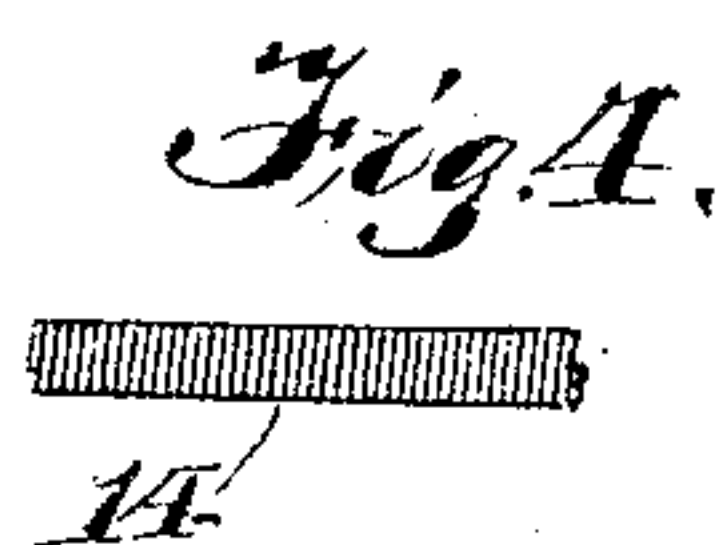
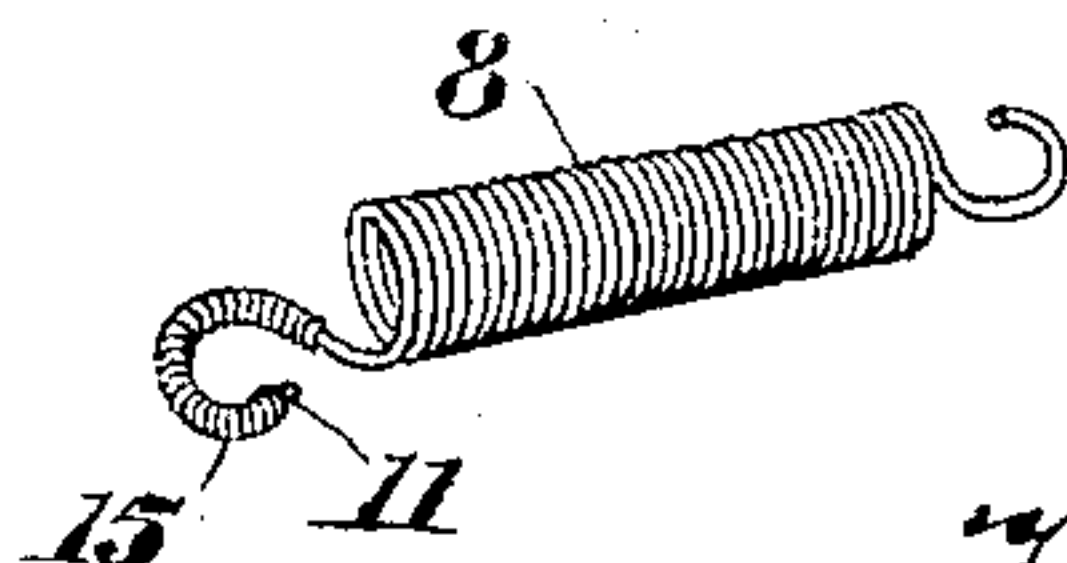
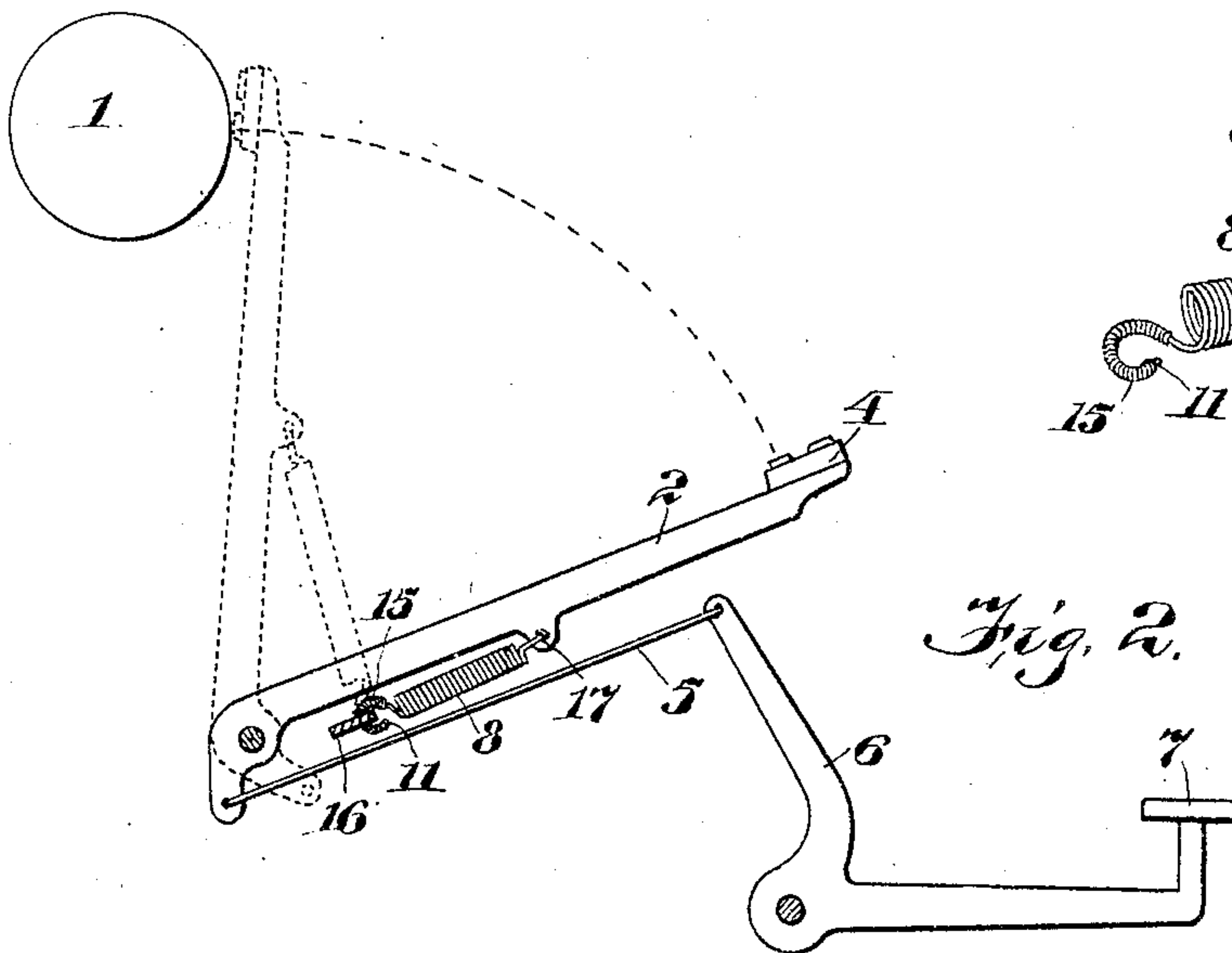
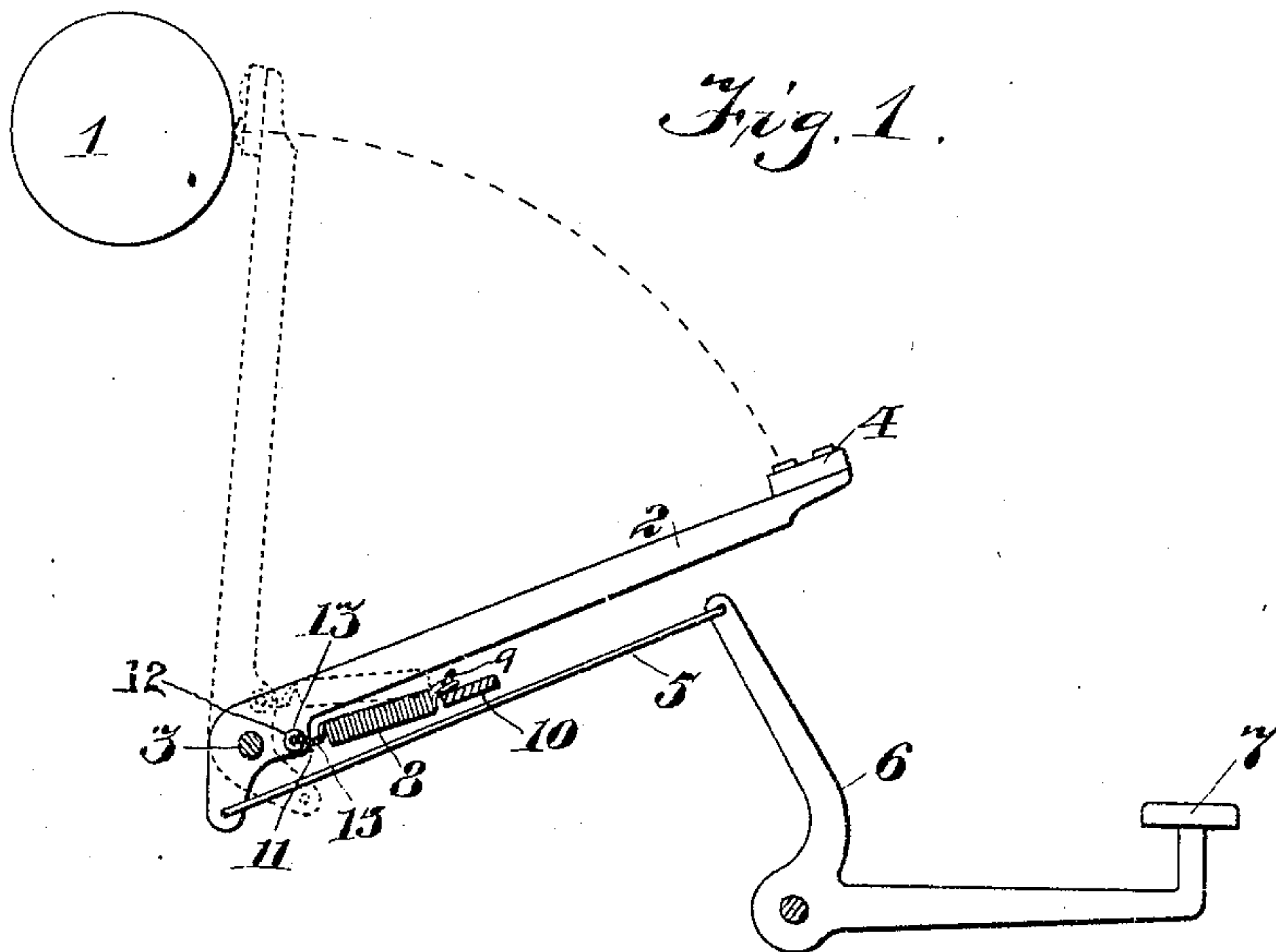


No. 779,425.

PATENTED JAN. 10, 1905.

C. W. HOWELL.
TYPE WRITING MACHINE.
APPLICATION FILED SEPT. 17, 1904.



WITNESSES:

Lee C. Burdick
Charles W. Howell, Jr.

INVENTOR

Charles W. Howell

UNITED STATES PATENT OFFICE.

CHARLES WESLEY HOWELL, OF NEWARK, NEW JERSEY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 779,425, dated January 10, 1905.

Application filed September 17, 1904. Serial No. 224,847.

To all whom it may concern:

Be it known that I, CHARLES WESLEY HOWELL, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to springs used to return type-actions of type-writing machines to normal position after actuation. In some front-strike and other machines these returning-springs are attached directly to the type-bars and are of the class termed "draw-springs," which are drawn out during the printing strokes of the type-bars, and by subsequent contraction effect the return of the type-bars. These springs are usually in the form of helices made of fine wire, since great power is not required. Owing to the relatively great arc through which the type-bars travel from normal position to the printing-point, considerable pivotal action takes place at the bearings of the springs upon the type-bars, and owing to this pivotal action and to the fineness of the springs a rapid cutting action results, either the type-bar or the spring itself being soon cut through and rendered worthless.

The object of my invention is to overcome this difficulty.

Upon the end of the spring that is subjected to considerable pivotal action I fit a metallic sleeve, which not only offers a broader wearing-surface, and hence avoids altogether the cutting action, but also prevents the spring itself from being slowly worn through.

In the accompanying drawings, Figure 1 is a view of the type-action of a front-strike writing-machine, the parts being shown in full lines in normal position, while the printing positions of the type-bar and spring are indicated by dotted lines. Fig. 2 illustrates another manner of connecting the spring to the type-bar within the scope of my improvement. Fig. 3 is a view of the spring with the preferred form of sleeve or sheath upon its end. Fig. 4 illustrates a helix wound of fine wire to make the sheath, and Fig. 5 illustrates the

helix as curved for slipping upon the hooked end of the returning-spring.

1 indicates the platen of a front-strike writing-machine; 2, a type-bar fulcrumed at 3 and carrying types 4, the type-bar being operated by a link 5, attached to a bell-crank 6, provided with a key 7. For the type-bar, and hence for the entire type-action, is provided a returning-spring consisting, preferably, of a helix 8 of fine wire, caught at its forward end upon any suitable fixed device—as, for instance, a hook 9, projecting from a bar 10 and provided at its rear end with a hook 11, that is caught in a hole 12 in the type-bar, the latter being preferably slightly countersunk at 13. The hook 11 being formed by the end of the wire of the spring is usually quite thin, and owing to the extent of the arc through which the type-bar swings (usually about ninety degrees) there is considerable pivotal action of the hook within the bearing 12 in the type-bar, so that unless means were provided to prevent it the constant pressure of the spring would cause either the type-bar or the spring to cut through within a very short time when in active use. I wind a helix 14, Fig. 4, of fine wire and then curve it into form, as at 15, Fig. 5, to correspond to the shape of the hook 11, and then slip the helix upon said hook, as at Fig. 3, to form a sheath or sleeve. The shape of the parts enables them to be readily assembled, the curve of the being uniform, and after the hook has been caught into the type-bar or other part, as at Figs. 1 and 2, there is no liability of the sleeve slipping off. These sleeves may be cheaply made and applied and may be used upon both ends of the spring 8, if desired, although specially intended for the end that is liable to cut owing to great pivotal action. As a consequence of this improvement all cutting away of the parts is avoided and little or no wear is found after long use.

The improvement may be applied to any other part of the type-action where there is liability of cutting away of a returning-spring and of course is applicable to all varieties of type-actions.

In the form shown at Fig. 2 the spring is shown connected at its rear end to a bar or fixture 16, which is perforated to receive the sheathed hook 11, while the forward end of the spring is caught in a hole in the type-bar about half-way between the ends of the latter, as at 17. In this instance there is relatively small pivotal action at the bearing 17, while there is considerable such action at the bearing in the part 16. Hence the sheathed hook is caught in the latter bearing, although it will be understood that the hooks at both ends of the spring may be sheathed, if desired.

The hook or eye 11 may be varied in form, and the sheath may be otherwise constructed within the scope of my improvement, which is also applicable to other than helical springs.

Having thus described my invention, I claim—

1. The combination with a type-bar mounted to swing through a relatively large arc from normal position to the printing-point, of a returning-spring caught at one end in the type-bar and at the other end upon a fixed part, in such a manner that during the movement of the type-bar there is relatively great pivotal movement of one end of said spring in its bearing, the spring being made of fine wire and being formed into a hook at its said end, and a metallic sleeve fitted over said hook to prevent cutting away of the hook or bearing.

2. The combination with a type-bar mounted to swing through a relatively large arc from normal position to the printing-point, of a helical returning-spring having at one end a hook which is caught upon the type-bar, said

spring being made of fine wire, and a metallic sleeve fitted over said hook to prevent cutting away of the hook or type-bar.

3. The combination with a type-bar having a hole, of a fine-wire returning-spring having a hook caught in said hole, and a metallic sleeve fitted over said hook to prevent cutting away of the hook or type-bar.

4. A type-action provided with a fine-wire returning-spring which at one end has a hook and is so mounted and connected that during the type movement said hook has considerable pivotal action in its bearing, and a metallic sleeve fitted over said hook to prevent cutting away.

5. A type-action provided with a fine-wire returning-spring formed at one end into a hook, and a wearing-sleeve fitted upon said hook and consisting of a helix of fine wire.

6. The combination with a type-bar, of a fine-wire returning-spring therefor, said spring being formed at one end into a C-shaped hook, and a helix of fine wire curved to correspond to the shape of the hook and fitted thereon.

7. The combination with a type-bar, of a fine-wire helical returning-spring caught at one end and formed at the other end into a C-shaped hook, said type-bar having a hole in which said hook is caught, and a helix of fine wire winding about said hook with its whirls close together to form a wearing-sleeve.

CHARLES WESLEY HOWELL.

Witnesses:

FREDK. C. FRAENTZEL,
EDMUND STEVENSON.