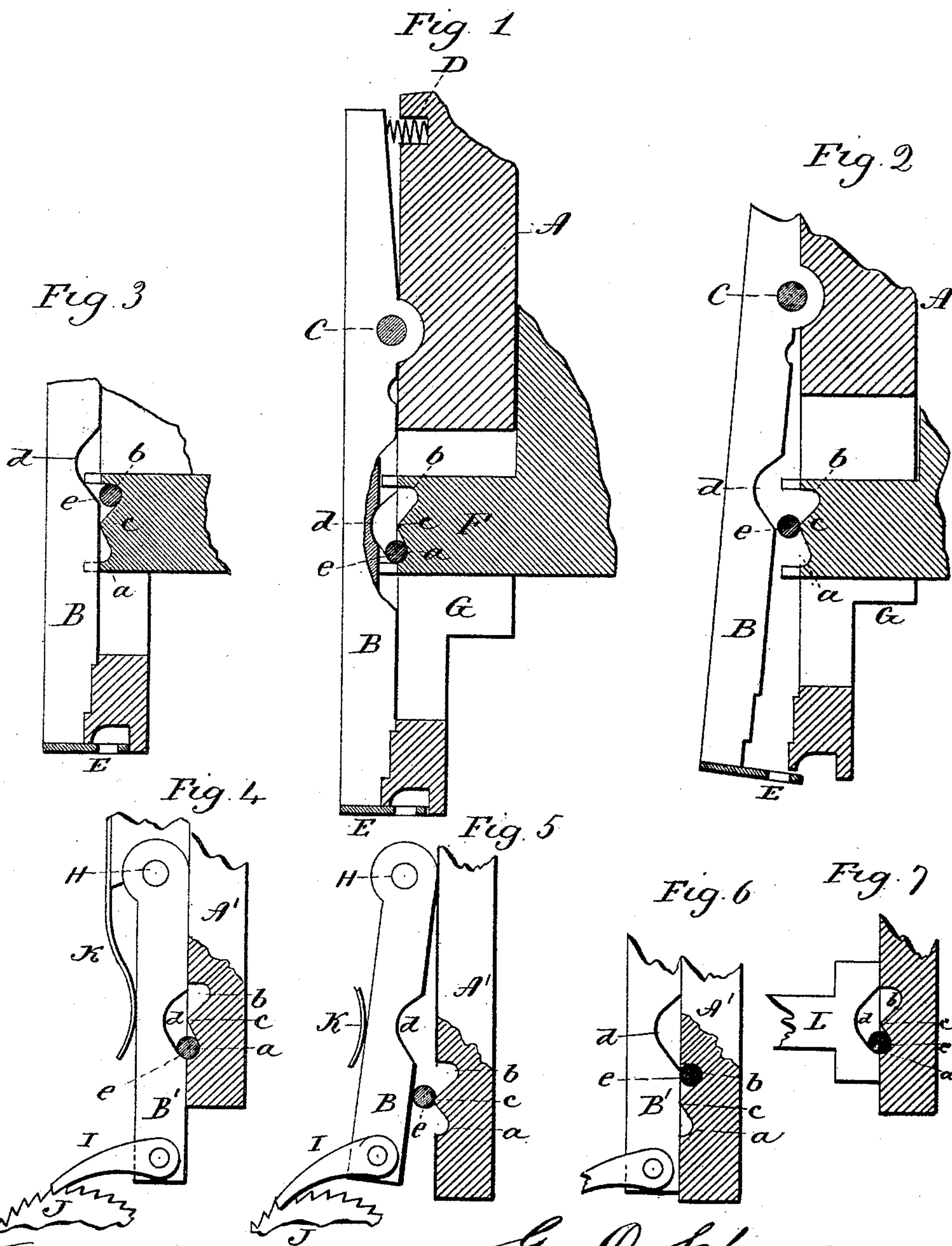


(No Model.)

G. O. SCHNELLER.
MECHANICAL MOVEMENT.

No. 459,208.

Patented Sept. 8, 1891.



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MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 459,208, dated September 8, 1891.

Application filed January 12, 1891. Serial No. 377,475. (No model.)

To all whom it may concern:

Be it known that I, GEORGE O. SCHNELLER, of Ansonia, in the county of New Haven and State of Connecticut, have invented a new Improvement in Mechanical Movements; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a sectional side view of mechanism illustrating the invention, with the parts in the down position; Fig. 2, the same, representing the parts as ascending, producing the transverse outward movement; Fig. 3, the same as completing the ascent, showing the return transverse movement; Figs. 4, 5, 6, and 7, modifications.

This invention relates to a mechanism for producing a vibratory movement of one part of a machine from a reciprocating movement of another part of the machine, the mechanism being adapted for various purposes, the object being to produce a back and forward or vibratory movement of the one part during the movement of the other part in one direction only, the return of the said other part producing no effect upon the one part; and the invention consists in the construction, as hereinafter described, and particularly recited in the claim.

I first illustrate the invention as it may be employed in a button-setting machine, showing only so much of the machine as necessary to the understanding of the invention.

A represents a vertical reciprocating slide; B, a lever hung to the slide upon a pivot C and so as to swing in a vertical plane toward and from the slide. The lever is extended above the pivot, and is provided with a spring D, the tendency of which is to force and yieldingly hold the lower end of the lever toward the slide, as represented in Fig. 1. At the lower end the lever is provided with the button-holder E. This, however, constitutes no part of the present invention further than to say that it is adapted to receive and hold the button or the button-fastener, as the case may be, such button or fastener being delivered to the setter in the usual manner.

F represents a stationary cam in rear of the

lever B, and here represented as projecting through an opening G in the slide. The face of this cam toward the lever C is constructed with a transverse depression *a*, and above this is a second depression *b*, forming a transverse projection *c* between them. On the side of the lever next the cam a recess *d* is formed, and which when in line with the two depressions *a* *b* and the projection *c*, as seen in Fig. 1, will produce a V-shaped recess between the cam and the lever, open from top to bottom. Between the face of the cam and the lever a roller E is introduced, which is adapted to roll from one depression *a*, as seen in Fig. 1, over the projection *c*, as seen in Fig. 2, and into the depression *b*, as seen in Fig. 3. The depression *b* is of a depth corresponding to or somewhat greater than the diameter of the roller *e*, and so that when standing in the depression *b*, as seen in Fig. 1, it is back of the plane of that face of the lever. The slide and lever both receive the same vertical reciprocating movement to take them from the position seen in Fig. 1 to that seen in Fig. 3. As the slide and lever commence their ascent from Fig. 1 the roller *e* on the stationary cam will be caused to ride up the incline from the recess *a* onto the projection *c*, as seen in Fig. 2. This will impart to the lever B an outward swinging movement, as seen in Fig. 2, the spring D yielding under such forced movement of the lever; but so soon as the roller *e* passes the projection *c* it comes upon the opposite incline into the depression *b*. The spring is now free to react and the lever returns, forcing the roller *e* up into the depression *b*, as seen in Fig. 3, where it lies free and without effect upon the lever or slide. Upon the return of the lever and slide the roller retains its position in the upper depression *b* until the lever has reached its down position, so as to bring its recess *d* into line with the face of the cam, as seen in Fig. 1, when the roller will descend by its own gravity into the lower depression *a*, and there remain until the lever again ascends. The descent of the lever and slide may continue below this position (seen in Fig. 1) so long as the depression *d* will leave the roller *e* free—that is, until the upper side of the recess *d* shall come to a bearing upon the roller; but the illustration, as in Fig. 1, may properly be con-

sidered as the down position of the slide and lever. This operation of the roller between the cam and the recess in the lever will continue at each ascent and descent of the slide and lever, and the outward swing and the return movement of the lever will be produced while the slide is moving in one direction, and on the return movement of the slide the lever will receive only the same descending movement without the swinging movement.

The invention which I have described is applicable to various purposes. As another illustration, in Figs. 4, 5, and 6 I show it as applied to a feed. In these illustrations A' represents the vertically-reciprocating slide, as before, and B' the swinging lever. In this modification I represent the cam as moving with the slide instead of stationary, as in the first illustration, and whereby the lever is hung so as to swing as before, but without partaking of the reciprocating movement of the slide. In this case the lever B' is hung upon a stationary pivot H and carries a pawl I at its lower end adapted to work into a toothed ratchet J as usual for pawls and ratchets. In the face of the slide toward the lever the cam is formed, consisting of similar depressions *a b* with the central projection *c*, and the lever is constructed with substantially the same recess *d* as in the first illustration. In Fig. 4 the slide A' is represented in substantially the up position. As the slide descends, the roller *e* will ride upward from the depression *a* onto the projection *c*, and, bearing upon the face of the lever, will force the lever to swing forward until the roller *e* has passed the projection *c*. Then the reaction of the spring K will force the lever rearward, the roller *e* slipping into the depression *b*, as seen in Fig. 6, bringing the lever back to its normal position. Then as the slide returns it will produce no effect upon the lever B until the recess *d* in the lever comes into line with the two depressions *a b* of the cam, as seen in Fig. 4, when the roller will return from the upper depression into the lower depression by its own gravity.

The invention is not to be understood as limited to imparting a full vibratory movement from one direction of reciprocation, as the movement may be back and forward transverse to the path of the reciprocating movement, as seen in Fig. 7, in which, instead of a

lever having a depression in its face, a slide L is arranged at right angles to the path of the slide A', from which it will be evident that the same result is attained, to wit: producing a full backward and forward movement of one part transverse to the line of reciprocation of the other part and during the movement of the said reciprocating part in one direction without effect upon the said transverse part during the return movement of the said reciprocating part.

These illustrations will be sufficient to enable others to apply the invention where similar results are desirable.

I claim—

The herein-described mechanism, consisting of one part having a reciprocating movement imparted thereto, a second part adapted to move laterally toward or from the said reciprocating part, a cam in the face of one of said parts consisting of two transverse depressions, one above the other, forming a transverse projection between them, the surfaces of the two depressions inclining to the said projection, the adjacent face of the other part constructed with a corresponding recess, the said cam having the one part constructed to pass said depressions in one direction and come into line with it in the opposite direction, with a roller upon the said cam and between it and said lever, substantially as described, and whereby under the movement of the said reciprocating part in one direction the said roller will be caused to roll from the lower depression up onto the projection, thereby imparting transverse movement to the other part, and the roller under the continued movement of the reciprocating part will escape into the upper depression to permit the return movement of the said other part, and so that on the return of the said reciprocating part the said roller will return of its own gravity from the upper depression into the lower without effect upon the said other part, and substantially as specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE O. SCHNELLER.

Witnesses:

CHAS. W. WOLFF,

W. F. OSBORNE.