floating spring supported frame located below the platen and capable of movement up and

down, arms pivoted on the frame, front and rear feed rolls carried by the arms and springs applied to the arms and serving to maintain the feed devices in normal relation to the platen.

13. Paper feed devices for front strike writing machines comprising a floating spring supported frame, located below the platen and capable of movement up and down, arms pivoted on the frame, front and rear feed rolls carried by the arms and springs applied to the arms and serving to maintain the feed devices in normal relation to the platen and a paper guide pan also pivoted upon the frame and capable of limited rocking movement, lateral projections on the roll carrying arms serving to limit and interlockingly connect the pan and said arms.

14. Paper feed devices for front strike writing machine comprising a floating spring supported frame located below the platen and capable of movement up and down, arms pivoted on the frame, front and rear feed rolls carried by the arms and spring applied to the arms and serving to maintain the feed devices in normal relation to the platen, and means for moving and locking the paper feed devices out of operative relation to the platen.

15. Paper feed devices for front strike writing machines comprising a floating spring supported frame located below the platen and capable of movement up and down, arms pivoted on the frame, front and rear feed rolls carried by the arms and springs applied to the arms and serving to maintain the feed devices in normal relation to the platen, a paper guide pan also pivoted upon the frame and capable of limited rocking movement, lateral projections on the roll carrying arms serving to limit and interlockingly connect the pan and said arms and means for moving and locking the paper feed devices out of operative relation to the platen.

In testimony whereof, I have hereunto subscribed my name.

EDWARD B. HESS.

Witnesses:

S. A. HASTIE,
L. F. BROWNING.