

(No Model.)

Z. G. SHOLES.
KEYBOARD.

No. 527,542.

Patented Oct. 16, 1894.

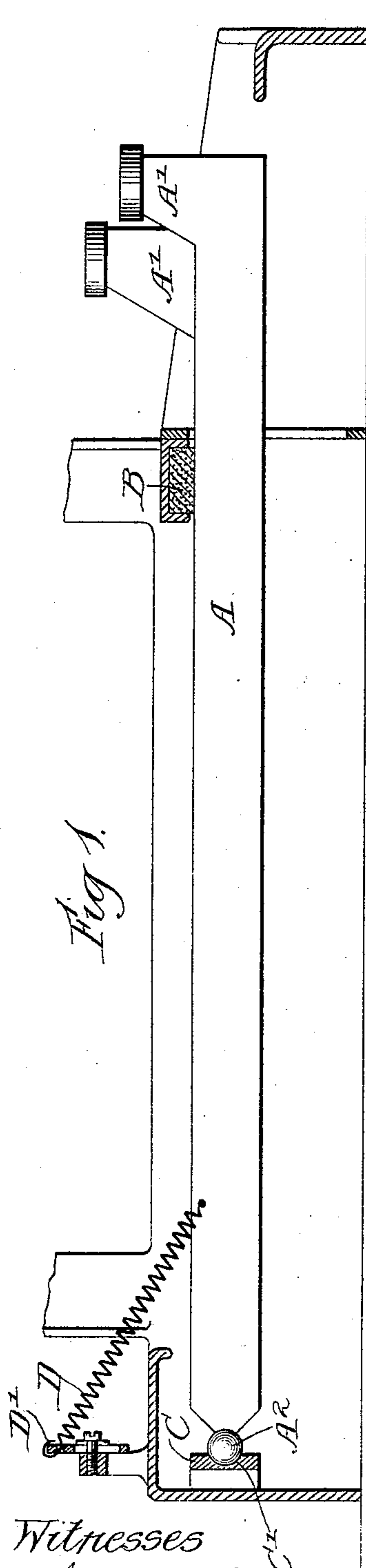


Fig 1.

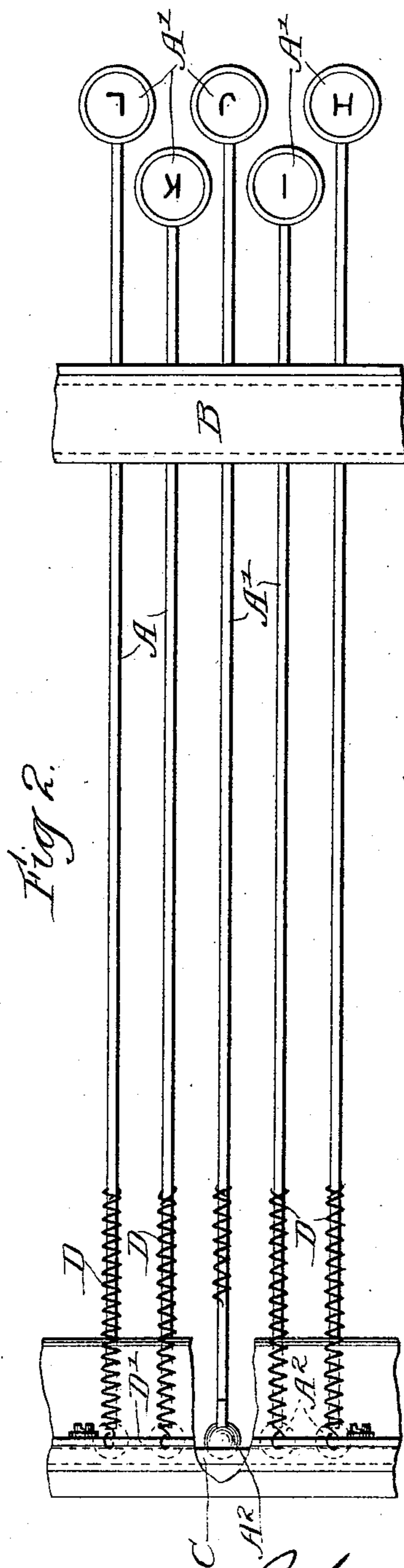


Fig 2.

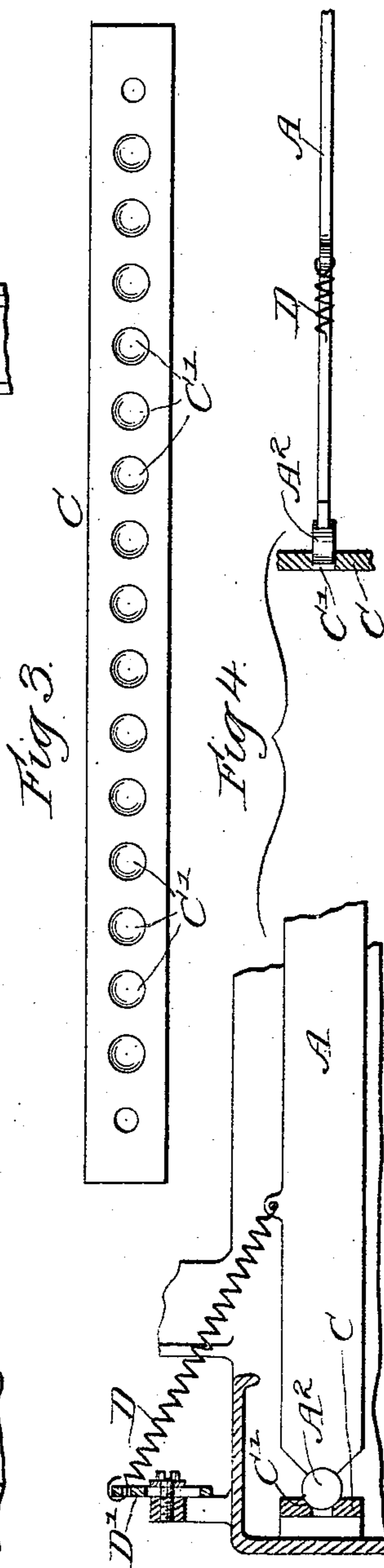


Fig 3.

Fig 4.

Witnesses
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UNITED STATES PATENT OFFICE.

ZALMON G. SHOLES, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE REMINGTON-SHOLES TYPEWRITER COMPANY, OF ILLINOIS.

KEYBOARD.

SPECIFICATION forming part of Letters Patent No. 527,542, dated October 16, 1894.

Application filed March 5, 1894. Serial No. 502,368. (No model.)

To all whom it may concern:

Be it known that I, ZALMON G. SHOLES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Keyboards; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates particularly to keyboards having a number of parallel, horizontal, pivoted keys having their free ends (the ends which are to be engaged by the fingers of the operator) normally elevated by the action of springs and designed to be depressed manually for operation.

The object of the invention is to produce a key-board which may be manufactured cheaply and in which the movement of the keys shall be accurate, notwithstanding wear.

My improvement is applicable to such keyboards as are used in cash registers, musical instruments, and type-writers.

In the accompanying drawings, Figure 1 is a sectional elevation looking at right angles to the length of the keys. Fig. 2 is a plan. Figs. 3 and 4 are details.

A A are the keys. These may be provided with raised finger pieces, A', at one end. At the opposite end, each key is hinged to a stationary part of the machine or instrument to which the key-board is applied. B is a suitable stop located above the keys for limiting the elevation of the latter. In Figs. 1 and 2 the keys are hinged by means of ball-and-socket joints.

A² is a spherical end formed on the key, A, and C', is a socket formed in a relatively stationary portion of the machine, as in a bar, C, extending horizontally across the machine at the ends of the keys, A. Said sockets are of proper size to receive the spherical ends, A².

D is a contracting coiled spring attached by one end to the key, A, and by the other end at the rear of and above the attachment of its front end, as to a support, D', extend-

ing transversely across the machine parallel to the series of ends, A². Said spring, D, draws rearward and upward from said key and holds it normally in the socket, C', and against the stop, B.

The socket, C', is to be of proper size to receive the end, A², and make contact with the latter in substantially all lines radiating from the axis of the shaft. Thus the end, A², is so held as to permit no movement in any direction radial to the axis of the key. It cannot move up and down, for the wall of the socket is in contact with said end above and below. It cannot move sidewise, for at each side the wall of the socket is in contact with said end; but the entire key may be moved upon a center coincident with the center upon which the end, A², is rounded, said end undergoing no displacement whatever in the socket, C'. If the end, A², or the socket, C', wears, the key, is drawn endwise toward the bar, C, into the socket, C', and the contact is maintained.

In Fig. 4, there is shown a modification in which the end, A², of the key is rounded only on an axis perpendicular to the plane of movement of the key, the sides at the end being flat.

The sockets, C', may extend only partially through the bar, C, but the end, A², may more accurately adjust itself after wear when said sockets extend through said bar.

Of course it is to be understood that when the socket extends through the bar, C, it is to be smaller than the end, A², in order that the end may not pass through the socket.

I claim as my invention—

1. In a key-board, the combination of an elongated key having a tapering end, a stop beside the key, a suitable relatively stationary support having a socket receiving said tapering end, and a spring for holding said end in said socket, substantially as described.

2. In a key-board, the combination of an elongated key having a tapering end, a suitable relatively stationary support having an opening extending through it smaller than said end, and a spring for holding said rounded end in said socket, substantially as described.

3. In a key-board, the combination of an elongated key having a spherical end, a stop beside the key, a suitable relatively stationary

support having a socket receiving said spherical end, and a spring for holding said spherical end in said socket, substantially as described.

- 5 4. In a key-board, the combination of an elongated key having a spherical end, a suitable relatively stationary support having an opening extending through it smaller than said end, and a spring for holding said spheri-

cal end in said socket, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 30th day of September, in the year 1893.

ZALMON G. SHOLES.

Witnesses:

ALICE LINN,
CYRUS KEHR.