

G. M. ECKELS.
TYPE WRITING MACHINE.

No. 544,572.

Patented Aug. 13, 1895.

Fig. 1

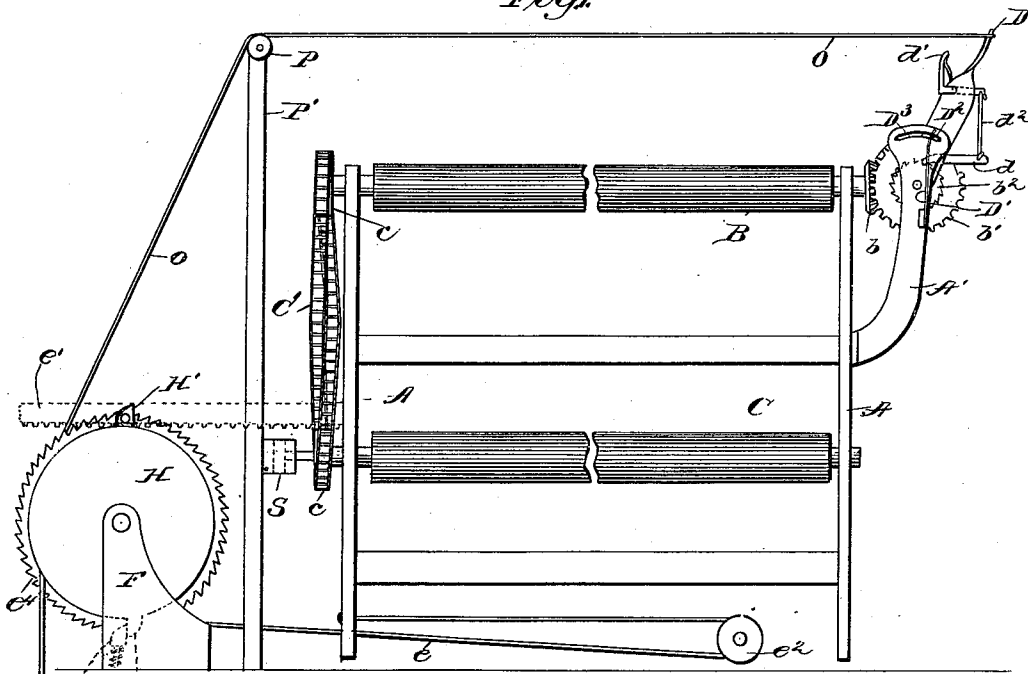


Fig. 2

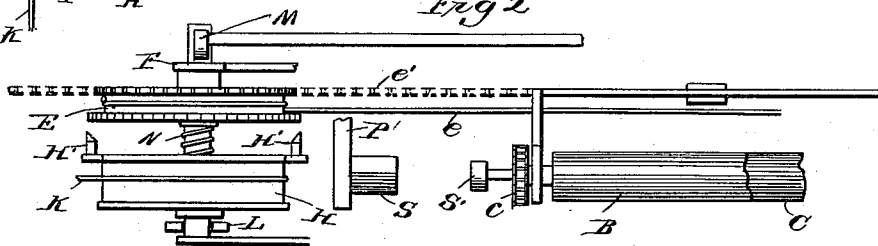


Fig. 3

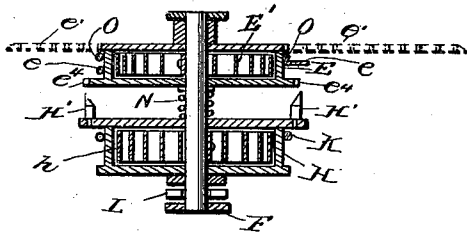
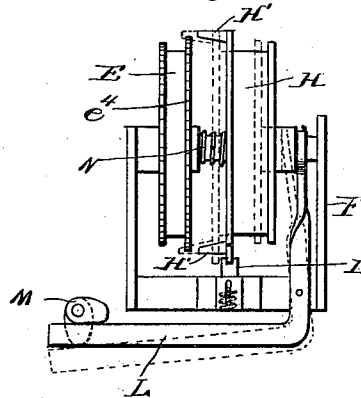


Fig. 4



Witnesses:

J. M. Finkley
A. J. Stewart

Inventor:

George M. Eckels
By Charles H. Church
his Attorneys

(No Model.)

2 Sheets—Sheet 2.

G. M. ECKELS.
TYPE WRITING MACHINE.

No. 544,572.

Patented Aug. 13, 1895.

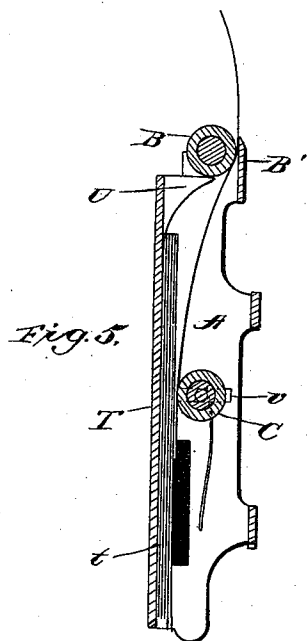
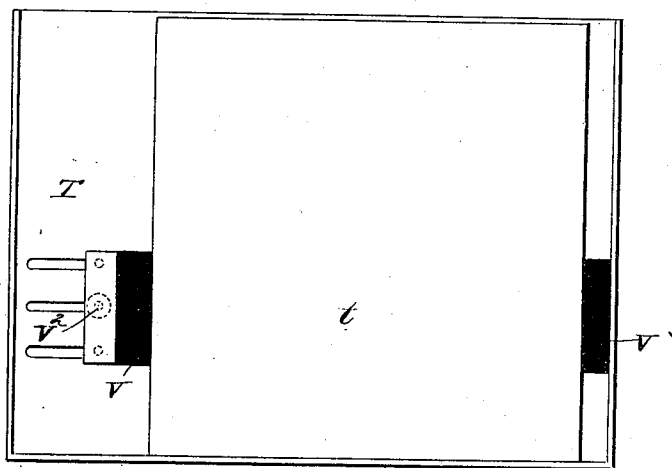


Fig. 6.



Witnesses:

J. M. Fowler Jr
Alfred Stewart.

Inventor:

George M. Eckels,

By *Chunck & Chunck*
his Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE M. ECKELS, OF CHICAGO, ILLINOIS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 544,572, dated August 13, 1895.

Application filed August 14, 1894. Serial No. 520,275. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. ECKELS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Type-Writers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in type-writers, and has for its object to provide an improved mechanism for returning the carriage to first position and automatically advancing the paper the distance of one line, together with means for feeding a succession of sheets, to which ends the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a rear elevation of a paper-carriage and feeding mechanism with the sheet-holder removed. Fig. 2 is a top plan view with a portion of the carriage broken away. Fig. 3 is a horizontal section through the spring-actuated feeding-drums. Fig. 4 is an end elevation of the same. Fig. 5 is a vertical section through the carriage and sheet-holder. Fig. 6 is an elevation looking at the front of the sheet-holder.

Similar letters of reference in the several figures denote the same parts.

In the drawings I have shown my present improvements in connection with a vertically-arranged carriage, lettered A, such as is particularly adapted for use in the type-writing machines described in my Patent No. 466,490 and in my pending application, Serial No. 516,351, filed July 2, 1894, although it is obvious that the invention is applicable to other forms of carriage at present used on type-writing machines. The said carriage A, as shown, is provided with two elastic rollers B and C, the former journaled to contact with the front bar B' and constituting what I shall term the "paper-holding" roller, and the latter C, located some distance below it, constituting what I shall term the "paper-feeding" roll. These rollers have sprocket-wheels c at one end outside the frame, over which a

crossed sprocket-chain C' runs, connecting the rollers for simultaneous rotation, but in opposite directions. On the opposite end of the paper-holding roller a beveled gear-wheel b is mounted and meshes with a gear-wheel b' of larger size, journaled in the bracket A' on the carriage A and having upon one side a ratchet-wheel b². Upon the shaft of this larger gear-wheel there is journaled a finger-lever D, carrying a pawl d, adapted to co-operate with the ratchet-wheel and itself controlled through the medium of a small spring-pressed releasing-lever d' and connecting-rod d². The finger-lever is held in the position shown in Fig. 1 by a spring D' and limited in its movements by a stop-pin D², projecting through a slot D³ in the bracket. With this arrangement when the finger-lever is pushed against the tension of its spring the rollers are rotated, and if the carriage has advanced from first position a continued push on the finger-lever will return it to said first position.

To advance the carriage I make use of any ordinary escapement mechanism (not shown) and a drum E, journaled in a bracket F, secured at any convenient point on the stationary frame of the machine and containing a coil-spring E', with a cord, rack-bar, or equivalent connection between the drum and carriage. (In full lines I have shown a cord e and in dotted lines a rack-bar e'.) When a cord e is employed it should pass forward and around a pulley e² on the stationary frame of the machine and back to the carriage, as it is desirable to have the drum located on the right-hand side of the machine.

With the mechanism as thus far described the carriage may be allowed to advance by means of any preferred form of escapement mechanism, and by pressing on the finger-lever when the end of a line is reached the paper may be fed and the carriage returned to normal or first position. In order, now, to accomplish these movements with the utmost speed and ease, a second drum, lettered H, is provided, mounted on the same axis with the drum E and containing a superior spring h. This drum H is movable on its shaft toward and from the drum E and carries two projections H', adapted to enter recesses or between teeth e⁴ on the drum E when moved in proximity thereto and to engage a spring-pressed

catch I on the bracket when not in proximity to the drum E. The spring in drum H is wound in an opposite direction to that in drum E, and consequently when it is under tension if the projections or teeth be thrown into engagement with the drum E the latter will be given a reverse movement and through the rack-bar or a cord connection, to be presently described, will move the carriage back to first position.

Drum H has a cord K wound upon it and extending down to any suitable rewinding mechanism, by which the superior spring may be rewound when necessary. In rewinding the projections on the drum ride over the spring-catch I, which holds the drum until moved into engagement with the drum E, as will be readily understood from an inspection of Fig. 4. This Fig. 4 also shows the means for moving the drum H, or, as I shall term it, "rewinding-drum," which consists of a bell-crank lever L, pivoted to the bracket operated by a cam M, preferably by a key of ordinary character, and therefore not shown, located in the keyboard and acting in opposition to a spring N, which tends to hold the drums apart. A second cord O is wound on the drum E in a reverse direction from the carriage-advancing cord and after passing over a pulley P on a standard P' is connected to the finger-lever D. Thus when the drum E is given a reverse movement by the superior spring h in the drum H the cord O will be wound on the drum E, the finger-lever moved to feed the paper, and the carriage returned to first position. This return movement should be rapid, and a pneumatic check is provided for arresting the carriage, consisting of a short closed-bottom cylinder S, secured to the standard P', and a piston S' on the carriage in position to enter the cylinder when the carriage returns to first position.

From the foregoing the carriage mechanism, together with the mechanism for finding the paper, will be readily understood, and it remains to describe the paper-holder shown particularly in Figs. 5 and 6. By reference to these figures it will be seen that a box or frame T is secured to the outer side of the carriage in position to receive a package of sheets of paper, such as t, against the front side of which the feeding-roll bears. The upper end of the sheets lie normally below the level of the holding-roller and as they are on the rear side of the feeding-roll and must pass to the front side of the holding-roll a guide U is provided for directing their upper ends.

The length of the sheets is quite immaterial, and they may or may not extend below the level of the carriage, according as they are long or short, it being understood, of course, that the base upon which the machine rests must be cut away to accommodate the lower ends of long sheets.

The sheets are held in place and sufficient friction created to prevent the feeding of more than one sheet at a time by friction-pieces V

V', of soft rubber or equivalent material, arranged at each side, the friction-piece V being preferably made adjustable by means of a set-screw V², to accommodate sheets of different width.

The feed-roller may be mounted in slot-bearings and held forward by a spring, as indicated in dotted lines at v, Fig. 5, or the paper may be kept in contact therewith by any other well-known expedient.

In operation, when a sheet has been fed above the feed-roller, the next sheet is started, and by the time the first sheet escapes from the holding-roller the succeeding sheet will be in proper position to take the impressions from the printing mechanism, which acts at a point above the level of the holding-roller.

Having thus described my invention, what I claim as new is—

1. The combination with the type writer, carriage and spring drum, for advancing the same, of a rewinding drum containing a superior spring wound in the reverse direction with means for retaining the spring wound and means for coupling the same with the carriage advancing drum for rewinding the same; substantially as described.

2. The combination with the type writer carriage and spring drum for advancing the same, of a rewinding drum containing a superior spring wound in the reverse direction, a catch for holding the rewinding drum against reverse movement and a shifting mechanism for simultaneously coupling the drums together and releasing the rewinding drum; substantially as described.

3. The combination with the type writer carriage, the spring drum for advancing the same and a connection between said drum and the paper feeding lever for feeding the paper when the drum is given a reverse movement, of the rewinding drum and its superior actuating spring wound reversely, with a catch for holding the rewinding drum and means for coupling the drums and releasing the rewinding drum; substantially as described.

4. The combination with the type writer carriage and the spring drum for advancing the same, of the rewinding drum mounted on the same axis and movable toward and from the same and containing a reversely wound superior spring cooperating projections for coupling said drums and means for winding the superior spring; substantially as described.

5. The combination with the type writer carriage and the spring drum for advancing the same, of the rewinding drum containing a superior spring wound on the same axis and movable toward and from the spring drum for advancing the carriage, cooperating projections for coupling the drums, a catch for holding the rewinding drum when in normal position and a lever for moving said drum into engagement with the carriage advancing drum to rewind the latter; substantially as described.

6. The combination with the paper carriage carrying the paper advancing rollers, the paper feed lever journaled to swing in the plane of movement of the carriage, and the cord connected to said lever, whereby when the cord is pulled the lever will be moved thereby to feed the paper and draw the carriage back of the spring actuated drum for winding the cord, feeding the paper and returning the carriage to first position; substantially as described.

7. The combination with the type writer carriage carrying the paper advancing roller, the lever for rotating said roller, the cord connected with said lever and the drum with which the cord is connected, of the rewinding drum, a catch for holding the same and means for coupling the drums whereby the cord is wound, the paper fed and the carriage returned to first position; substantially as described.

8. The combination with the type writer carriage carrying the paper advancing roller, the lever for rotating said roller, and the cord

connected with said lever, of the spring drum connected with the carriage for advancing it, and connected with said cord, the rewinding drum containing a superior spring with means for coupling said drums to return the carriage, feed the paper and rewind the carriage advancing spring; substantially as described.

9. The combination with the vertically disposed type writer carriage and the paper-holding and feeding rollers arranged one above the other and geared together for simultaneous rotation in opposite directions and the paper holding bar in front of the paper holding roller, of the vertical paper holder for containing a package of paper located in rear of the feeding roller with means for preventing the advance of but a single sheet at a time; and a guide for directing the paper in front of the upper roller substantially as described.

GEORGE M. ECKELS.

Witnesses:

MELVILLE CHURCH,
ALEX. S. STEUART.