



FIG. 2.

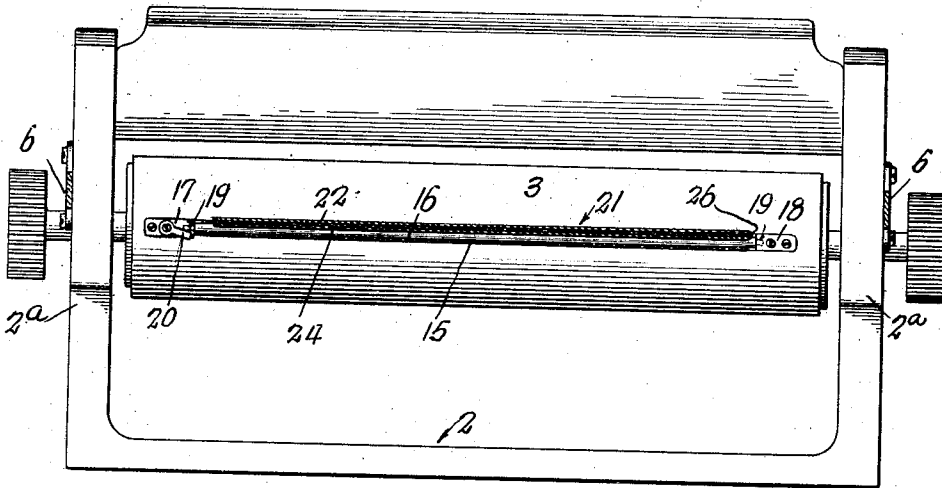


FIG. 3.

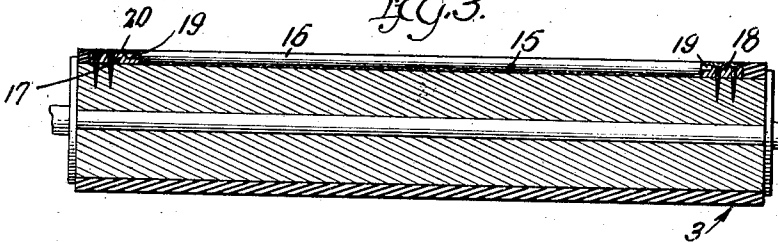
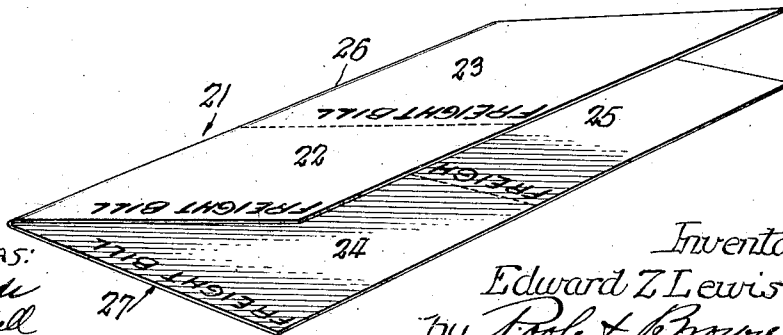


FIG. 4.



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E. Z. LEWIS.  
 ATTACHMENT FOR TYPE WRITERS.  
 APPLICATION FILED SEPT. 18, 1909.

940,336.

Patented Nov. 16, 1909.

3 SHEETS—SHEET 3.

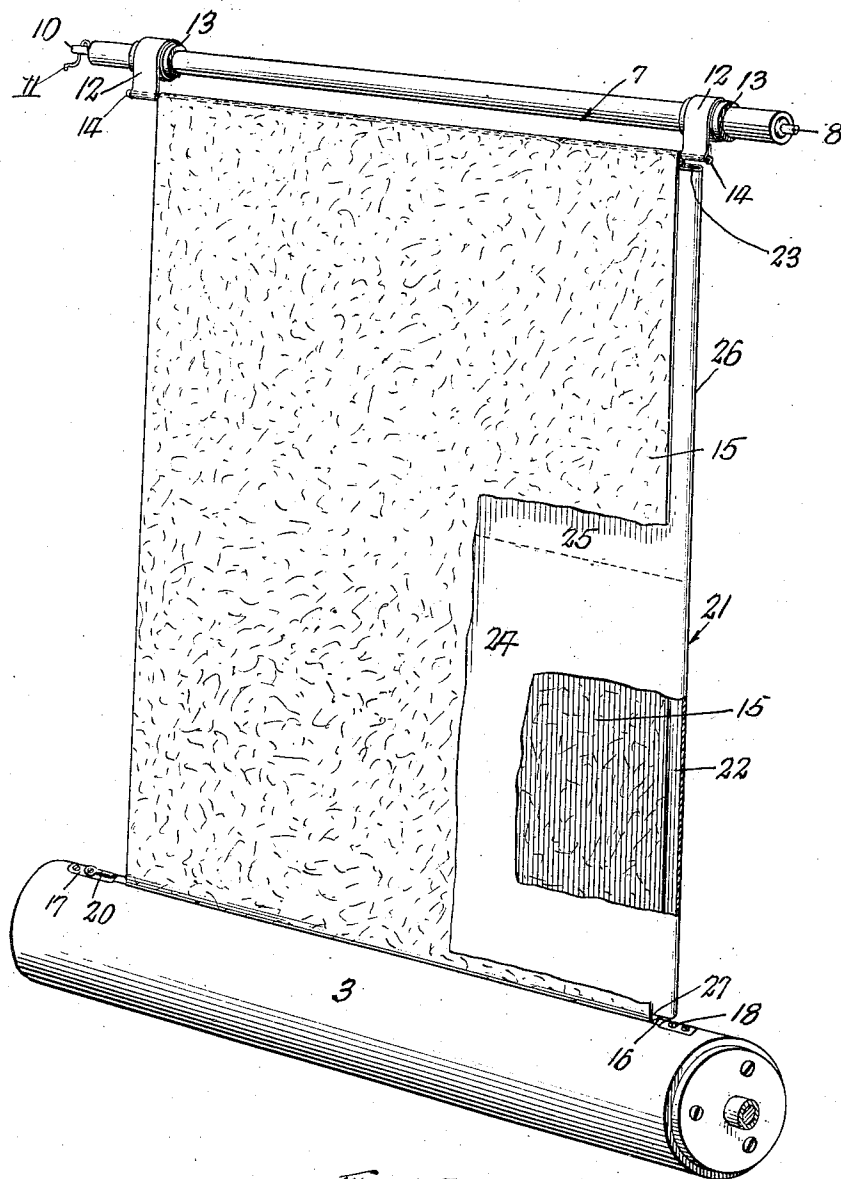


FIG. 5.

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# UNITED STATES PATENT OFFICE.

EDWARD Z. LEWIS, OF CHICAGO, ILLINOIS.

## ATTACHMENT FOR TYPE-WRITERS.

940,336.

Specification of Letters Patent. Patented Nov. 16, 1909.

Application filed September 18, 1909. Serial No. 518,315.

To all whom it may concern:

Be it known that I, EDWARD Z. 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-Writers; 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 characters of reference marked thereon, which form a part of this specification.

This invention relates to an attachment for typewriters and consists of a novel and improved arrangement for making manifold copies.

The attachment is intended particularly for making manifold copies on forms printed on a sheet folded lengthwise with a plurality of forms, two or more, arranged on each fold of the sheet, those of one fold being arranged to lie above and register with those on the other fold.

The invention consists of the combination of parts hereinafter described and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a vertical, transverse section through a typewriter provided with my improved attachment. Fig. 2 is a horizontal section through Fig. 1 on the line 2—2 thereof. Fig. 3 is a longitudinal section through the platen illustrating the manner of attachment of the carbon ribbon. Fig. 4 is a perspective view of the sheet to be used with my improved attachment. Fig. 5 is a perspective view of the platen and the carbon with a sheet in position ready to be wound upon the platen to be written upon. Fig. 6 is a transverse section through the platen showing the ribbon and sheet wound thereon. Fig. 7 is a side elevation, partly in section, of the tension roller to which the carbon ribbon is attached.

I have illustrated my attachment as applied to a machine of the Underwood type but it will be apparent that it may be applied to other machines and I, therefore, do not limit my invention to this type of machine.

In the drawings, 1 represents the base of the machine; 2, the paper-carriage; 3, the platen; 4, the type-keys; and 5, one of the type-bars. The paper-carriage 2 comprises a rectangular frame provided with end

plates 2<sup>a</sup>. These parts are of the usual construction and form no part of my invention.

Projected above the paper-carriage 2, and secured to the end plates 2<sup>a</sup> thereof, are up-standing bracket arms 6, one at each end of the paper-carriage, at the upper ends of which is rotatably mounted a spring controlled tension roller 7. Said roller (as illustrated in Fig. 7) is provided at one end with a short stub shaft 8 and at its opposite end with a socket 9 within which is secured a shaft 10 which turns with the roller. A coil spring 11 surrounds said shaft 10 and has one end fixed to the shaft and the opposite end engaged with the standard 6. The construction and arrangement is such as to put the roller in tension when it is rolled in a forward direction, as indicated by the arrow in Fig. 1. To said roller are attached tapes 12, 12 which are wound about the roller, (being preferably located within annular grooves 13), and having their outer ends attached to a rod or roller of small diameter 14.

15 indicates an endless carbon ribbon which passes about the rod 14 at the top and about a roller 16 at the bottom, which roller is pivotally mounted in the surface of the platen, as indicated in Fig. 3. Said roller is so arranged that its outer periphery will coincide with the outer periphery of the platen.

Any convenient method of attachment may be used for detachably securing the roller to the surface of the platen so that the endless tape or ribbon may be placed about it. In the construction illustrated, a slot running the length of the platen is cut in the surface thereof and at each end of said slot are located blocks 17, 18 which are secured by screws to the body of the platen. Said blocks are provided with sockets adapted to receive short spindles 19, 19 formed at the ends of the roller 16. One of the sockets opens through the top of the block 17 so that the spindle at that end may be slipped from the socket, and a catch 20 serves to retain said spindle in place by closing the opening in the socket.

The sheet to be used with my attachment is illustrated in Fig. 4, in which 21 represents a sheet folded longitudinally along its medial line with a plurality of forms printed on the sheet, as indicated at 22, 23, 24, 25,

said forms being so arranged that when the sheet is folded along the line 26 the form 22 will lie above and register with the form 24, and the form 23 will lie above and register with the form 25. These forms are of a height equal to the length of the circumference of the platen so that one revolution thereof will wind the top forms completely about the platen and the next revolution will wind the bottom forms so as to lie upon said top forms.

To apply the folded sheet to the typewriter platen, it is grasped by the right hand and turned about so that the end 27 points downward and the printed forms 22, 23, 24, 25 are faced away from the operator. The fold with the forms 24, 25 is then slipped between the two lengths of the carbon ribbon 15 with the other fold back of the rear length of the carbon ribbon. The end 27 is brought against the surface of the platen 3 and the sheet and ribbon wound together thereon, as indicated in Fig. 6. The winding is continued until the top of the lower form 23 is brought opposite the operative position of the type. It will be apparent that in this position the forms and carbon ribbon will overlies each other as follows: On the outside the form 23; under this the carbon ribbon; next the form 25; under this the carbon ribbon; next the form 22; then the carbon ribbon; underneath this the form 24; and finally the carbon ribbon lying next to the surface of the platen. It is thus apparent that, as the forms are of a height and length equal to the length of the circumference of the platen, the type impressions made on the form 23 will be reproduced on all the other forms and in the example illustrated, four copies are made at one operation.

After the writing is finished and the platen brought to the angular position illustrated in Fig. 6 the platen is released and the ribbon allowed to return to the position indicated in Fig. 1,—the tension roller 7 causing the marginal tapes to rewind thereon. The folded sheet is then removed and the several forms detached.

While I have shown herein certain details of mechanical construction and arrangement it is to be understood that I do not limit myself to them except as pointed out in the appended claims.

I claim as my invention:—

1. In a typewriter, in combination with a platen, a carbon ribbon in the form of an endless belt, and means for attaching one loop of said ribbon to the platen.

2. In a typewriter, in combination with a platen, a carbon ribbon in the form of an endless belt with one loop attached to the platen, both sections of the ribbon being adapted to be wound about the platen.

3. In a typewriter, in combination with a

platen, a carbon ribbon comprising superimposed sections attached to said platen and adapted to be wound thereupon.

4. In a typewriter, in combination with a platen, a carbon ribbon in the form of an endless belt with one loop of the belt attached to the periphery of the platen, and means for maintaining said belt in tension.

5. In a typewriter, in combination with a platen, a carbon ribbon in the form of an endless belt with one loop attached to the platen, means for maintaining said belt in tension, and both sections of the ribbon being adapted to be wound about the platen.

6. In a typewriter, in combination with a platen, a carbon ribbon comprising superimposed sections attached to said platen and adapted to be wound thereupon, and means for maintaining the sections of said carbon ribbon under tension.

7. In a typewriter, in combination with a platen, a roller secured with its surface tangential with the periphery of said platen, a carbon ribbon in the form of an endless belt with one loop about said roller, a rod located within the opposite loop of said ribbon, a tension roller, and tapes having one of their ends secured to said tension roller and their opposite ends secured to said rod.

8. In a typewriter, in combination with a platen, a roller removably secured to said platen with its surface tangential with the periphery of the platen, a carbon ribbon in the form of an endless belt with one loop about said roller, a rod located within and supporting the opposite loop of said ribbon, a tension roller, and tapes secured at their opposite ends, respectively, to said rod and to said tension roller.

9. In a typewriter, in combination with a platen, a carbon ribbon in the form of an endless belt, means for detachably securing one loop of said ribbon to the periphery of the platen, a supporting member for the other loop of the ribbon, a tension roller, and tapes secured at their opposite ends, respectively, to said supporting member and to said tension roller.

10. In a typewriter, in combination with a platen, a carbon ribbon in the form of an endless belt, and means for detachably securing one loop of said ribbon belt to the periphery of the platen.

11. In a typewriter, in combination with a platen, a carbon ribbon in the form of an endless belt, means for detachably securing one loop of said ribbon belt to the periphery of the platen, and means for maintaining said belt in tension.

12. In a typewriter, in combination with a platen, a carbon ribbon comprising superimposed sections, and means for detachably securing the ends of said sections to the periphery of the platen.

13. In a typewriter, in combination with a

platen, a carbon ribbon comprising super-  
imposed sections, means for detachably se-  
curing the ends of said sections to the pe-  
riphery of the platen, and means for main-  
5 taining said ribbon sections in tension.

In testimony, that I claim the foregoing  
as my invention I affix my signature in the

presence of two witnesses, this 15th day  
of September A. D. 1909.

EDWARD Z. LEWIS.

Witnesses;

CLARENCE E. MEHLHOPE,  
GUY M. CAMPBELL.