(No Model.) 3 Sheets—Sheet 1.

L. A. BOYD.

SCRIPTOSCOPE.

No. 389,190. Patented Sept. 11, 1888.

Fig. 1.

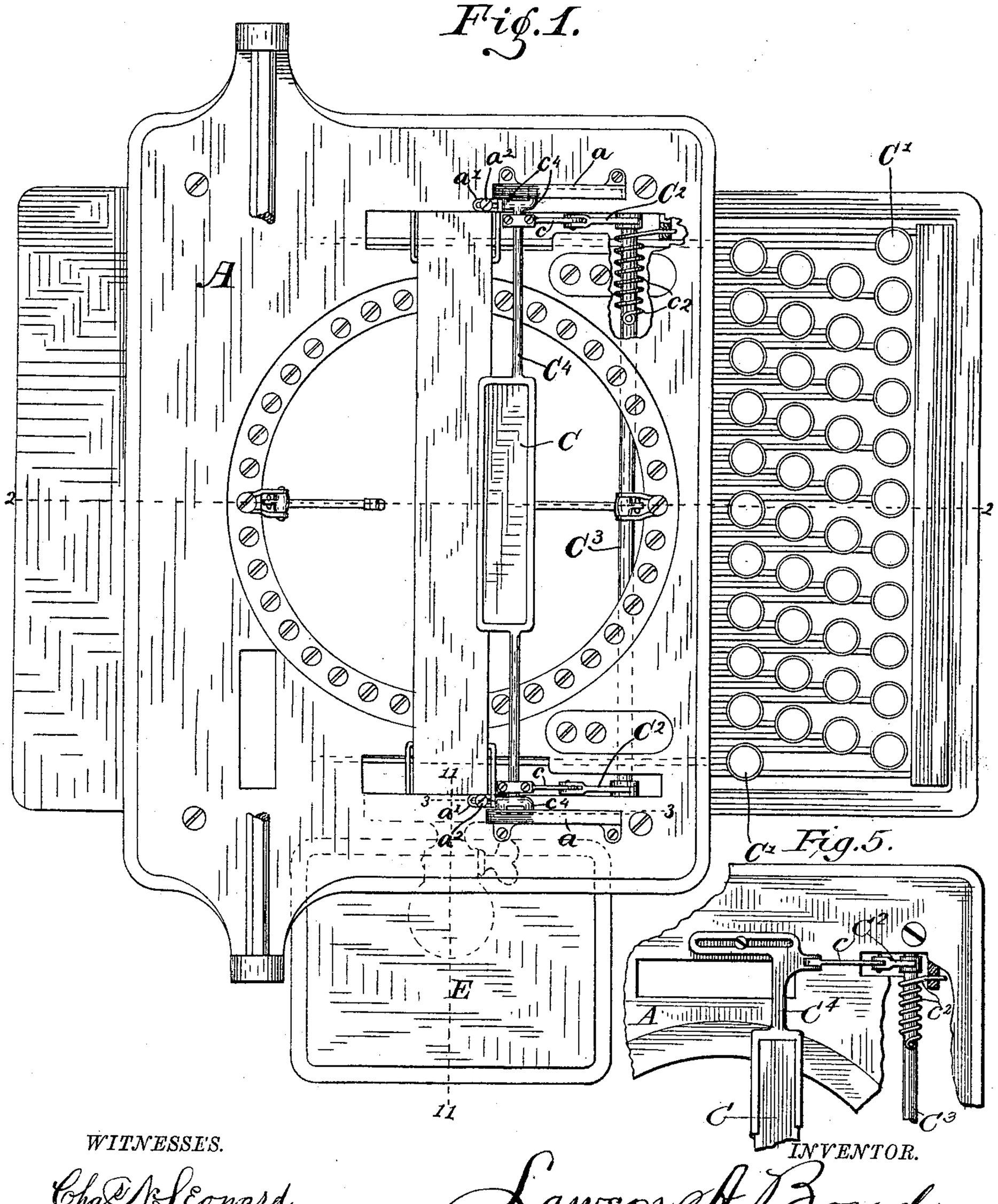

Fig. 5.

WITNESSES.

Chas. N. Leonard.

Charles L. Thurber.

INVENTOR.

Lawson A. Boyd,

PER

C. Bradford.

ATTORNEY.

(No Model.) 3 Sheets—Sheet 2.

L. A. BOYD.

SCRIPTOSCOPE.

No. 389,190. Patented Sept. 11, 1888.

Fig. 3.

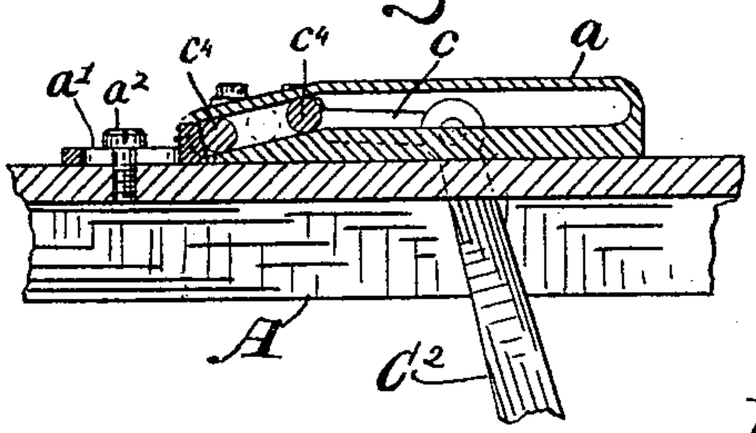

Fig. 2.

WITNESSES.

Chas. S. Leonard.

Charles L. Thurber.

INVENTOR.

Lawson A. Boyd,

PER

C. Bradford.

ATTORNEY.

(No Model.) 3 Sheets—Sheet 3.

L. A. BOYD.

SCRIPTOSCOPE.

No. 389,190. Patented Sept. 11, 1888.

Fig. 6

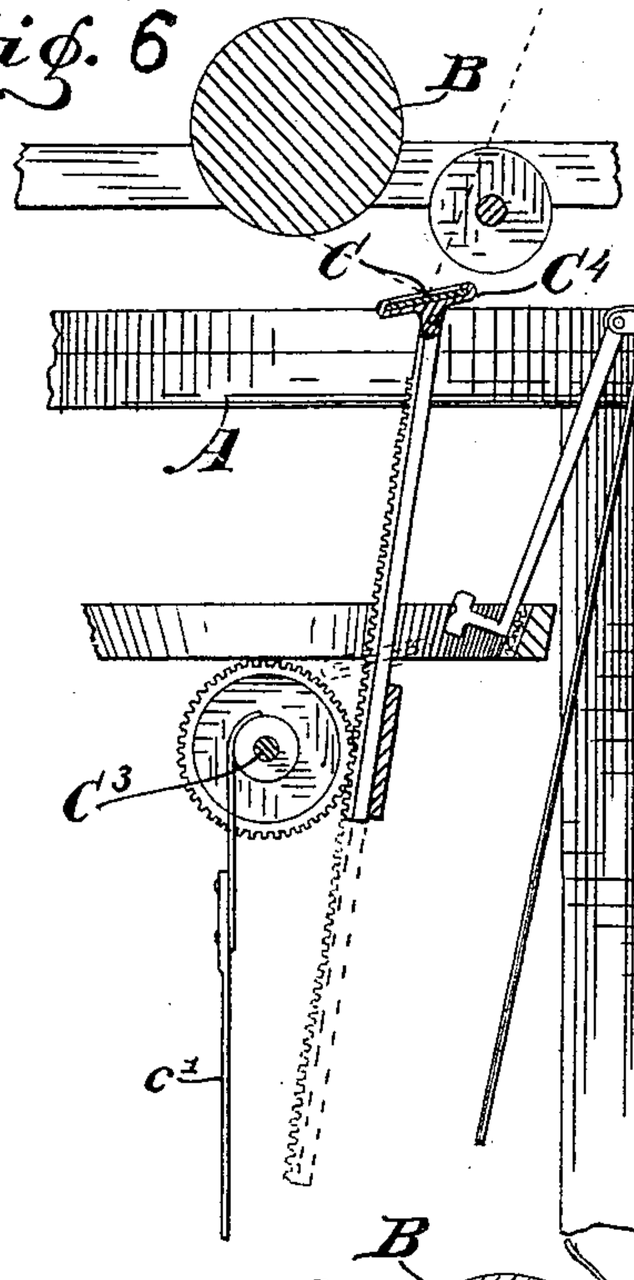

Fig. 7.

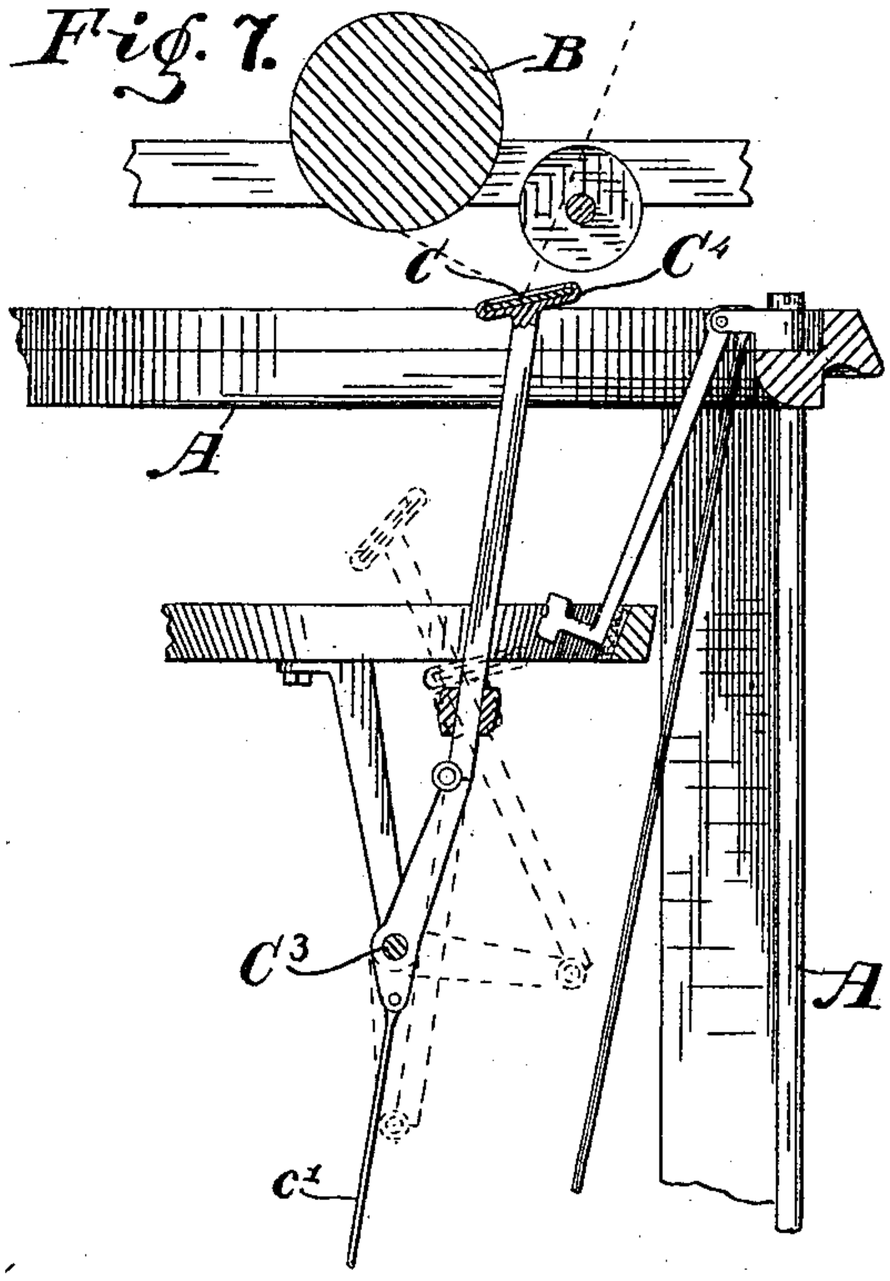

Fig. 8.

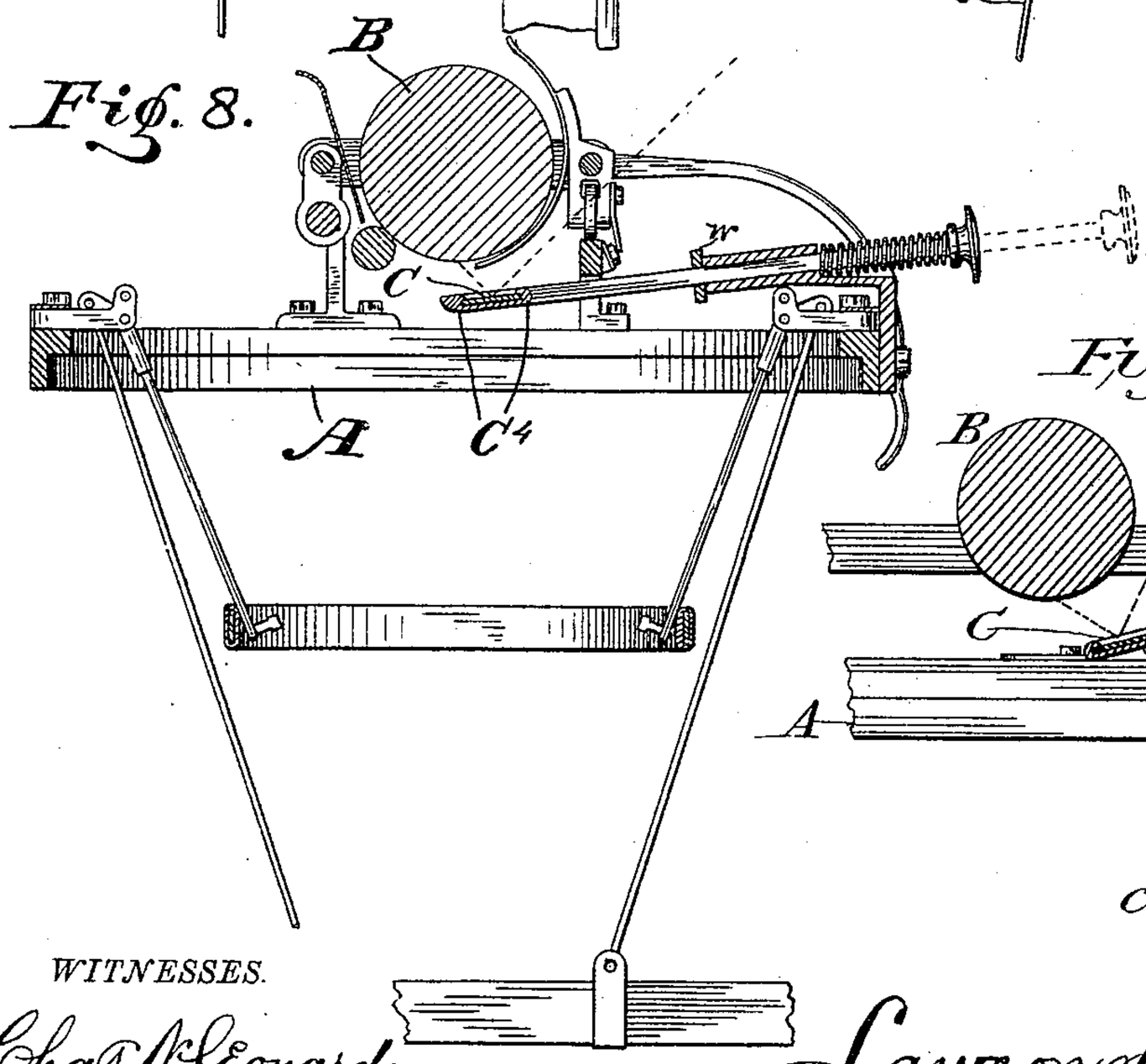

Fig. 4.

WITNESSES.

Chas. S. Leonard.

Charles L. Thurber.

INVENTOR.

Lawson A. Boyd,

PER

C. Bradford.

ATTORNEY.

UNITED STATES PATENT OFFICE.

LAWSON A. BOYD, OF INDIANAPOLIS, INDIANA.

SCRIPTOSCOPE.

SPECIFICATION forming part of Letters Patent No. 389,190, dated September 11, 1888.

Application filed February 26, 1887. Serial No. 228,921. (No model.)

To all whom it may concern:

Be it known that I, LAWSON A. BOYD, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Scriptoscopes, of which the following is a specification.

The object of my said invention is to provide, in connection with a type-writer, a very efficient and conveniently-arranged means whereby the writing may be read by the operator without raising the carriage of the machine; and it consists in an improved construction and arrangement of one or more mirrors on said machine, so located as to reflect the writing as it proceeds, so that it can be seen by the operator, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a type-writer provided with my invention, the carriage being removed; Fig. 2, a transverse vertical section through the machine on the dotted line 2 2 in Fig. 1; Fig. 3, a detail sectional view on an enlarged scale, looking upwardly from the dotted line 3 3 in Fig. 1; Fig. 4, a view showing a construction similar to that shown in the principal figures, except that the mirror is set permanently at an angle on its frame instead of being operated in a curved or angular slide; Fig. 5, a detail plan view of the same; Fig. 6, a view illustrating a means whereby the mirror can be given a vertical instead of a lateral movement and allowed to remain at rest below instead of above the type-bars, the means of elevating it shown being a rack and pinion; Fig. 7, a similar view showing, instead of a rack and pinion, a crank-arm and an arm carrying the mirror having a rule-joint, said mirror-arm running between guides; and Fig. 8, a view illustrating the attachment of my invention to the "Caligraph" instead of the "Remington" machine.

In said drawings, the portions marked A represent the frame-work of the type-writing machine; B, the platen; C, the mirror which constitutes the main feature of my invention; D, a second mirror, designed to be used in connection with the mirror C, and E the mirror used in reflecting light to the under side of the platen.

The type-writing machine may be either the Remington, Caligraph, or any other similar machine, and as it in itself constitutes no part of my present invention, the frame-work A and the platen B thereof, as well as the other parts, need no further description in this connection, they being the ordinary well-known parts of such machines.

The machine shown in the drawings is that commonly known as the "Remington," although many of the parts are omitted, among them being the greater number of the type-bars.

The mirror C is located somewhat in front of and below the platen, and is so arranged that the characters formed upon the paper by the type in operating the machine, and also the adjacent gage-plate, will be reflected therein, so that they may be seen by any one looking at the face of said mirror. In the ordinary machine the shanks of the types are not long enough to permit this mirror to remain in position while the machine is being operated, and I have therefore devised certain mechanism by which it may, upon occasion, be thrown into the proper position for use, while it normally remains out of such position.

In Figs. 1, 2, and 3 of the drawings I have shown a simple form of such mechanism, consisting of slides *a*, in which the mirror-frame is mounted, and a rock-shaft, C^3, carrying bell-crank levers, one arm of each of which is connected to said frame by a link and the other arm to a rod, *c'*, which runs down to and is connected with the key C', by which it may be operated, which key is or may be similar to one of the keys by which the type are operated. Several of the alternate constructions are operated in substantially the same manner, except that instead of having a bell-crank lever they are connected by a crank wheel or arm, a rack, or a belt by which the glass is swung instead of slid into position. In said principal drawings the mirror C is given its necessary inclination, when brought to position near the writing, by a similar inclination in the slides in which it rests, this being desirable because the type-writer as now constructed ordinarily has not sufficient room to permit the mirror to remain at the proper inclination while the type are being operated. Where, however, there is sufficient room, the

arrangement may be that shown in Fig. 4, in which case the slides are straight and the mirror permanently inclined.

The construction of the slides *a* and of stops *a'* (against which the frame of the mirror C comes in contact and by which the movement is determined) is indicated most plainly in Fig. 3. Said slides, as shown, are simply grooved ways with the inner ends curved or turned down, into which small round projections c^4 on the ends of the mirror frame or shaft C^4 enter. Said stops, as shown, are simply small blocks slotted and secured to the frame of the machine by set-screws a^2, and are adjustable upon and can be secured in any desired position by said screws.

As will be readily understood, the writing when reflected in the mirror C will be reversed—*i. e.*, it will have the appearance of a line of type instead of a line of printing. The operator will of course soon become able to read this reflection easily, the same as typesetters are able to read a line of type when they are setting it up; but, for the convenience of such as do not desire to do this, I have provided the second mirror, D, which receives a second reflection, which has the appearance of the writing when looked at directly. This second mirror, of course, is arranged at such an angle and in such position as not only to receive the reflection from the first, but be convenient to the eye of the user, as indicated in Fig. 2; but this second mirror is not regarded by me as essential to my invention, although I claim it as one of the features thereof. I may here remark that this second mirror, besides serving the purpose for which it is especially designed in this connection, will serve as a mirror for ordinary purposes for the convenience of the operator. This, under some circumstances, will be quite a saving in the matter of time, as some type-writer operators consider it necessary to frequently consult a mirror concerning their personal appearance. The mirror D may be made adjustable on its stem D' by a pivot-connection, *d*, and said stem may be made adjustable by mounting it in a slide, D^2, having a thumb-screw, *d'*, secured to the frame A, on which it is also adjustable by means of a pivot-bolt, d^2, having a thumb-nut, as shown.

The operation of the invention may be briefly recapitulated as follows: Referring first to the construction shown in the principal drawings, when it is desired to observe what has been written, instead of raising the carriage, as is usual, the operator depresses the key C', and thus, through the connecting-rod *c'*, the bell-crank levers C^2, and links *c*, forces the mirror C and its frame forward to the position indicated in said drawings. Said mirror then receives the reflection, and, as indicated by the dotted lines in Fig. 2, throws it up against the second mirror, D, where it can be plainly read. Upon releasing the key the spring c^2, which is preferably coiled around the shaft C^3, on which the bell-crank levers C^2 are mounted, partially revolves said shaft and retracts said bell-crank levers, and with them the mirror C, to a position entirely out of the way of the type-bars, and the writing proceeds as before. It will be observed that this can be done very much more quickly than the carriage can be raised and the writing inspected in the ordinary manner, besides which all liability of shifting the position of the carriage and writing is avoided.

In the views of the modified forms, Figs. 4 and 5, the only difference from the principal construction is that, instead of having a curved slide for the mirror-frame to move in, by which the inclined position of the mirror is attained, the mirror itself is set in a permanently inclined position.

In Fig. 8, in which the frame-work is shown as that of a caligraph, still another means of moving the mirror to position is shown. A rod is rigidly secured to the front side of the mirror-frame, and extends out through a long bearing and terminates in a head like that of a push-pin, which it in effect is. The rod is either square or provided with a spline, which prevents it from turning, and a spring is interposed between the bearing and its head, which moves it back to normal position when pressure on it is released. To throw it in position for use it is only necessary to push on the head of the rod, maintaining the pressure until the desired observation is had of the writing, when, upon releasing said pressure, the mirror is immediately thrown back out of the way by the spring, and the operator may proceed with the work.

The mirror E is simply a mirror mounted on a suitable adjustable bearing, (a ball-and-socket joint is shown,) by which light may be reflected up against the under side of the platen from the outside of the machine, so that the writing may be seen more plainly. This, however, is not essential to my invention, although in many cases it will prove a desirable feature, and I claim it as such.

I have not described or shown all the modifications which are possible; nor have I shown every detail of construction in all cases. For instance, a buffer of rubber or other elastic material may be used to advantage to lessen the shock consequent upon the recoil of the device when released, and this is shown in the form of a rubber washer, *w*, in Fig. 8. In the other constructions such other forms as are appropriate may be used; but all such are mere details of construction, and do not need to be further described, as they are clearly within the scope of my invention.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a type-writer, of a mirror mounted in slides on the frame-work and movable in said slides toward and from the platen, substantially as set forth.

2. The combination, with a type-writer, of a mirror mounted in slides, a rock-shaft carrying bell-crank levers, one arm of which is connected to the frame of the mirror and the other arm to a key, by which it may be operated, and the mirror thus moved in said slides toward or from the platen.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 23d day of February, A. D. 1887.

LAWSON A. BOYD. [L. S.]

In presence of—

C. BRADFORD,

CHARLES L. THURBER.