

No. 774,636.

PATENTED NOV. 8, 1904.

F. H. ARMSTRONG.

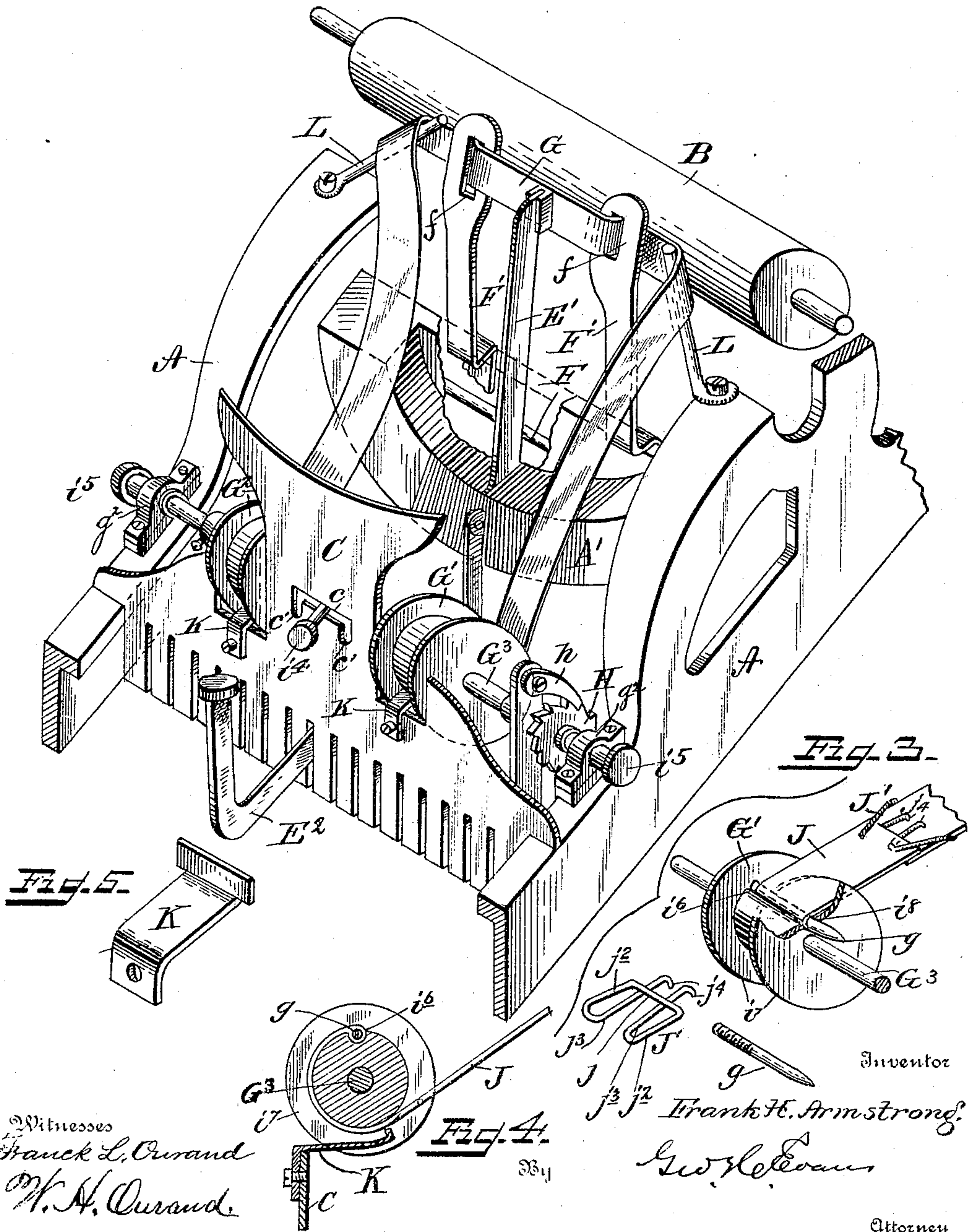
RIBBON FEEDING MECHANISM FOR TYPE WRITING MACHINES.

APPLICATION FILED MAY 9, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



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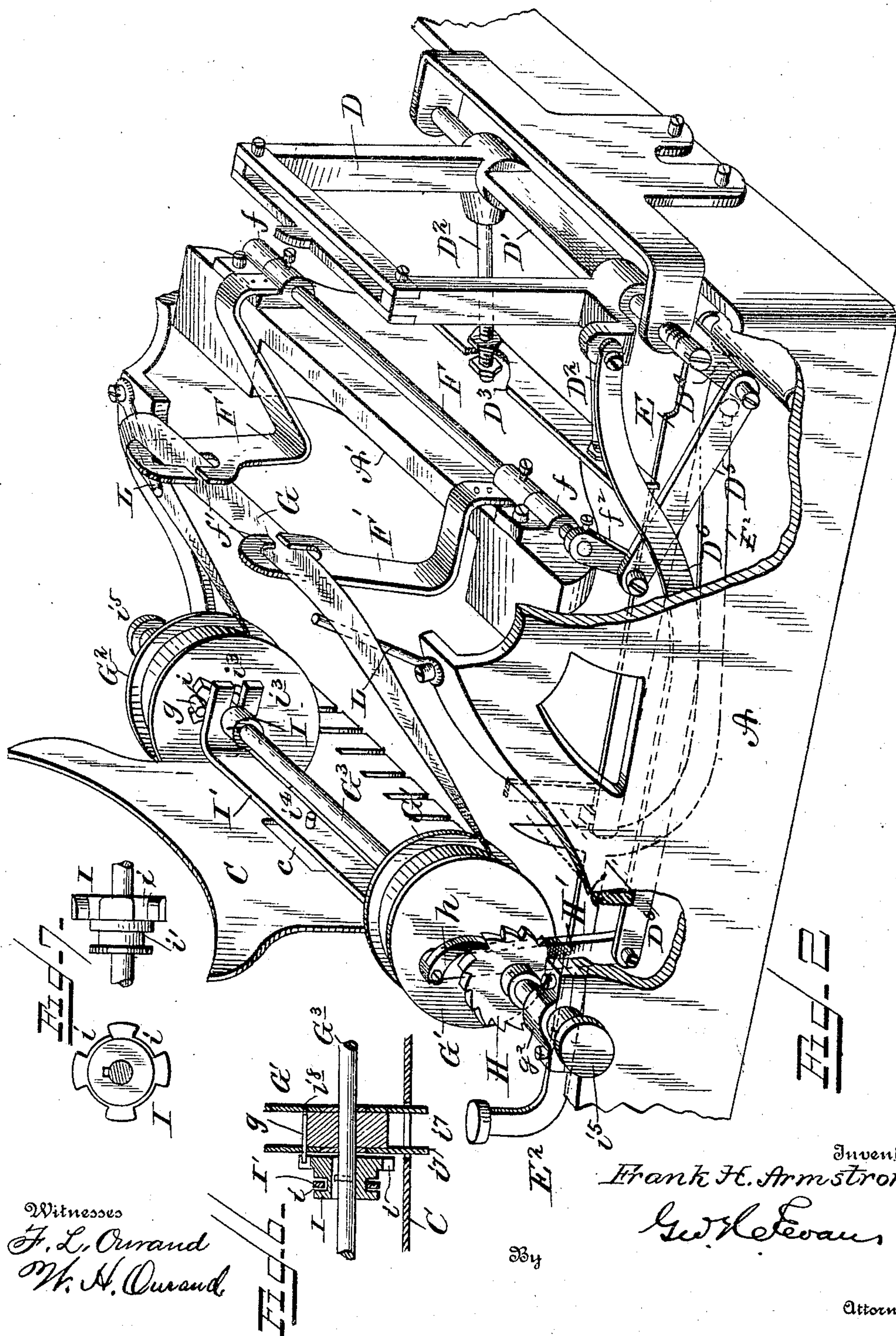


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UNITED STATES PATENT OFFICE.

FRANK H. ARMSTRONG, OF AUBURN, NEW YORK.

RIBBON-FEEDING MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 774,636, dated November 8, 1904.

Application filed May 9, 1904. Serial No. 207,044. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. ARMSTRONG, a citizen of the United States, residing at Auburn, Cayuga county, New York, have invented certain new and useful Improvements in Ribbon-Feeding Mechanism for Type-Writing Machines, of which the following is a specification.

My invention relates to mechanism for feeding the ribbon from one spool to the other and is shown applied to a machine of the character illustrated in my Patent No. 717,794, dated January 6, 1903.

The objects of the invention are to provide a ribbon mechanism which will move the ribbon toward the platen at every depression of a key-lever and move it away from the platen to expose the printing at every feed movement of the carriage through suitable mechanism in the path of the key-levers and in connection with the carriage-feed or escapement, respectively; to provide novel ribbon guiding and supporting devices; to provide means for reversing the feed of the ribbon, and to provide means for the ready insertion and removal of the ribbons, and to provide a novel means for connecting the ribbons to the spools.

The objects I accomplish by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a front perspective of my improved ribbon mechanism and a portion of a type-writing machine. Fig. 2 is a rear perspective of the same. Fig. 3 is a detail perspective of one of the ribbon-spools and means for connecting a ribbon therewith. Fig. 4 is a detail sectional view through one spool and the adjacent holding-arm. Fig. 5 is a perspective of said arm. Figs. 6 and 7 are details of the clutch mechanism for reversing the feed of the ribbon.

A designates the frame; B, the platen; C, the type-bar rest, slotted at the lower edge for guiding the key-levers, and D a rocking member of the carriage-feed. This carriage-feed member D is mounted on a rock-shaft D' and has forwardly-projecting arms D², provided at their front ends with an operating-

bar or cross-piece D³, which crosses the type-bar-operating levers E for operation in one direction thereby, and these levers E are connected to the type-bars E' and key-levers E², as in my patent before referred to. The rock-shaft D' is further provided with an arm D⁴. This carriage-feed mechanism forms the subject-matter of another application, filed May 12, 1904, Serial No. 207,523, and requires no further description here.

F designates a rock-shaft mounted in bearings *f f* on the rear side of the type-bar support A', and projecting upwardly from this rock-shaft are the angular ribbon-carrying arms F' F', having vertically-disposed open slots *f' f'* in their upper ends, through which the horizontal run of the ribbon G extends between the platen and point of striking of the type-bars E'. This rock-shaft F is provided at one end with an arm *f*², which is operatively connected with arm D⁴ of the carriage-feed member D by means of a link D⁵. It follows, therefore, that a blow on a key-lever E² will raise its rear end, and this in turn will raise lever E and bar D³, throw link D⁵ forwardly, and throw ribbon-carrying arms F' F' rearwardly to bring the ribbon to the platen, and as soon as the key-lever is released the member D will move forwardly to let the carriage feed, and in doing this a reverse movement of link D⁵ will be effected and ribbon-arms F' F' will be moved away from the platen, and so allow the printing to be viewed by the operator. Thus the ribbon G is moved back and forth from the platen at every printing stroke. The ribbon G is carried by two spools G' G², mounted loosely on a shaft G³, which shaft is in turn mounted in bearings *g*² *g*² on the sides of the frame and crosses the frame above the key-levers and below the type-bars, so as to be out of the way of both.

The shaft G³ is provided with a ratchet-wheel H, fixed thereto and actuated to rotate the shaft by means of a pawl-lever H', mounted loosely between its ends on the shaft G³ and provided at its upper end with a pawl *h*, engaging the ratchet-wheel H. This pawl-lever H' is rocked from the carriage-feed member D by means of a long connecting-rod

D⁶, as best shown in Fig. 2. It is obvious, therefore, that the ribbon-feeding shaft will be actuated at every stroke of a key-lever.

The spools G' G² are each provided on the inner face with a clutch member in the form of a projecting pin *g*, and these pins *g g* are alternately engaged by the clutch-sleeves I I, having recesses *i* to receive the pins and annular grooves *i'* to receive the forked ends *i*³ of a slide I'. The slide I' is actuated by a finger-piece *i*⁴, projecting through an opening *c* in the plate C. (See Fig. 1.) The ends of the opening *c* have downwardly-extending notches *c' c'*, into which the finger-piece may be pressed, and so hold the slide I' in its adjusted position. When the slide is moved to the right, the spool G' will be positively rotated and the ribbon wound thereon from the then loose spool G², and an opposite operation takes place when the slide is moved to the left. When the parts are in position shown in Fig. 1 of the drawings, both clutches will be disconnected and the ribbon will not be fed. The ribbon may be wound from one spool to the other by the hand-wheels *i*⁵ on the ends of the shaft G³. The slide I' lies close to platen C and may be removed by unscrewing the piece *i*⁴ and swinging slide upward and off of the sleeves I. The barrel of each spool is provided with a groove *i*⁶, and its flanges *i*⁷ are provided with apertures *i*⁸ at the ends of said grooves. The pin *g* is passed through the apertures *i*⁸, with its threaded end engaging the outer aperture and its inner end projecting beyond the inner flange to form the clutch member before described. (See Fig. 6.)

J J are short pieces of tape looped at their inner ends for the passage of the pins *g g* therethrough, and the free ends of these tapes are provided with wire clasps J', each comprising a cross-bar *j*, parallel outer arms *j*², and parallel inner arms *j*³, which cross the bar *j* and terminate in downward-projecting penetrating points *j*⁴. The ends of the ribbon G are passed around the cross-bar *j* and then the points *j*⁴ are forced through the ribbon. (See Fig. 3.)

The spools are held from longitudinal movement along the shaft by means of the arms K, bolted at their inner bent ends to the plate C and projecting between the spool-flanges, (see Fig. 4,) and these arms prevent the ribbon dropping down beyond the spool-flanges. The spools are also held in place by slots in the plate C, and these slots allow both spools to be seen by the operator.

LL designate two rigid inclined guide-arms secured at their lower ends to the sides of the frame and extending upward at the outer sides of the ribbon-carrying arms F' F' to hold the ribbon flatwise and take the feeding strain off of the carrying-arms F' F'.

What I claim is—

1. In a type-writing machine, the combination of a ribbon-carrier mounted to rock to-

ward and from the platen, and stationary guide-arms projecting up from the frame at opposite sides of the upper free end of the carrier and independent thereof, with operative connections between said carrier and a movable member of the machine to effect such rocking movement.

2. In a type-writing machine, the combination with the machine-frame having a type-bar support A' and stationary ribbon-guiding arms projecting upward from the machine-frame in front of the platen, of a rock-shaft journaled in rear of said type-bar support, independent of said guide-arms, and provided with ribbon-carrying arms projecting upwardly with their free upper ends between said guide-arms and means for rocking said shaft to throw the carrying-arms toward and from the platen.

3. The combination in a type-writing machine, with the rocking escapement-frame having two arms, of a ribbon mechanism comprising a rocking frame having an operating-arm linked to one of said escapement-arms; the upper ends of the rocking-frame arms having ribbon-slots, a transverse shaft at the front of the machine provided at its ends with loose ribbon-spools each having a clutch member on its inner face, a ratchet on the shaft, a lever carrying a pawl engaging said ratchet, a link connecting the pawl-lever with the other of said escapement-arms, a slide parallel with the spool-shaft and having laterally-projecting ends and provided between its ends with an operating finger-piece, clutch-sleeves splined to the spool-shaft alongside the spools and engaged by the ends of the clutch-operating slide.

4. The combination with the rocking ribbon-carrier and means for actuating it, of a transverse shaft having loose spools at its ends each having a clutch member on its inner side, sliding clutch-sleeves splined to shaft alongside of the spools, a slide parallel with the spool-shaft and provided with laterally-bent ends engaging said sleeves, a finger-piece extending forwardly from the slide through an opening in a front member of the frame, and a pawl-and-ratchet mechanism actuated from a movable member of the machine and in turn actuating the spool-shaft.

5. In a type-writing machine the combination with a ribbon-carrier, of a spool-shaft provided with loose spools each having a clutch member on its inner face, clutch-collars splined to the shaft alongside said spools, a slide having laterally-projecting ends engaging said clutch-collars and provided with a finger-piece projecting forwardly through a front portion of the frame, a ratchet-wheel on one end of the spool-shaft, a pawl-lever mounted loosely on said shaft and having a pawl engaging said ratchet, and means for operating the pawl-lever from a movable member of the machine.

6. The combination with the ribbon-carrier,

of a spool-shaft, a ratchet on the shaft, a lever loose on the shaft and provided with a pawl engaging said ratchet, means for operating said pawl-lever, loose spools on the shaft, each
 5 having a clutch member, clutch-sleeves mounted on the spool-shaft alongside the spools, a slide provided with laterally-projecting forked ends engaging said collars, a removable finger-piece projecting forwardly from the slide, and
 10 a plate C at the front of the frame having a slot in which said finger-piece travels; the ends of the slot having notches to receive and lock the finger-piece.

7. The combination with the ribbon-carrier
 15 provided with vertically-disposed ribbon-slots, of upwardly-projecting stationary guide-arms mounted on the machine-frame at opposite sides of the ribbon-carrier independently thereof and inclined inwardly toward said carrier, means for swinging the ribbon-carrier
 20 between said guide-arms toward and from the platen and ribbon-spools from which the ribbon passes to the said guide-arms and thence through said slots, said guide-arms extending
 25 up to the slotted free end of the carrier.

8. In a type-writing machine, the combination with the spool-shaft having loose spools thereon, arms projecting between the spool-flanges to hold the spools from sliding, means
 30 for clutching either spool to the shaft, and means for intermittently rotating the shaft from a carriage-feed.

9. In a ribbon-feed for type-writing machines, a ribbon-spool provided with a short
 35 length of tape and a ribbon clasp or fastener at the free end of the tape and comprising a cross-bar, parallel arms projecting from the cross-bar, other arms projecting from the first-named arms across the cross-bar and terminating in curved penetrating points.
 40

10. The combination with the rocking ribbon-carrier and means for rocking it toward and from the platen, of a shaft, spools on the shaft, means for feeding the ribbon through the carrier from one spool to the other, and
 45 stationary guide-arms projecting up from the machine-frame alongside the free upper end of the rocking carrier independently thereof to guide the ribbon thereto.

11. The combination with the front plate
 50 C, having a longitudinal slot between its ends and vertical recesses or slots in its upper edge, of a spool-shaft journaled in front of said plate and provided with loose spools entering said
 55 vertical slots or recesses and held from longitudinal movement thereby, clutch-sleeves on the shaft to engage said spools, a slide at the rear face of the plate C provided with rearwardly-projecting ends engaging said clutch-sleeves, a finger-piece projecting from the
 60 slide through the said longitudinal slot and means for rotating the spool-shaft.

12. In a ribbon-feed for type-writing machines the combination with a shaft and means
 65 for rotating it, of loose spools on the shaft, each having a pin or projection on its inner side, of grooved clutch-sleeves on the shaft and provided with a series of recesses to receive said pins or projections, a slide parallel
 70 with the shaft and provided with laterally-projecting forked ends engaging the collar-grooves, and a finger-piece for operating the slide.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK H. ARMSTRONG.

Witnesses:

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