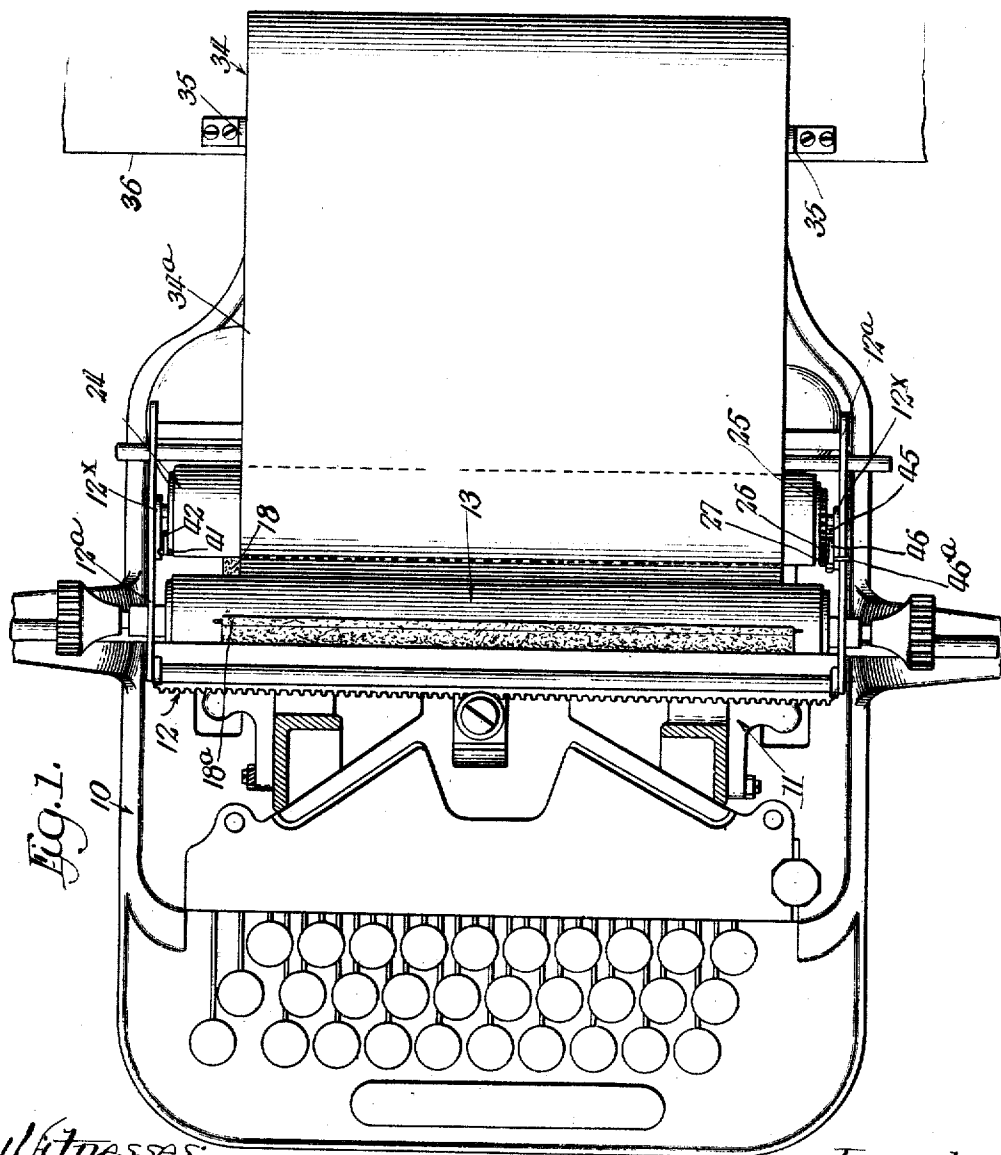


E. Z. LEWIS.
ATTACHMENT FOR TYPE WRITING MACHINES.
APPLICATION FILED NOV. 3, 1911.

1,017.299.

Patented Feb. 13, 1912.

3 SHEETS—SHEET 1.



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Inventor
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by Paul & Brown Attys

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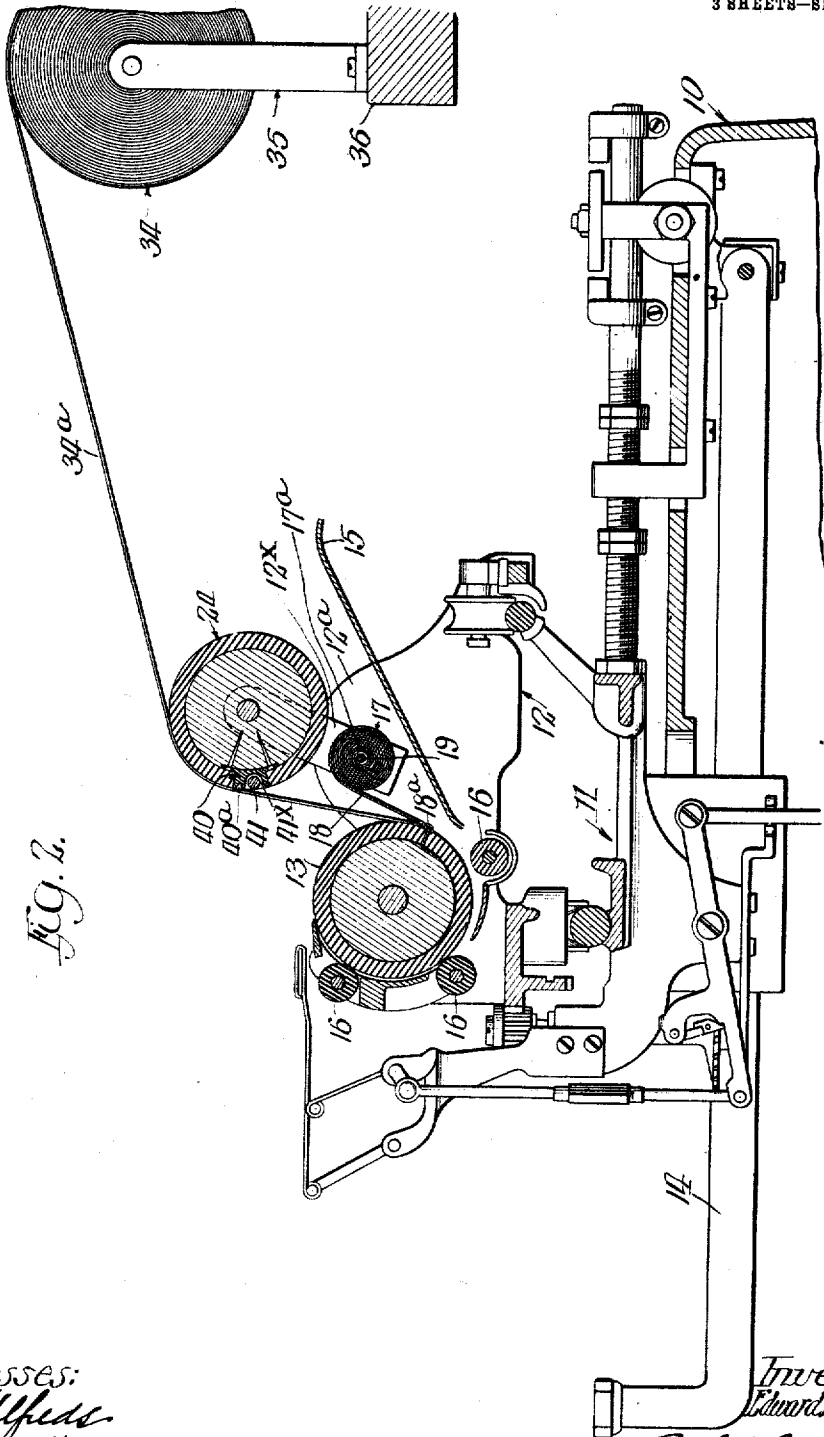


Fig. 2.

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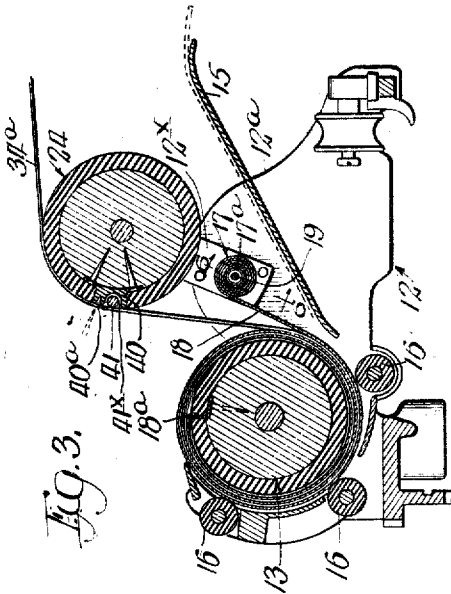
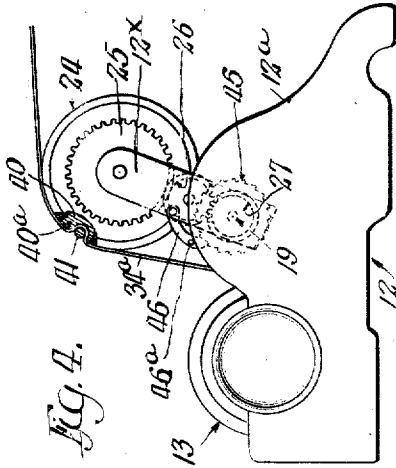
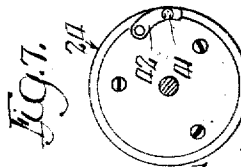
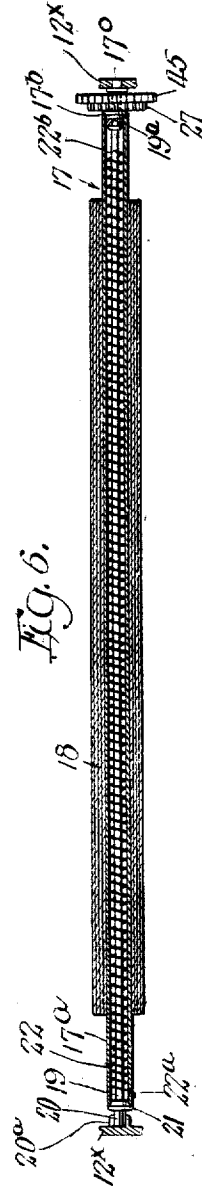
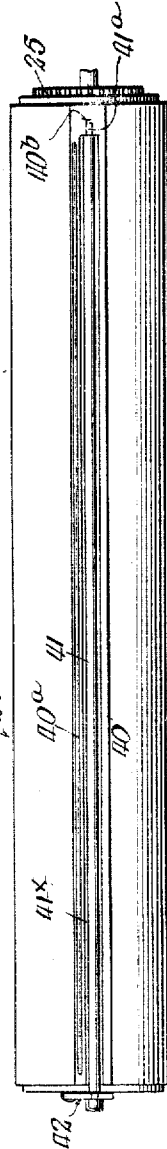


Fig. 5.



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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR TYPE-WRITING MACHINES.

1,017,299.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed November 3, 1911. Serial No. 658,322.

To all whom it may concern:

Be it known that I, EDWARD ZUVER LEWIS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Attachments for Type-Writing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in typewriting machines and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The object of the invention is to provide a typewriter with an attachment for manifolding, whereby a number of carbon copies may be made with a single operation of the machine and whereby said copies may be automatically removed from the platen.

In the drawings—Figure 1 is a top plan view of a typewriter provided with my improved manifolding attachment; Fig. 2 is a view representing a section in a plane extending transversely of the platen through the upper part of the typewriter, shown in Fig. 1, said section being shown on an enlarged scale; Fig. 3 is a partial section in the same plane as that of Fig. 2 showing the manifolding sheet and the carbon wound about the platen; Fig. 4 is an end elevation of the paper carriage; Fig. 5 is a front elevation of the roll for rewinding the manifolding sheet; Fig. 6 is a longitudinal section through the roll to which the carbon ribbon is attached. Fig. 7 is an end view of the roll shown in Fig. 5.

As shown herein, my improved attachment is applied to a typewriting machine of the type known as the "Oliver", but, as will readily be apparent, it may be applied to typewriting machines of other types.

Referring now to that embodiment of my invention illustrated in the drawings, 10 indicates the base of a typewriting machine, 11, the shift frame adapted for forward and backward movement thereon, 12, the paper carriage adapted for longitudinal movement on the shift frame 13, the platen rotatively mounted on the paper carriage, and 14, the type bar levers. These parts are all of familiar construction and operation and require no further description.

12^a, 12^b, indicate the end plates of the

paper carriage in which the platen 13 has rotative bearing.

15 indicates the inclined paper guide plate adapted for guiding the paper into the space about the platen, and 16, 16, 16 rolls extending longitudinally of the paper carriage and which are radially spaced from the platen 13 and adapted to guide the paper about the platen.

17 indicates roll to which is connected one end of a carbon ribbon 18 that is normally wound upon said roll. Said roll 17 is a tension roll adapted to rotate in a direction so as to rewind the ribbon 18 upon itself after said ribbon has been unwound from it, and, as shown in the drawings, is located back of and slightly above the longitudinal central axis of the platen and is rotatively mounted in the end plates of the paper carriage. The roll 17 is supported by arms 12^a secured to the end plates 12^a of the paper carriage, and consists of a tubular barrel 17^a (see Fig. 6) having a closed end 17^b to which is rigidly secured a stub shaft 17^c rotatively mounted in one of the said arms 12^a and has its other end open to receive a rod 19 which extends longitudinally through said barrel with its central axis coincident with the longitudinal central axis of the barrel. Within the barrel at its closed end is fixed a block 19^a in which the adjacent end of the rod 19 has rotative bearing. The other end of the rod 19 projects beyond the barrel and has a squared end 20 which is non-rotatively mounted in a lug 20^a projecting from the face of the adjacent arm 12^a of the paper carriage. A hub 21 rigidly secured to the rod 19 near its squared end closes the open end of the barrel 17 and provides rotative end bearing therefor.

22 indicates a spring coiled upon the rod 19 and having an end 22^a connected with the barrel and its opposite end 22^b connected to the rod 19.

The carbon ribbon 18 is at one end connected to the barrel 17^a and is normally rolled thereupon. The other end 18^a of said ribbon is connected to the surface of the platen 13 in any convenient manner. By this construction it is apparent that the rotation of the barrel on the rod in one direction, that is to say, in a direction to unwind the carbon ribbon 18 will produce tension in the barrel which will tend to rotate the same in the opposite direction so as to rewind said ribbon.

The arms 12* project above the end plates 12* of the paper carriage. At the upper ends of said arms 12* is rotatively supported a roll 24 which is of substantially the diameter of the platen. Means is provided for inducing tension in the roll 24 so that after the manifold copies have been made the sheet containing said manifold copies may be wound upon the roll 24 at the same time that the carbon ribbon 18 is rewound on the roll 17. As shown in the drawings, this tension is produced by gearing the roll 24 to the roll 17.

25 indicates a gear rigidly secured to one end of the roll 24 and meshing with an intermediate idle gear 26 rotatively mounted on the adjacent arm 12* and which in turn meshes with a gear 27 fixed to the end of the roll 17. Said gears are so arranged that a rotation of the roll 17 to rewind the ribbon 18 will produce a rotation of the roll 24 in the same direction to rewind the manifolded sheet and the gears are so proportioned that the peripheral speed of the two rolls will be substantially the same. A ratchet wheel 45 made rigid with the gear 27 is engaged by a gravity pawl 46 pivoted to the arm 12* which normally locks the ribbon roll 17 against rotation in a direction to rewind the carbon ribbon. A projecting pin 46* serves to lift said arm to disengage the said pawl from its ratchet when it is desired to rewind the carbon ribbon on the roll 17.

34 indicates a paper roll rotatively supported in any convenient manner at the rear of the typewriting machine. As shown in the drawings, said roll is shown rotatively mounted on standards 35 rising upwardly from a base board 36 supported at the rear of the machine in any convenient manner (not shown). From the paper roll 34 is unwound the manifolding sheet 34*. The manifolding strip 34* is fed over the roll 24 which is provided with means for attaching said strip to its surface.

40 indicates a plate extending longitudinally of the roll 24 with its outer surface forming part of the cylindric surface of said roll. A rod 41 is removably secured in a slot 41* extending longitudinally of said plate. As shown said rod has a reduced projection 41* adapted to engage in a hole or aperture 40* in one end wall of the slot 41*. The other end of said rod projects beyond the end of the roll 24 and is engaged by a swinging ratchet arm 42 pivoted to the end of said roll and adapted to retain said rod in its associated slot 41*. After swinging said arm 42 outwardly to disengage it from the end of the rod 41, the rod 41 may be moved in the direction of its length to withdraw its reduced end from the aperture 40* whereupon said rod may be removed from the slot or groove 41*. By means of this construction, after the manifolding

strip has been wound upon the platen the required number of times, the part of the manifolding strip intermediate said platen and the paper roll 34 may be clamped in the groove 41* by means of the rod 41. A narrow longitudinal groove 40* is formed in the surface of the plate 40 at the rear of the rod 41, so that after the manifolding strip has been connected to the surface of the roll 24, said strip may be severed by running a knife-edge through the groove 40*.

The operation of my improved attachment is as follows: When it is desired to produce manifold copies of an original paper, the forward end of the manifolding sheet 34* is brought over the roll 24 and down into the apex of the angle between the forward end of the carbon ribbon and the surface of the platen 13. (See Fig. 2). The platen is then rotated in the usual manner which causes the sheet 34* and the carbon ribbon to be wound about the platen, with the carbon ribbon superposed on top of the manifolding sheet. The platen is rotated as many times as there are copies to be made. When making the last rotation of the platen to wind the last section of the manifolding sheet on the platen, the original sheet upon which the original items are to be written, is fed over the guide plate 15 into the space between the rolls 16, 16 of the platen in the usual manner, said sheet thus lying on top of the outer section of the carbon ribbon. The writing is then made upon the original sheet in the usual manner. The length of the circumference of the platen 13 and of the roll 24, which is the same, is equal to the length from the top to the bottom of the original sheet. Thus each winding of the manifolding sheet on the platen represents the length from top to bottom of one of the manifolding copies when the sheet is severed into the several copies which comprise its length. After the original has been written the rod 41 is withdrawn endwise from the roll 24 and the manifolding strip 34* is clamped by said rod in the groove 41* in the surface of said roll. The roll 24 during the winding of the manifolding strip and carbon ribbon upon the platen and during the writing upon the original has been rotating forwardly with the ribbon roll toward the platen and at a circumferential speed equal to the speed of the platen. The roll 24 has a predetermined angular and spaced relation to the platen such that the end 18* of the carbon ribbon attached to the platen is distant from the groove 40* in the plate 40 of said roll 24 measured by a strip being wound upon the platen and unwound from said roll 24 or vice versa, a space equal to the length of the original, which, as before stated, is equal to the length of the circumference of the platen, and also to the length of the circumference of the roll 24.

After the manifolding strip is attached to the roll 24, it is severed by passing a knife-edge above the groove 40^a. The back ratchet 45 is then released by raising the pawl 46 whereupon the roll 17 rewinds the carbon ribbon upon it and the roll 24 is caused to wind upon itself the manifolding strip 34^a. A blade or knife-edge is then used to sever the manifolding strip in the plane of the groove 40^a whereupon sections of said strip of like length and each equal to the length of the original and containing a carbon copy thereof will drop from the roll 24 and may be gathered up and distributed.

While in describing my invention I have referred to certain details of mechanical construction and arrangement, manifestly these may be changed in various ways without departing from the spirit of my invention. I do not wish to be limited thereby except as pointed out in the appended claims.

I claim as my invention:

1. A manifolding attachment for typewriter comprising, in combination with the platen, a carbon ribbon having its end attached to the surface of said platen, a roll extending parallel to said platen, and having the same diameter as said platen, an attaching device for removably securing a manifolding sheet to the surface of said roll, means for inducing tension in said roll tending to cause its rotation in a direction to wind from said platen, and means for locking said roll to prevent such winding movement.

2. A manifolding attachment for typewriter comprising, in combination with the platen, a carbon ribbon having its end attached to the surface of said platen, a roll extending parallel to said platen, and having the same diameter as said platen, an attaching device for removably securing a manifolding sheet to said roll along a predetermined longitudinal line of its surface, said predetermined line in the surface of said roll being spaced from the line of connection of the carbon ribbon to said platen a distance equal to the circumference of said platen, said distance being measured along a strip wound upon said roll and unwound from the platen, means for inducing tension in said roll tending to cause its rotation in a direction to wind from said platen, and means for locking said roll to prevent such winding movement.

3. A manifolding attachment for typewriter comprising, in combination with the platen, a carbon ribbon roll extending parallel with said platen, a carbon ribbon wound on said roll and having its forward end attached to the surface of said platen, a second roll of the diameter of the platen extending parallel to said platen, an attaching device for removably securing a manifolding sheet to said second roll along a pre-

determined longitudinal line of its surface, said second roll and said platen having such angular and spaced relation that said predetermined line in the surface of said second roll is spaced from the line of connection of the carbon ribbon to said platen a distance equal to the circumference of said platen, said distance being measured along a strip wound upon said second roll and unwound from the platen, means for inducing tension in said carbon ribbon roll and in said second roll tending to cause their rotation in a direction to wind from said platen, and means for locking said rolls to prevent such winding movement.

4. A manifolding attachment for typewriters comprising, in combination with the paper carriage and the platen carried thereby, a carbon ribbon roll rotatively carried by said paper carriage and extending parallel with said platen, a carbon ribbon wound on said roll and having its forward end attached to the surface of said platen, a second roll rotatively supported by said paper carriage and extending parallel to said platen, said second roll having the same diameter as said platen, an attaching device for removably securing a manifolding sheet to said second roll along a predetermined longitudinal line of its surface, said roll and said platen having such angular and spaced relation that said predetermined line in the surface of said second roll is spaced from the line of connection of the carbon ribbon to said platen a distance equal to the circumference of said platen, said distance being measured along a strip wound upon said second roll and unwound from the platen, said second roll being provided with a longitudinal slot in its surface at or adjacent to said predetermined line, means for inducing tension in said carbon ribbon roll and in said second roll tending to cause their rotation in a direction to wind from said platen, and means for locking said rolls to prevent such winding movement.

5. A manifolding attachment for typewriters comprising, in combination with the platen, a carbon ribbon roll extending parallel with said platen, a carbon ribbon wound on said roll and having its forward end attached to the surface of said platen, a second roll of the diameter of the platen extending parallel to said platen, an attaching device for removably securing a manifolding sheet to said second roll along a predetermined longitudinal line of its surface, said second roll and said platen having such angular and spaced relation that said predetermined line in the surface of said second roll is spaced from the line of connection of the carbon ribbon to said platen a distance equal to the circumference of said platen, said distance being measured along a strip wound upon said second roll and un-

wound from the platen, gearing intermediate said carbon ribbon roll and said second roll, whereby the one is driven by the other at substantially the same rate of circumferential speed, means for inducing tension in one of said rolls tending to cause its rotation in a direction to wind from said platen, and back-ratcheting means to normally prevent such winding movement.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 26th day of October A. D. 1911.

EDWARD ZUVER LEWIS.

Witnesses:

GEORGE R. WILKINS,
T. H. ALFREDS.