(No Model.) 3 Sheets—Sheet 1.

I. S. CRAIG.

STOP MOTION FOR MACHINES.

No. 448,578. Patented Mar. 17, 1891.

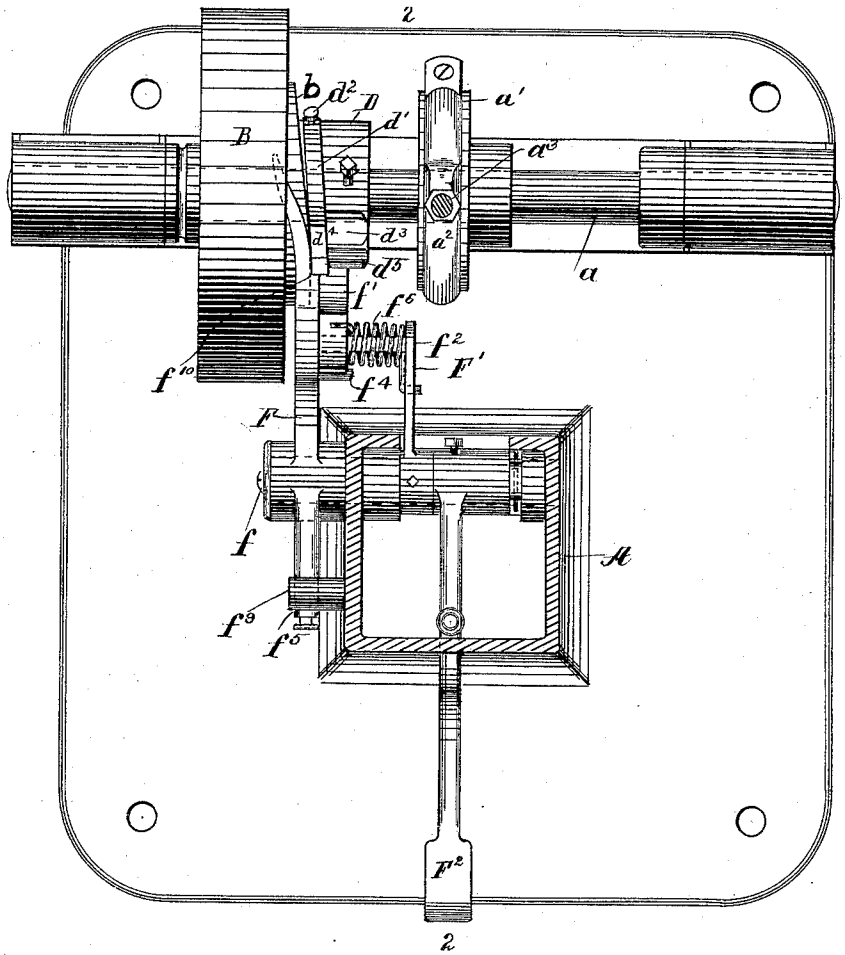


Fig. 1.

WITNESSES:
Lauritz W. Möller.
John R. Snow.

INVENTOR:
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by his attorneys
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(No Model.)

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I. S. CRAIG.

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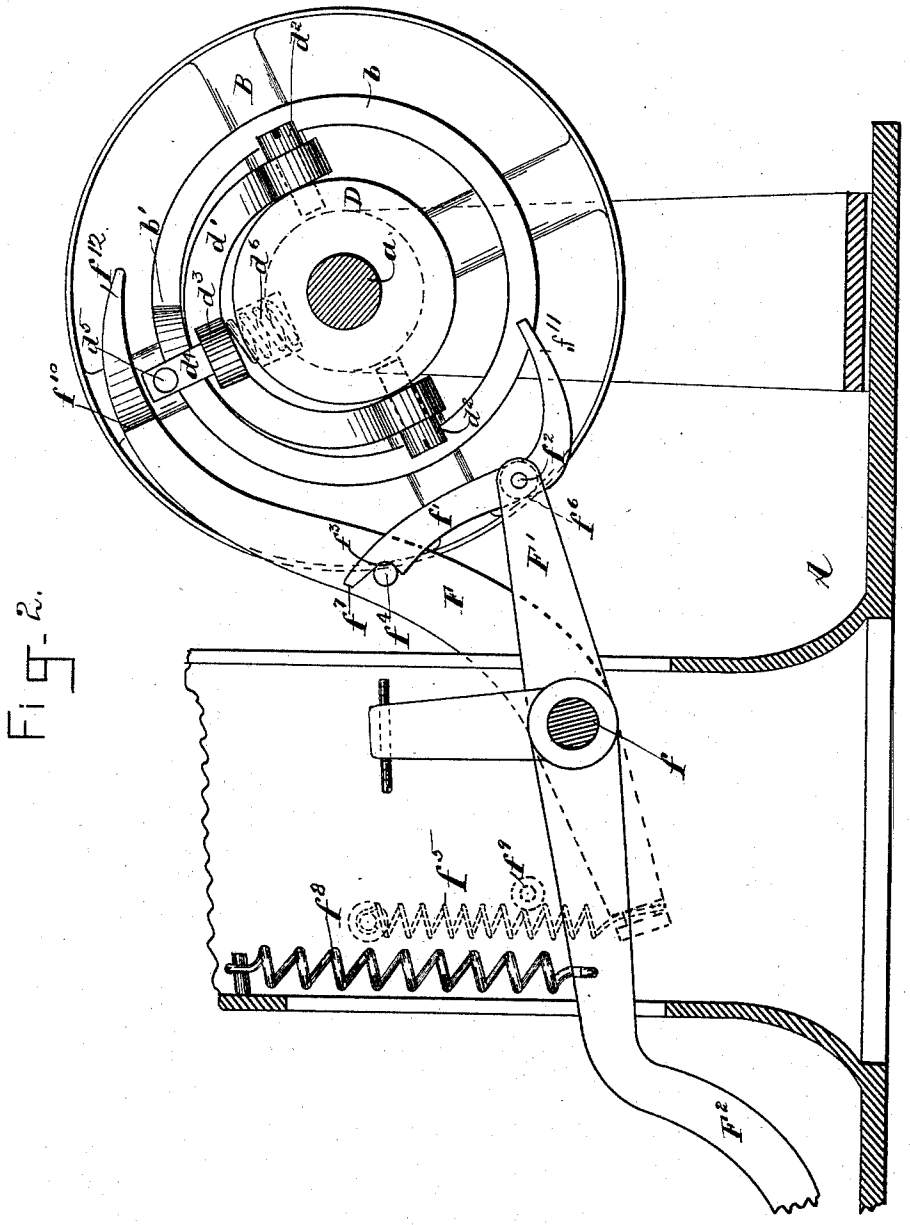


Fig. 2.

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(No Model.)

3 Sheets—Sheet 3.

I. S. CRAIG.

STOP MOTION FOR MACHINES.

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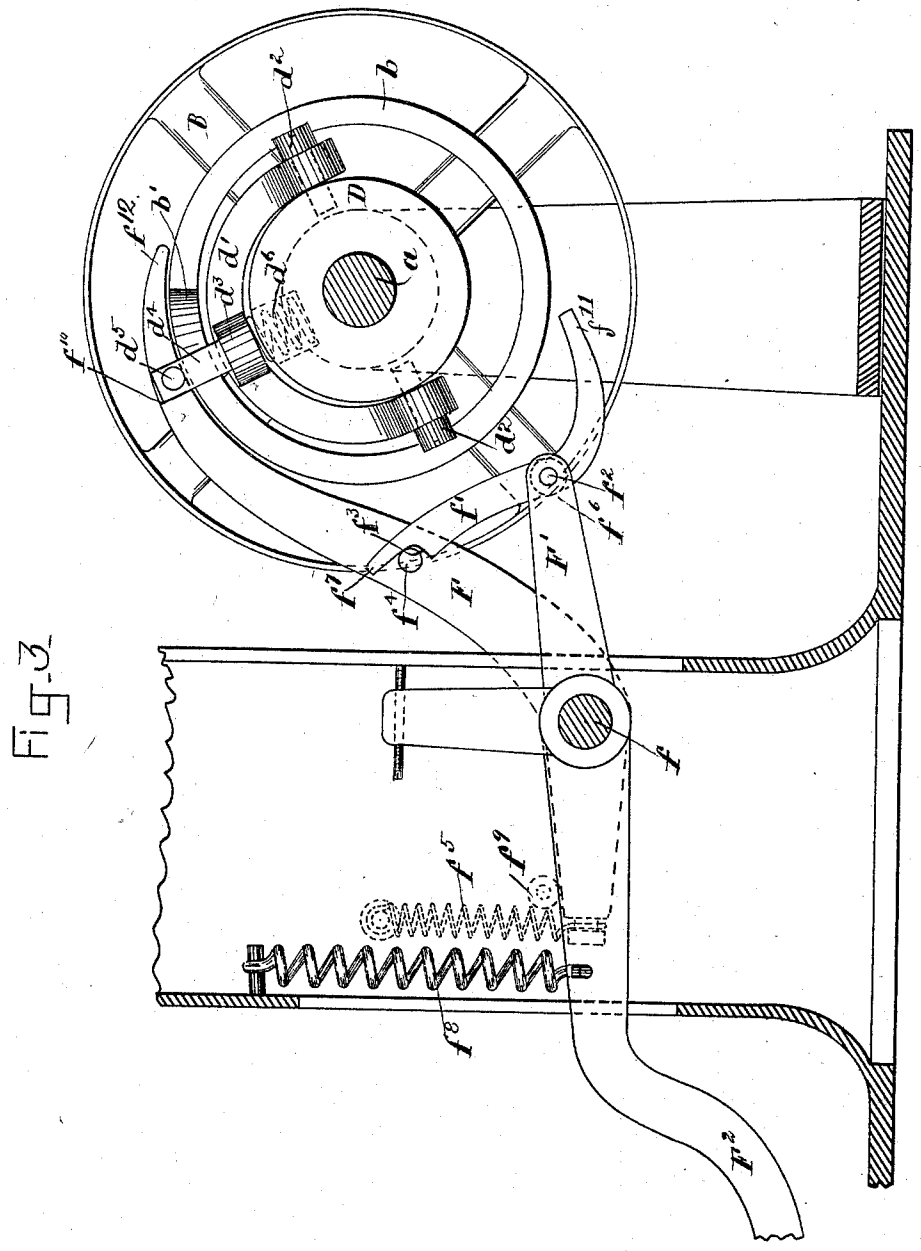


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ISAAC S. CRAIG, OF SOMERVILLE, ASSIGNOR TO THE STANDARD RIVET COMPANY, OF BOSTON, MASSACHUSETTS.

STOP-MOTION FOR MACHINES.

SPECIFICATION forming part of Letters Patent No. 448,578, dated March 17, 1891.

Application filed April 16, 1890. Serial No. 348,140. (No model.)

To all whom it may concern:

Be it known that I, ISAAC S. CRAIG, of Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Stop-Motion for Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan of my new stop-motion as it appears when applied to a rivet-setting machine, the standard of the latter being sectioned. Fig. 2 is an enlarged sectional elevation on line 2 2 of Fig. 1; and Fig. 3 a similar elevation, but showing the parts in positions different from those they occupy in Fig. 2.

The object of my invention is to produce a stop-motion for driving and other machines, whereby the driver, for example, is rendered alternately operative and inoperative to drive the fastening (to give the operator time to feed his work.)

In the drawings, in which I show my new coupling applied to the main shaft of a rivet-setting machine, although it may be used in a great variety of other machines, A is the frame; a, the main shaft; a', an eccentric fast on main shaft a; a^2, the eccentric-strap, and a^3 the rod connecting the main shaft to the head of the machine, in this case to a driver-bar, which, however, is not shown, because the connection will be readily understood by all skilled in the art.

B is the driving-pulley loosely mounted on main shaft a, and is formed with a flange b, the edge of which is a cam-surface (see Fig. 1) having a projection b'. (See Figs. 2 and 3.)

D is a sleeve fast on main shaft a, and d' is a forked lever fulcrumed to sleeve D at d^2. Lever d' is formed with projections d^3, d^4, and d^5, a spring d^6 (in this case mounted in a socket in sleeve D) engaging projection d^3 to throw the projection d^4 into engagement with projection b', as hereinafter explained.

F is a lever fulcrumed at f and connected to the rocker-arm (or its equivalent) F′ by a detent f', the detent being fulcrumed on arm f^2 of rocker-arm F′, and having a recess f^3 to engage projection f^4 on lever F. A spring f^5 co-operates with spring f^6 to keep the projection f^4 normally in the socket f^3 of the detent, which has a lip f^7 to prevent the spring f^8, by means of which the treadle F² is sustained in its highest position, Fig. 3, from pulling detent out of engagement with the projection f^4. It is desirable to provide a stop f^9 to prevent the free end of lever F from riding on the flange b of the pulley.

The operation of my coupling is as follows: When the parts are in the position shown in Fig. 3, the projection d^4 on forked lever d' is in engagement with the projection f^{10} on the free end of lever F, and held in this position against the force of spring d^6, as shown in Fig. 3. When the treadle is depressed, as shown in Fig. 2, the detent f' pushes lever F out of engagement with projection d^4, and this projection is snapped into engagement with the cam-surface on flange b by the spring d^6. Rotation of pulley B brings the projection b' into engagement with the projection d^4, and the pulley is thus coupled to its shaft a. As the pulley rotates, the projection d^5 is brought into engagement with the free end f^{11} of the detent f' and the detent f' is moved out of engagement with the projection f^4, and the lever F, under the tension of spring f^5, moves toward the shaft a into the path of the projection d^4. Further rotation brings projection d^4 into engagement with the side of the free end f^{12} of lever F, which is best curved slightly, as shown in Fig. 1, thereby moving the projection d^4 out of the path of the notched flange b and allowing the pulley to run free, the projection d^4 bringing up against projection f^{10}, as shown in Figs. 1 and 3. When the treadle is depressed, the shaft and pulley are coupled. The lever F is brought into position to move projection d^4 out of engagement with the flange as soon as the projection d^5 has tripped the detent by engagement with the free end f^{11}, the shaft and pulley remaining coupled, however, until the projection d^4 is brought into engagement with the free end of lever F. Each time the driving-rod a^3 is raised to actuate the treadle-driver the driving pulley and shaft are coupled and remain coupled until the projection f^4 engages free end f^{12} of lever F. A second fastening

cannot be driven until the treadle returns to its position of rest and is again depressed.

In rivet-setting machines it has frequently happened that an operator has driven a fastening on top of one already set, owing to the rapid movement of the machine and the operator's slowness in moving his work. By the use of my new stop-motion or coupling the machine is rendered inoperative as soon as one fastening is driven, and remains inoperative until the lever F is again moved out of the path of the projection d^1, through treadle F^2, detent f', and projection d^4.

My new stop-motion is shown attached to the machine shown in Frank Bean's application, Serial No. 348,257, filed April 16, 1890, of even date herewith.

What I claim as my invention is—

In a setting-machine, the combination of shaft a, loose pulley B, eccentric a', its strap a^2 and rod a^3, with rocking lever d', rotating with shaft a, lever F, and rocking detent f', pulley B being provided with a cam b and projection b', lever d' with projections d^4 d^5, lever F with a cam-surface f^{12} and shoulder f^{10}, projection d^1, engaging projection b' to couple the pulley and shaft, projection d^5, engaging lever f' to bring cam-surface f^{12} and shoulder f^{10} into the path of rocking lever d^4, and cam-surface f^{12}, rocking lever d^4 out of engagement with b' to allow pulley B to run free, and shoulder f^{10}, arresting lever d^4, all substantially as and for the purpose set forth.

ISAAC S. CRAIG.

Witnesses:
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