

No. 687,689.

Patented Nov. 26, 1901.

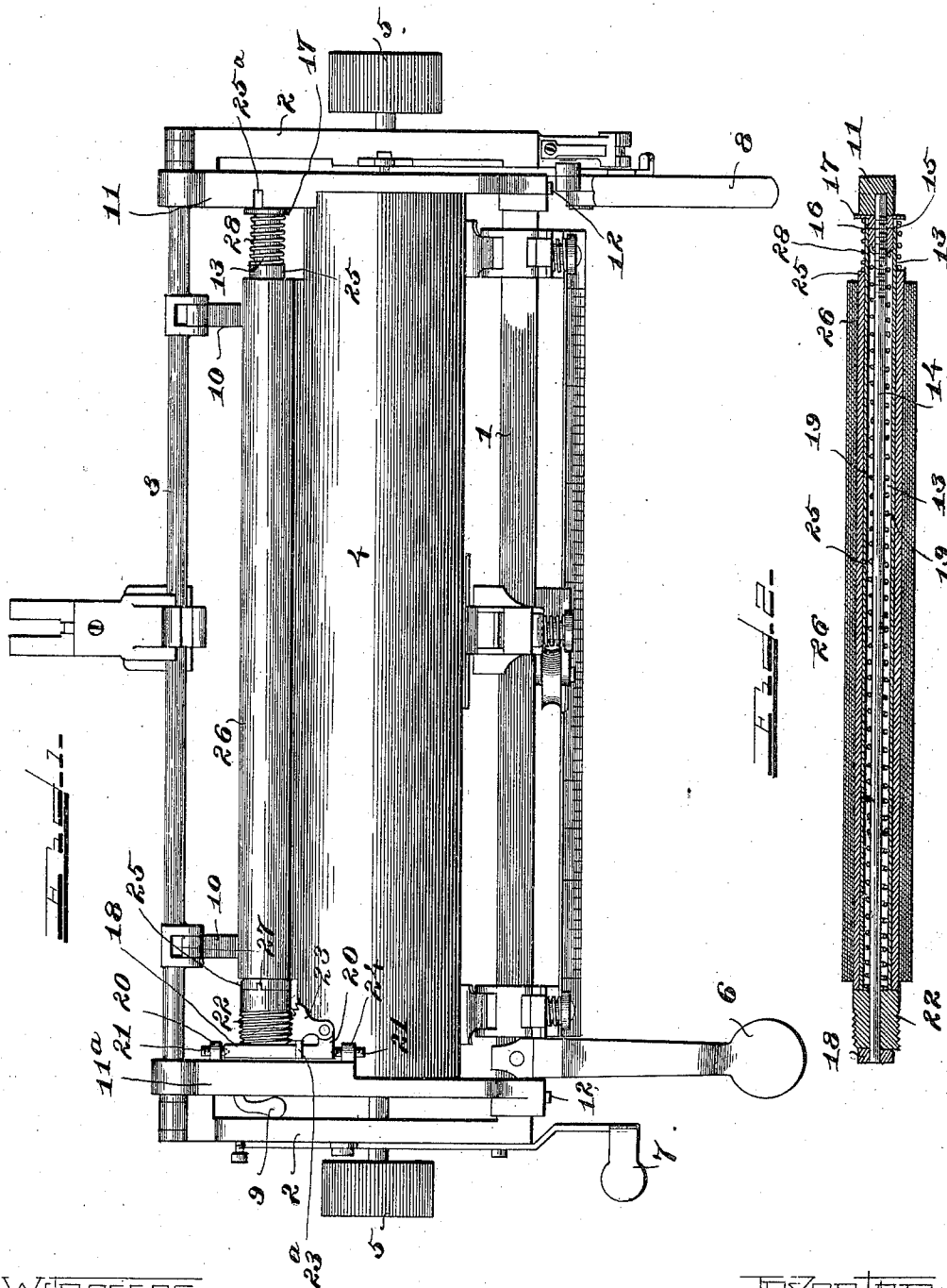
H. C. KRAUSE.

ATTACHMENT FOR TYPE WRITING MACHINES.

(Application filed Aug. 3, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

Orlando Perry
J. B. Weir

Inventory

Hugo L. Krause
By Elliott Hopkins
Attys

Atty's

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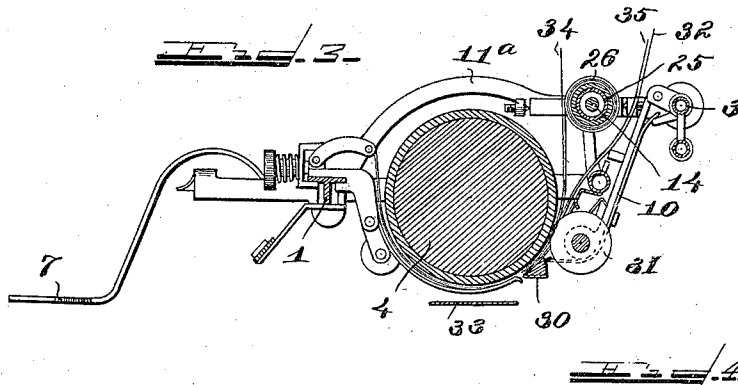
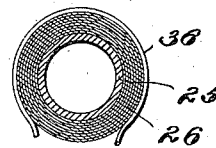
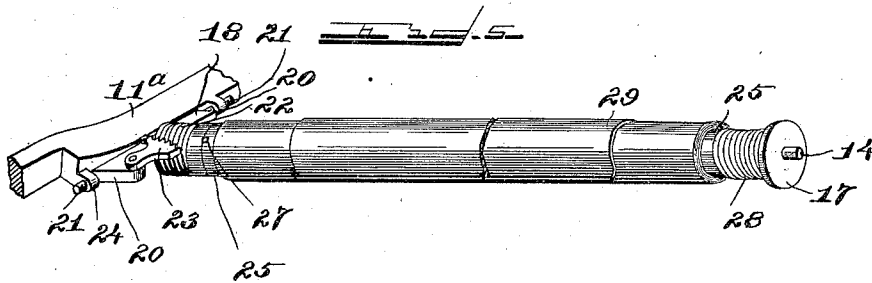
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WITNESSES

Ora D. Perry
J. B. Weir

FIG. 5



INVENTOR

Hugo C. Krause
By *Elliott Hopkins*
ATTY

UNITED STATES PATENT OFFICE.

HUGO C. KRAUSE, OF CHICAGO, ILLINOIS, ASSIGNOR OF THREE-FOURTHS TO W. L. ROSE, ROBERT MCKENDRY, AND FRANCES E. BUTLER, OF CHICAGO, ILLINOIS.

ATTACHMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 687,689, dated November 26, 1901.

Application filed August 3, 1900. Serial No. 25,775. (No model.)

To all whom it may concern:

Be it known that I, HUGO C. KRAUSE, a citizen of the United States, residing at Chicago, in the county of Cook, in the State of Illinois, have invented a certain new and useful Attachment for Type-Writing Machines, of which the following is a specification.

This invention relates to attachments for type-writing machines designed for producing duplicates of original manuscript—that is to say, for producing facsimiles of ink-ribbon impressions upon two separate sheets of paper and at the same time, if it is desired, a triplicate impression upon a third sheet. Prior to my invention these ends have been sought to be attained by the use of a ribbon auxiliary to the usual ribbon on a type-writing machine, which auxiliary ribbon is required to be wound upon spools at each end of the machine and have a movement and forward travel corresponding with said usual ribbon and which in addition to spooling necessarily requires the employment of a protecting-strip wound upon the spools of and traveling with the auxiliary ribbon.

In the prior constructions above referred to the necessary spooling of the auxiliary ribbon in itself and without regard to the protecting-strip necessarily involves the employment of gears, shafts, and other complex mechanism, such as is common to ribbon holding and adjusting devices in type-writing machines, and also guides for the auxiliary ribbon, which are not only expensive, but are liable to and frequently do get out of order, and besides which add an objectionable cost to the production of such attachments and a cost which it is desirable to avoid, to which may be added the cost of devices for securing the attachment to the type-writer in its operative position and a correspondingly-increased complication of parts requiring skill in their manipulation and constant watching. Further, in the prior attachments referred to the necessary spooling of the auxiliary ribbon presents the same objection and increases twofold that which is common to the usual type-writing-machine ribbon—namely, the objectionable handling thereof in inserting it upon and removing it from the spools.

One of the important objects of my invention is to provide an auxiliary ribbon in this class of attachments which is not spooled and which, if desired, need not be handled at all in the objectionable sense referred to with regard to prior spooled auxiliary ribbons.

Another important object is to dispense with the use of any necessity for a protecting strip or sheet between the ordinary type-writing-machine ribbon and an auxiliary ribbon for producing either duplicate or triplicate facsimile ink-ribbon impressions upon as many sheets of paper.

Another important object of my invention is the avoidance of any necessity for handling the auxiliary ribbon either in putting it in or taking it out of its operative position in a type-writing machine or of handling it at any time during its operation in the machine.

A further object is to produce an attachment for type-writing machines for the production of duplicate and triplicate impressions through the medium of an auxiliary ribbon embracing the least possible number of parts consistent with perfect operation and at the same time parts which are simple in construction and require no particular skill for their manipulation in securing the attachment to a type-writing machine or in manipulating the several parts in operating said attachment.

With these ends in view my invention consists in certain features of novel construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In said drawings, Figure 1 represents a top plan view of the paper-feed carriage of a type-writing machine with an attachment embracing my invention secured in its operative position thereon. Fig. 2 is a longitudinal sectional view of the auxiliary ribbon-roller, particularly showing the relative arrangement of the tube removably sleeved thereon and to which said ribbon is attached. Fig. 3 is a transverse section on the line 3 3 of Fig. 1. Fig. 4 is a transverse sectional end view of

the ribbon tube or roller, as the case may be, particularly showing the construction of a covering-shield, hereinafter described. Fig. 5 is a detail perspective view of the ribbon-roller with the ribbon wound thereon, the protecting-shield therefor, and the devices by which the rotation of the roller is limited and upon which it swings to a convenient position for mounting the auxiliary ribbon thereon; and Fig. 6 is a longitudinal section of the ribbon-tube with the ribbon wound thereon, but detached from the ribbon-roller.

1 indicates the front bar, 2 2 the end bars, and 3 the shaft, comprising the paper-feed carriage of an ordinary type-writing machine—such, for example, as the Remington—and 4 the ordinary roller-platen thereof, on the ends of the shaft of which are the thumb-rollers 5 5 for turning the same, which frame is also provided with the usual lifting-lever 6, the ratchet-lever 7, the platen-roller-shifting lever 8, the paper-tension lever 9, the paper-guides 10 10, and other details unnecessary of specific reference.

25 Secured to the shaft 3 are curved brackets 11 11^a, bridging—that is to say, extending over—the platen-roller 4, and secured at their forward ends to the front bar 1 of the paper-feed carriage of the type-writing machine, 30 which brackets may be secured, respectively, to the shaft 3 and the bar 1 by any suitable means which will hold them rigidly in place upon the frame, as, for example, by hooks upon their rear ends engaging shaft 3 and angular clamps at their forward ends engaging the bar 1 and tightened thereon by means of screws or other devices 12, passing through the angular downward extension of the bracket and abutting and tightened against the edge 40 of the bar 1.

The brackets 11 and 11^a constitute, together with the shaft 3 and the bar 1, a frame in which is journaled a roller 13, centrally through which passes a rod 14, screw-threaded at 15 into a plug or bushing 16 in one end of the roller 13, which plug may be provided with a flange 17 for the purposes hereinafter described; but instead thereof the flange 17 may be screw-threaded directly to the roller 13. The rod 14 projects beyond said flange 17 into the bracket 11, the opposite end of the rod 14 being likewise fixedly secured in a pivoted bar 18, (see Figs. 1, 2, and 5,) and coiled about this rod within the roller 13 is a spring 19, one end of which is secured to the rod 14 and the other end to the roller 13, so that when the roller is revolved said spring will be put under tension, causing the roller to return to its normal position, the tension of the spring being regulated by turning the rod in its screw-threaded bearing, and thereby compressing or expanding the spring, as may be desired. Bar 18 is pivoted horizontally by means of studs 20 20 at the opposite 65 ends of said bar, which studs are secured to the bracket 11^a or formed therewith by means of screws 21 21, projected through the lugs

20 and impinging against the end of the bar, the screws being pointed for this purpose; but any ordinary means for pivoting this bar 70 for the purposes hereinafter described would be within my invention. Between the pivoted bar 18 and the end of the roller 13 and sleeve on the rod 14 is a worm 22, secured to the roller or forming a part therein in engagement with a toothed segment 23, pivoted to the bar 18 or to a lug 24, projecting therefrom. This toothed segment and worm serve to limit the movement outward, and, if desired, toward the extremes of its rotation, as 80 will hereinafter be more fully explained. Sleeved on the roller 13 is a tube 25, which may be of papier-mâché or other suitable material, to which is attached one end of a ribbon 26, which I designate for convenience 85 the “auxiliary” ribbon, which ribbon corresponds in width to the length of line to be printed, or, in other words, to substantially the width of the greatest width of paper which can pass through the type-writing machine 90 to which my attachment is secured, the ribbon being of a width and length substantially corresponding with the greatest length and width of the sheets of paper passed through the machine. 95

The tube 25 is secured to the roller 13, so as to revolve with the roller by having in its end next the worm a slot or notch engaged by a corresponding projection 27 on the piece on which the worm is formed and is held in this engagement by means of an expansion-spring 28, coiled about the roller 13 between the flange 17 and the end of the tube 25, the force of which spring maintains the notch in the tube in engagement with the lug 27 when 105 these parts are in their operative position. As shown in Fig. 2, the flange 17 is secured to the plug 16 and detachable with the plug from the roller, as is also the spring 28 from the roller, the purpose of which is for the removal and the insertion of the ribbon-tube 25, which is accomplished by lifting the rod 14 out of the slot 25, pulling out the plug and then removing or inserting a ribbon-tube, as desired; but, as before intimated, the plug 115 16 may be rigidly secured in the roller and the plug 17 be detachably secured by screw-threading it upon the roller, or it may consist of simply a perforated disk slipped upon the rod 14, for it is obvious that in either construction it will be held in its place, though as a disk, such as last described, there will be some friction, which is avoided by either screwing it upon the roller or forming it with a plug. 125

If desired, the spring 28 may be attached to the flange 17 for convenience in handling, and in this connection it is proper to observe that instead of attaching the spring 19 to the plug 16, as shown in Fig. 2, this end of the spring may be secured to the roller and the other end of the spring 19 to the shaft, or vice versa, as to said ends. It should also be observed that my invention includes the omis- 130

sion of a ribbon-tube and the attachment of the ink-ribbon directly to the roller, and this may be done by means of a spring clip or clips 29, (see Fig. 5,) shown as a convenient means for removably attaching the auxiliary ribbon to the tube 25; but my invention is not limited to any special form of devices for attaching the auxiliary ribbon either to the roller or to the tube, and as a matter of fact in so far as the attachment of the ribbon to the tube is concerned it will probably be secured thereto permanently and the tube be thrown away, with the ribbon, when it is worn out, and this for the very reason that the substantial benefit gained by the use of the removable tube instead of attaching the ribbon directly to the roller is that all necessity for any objectionable handling of the ribbon when inserting it to or removing it from the roller is entirely avoided.

In operation, with the ribbon in its position either by attachment to the roller or to the tube sleeved on the roller, the free end of the ribbon normally projects under the platen-roller of the type-writing machine to about the forward edge of the usual paper-guide 30; (see Fig. 3,) which is forward of the usual feed-roller 31, and to this end are employed the worm and mutilated gear, which operate as a stop limiting the revolutions of the roller in winding up the auxiliary ribbon for the commencement of its operation upon a fresh sheet of paper. This will be understood by reference to Figs. 1 and 2 by bearing in mind that as the ribbon unwinds the mutilated gear will traverse the worm toward the opposite end of the roller and that when the ribbon is released from the feed-roller of the machine and automatically winds up the auxiliary ribbon it will be stopped in its winding movement as soon as the mutilated gear 23 reaches the outer end of the worm and strikes the bar 18 or a stop 23^a, secured thereto and engaging the mutilated gear 23. My invention, however, is not limited to this peculiar worm-and-gear stop, but includes any other device by which when the auxiliary ribbon is released from being gripped between the feed-roller and the platen said auxiliary ribbon will be stopped at the point indicated and not be entirely wound upon the auxiliary-ribbon roller, and in this connection it is proper to observe that without a stop of some character the releasing of the auxiliary ribbon from the roller and paper-guide would result in not only winding the auxiliary ribbon upon the roller but of permitting the roller to make such a number of turns that it would lose its tension, and thereby require a readjustment of its tension before again being operated, it being understood that the ribbon even when nearest wound up should be under such tension from the roller as to maintain it in a smooth condition when being fed forward by the feed-roller 31, and, furthermore, that without such a stop the ribbon would have to be handled every time a new sheet is

introduced into the machine in order to project it between the feed-roller and the platen for the purposes of its forward feed with the paper through the machine. When the auxiliary roller and ribbon are in operative position, the usual sheet of paper to be written on (see Fig. 3, indicated at 32) is passed down between the platen and the feed-roller 31 and guide 30 from a point rearward of the auxiliary roller in position to receive impressions from the type striking upwardly against the ordinary ribbon 33, while afterward or at the same time a second sheet of paper 34 is passed downward forward of the auxiliary-ribbon roller to the same position, the front end of the auxiliary ribbon in the meantime being held at a point about between the paper-guide 30 and the platen-roller 4. With the two sheets of paper in this position, the type striking upwardly against the ordinary ribbon 33 and the auxiliary ribbon 26, the result will be that both sheets will receive a positive impression simultaneously, and as a result there will be two ink facsimiles of letters produced, and if a third one is desired a thin sheet 35 may be inserted with the sheet 32 at a point between said sheet and the auxiliary ribbon, which thin sheet will receive a negative impression from the auxiliary ribbon, but which being thin will appear as a positive when read from the opposite side from that which received the ink. With the sheets in these positions, where there are two or more employed, the result will be that the auxiliary ribbon will be forced by the action of the feed-roller to feed through the machine in a direction at a right angle to the length of the ordinary ribbon, and this feeding will continue until the sheet of paper has entirely passed through the machine, if desired, and until the sheets of paper and the auxiliary ribbon are released by taking off the usual feed-roller, either by releasing the feed-roller or by taking the sheets by the top and pulling them out of the machine, so that the tension on the sheets of the auxiliary ribbon is overcome by the tension of the auxiliary-ribbon roller, when by the action of its spring said roller will automatically wind up the ribbon until its free end reaches the desired point before referred to, and the further rotation of the ribbon-roller is prevented by the action of the gear-and-worm device, as before described. In other words, the forward-and-backward movement of the auxiliary ribbon is, by the devices described, rendered entirely automatic and in such manner that during such operation said ribbon does not have to be handled, and by having said auxiliary ribbon secured to a tube removably mounted upon the ribbon-roller the necessity of touching the ribbon with the hands at any time is entirely avoided, for it will be observed that by leaving the desired length of free end unwound from the tube at the time of its insertion said end, after the tube is placed on the cylinder, may be dropped by gravity between

the feed-roller and the platen-roller and be afterward carried by the feed of the type-writing machine to the desired point before described and that therefore there is no necessity of handling the auxiliary ribbon during its operation or when removing it from the machine.

When it is not desirable to use the auxiliary ribbon, the ribbon-roller may be swung forwardly, the tube be withdrawn from the engagement of its notch with the lug 27, and then turned until the ribbon is entirely wound up, when by inserting over the coiled ribbon a tubular spring 36, (see Fig. 4,) said ribbon will be protected from dust and prevented from soiling sheets of paper passing through the machine.

Ordinarily no protecting-strip need be used; but if for any reason one should be desirable a common sheet of paper may be substituted for the sheet 35, which in itself becomes a protecting-sheet when a third ribbon copy is being made.

It is obvious that the employment of an auxiliary-ribbon roller such as I have described is the simplest and cheapest possible means for directing the movement of an auxiliary inking-ribbon, and, moreover, it enables the dispensing of a number of tension feeding and reverse-feeding devices necessarily following the use of auxiliary ribbons, which have been heretofore invariably and necessarily spooled.

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

1. The combination, with a type-writing machine, of a ribbon-roller mounted thereon, an auxiliary ink-ribbon secured at one end thereto but free at its opposite end and adapted to be rolled on said roller, and means actuating said ribbon to feed it across the path of the type, substantially as described.

2. The combination, with a type-writing machine, of a ribbon-roller mounted thereon, an auxiliary ink-ribbon secured at one end thereto but free at its opposite end and adapted to be rolled on said roller, and means actuating said ribbon to feed it across the path of the type at a right angle to the line of travel of the ordinary ink-ribbon in said machine, substantially as described.

3. The combination, with a type-writing machine, of a ribbon-roller, an auxiliary ribbon wound thereon, means for actuating said roller to wind the ribbon thereon, an auxiliary ink-ribbon secured at one end to said roller and free at its opposite end, and means for feeding said ribbon across the path of the type, substantially as described.

4. The combination, with a type-writing machine, of an auxiliary-ribbon roller, a ribbon secured at one end to said roller and having its other end free, a hinged connection between one end of said roller and its supports whereby the opposite end of said roller may be elevated, and means actuating said roller

for winding an ink-ribbon thereon, substantially as described.

5. In a type-writing machine, a ribbon-roller, a spring actuating said roller to wind the ribbon thereon, a tube sleeved on said roller and to which the ribbon is attached, and means connecting said tube and roller whereby they will rotate together in the winding and unwinding of said ribbon, substantially as described.

6. In a type-writing machine, a ribbon-roller, a ribbon secured thereto, a spring actuating said roller to wind the ribbon thereon and a stop device limiting the rotation of said ribbon-roller, substantially as described.

7. The combination, with a type-writing machine, of a ribbon-roller, a ribbon secured thereto, a spring actuating said roller to wind the ribbon thereon and a worm-and-gear device limiting the rotation of said ribbon-roller, substantially as described.

8. The combination, with a type-writing machine, of a ribbon-roller, a ribbon attached at one end thereto, means for actuating said roller to wind the ribbon thereon, one end of said roller being mounted in a fixed bearing and the other end in a hinged bearing, substantially as described.

9. The combination, with a type-writing machine, of a ribbon-roller, a tube removably sleeved thereon, an ink-ribbon secured to said sleeve, said tube engaging with the roller by a notch and lug at one end and held in said engagement by an expansion-spring pressing against the opposite end of said tube, substantially as described.

10. The combination, with a type-writing machine, of a ribbon-roller, a ribbon connected therewith at one end with its opposite end free, a rod passing through said roller and supporting the same, a spring coiled about said rod, and means for varying the tension of said spring, substantially as described.

11. The combination, with a type-writing machine, of a ribbon-roller, a tube sleeved thereon, a ribbon secured to said tube, a notch-and-lug device connecting said tube and roller at one end, and removably flanged at the opposite end, and a spring coiled about said roller and impinging against said flange and tube and thereby maintaining the tube and flange locked together, said roller being hinged at one end and removable from its bearings at its flanged end, substantially as described.

12. In a type-writing machine, the combination, with a paper-feed carriage thereof, of an auxiliary ribbon attachment mounted thereon and having a ribbon-roller the axis of which is at a right angle to the axis of the ordinary ribbon-spools on said machine and having one end of an auxiliary ink-ribbon attached at one end thereto with its opposite end free, which said ribbon corresponds substantially in length and width with the sheet of paper to be written upon, and means for

actuating said ribbon across the path of the type in the direction of the forward feed of the paper being written upon, substantially as described.

- 5 13. The combination, with a type-writing machine, of a ribbon-roller mounted thereon in a plane above the axis of the platen-roller and with the axis of said ribbon-roller parallel to said platen-roller, an auxiliary ribbon
10 secured thereto at one end and having its op-

posite end free, means for feeding said ribbon beneath the platen-roller in the path of the type, and means for actuating the ribbon-roller for winding the ribbon thereon, substantially as described.

HUGO C. KRAUSE.

Witnesses:

JNO. G. ELLIOTT,
F. A. HOPKINS.