(No Model.)

F. H. RICHARDS.

MECHANICAL MOVEMENT.

No. 343,857. Patented June 15, 1886.

Fig. 1

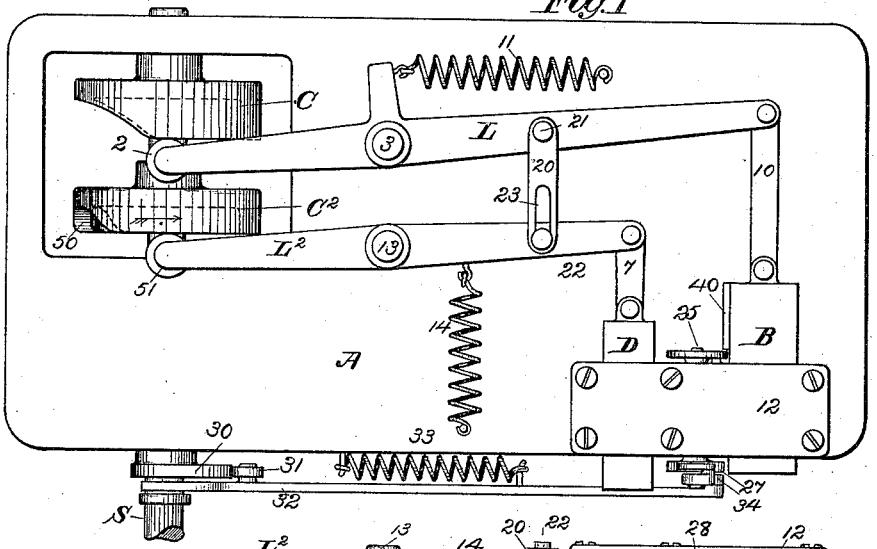


Fig. 2

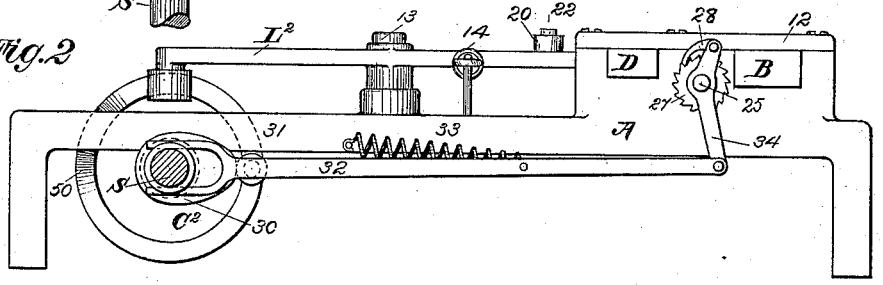


Fig. 3

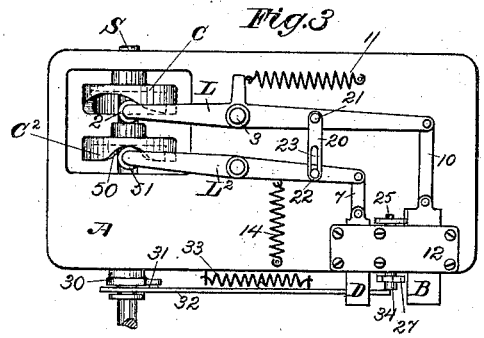


Fig. 4

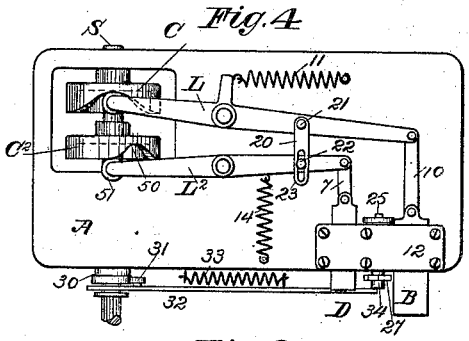


Fig. 5

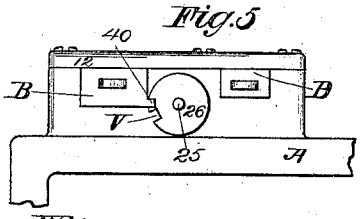
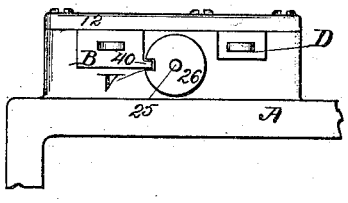


Fig. 6



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UNITED STATES PATENT OFFICE.

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MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 343,857, dated June 15, 1886.

Application filed January 21, 1886. Serial No. 189,297. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Springfield, in the county of Hampden, State of Massachusetts, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention relates to mechanical movements for actuating slides, the object being to provide a mechanism adapted to operate a pair of slides in the manner hereinafter set forth.

To this end the invention consists in the combinations hereinafter described and claimed.

In the drawings accompanying and forming a part of this specification, Figure 1 is a top view of a mechanical movement embodying my invention. Fig. 2 is a side elevation of the same. Figs. 3, 4, 5, and 6 are views illustrating the operation of the mechanism.

Similar characters designate like parts in all the figures.

The several operative parts of my newly-invented mechanical movement are supported by a simple frame-work, A. This frame has bearings for the driving-shaft S, carrying a cam, C, adapted to impart a vibratory motion to a lever, L, which is pivoted at 3 to said frame. The lever L is furnished with the usual roller, 2, running against cam C, and with a spring, 11, for moving it against the cam. Shaft S has also another cam, C^2, which similarly works the lever L^2, which is pivoted to the frame at 13, a spring, 14, being provided to move this lever against its operating-cam. The opposite end of this lever L^2 is connected by link 7, or in some other suitable way, to a short-stroke slide, D. Lever L is connected by link 10 or by other convenient means to the long-stroke slide B, which, as well as slide D, is held in place by cap 12. Connecting levers L and L^2 there is some kind of slack connection permitting a certain amount of motion of one lever relative to the other. This connection may well consist in a slotted link, 20, pivoted to lever L at 21, and working over a stud, 22, fixed in lever L^2. A chain connected to the levers at 21 and 22, fixed in lever L^2, and having a slack in one position of said levers equal to the length of slot 23, would, however, answer the same purpose equally well. At one side of slide B and turning in a bearing formed in the frame, a shaft, 25, is constructed and arranged to turn with ordinary freedom. On one end said shaft carries a notched wheel, 26, and on the other a common ratchet-wheel, 27. This shaft, with its wheels, is adapted to be intermittently moved forward regularly or irregularly, as may be required by the duty to be performed by any machine or apparatus of which this mechanical movement may form a part.

For convenience of illustration I have shown in the drawings devices for imparting to those parts a regular intermittent forward movement. In another application, No. 153,234, filed January 19, 1885, I have described and claimed an escapement mechanism adapted to impart to said wheel (there designated by W) an irregular intermittent movement, derived from envelopes to be counted. The well-known devices adopted in the present instance comprise the following parts: 30 is a cam on shaft S, operating through roll 31 the connecting-rod 32, which rod is reversely operated by spring 33. Said rod operates a lever, 34, which has its bearing on shaft 25, and carries the pawl 28, that operates the ratchet-wheel. Thus at each revolution of shaft S, (cam 30 being single-lobed,) the wheel 26 is ratcheted forward one step. This wheel 26 is in the nature of a stop-wheel for the main slide B, and acts thus by reason of a projecting rib, (or a pin,) 40, which normally stands just back (above) in Fig. 1 of said wheel, when slide B is thrown by cam C to that end of its stroke. While said slide is thus held back, the stop-wheel is fed forward by its actuating devices. Then cam C allows spring 11 to move forward said slide B until its rib 40 rests on the stop-wheel. (See Fig. 5.) This holds back link 20 so that it acts as a stop for lever L^2, preventing it from being thrown forward by spring 14 when the depression 50 of cam C^2 comes to roll 51 of said lever. Thus the stopping of slide B has the effect of stopping also the lever L^2 and slide D. This operation of the mechanism goes on with each revolution of the cam-shaft S, until notch V of wheel 26 comes in front of rib 40, as in Fig. 6. This allows slide B to move forward to the position

shown in Fig. 3, carrying forward link 40, and permitting slide D to be moved forward when notch 50 again comes to roll 51, as also shown in Fig. 3. The actuating part of cam C^2 being shorter than that of cam C, slide D will start later and be returned earlier than slide B. This is illustrated in Fig. 4, where slide D has completed its movement before the return of slide B. Thus, as I have described, these two slides, B and D, are each operated directly from the same shaft by similar means, slide B having a long stroke and slide D a short stroke, begun and completed during the stroke of slide B. It should be understood that the slack connection above described between levers L and L^2 may, if preferred, be made between links 7 and 10, or directly between slides B D, if their construction and arrangement in any particular case render this expedient. It is indeed quite obvious that the particular location of said connection relative to said slides or their actuating devices is a matter of convenience only, and does not concern the nature of the invention. It will also be understood that other means than cam C—as, for instance, an ordinary crank and connecting-rod—may be employed for operating lever L; also that the proportions of the several parts are capable of modification in various ways and degrees, after the manner of machines in general, without departing from the spirit of my invention.

The mechanical movement above described is in the nature of an improvement on that described and claimed in my prior application, Serial No. 181,212, and, like that, is adapted to be used in machines for packing and banding envelopes.

Having thus described my invention, I claim—

The combination, in a mechanical movement, of a pair of slides, as B and D, each actuated by independent devices, a stop-wheel operating to limit the operation of slide B, substantially as described, and a slack connection operating to stop the operation of slide D from the stoppage of slide B, substantially as set forth.

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