

T. L. KNAPP.  
PAPER CARRIAGE FOR TYPE WRITING MACHINES.  
APPLICATION FILED JULY 11, 1910.

981.927.

Patented Jan. 17, 1911.

FIG. 1.

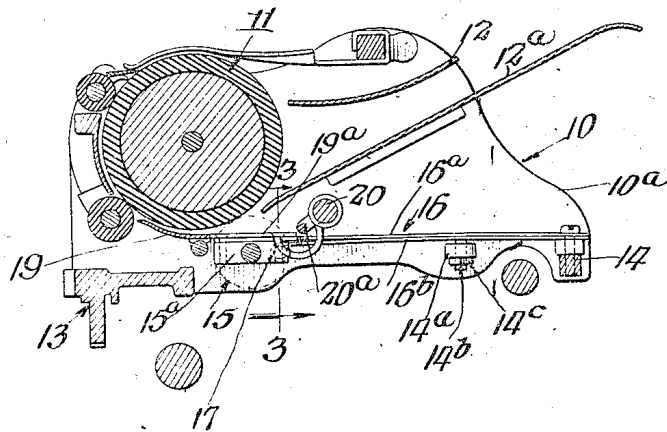


FIG. 2.

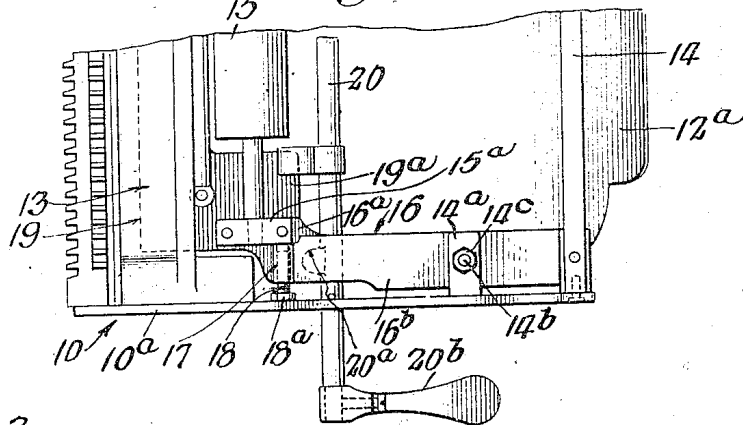


FIG. 3.

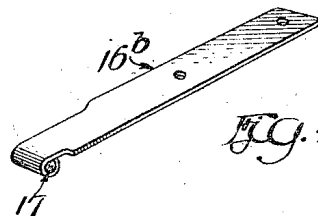
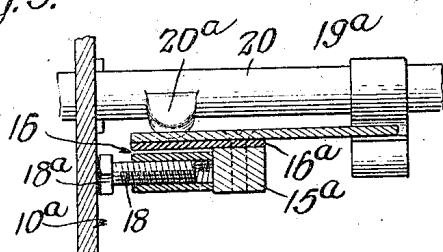


FIG. 4.

Witnesses:  
J. H. Alfede  
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# UNITED STATES PATENT OFFICE.

THERON L. KNAPP, OF WOODSTOCK, ILLINOIS, ASSIGNOR TO THE OLIVER TYPEWRITER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## PAPER-CARRIAGE FOR TYPE-WRITING MACHINES.

981,927.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed July 11, 1910. Serial No. 571,329.

*To all whom it may concern:*

Be it known that I, THERON L. KNAPP, a citizen of the United States, and a resident of Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Paper-Carriages 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 paper-carriages for typewriting machines, and particularly to certain novel features of construction of the means for supporting the rear presser roller which acts to grip or hold the paper against the surface of the platen where the advance edge of the paper first comes into contact with the platen in the act of inserting a sheet.

The invention herein is shown as applied to a typewriter of the "Oliver" type, substantially as shown in Letters Patent of the United States No. 599,863, granted March 1st, 1898, to Thomas Oliver, but it is to be understood that it is not limited to this form of typewriting machine and may be applied to other typewriting machines as well.

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

In the drawings:—Figure 1 is a vertical cross-section through a typewriting machine paper carriage provided with my improvements, the section being taken near the left hand end plate of the paper-carriage. Fig. 2 is a partial bottom plan view of the paper carriage. Fig. 3 is a vertical section through Fig. 1 on the line 3—3 thereof. Fig. 4 is a perspective view of one of the leaves of the spring arms which support the presser roller.

In the drawings,—10 indicates the paper-carriage, as a whole; 11, the platen; 12, 12<sup>a</sup>, the upper and lower paper-guides; 13 and 14, the front and rear bars, respectively, of the paper-carriage; 10<sup>a</sup>, the left hand end plate; and 15, the rear presser roller which is adapted to hold the paper against the platen where the advance edge of the paper first comes into contact with the platen when the sheet is fed thereto.

The presser roller 15 is rotatably mounted at its ends in bearing blocks 15<sup>a</sup> carried at the forward, free ends of horizontal spring arms 16 which are located at the opposite ends of the carriage frame and are rigidly attached to said frame at their rear ends. Said spring arms cause the presser roller to press the paper firmly against the platen. Each spring arm comprises an upper leaf 16<sup>a</sup> which is rigidly secured to the top of its associated bearing block 15<sup>a</sup> and a lower leaf 16<sup>b</sup> upon which the upper leaf 16<sup>a</sup> rests. Said upper and lower spring leaves contact throughout their length and are secured at their rear ends to a lug on the end plate 10<sup>a</sup> of the paper-carriage. At a point forward of the rear end of the spring arm is located a lug 14<sup>a</sup>, formed on the end plate 10<sup>a</sup> of the carriage and through said lug is threaded a set-screw 14<sup>b</sup> which engages the under side of said arm. By this construction the position of the forward ends of the spring arms may be adjusted so as to produce the desired pressure of the presser roller against the platen. A jam nut 14<sup>c</sup> locks the set-screw when it has been properly adjusted.

The lower leaf 16<sup>b</sup> of the spring arm 16 is rolled on itself at its forward end to form a transverse lug 17 (see Fig. 4), which extends parallel to the axis of the presser roller 15 and engages the end of its associated bearing block 15<sup>a</sup>, (see Fig. 2). Said lug is threaded to receive a bolt 18 having a head 18<sup>a</sup> which engages against the inner surface of the end plate 10<sup>a</sup> of the carriage. The lug 17 and the bolt 18 thus together constitute a floating thrust member interposed between the opposing faces of the end plate 10<sup>a</sup> of the carriage and the bearing block 15<sup>a</sup>, which serves to take up the shock due to a sudden stoppage of the carriage, as in the case of machines provided with tabulating attachments when the movement of the carriage is arrested by engagement with the fixed stop member, and prevents the presser roller from being displaced endwise. By adjusting the bolts 18, the abutments may be made to exactly fill the spaces between the bearing blocks and the end plates without binding and thus preventing the presser roller from being depressed from the platen when desired.

19 is the usual guide plate which directs the sheet in contact with the platen after it

has passed beyond the presser roller 15. Said guide plate has rear extensions 19<sup>a</sup> at each end which are secured to the free forward ends of the spring arms 16 in the usual manner. The forward ends of the spring arms are adapted to be depressed to withdraw the presser roller from its engagement with the platen by means of the usual rock-shaft 20 provided with arms 20<sup>a</sup> which, when the rock-shaft is rotated forward, strike against the top of the spring arms 16 and depress them. Said rock-shaft is operated by a rock-arm 20<sup>b</sup> secured to the end thereof which projects beyond the paper-carriage.

I claim as my invention:—

1. In a typewriting machine, in combination with a paper-carriage having a frame including end plates, and a platen mounted in said frame, of a presser roller located beneath and pressing upwardly against said platen, spring arms attached at their rear ends to the carriage frame, bearing blocks for said presser roller carried at the forward free ends of said springs, and floating thrust members carried by said spring arms interposed between said bearing blocks and said end plates.

2. In a typewriting machine, in combination with a paper-carriage having a frame including end plates, and a platen mounted in said frame, of a presser roller located beneath and pressing upwardly against said platen, spring arms attached at their rear ends to the carriage frame, bearing blocks for said presser roller carried at the forward free ends of said springs, and floating thrust members carried by said spring arms interposed between said bearing blocks and said end plates, said thrust members being adjustable in length.

3. In a typewriting machine, in combination with a paper-carriage having a frame including end plates, and a platen mounted in said frame, of a presser roller located beneath and pressing upwardly against said platen, spring arms attached at their rear ends to the carriage frame, vertically adjustable supporting members carried by said frame intermediate the ends of said spring arms, bearing blocks for said presser roller carried at the forward free ends of said springs, and floating thrust members carried by said spring arms interposed between said bearing blocks and said end plates.

4. In a typewriting machine, in combina-

tion with a paper-carriage having a frame including end plates; and a platen mounted therein, of a presser roller located beneath and pressing upwardly against said platen, spring arms attached to the carriage frame, bearing blocks for said presser roller carried by said spring arms, and lugs carried by said spring arms adjacent to said bearing blocks, said lugs engaging at one end against said bearing blocks and being provided at their opposite ends with adjustable parts adapted to engage said end plates to prevent endwise movement of said presser roller.

5. In a typewriting machine, in combination with a paper-carriage having a frame including end plates, and a platen mounted therein, of a presser roller located beneath and pressing upwardly against said platen, spring arms rigidly attached at their rear ends to the carriage frame, vertically adjustable supporting members carried by said carriage frame adapted to support said spring arms forward of their rearward ends, bearing blocks for said presser roller carried by said spring arms at their forward free ends, lugs carried by said spring arms adjacent to said bearing blocks and adapted to engage the outer ends of said bearing blocks, and adjustable parts secured to the opposite ends of said lugs adapted to engage against the inner face of said end plates of the carriage frame.

6. In a typewriting machine, in combination with a paper-carriage having a frame including end plates, and a platen mounted therein, of a presser roller located beneath and pressing upwardly against said platen, spring arms attached to the carriage frame, bearing blocks for said presser roller carried by said spring arms, said spring arms each including a leaf having its free end attached to said bearing block, and a second leaf provided at its forward end with a lug engaging the outer end of said bearing block, and a bolt or screw threaded into said lug adapted to engage against the inner face of the end plate of the paper-carriage.

In testimony, that I, claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 30th day of June A. D. 1910.

Theron L. Knapp.

Witnesses:

A. J. Mullen,  
B. C. Young.