

No. 649,514.

Patented May 15, 1900.

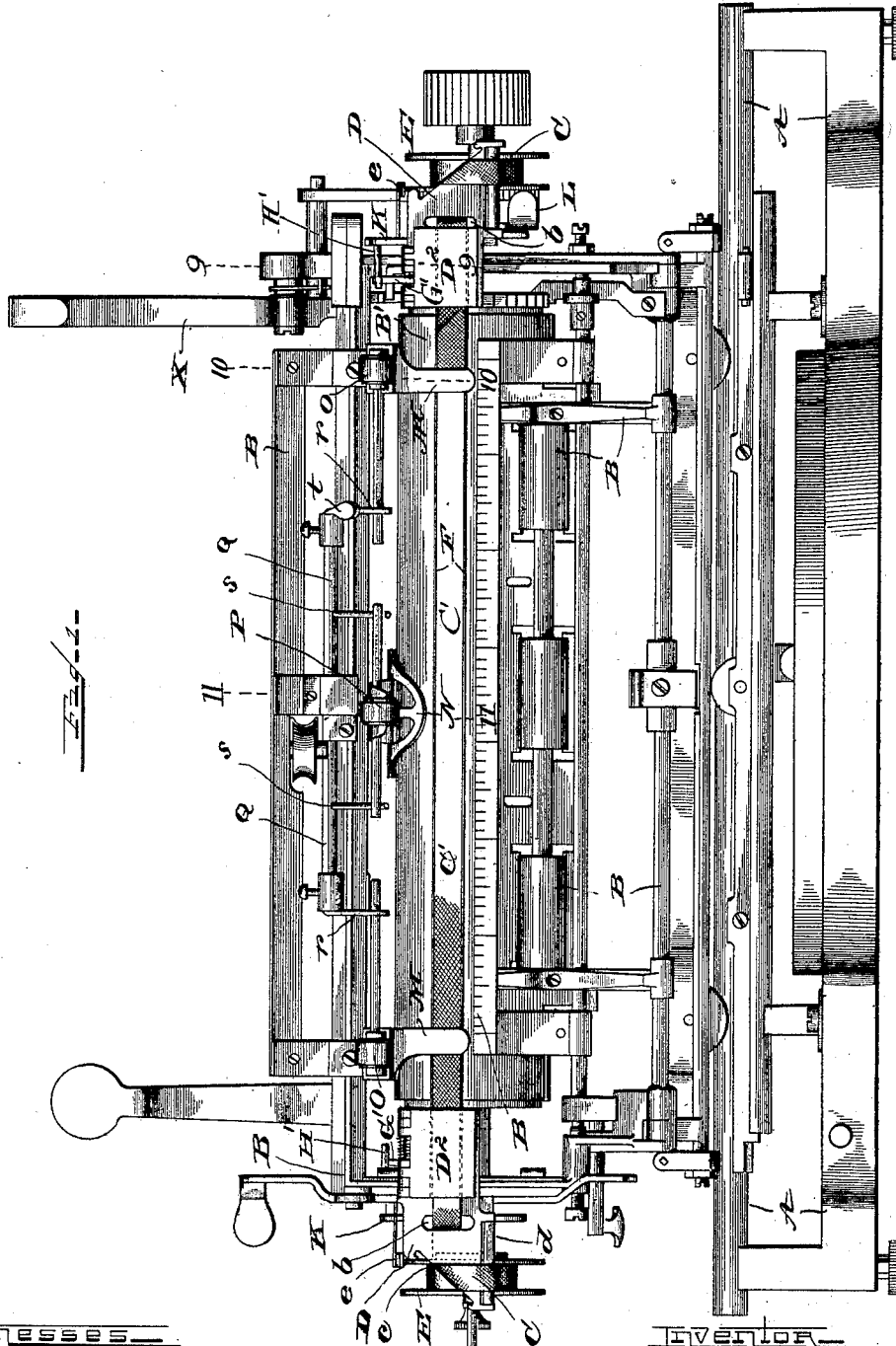
F. P. GORIN.

ATTACHMENT FOR TYPE WRITERS.

(Application filed Aug. 28, 1899.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES—

Ira D. Perry
L. A. Pauberschmidt

INVENTOR—

Fred P. Gorin
by *Howell and Darby*
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No. 649,514.

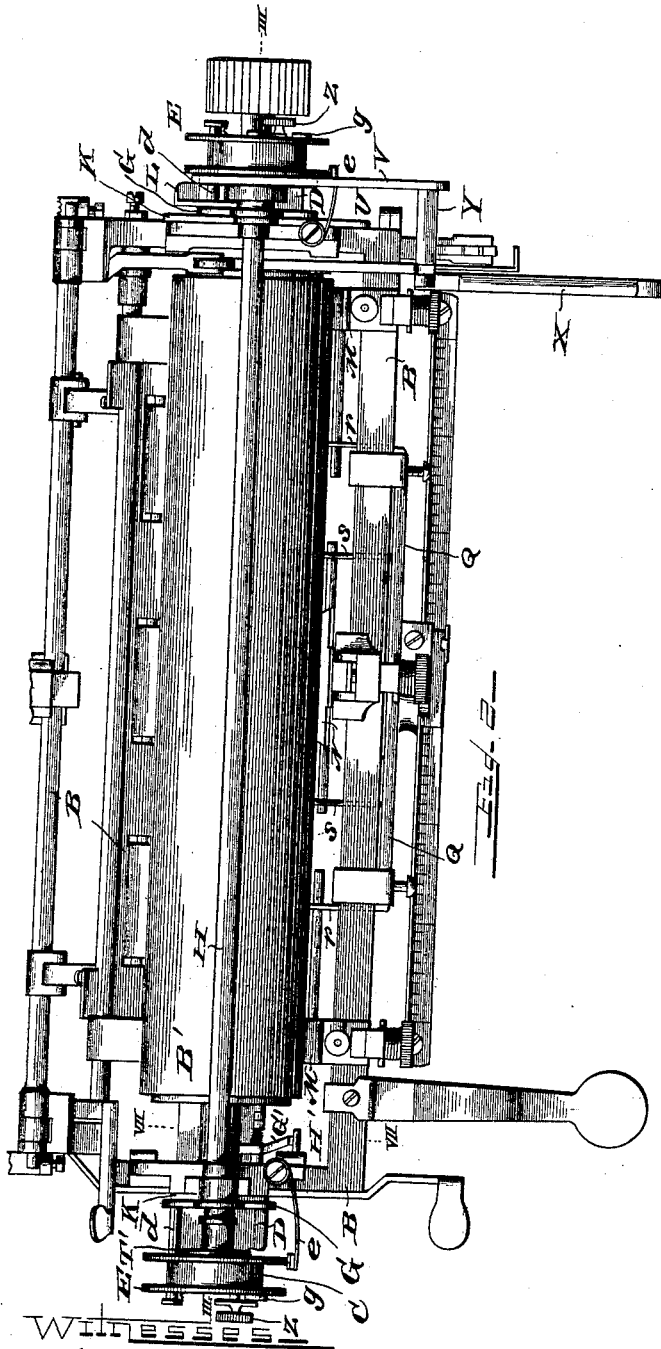
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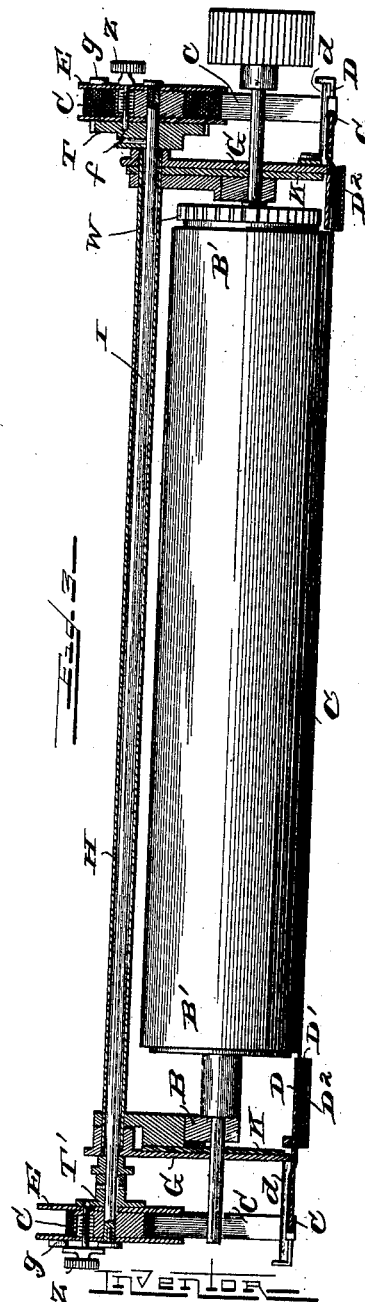
(No Model.)

(Application filed Aug. 28, 1899.)

4 Sheets—Sheet 2.



Witnesses
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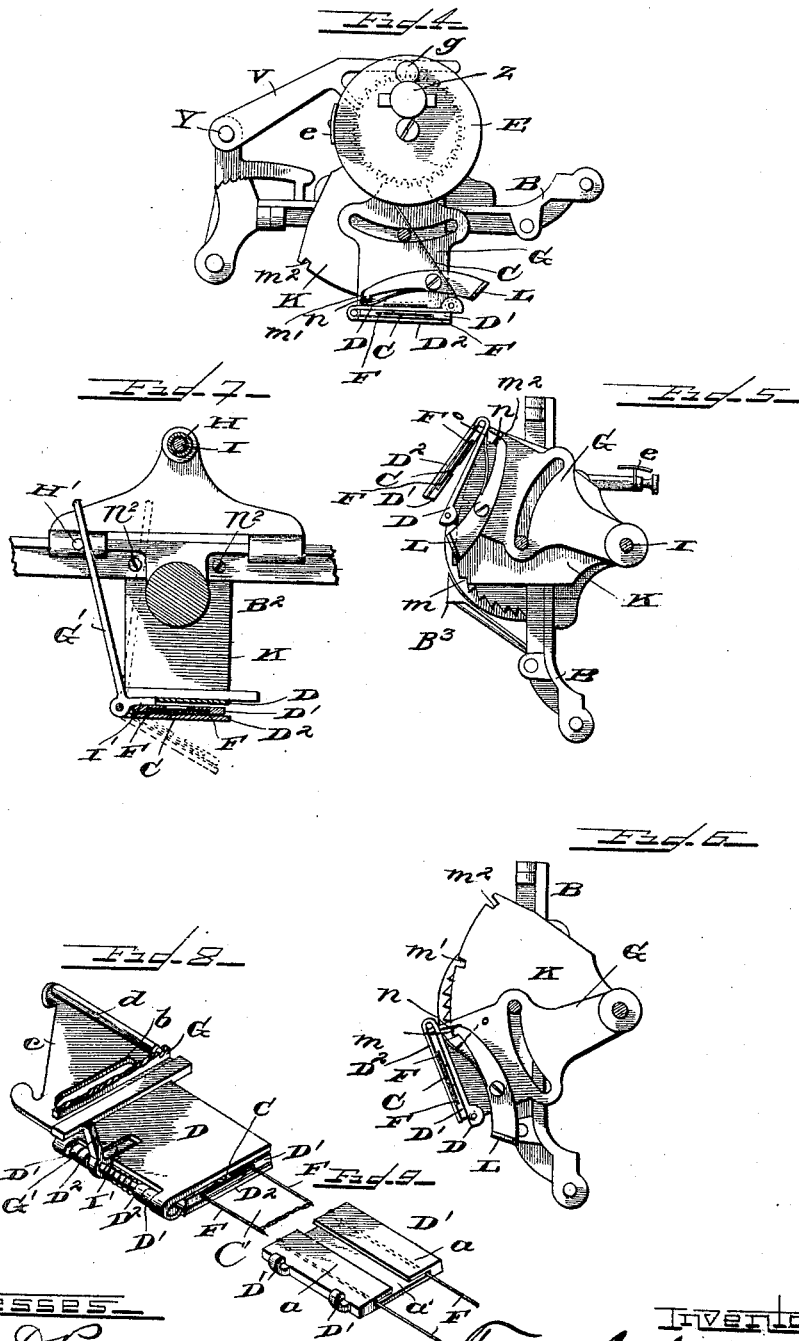
F. P. GORIN.

ATTACHMENT FOR TYPE WRITERS.

(Application filed Aug. 28, 1899.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses

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No. 649,514.

Patented May 15, 1900.

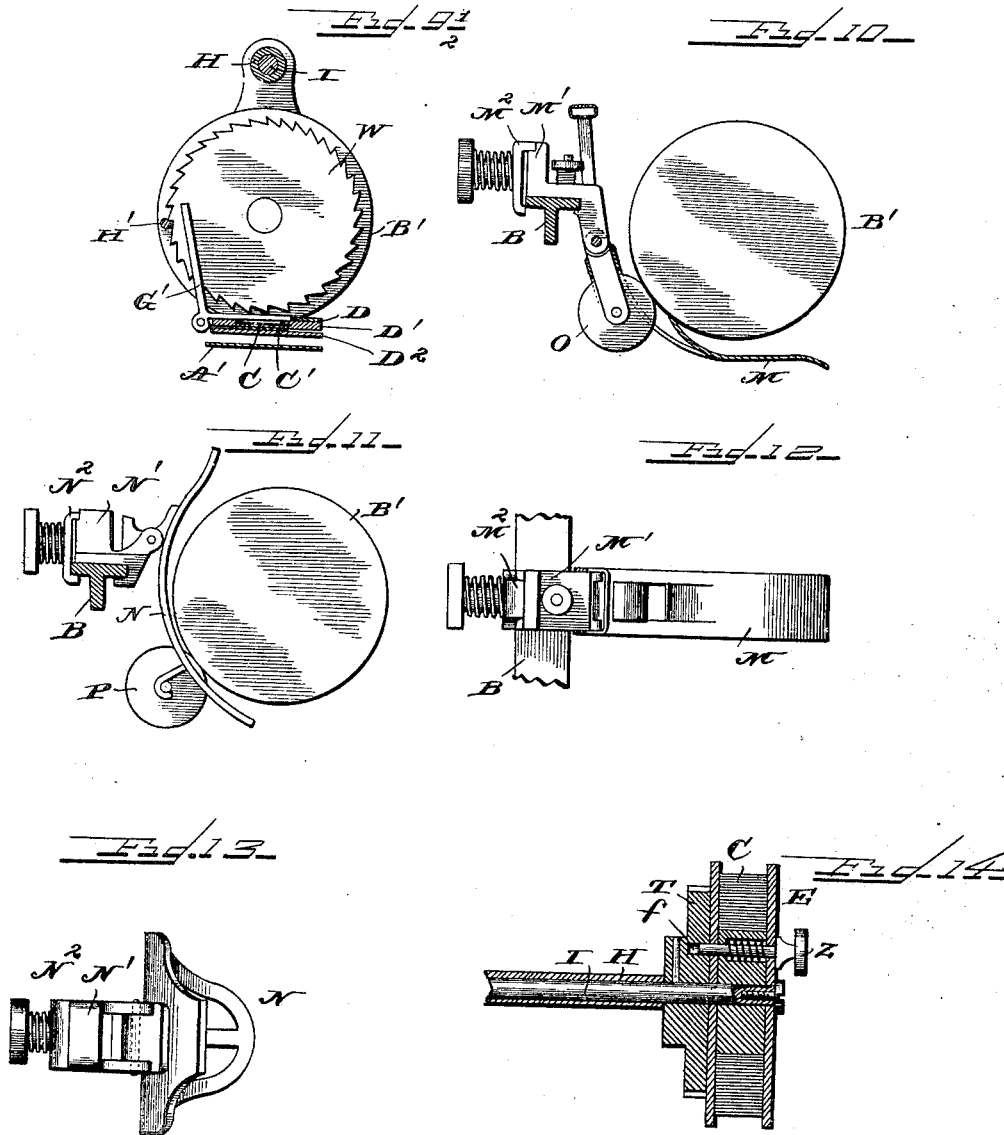
F. P. GORIN.

ATTACHMENT FOR TYPE WRITERS.

(Application filed Aug. 28, 1899.)

(No Model.)

4 Sheets—Sheet 4.



WITNESSES—

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Brown & Darby

Attys—

UNITED STATES PATENT OFFICE.

FRED P. GORIN, OF CHICAGO, ILLINOIS, ASSIGNOR OF FIVE-EIGHTHS TO CHARLES F. LANGDON, ALFRED R. URION, FRANK B. GIFFORD, AND REUBEN S. DICKINSON, OF SAME PLACE.

ATTACHMENT FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 649,514, dated May 15, 1900.

Application filed August 28, 1899. Serial No. 728,655. (No model.)

To all whom it may concern:

Be it known that I, FRED P. GORIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Attachment for Type-Writers and Similar Machines, of which the following is a specification.

This invention relates to an attachment for type-writers and similar machines and belongs to the class of attachments adapted to produce a plurality of copies and now usually designated as "multigraphs."

The object of the invention is to provide an attachment capable of making a single copy, two copies, or a number of copies in a simple and efficient manner and to readily change the attachment to adapt it to make single or multiple copies without loss of time. The most common form of making duplicate copies is by the use of carbon-paper; but such paper is expensive, perishable, and occasions much loss of time in manipulating it to place it between the sheets to be printed upon and to remove it from the sheets after they have been printed upon and in introducing the sheets into the machine by a distinctly-separate operation. By later improvements it has been attempted to produce duplications of printed work in type-writers without the use of carbon-paper; but it has been found difficult to adapt such attachments to make single copies, as well as duplicates, with facility and despatch. The present invention is intended to obviate the difficulties heretofore experienced by the use of carbon-paper and also with the multigraphs just referred to.

The invention embodies certain principles which may be carried out in the construction hereinafter described and will be more particularly pointed out in the subjoined claims.

Like reference-letters refer to corresponding parts in the several figures of the drawings, in which—

Figure 1 is a front elevation of the carriage of a type-writer in its lifted position to which the attachment is applied. Fig. 2 is a plan or top view of the same with the carriage down in position to operate. Fig. 3 is a vertical section on the line 3 3, Fig. 2. Fig. 4 is an end elevation. Fig. 5 is an end elevation

with the ribbon-lifting mechanism in extreme "up" position ready for the paper to be fed to it. Fig. 6 is an end elevation of the ribbon-moving mechanism in extreme "down" position, so as to put the attachment out of operative position. Fig. 7 is a vertical cross-section on the line 7 7, Fig. 2. Fig. 8 is a detail perspective view of the ribbon holder and guide. Fig. 9 is a detail under view of the wire-holder detached, for the purpose of illustration, from the ribbon-holder, of which it forms a part. Fig. 9 $\frac{1}{2}$ is a detail cross-section on the line 9 9, Fig. 1 of the drawings, and with the addition of a cross-section of the main or usual inking-ribbon. Fig. 10 is a detail cross-section on the line 10 10, Fig. 1 of the drawings. Fig. 12 is a top view of the same. Fig. 11 is a detail section on the line 11 11, Fig. 1 of the drawings. Fig. 13 is a top view of the same. Fig. 14 is a vertical section in detail of one of the reels for the supplemental ribbon and the mechanism for securing the same to the shaft.

The attachment is in the drawings shown applied to a "Remington" type-writer, although it is obvious it may be equally well applied to other makes of machines. Inasmuch as the attachment is applied to the carriage of the Remington type-writer, it is not necessary to show the details of the lower part of such machine, but which lower part of course is provided with the usual set of keys, operating-levers, type and ribbon, or other inking device. The lower part of this type-writing machine is in the drawings designated by the letter A. A carriage is connected to slide upon a bar of the lower part of the machine in the usual manner and is provided with the customary features of construction, which are well known and need not therefore be specially described. This carriage is designated in the drawings by the letter B and is pivoted so as to swing down into operative position or up into position for inspection, as is usual in such cases. It will not be necessary to specifically define the construction of parts of this carriage, as they are well known to persons skilled in the art, and therefore it is to be understood that such parts of the carriage as are not specifically referred to in this

specification are of the usual construction and that when it is advisable to describe any particular part which is well known in its connection with features of the attachment a separate reference-letter will be applied to such part. In connection with this carriage there is used the ordinary printing platen or roll, (designated B',) and arranged in a holder, the construction of which will be hereinafter described, there is a supplemental inking-ribbon C. When but a single copy is desired, this supplemental inking-ribbon C is thrown out of the way and not used, the single copy being made by the use of the main ribbon A' on the lower part of the machine or any other convenient location where it may be placed. When two or more copies are desired, the supplemental ribbon is employed and is placed between the sheets of paper in a manner which will be hereinafter described. By way of description of the use of ribbons in connection with one or more copies it may be said that to make one copy the type-bars are used in connection with the main ribbon of the machine, as just suggested, and when two copies are desired an additional or supplemental ribbon is placed between the two sheets of paper, and the type acting through the first sheet and through the supplemental ribbon makes the impression on the second sheet, it being understood, of course, that the raised surface of the type makes a corresponding impression in the first sheet and the supplemental ribbon and thereby is enabled to leave a similar mark upon the second sheet, with which the raised portion of the ribbon contacts by reason of the pressure of the type. However, in this operation not only will these two impressions be made, one on each sheet, but there will also be a third impression on the back of the first sheet, which is not only of no use, because it is a reversed impression, but mars the appearance of such first sheet, and to avoid this defect provision is made for placing a removable protecting-strip C' of tape, paper, or other material between the supplemental ribbon and the first sheet, which tape will thereby receive the impression and prevent the mutilation of such sheet. If three copies are desired, provision is made for placing a third sheet of paper (preferably thinner than the other two sheets and in lieu of the protecting-strip just mentioned) between the supplemental ribbon and the first sheet, whereby this third sheet will receive an impression upon its back of a reversed character, but which may be read correctly when looking from the front or other side of such thin sheet. It is obvious that this supplemental ribbon may be of any convenient size and shape, according to the occasion or machine on which they are employed, and may be clamped or held in many different ways. An advantageous and efficient mechanism for clamping the supplemental ribbon and removable protecting-strip is shown in the accompanying drawings, and consists in

hinged plates, more particularly illustrated in Figs. 8 and 9 of the drawings. The holder preferred employs three plates for two or three copies, each separable from the other and normally held together by a coiled spring wound upon the pintle or pivot of the hinge and bearing upon the bottom plate. One of these plates, and preferably the top plate, may be for convenience termed the "fixed" plate and the other two plates the "hinged" plates—that is, the fixed plate has the lugs forming the bearings for the pivot of the other two plates. The fixed plate is in the drawings designated by the letter D, the intermediate plate by the letter D', and the bottom plate by the letter D². The protecting-strip C' should be capable of being readily removed, and one device for the purpose which has been found advantageous and efficient is the holder composed of plates just referred to. The protecting-strip when applied to this holder extends approximately the length of the width of the paper to be written upon and has its ends clamped by the plates of the holder by inserting such ends between the lower and the intermediate plate. It is obvious that with this construction the protecting-strip may be readily removed by separating the plates between which its ends are clamped. The intermediate plate serves as a horizontal guide for the ribbon in that it is provided with overturned edges *a*, extending horizontally toward the center of the plate and leaving a slit or aperture *a'*, through which the edge of the ribbon may be inserted and drawn until it is practically inclosed between the main plate D' and its overturned edges, there being thus formed a horizontal guideway for the ribbon. The top plate may have an extension at its end to change the direction of travel of the ribbon, and a convenient construction for this purpose is shown in Fig. 8 of the drawings, in which there is a transverse elongated slot about the width of the ribbon, (lettered *b*,) through which the ribbon may pass through the plate, and a sloping edge cut at an angle of about forty-five degrees, over which such ribbon may be turned a quarter-turn and which is designated by the letter *c*, and a straight edge at its rear side, which may be provided with a roller *d*, as shown, whereby the ribbon is given the proper direction of travel to adapt it to wind upon a reel E, as shown in Figs. 1, 2, and 3 of the drawings. Any suitable tension device may be employed to give the ribbon the proper tension, and in the drawings there is shown for this purpose a spring-actuated brake *e*, which brake is fastened to the carriage of the machine and bears at its free end upon one flange of the drum. In the plate D' there may be also fastened the ends of wires F, which wires extend transversely of the machine at a distance apart slightly in excess of the width of the supplemental ribbon and between which the free portion of the ribbon—that is, the portion ex-

tending over the platen or roller and upon which the type act—is guided and held. This holding of the ribbon by these wires is effected because the wires are taut and comparatively rigid, while the ribbon with the utmost tension placed upon it is not so rigid, and consequently the edges of the ribbon, being slightly out of the same horizontal plane at different points, catch against the wires, and it is thereby held in place against the feeding action of the paper when the latter is being moved. It is to be noted at this point that these detaining-wires are an accessory or addition which while advantageous are not necessarily employed. If this supplemental ribbon is given sufficient tension by any proper device for the purpose, the paper being fed will be unable to overcome such tension, and in such case the detaining-wires will not be necessary; but when sufficient tension for this purpose is given to the ribbon it will require considerable force to feed such ribbon and overcome the tension for the time being, and it is therefore desirable to decrease the tension and thereby decrease the friction to be overcome in operating the feeding device, and to this end the detaining-wires are employed and found advantageous. It will of course be understood that these ribbon-holders for the supplemental ribbon are used in pairs—that is, there is one at each side of the platen, with the ribbon stretched between them and passing through them. This is clearly shown in Figs. 1 and 3 of the drawings.

During the operation of the machine the supplemental ribbon is of course placed in the type-line—that is, in the line upon which all the type will strike—and is arranged very close to the platen or roller, which receives the ultimate impact of the type. While the attachment may be operated with the supplemental ribbon always in this position, yet the proximity of such ribbon to the platen will make it difficult to place such ribbon between the incoming sheets of paper, and for that reason it is preferred to provide a mechanism adapted to move the ribbon out from the platen, so as to provide more space between such ribbon and platen, and thus enable a sheet of paper to be more readily inserted between the ribbon and the platen. It is manifest that many different forms of mechanism may be employed to embody this principle, and I do not therefore wish to be understood as limiting myself to the mechanism shown and hereinafter described for the purpose; but a convenient and effective device to accomplish this object is illustrated in the drawings as consisting of pivoted arms hung from a center eccentric to the center of the platen in case a circular roll or cylinder is used for the platen. These arms are particularly well shown in Figs. 3, 4, 5, and 6 of the drawings and designated by the letter G and may be conveniently pivoted, as shown in Fig. 3 of the drawings, upon the sleeve H,

surrounding the shaft I, on the ends of which shaft are mounted the reels or drums E, before referred to. It is evident that when these arms G are swung either backward or forward they will carry the holders (which are secured at the free ends thereof) and the ribbon which passes through the holders outward from the platen, so as to leave more space between the platen and the ribbon.

When the sheets of paper are first fed into the machine and their upper edges clear the lower scale B³ on the carriage, such edges of the paper will be so close to the type-line that it will be difficult to separate them in order to pass the sheets of paper above and below the ribbon, respectively, and it is desirable to facilitate the introduction of the paper into its proper position that a greater length of the sheets shall be made to protrude beyond the edge of the lower scale than that portion extending between such scale and the type-line, and the only way to effect this end is to move the supplemental ribbon and lower scale with relation to each other. The lower scale and supporting parts may be moved with reference to the type-line, the ribbon above the same, or the supplemental ribbon may be moved, and in practice it has thus far been found most convenient and easier to move the supplemental ribbon away from the type-line and the lower scale than to move such scale from the ribbon, although it is to be distinctly understood that the invention is not to be limited to the movement of the ribbon, although that is the preferred arrangement. It is advantageous to move the ribbon for another reason once before alluded to in this specification, and that is because when but a single copy is desired the supplemental ribbon is not to be employed and should of course be moved out of the way. The supplemental ribbon passes through the holders at each end, as before described, and the holders being mounted upon the pivoted arms, which latter swing eccentrically to the axis of the cylindrical platen, it follows that the one mechanism or device—viz., the pivoted arms—performs the two independent functions of lifting the supplemental ribbon outward from the platen and moving such ribbon away from the type-line. These two principles are, as above suggested, entirely independent and may be separately employed without departing from the spirit of the invention; but it is advantageous to combine them in the operation of the machine, and the pivoted arms just referred to provide a simple and efficient means of effecting both results.

Some sort of securing device should be employed to hold the supplemental ribbon in any one of the several positions to which it may be moved, and persons skilled in the art will readily perceive that many different forms of mechanisms might be utilized for the purpose. A convenient and efficient device for the purpose is shown in the accom-

panying drawings and will now be described. A plate (designated by the letter K) is suitably secured to the frame of the carriage, and preferably in a detachable manner, by means of screws n^2 , as shown in Fig. 7 of the drawings. This plate K projects in the same direction as the pivoted arm at the corresponding end of the machine and has its lower end arranged just above the plate or clamp of the holder secured to such arm when the parts are in the position shown in Fig. 4 of the drawings. This lower edge is curved or segmental in shape and provided with a series of notches formed therein. There are preferably three notches, (designated, respectively, by the reference-letters m , m' , and m^2 .) Pivoted to an arm G is a lever L, at one end of which may be a thumb-piece and at the other end of which is a dog n , adapted to engage either of the notches m m' m^2 . A spring o bears upon the end of the lever L nearest the dog and tends to engage the dog of the lever with a notch. The dog may be released from any particular notch by pressing upon the thumb-piece at the other end of the lever, and thus lifting the dog out of the notch. Inasmuch as the lever is mounted on the pivoted arm carrying the supplemental ribbon, it swings with the pivoted arm, and as the arm and ribbon are moved to the intermediate position over the type-line the dog engages the intermediate notch m' and holds the ribbon securely in that position, or as the pivoted arm and ribbon are moved away from the type-line toward the notch m^2 the dog when it reaches the latter will secure the parts in that position, and thus hold the ribbon lifted from the platen and rearward of the type-line, whereby the sheets of paper may be readily introduced over such ribbon, and when it is desired to make only a single copy, and therefore the attachment should be thrown out of operative position, the dog is released and held out of engagement with the notches and the pivoted lever and ribbon thrown forward until the dog is opposite the notch m , when it will enter the same and maintain the attachment out of operative position.

As the sheets of paper upon which the imprint is desired to be made are fed into the machine it is desirable to temporarily lift out of the way the paper-guides and frictional clamping or feed rolls, so that the upper edges of the sheets of paper may be separated sufficiently to allow the supplemental ribbon to pass between them. In the usual form of type-writer the paper-guides are independent of the frictional clamping-rolls, a slot being cut through the upper part of such paper-guides to admit of the passage there-through of the lower surface of the frictional clamping or feed rolls. Moreover, in such usual form of type-writer there are three sets of paper-guides and frictional clamping or feed rolls, and each set is independent of the other. In the present attachment it has been found

advantageous to move all three sets together or simultaneously, so as to cause less trouble and loss of time. Moreover, it has been found advantageous to secure each frictional clamping or feed roll to its paper-guide, so that these two parts will move together. In the drawings the end paper-guides are designated by the letters M M and the central paper-guide by the letter N. Likewise the end frictional clamping or feed rolls are designated by the letters O O and the central roll by the letter P. A convenient construction for the end paper-guides and rolls is to hinge such paper-guides to brackets M' M^2 , which are in turn clamped to the carriage, and to mount the rolls in the brackets, providing, of course, apertures in the paper-guides, through which the surfaces of the rolls may project and contact with the platen in the usual manner. By this construction the frictional clamping or feed rolls are carried by the paper-guides, so that such guides and rolls may move together when it is desired to lift them from the platen for the purpose of facilitating the entrance of the sheets of paper. A similar construction may be made at the center; but at that point it has been found more convenient to hinge the paper-guide to the front bar of the carriage and form bearings in such guide for the shaft of the roller, just as is done in the ordinary construction. In the figures of the drawings and more especially in the detail views, Figs. 11 and 13, the central paper-guide N is shown as hinged to the bracket, which latter is clamped by the clamps N' N^2 to the front bar B of the carriage. Inasmuch as all these paper-guides and rollers should be moved out of the way to permit the sheets of paper to be spread apart at their upper edges, it is of course desirable to save time by moving them all together, and to this end the shafts of all the frictional clamping or feed rolls are extended, as shown in Fig. 1 of the drawings, and a rock-lever Q is provided at its two ends with slotted arms r , bent at right angles to the same, adapted to engage the ends of the shafts of the end rolls, and with projecting pins s , adapted to project under the extended shaft of the central roller P. This rock-lever may have a handle t , by means of which it may be manipulated, and when this handle is lifted the lever is rocked and all the paper-guides and rollers are simultaneously lifted above the surface of the platen, so as to permit the ends of the sheets of paper to be spread apart. When the paper has been properly introduced and is in position to be written upon, the rollers and paper-guides may be depressed; but the construction of the attachment is such that the central paper-guide and roller are not necessarily depressed simultaneously with the end guides and rollers, because the pins s only bear upon the under side of the extended shaft of the central roller P and may be moved downward without carrying such roller in the same direction. The object of

this is to prevent too much friction being applied to paper which does not require the action of a central guide and roller. In case envelops are desired to be printed upon it is

5 advisable to use the central guide and roller, as well as the end guides and rollers.

As a convenient means of feeding the supplemental ribbon the construction illustrated in Fig. 3 of the drawings has been devised.

10 In this construction a transverse shaft I is supported in the frame of the carriage and has loosely mounted upon each end thereof a drum E, upon which the supplemental ribbon is to be wound. Secured to this shaft at one

15 end is a ratchet T. The cylindrical platen has, as is usual, at one end a ratchet W, which is engaged by a pawl U, operated by a pivoted elbow-lever X. Projecting from the upper end of this elbow-lever is a journal

20 Y, upon the inner end of which the pawl U is pivoted and upon the outer end of which a pawl V may be pivoted. When the rock-lever X is moved, it will operate both pawls and cause the cylindrical platen to be moved one

25 step and the reel E, to which the ratchet T is secured, as hereinafter provided, one step, and thus wind the ribbon upon such reel.

The construction for clutching and unclutching the reels to the shaft is shown in

30 Figs. 3 and 14 of the drawings, and especially clearly in this last-mentioned figure. The ratchet T is secured by a pin to the shaft, so as to rotate with it, and has formed longitudinally of its axis a hole *f*, adapted to receive a bolt Z, which latter is spring-acted and supported in the reel E. This bolt Z

35 passes through the reel and may enter an aperture *f*. When the bolt thus enters the hole *f* in the ratchet, it will lock the ratchet to the reel or drum and cause the two to be secured together and revolve together, and thus feed the ribbon at that side, as before suggested. At length, the ribbon being fed as far as it

40 will go in that direction, it may be desirable to reverse the direction of feed, and to this end a corresponding drum E is loosely mounted upon the shaft I at its opposite end and may be secured to the same so as to move with it by locking a washer T', keyed to the

45 shaft at that end, to the drum by means of the bolt Z at such end, provided, of course, the bolt at the ratchet end of the machine is withdrawn and locked out of engagement with the hole in the ratchet, which may be

50 done by turning it so that a shoulder upon it will engage a stud *g* on the reel.

From the above-described construction it will of course be understood that in the normal operation of the attachment one reel is

60 loose upon its shaft and the other secured to the shaft and that if, for instance, the reel at the right side of the machine is rotated by the pawl which engages its ratchet T from left to right the reel at the left side of the

65 machine will revolve loosely on the same shaft from right to left because of the drawing action of the ribbon, which is being at

the time wound upon the reel at the right side of the machine. On the other hand, if the bolt Z is withdrawn from the ratchet T

70 and secured in inoperative position and the bolt at the left side of the machine is inserted in the aperture in the washer T' then the action of the pawl in causing the ratchet T to rotate will also cause the reel at the left of

75 the machine, which is locked to its shaft, to rotate from left to right, so as to wind the ribbon at that end, and this winding of the ribbon at that end will draw upon the reel at the right side of the machine and cause it to

80 revolve in the opposite direction, and consequently pay out the ribbon. In this manner the supplemental ribbon is fed from one side of the machine to the other and then back again by merely reversing the clutching or

85 locking mechanism—that is, by locking at one end and unlocking at the other.

It is clear that the mechanism just described for feeding the supplemental ribbon is not essential, but is merely a simple and advanced

90 mechanism and the best which I at this time know for the purpose. Persons versed in this line of machinery will readily appreciate equivalent mechanisms for performing the same function, which, while differing in form, will embody the same spirit,

95 and I therefore do not wish to be understood as limiting myself to the construction described.

Referring now particularly to Figs. 1, 7,

100 and 8 of the drawings, attention is directed to the automatic lifter for the supplemental ribbon. The holder for the ribbon is composed, as before stated, of several plates, some of which are hinged so as to be moved away

105 from the other or additional plate. This hinge feature is desirable, not only, as above described, to enable the plates to be separated, so that the ribbon may be readily inserted and so that a piece of tape may be inserted,

110 as above described, but also for the purpose of automatically lifting the ribbon farther away from the platen and for lifting the wires and ribbon over the lower scale of the carriage

115 when they are being changed from their inoperative position to a position in which they are capable of performing their usual functions in the attachment. The pivot or axis upon which the plates D' and D² turn has secured to it a lever G', provided with a toe or

120 projection thereon. This toe passes through a slot in the stationary plate D and bears upon the plate D'. A stud or pin H' projects inwardly from an end bar of the frame of the carriage in the path of the upper end of this

125 lever G'. As the holder is rocked forward to lift it, with its ribbon, above the cylindrical platen and carry it away from the type-line the upper end of this lever G' strikes the pin or stud H' and rocks the same upon its axis

130 and causes the toe thereof to press against the hinged plate D' and lift the latter, with its ribbon and wires, so that said wires will clear the lower scale and said ribbon be fur-

ther removed from the platen than the eccentric arms alone will carry it. Each holder is provided with a lever and toe, as just described, and a stud or pin is correspondingly
 5 arranged at each side of the machine to engage such lever, so that simultaneously the hinged plate D' of each holder will be lifted, as specified. Fig. 7 of the drawings shows in
 10 detail the holder, which is arranged at the left side of the machine, provided with its lever and toe and in dotted lines shows the position assumed by the parts after the ribbon and wires have been automatically lifted by the engagement of the lever against the
 15 pin. Fig. 9½ shows the holder at the opposite end of the machine, with the parts drawn upon a somewhat-larger scale and the lever in position to engage the pin, and also a cross-section of the main ribbon which is employed
 20 in the machine.

What I claim, and desire to secure by Letters Patent, is—

1. In a type-writer or similar machine, the combination with the usual mechanism including a main inking mechanism, and a
 25 platen, of an independently-mounted supplemental inking-ribbon, and mechanism for moving such ribbon away from the type-line; substantially as and for the purpose set forth.

30 2. In an attachment for type-writers and similar machines, the combination with the platen and the lower scale, of a supplemental ribbon adapted to be placed over the type-line, and mechanism for moving such ribbon
 35 away from such scale; substantially as and for the purpose set forth.

3. In an attachment for type-writers and similar machines, the combination with the platen and a carriage, of a supplemental ribbon mounted on such carriage, and mechanism for moving such ribbon away from the
 40 type-line independently of the movement of the carriage; substantially as and for the purpose set forth.

45 4. In a type-writer or similar machine, the combination with the usual mechanism including the main inking mechanism and a platen, of an independently-carried supplemental inking-ribbon, and means for shifting
 50 such ribbon back of the type-line; substantially as and for the purpose set forth.

5. In a type-writer or similar machine for making a single copy or multiple copies, the combination with the usual mechanism including a main inking device, and a platen,
 55 of a supplemental inking-ribbon, and mechanism for moving such ribbon forward of the type-line for the purpose of facilitating the insertion of the sheets of paper, and back of
 60 the type-line for the purpose of placing such ribbon out of operative position; substantially as and for the purpose set forth.

6. In an attachment for type-writers and similar machines, the combination with a
 65 platen, and mechanism for feeding the paper over the type-line on such platen, and a supplemental ribbon adapted to be locked over

such type-line, of mechanism for shifting such ribbon either forward or backward of the type-line, or over the type-line, and securing it in
 70 any one of these positions; substantially as and for the purpose set forth.

7. In an attachment for type-writers and similar machines, the combination with a platen and mechanism for feeding the paper
 75 over the type-line thereon, and a supplemental ribbon, of mechanism for lifting such ribbon above the platen and shifting it forward or backward of the type-line on such platen, or in position over the type-line; substan-
 80 tially as and for the purpose set forth.

8. In an attachment for type-writers and similar machines, the combination with a cylindrical platen, and mechanism for feeding the paper over the type-line on such platen,
 85 of a supplemental ribbon, and a carrier or holder for such ribbon mounted to swing eccentrically to the axis of the cylindrical platen; substantially as and for the purpose set forth.

9. In an attachment for type-writers and similar machines, the combination with a cylindrical platen, and mechanism for feeding the paper over the type-line thereon, of a supplemental ribbon, and a carrier or holder for
 95 such ribbon mounted upon pivoted arms having a greater radius than the radius of the cylindrical platen; substantially as and for the purpose set forth.

10. In an attachment for type-writers and similar machines, the combination with a cylindrical platen, and mechanism for feeding the paper over the type-line on such platen, of a supplemental ribbon, a holder for such
 105 ribbon, pivoted arms carrying a holder, the pivot thereof being eccentric to the axis of the cylindrical platen, and locking or securing devices for detaining the holder and ribbon in whatever position is desired with reference to the platen and type-line; substan-
 110 tially as and for the purpose set forth.

11. In an attachment for type-writers and similar machines, the combination with a cylindrical platen, and mechanism for feeding the paper over the type-line on such platen,
 115 of a supplemental ribbon, and a holder therefor mounted upon arms pivoted upon an axis eccentric to the axis of the cylindrical platen, a detaining dog or ratchet pivoted to such arms, and a plate provided with a series of
 120 notches or holes, with which the dog is adapted to engage and thus hold the ribbon at any desired position with reference to the platen and type-line thereon; substantially as and for the purpose set forth.

12. In an attachment for type-writers and similar machines, the combination with a platen and mechanism for feeding the paper over the type-line thereon, of a supplemental ribbon adapted to be inserted between the
 130 sheets of such paper, and a retaining device acting on that portion of the ribbon over the type-line and in the direction of the length of the ribbon for preventing the displacement

of the ribbon while the paper is being fed into proper position to receive its impress; substantially as and for the purpose set forth.

13. In an attachment for type-writers and similar machines, the combination with a platen, and mechanism for feeding the paper over the type-line on such platen in position to be printed upon, of a supplemental ribbon adapted to be placed over the type-line, and a pair of detaining-strips, one at the front and the other at the rear edge of the ribbon, and over the type-line and extending in the direction of the length of the ribbon, whereby the ribbon is prevented from displacement when the paper is being fed into position to be printed upon and after such ribbon is inserted between the sheets; substantially as and for the purpose set forth.

14. In an attachment for type-writers and similar machines, the combination with a platen, and mechanism for feeding the paper over the type-line on such platen, of a supplemental ribbon adapted to be placed over such type-line, and a pair of wires extending in the same direction as the ribbon and adapted to just inclose the edges of such ribbon between them; substantially as and for the purpose set forth.

15. In an attachment for type-writers and similar machines, the combination with a platen, mechanism for feeding the paper over the type-line thereon, a supplemental ribbon adapted to be placed over such type-line, and a holder for such ribbon, of a pair of wires extending in the direction of the length of the ribbon and adapted to inclose the edges of such ribbon between them, and themselves fastened to the holder which supports the ribbon; substantially as and for the purpose set forth.

16. In an attachment for type-writers and similar machines, the combination with a platen, a supplemental ribbon, and mechanism for feeding the paper to the supplemental ribbon so that it may be inserted between the sheets thereof, of a holder for the ribbon composed of a plurality of hinged plates yieldingly held together, whereby the ribbon is clamped between such plates but may be drawn through the same or readily removed therefrom; substantially as and for the purpose set forth.

17. In an attachment for type-writers and similar machines, the combination with a supplemental ribbon, of reels or drums upon which the ribbon may be wound, and holders composed of a plurality of hinged plates through which such ribbon may be drawn transversely of the machine, and a spring for clamping the sections of these plates together; substantially as and for the purpose set forth.

18. In an attachment for type-writers and similar machines, the combination with a supplemental ribbon, a platen, and means for moving the ribbon out of the type-line on such platen, of an automatically-acting device for lifting the ribbon as it is moved away from

the type-line; substantially as and for the purpose set forth.

19. In an attachment for type-writers and similar machines, the combination with a platen, a supplemental ribbon adapted to be placed over the type-line thereon, and means for shifting the ribbon away from the type-line, of an independent automatically-acting device for lifting the ribbon as it is shifted away from the type-line; substantially as and for the purpose set forth.

20. In an attachment for type-writers and similar machines, the combination with a platen, of a supplemental ribbon, a pair of hinged and movable holders, in which the ribbon is clamped, a projection from such holders, and a stop on the carriage of the type-writer in the path of the projection, whereby these holders are automatically lifted as they are moved away from the type-line with the ribbon; substantially as and for the purpose set forth.

21. In an attachment for type-writers and similar machines, the combination with a platen, and mechanism for feeding the paper, of a supplemental ribbon, and hinged holders or clamps for the ribbon adapted to be moved toward or away from the type-line and lower scale on the type-writer carriage, and mechanism for lifting the holders away from the platen and moving them forward or rearward of the type-line, whereby the scale is cleared by the ribbon, or sufficient space is provided to facilitate the insertion of the ribbon between the sheets of paper; substantially as and for the purpose set forth.

22. In an attachment for type-writers and similar machines, the combination with a platen, and mechanism for feeding the paper, of a supplemental ribbon, reels at each side of the machine for winding and unwinding the same, and a pair of clamps or holders for supporting a section of the ribbon transversely of the machine, composed of a main plate and one or more hinged plates, and a spring for clamping such plates together, one of such hinged plates having overturned edges, under which the ribbon passes, and through a longitudinal slot in the same it may be inserted under such edges; substantially as and for the purpose set forth.

23. In an attachment for a type-writer and similar machines, the combination with a supplemental ribbon, of a pair of holders, one arranged at each side of the machine, and composed of a main plate and one or more hinged plates, and a pivoted lever having an arm projecting toward a stop on the carriage, and a toe bearing against a hinged plate, and mechanism for moving such holder, whereby the arm is caused to strike the stop, and its toe to automatically lift the hinged members of the holder and with them the ribbon; substantially as and for the purpose set forth.

24. In an attachment for type-writers and similar machines, the combination with a platen, and mechanism for feeding the paper,

of a supplemental ribbon and a holder therefor, and a protecting-strip adapted to protect the back of a sheet of paper from the impression of the ribbon and removable independently of the ribbon, substantially as and for the purpose set forth.

25. In an attachment for type-writers and similar machines, adapted to print upon multiple sheets of paper, the combination with a platen, and mechanism for feeding the paper, of a supplemental ribbon, and a readily-removable protecting-strip approximately the length of the width of the paper; substantially as and for the purpose set forth.

26. In an attachment for type-writers and similar machines, adapted to print upon a plurality of sheets of paper, the combination with a platen, and mechanism for feeding the paper, a supplemental ribbon adapted to be placed between two sheets of paper, and a removable protecting-strip adapted also to be placed between such sheets to protect the back of the first sheet from a reversed impression, and a clamping-holder for the ribbon and the strip; substantially as and for the purpose set forth.

27. In an attachment for type-writers and similar machines, adapted to print upon a plurality of sheets of paper, the combination with a platen, and mechanism for feeding the paper, and a supplemental ribbon, of a removable protecting-strip, and a clamping-holder for the ribbon and strip comprising plates hinged together, whereby the ribbon may be supported and the ends of the protecting-strip clamped between such plates and readily removed therefrom if desired; substantially as and for the purpose set forth.

28. In an attachment for type-writers and similar machines, adapted to print upon multiple sheets of paper, the combination with a platen, and mechanism for feeding the paper, a supplemental ribbon, and a pair of reels, one at each side of the carriage, upon which such ribbon may be wound and unwound, of a removable protecting-strip for the back of a sheet of paper, and a holder for the supplemental ribbon and strip, composed of plates hinged together and a spring for normally holding them together; whereby the ribbon is guided transversely of the machine to the reels, and the ends of the protecting-strip are held between the clamping-plates; substantially as and for the purpose set forth.

29. In an attachment for type-writers and similar machines, a platen and a ratchet thereon, a hand-lever provided with a pawl for actuating such ratchet, an additional pawl secured to the lever, a supplemental shaft carrying the ratchet engaged by such additional pawl, and supporting two reels, one at each end of the same, devices for clutching either of the reels to the shaft, and a supplemental ribbon adapted to be wound and unwound upon the reels and pass transversely of the carriage over the platen; substantially as and for the purpose set forth.

30. In an attachment for type-writers and similar machines, the combination with a supplemental ribbon extending transversely of the machine, and a pair of reels upon which it may be wound and unwound, of a transverse shaft upon which such reels are loosely mounted, collars fixed to such shaft and each provided with an aperture, and a spring-bolt secured to the reels and adapted to pass through the same and into the apertures in the collars, or to be withdrawn if desired, whereby either of the reels may be locked to the shaft and thereby caused to wind the ribbon while the other reel is free to revolve on the shaft and permit the ribbon to be unwound; substantially as and for the purpose set forth.

31. In an attachment for type-writers and similar machines, the combination with a supplemental ribbon supported transversely of the machine, a pair of reels upon which such ribbon may be wound or unwound, a transverse shaft upon which the reels are loosely mounted, a pair of collars secured to the shaft so as to rotate therewith, and one of which is provided with teeth, and each of which is provided with an aperture, spring-acted bolts mounted in the reels and adapted to engage the apertures in the collars, turn-buttons secured to these bolts, and a ledge or projection on the reel to engage the turn-button and hold the bolt out of the aperture in the collar, and mechanism for engaging the teeth on a collar and causing the shaft to rotate; substantially as and for the purpose set forth.

32. In an attachment for type-writers and similar machines, the combination with a platen, and a supplemental ribbon, of hinged paper-guides adapted to be moved back out of the way of the paper while the ends of the sheets are being spread apart to insert the supplemental ribbon between them; substantially as and for the purpose set forth.

33. In an attachment for type-writers and similar machines, the combination with a platen and a supplemental ribbon, of a set of several paper-guides and clamping feed-rollers, and mechanism for connecting the several members of the set and simultaneously lifting them out of the way of the paper; substantially as and for the purpose set forth.

34. In an attachment for type-writers and similar machines, the combination with a platen and a supplemental ribbon, of a set of several paper-guides with clamping feed-rollers hinged to the frame of the carriage, and having projections extending therefrom, and a rock-lever connected with the several projections to operate them all simultaneously; substantially as and for the purpose set forth.

35. In an attachment for type-writers and similar machines, the combination with a platen and a supplemental ribbon, of a set of paper-guides and rollers, all hinged to the frame of the carriage, and provided with projections extending laterally of the same, a rock-lever connected to the projections of the

two end guides and rollers to operate them
simultaneously both up and down, and hav-
ing pins engaging the under side of the pro-
jections on the central guide and roller to
5 cause it to be lifted upward but allow the end
guides to be depressed without depressing
the central guide; substantially as and for
the purpose set forth.

In witness whereof I have hereunto set my
hand, this 26th day of August, 1899, in the re-
presence of the subscribing witnesses.

FRED P. GORIN.

Witnesses:

FRANK T. BROWN,
E. C. SEMPLE.