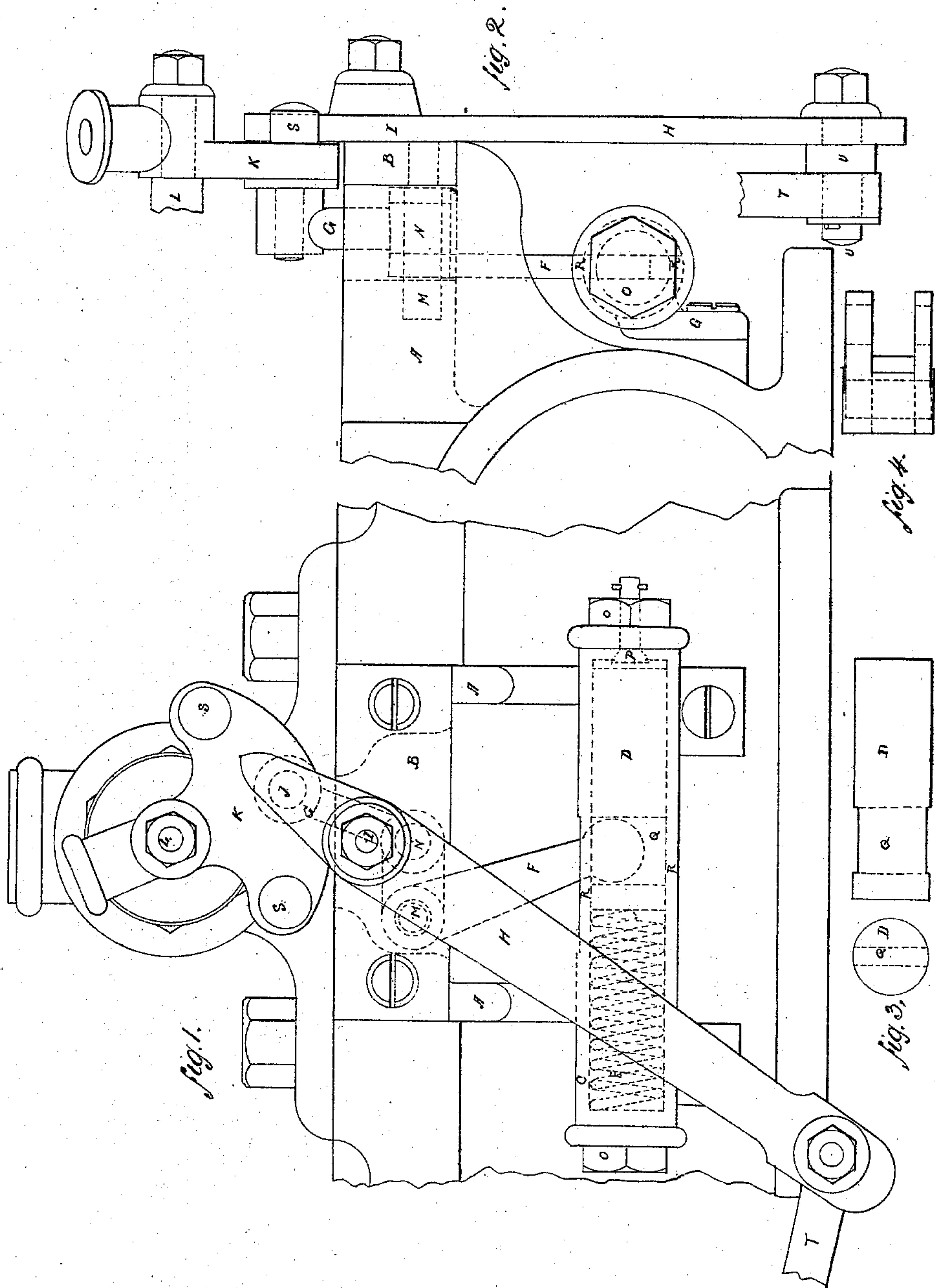


C. F. Hadley,
Mechanical Movement.
No. 100,395. Patented Mar. 1. 1870.



Witnesses:

W. H. Maynard
W. A. Peters

Inventor:

C. F. Hadley
per Messrs. H. & C.
Attorneys.

United States Patent Office.

CHARLES F. HADLEY, OF CHICOPEE, MASSACHUSETTS, ASSIGNOR TO
AMES MANUFACTURING COMPANY.

Letters Patent No. 100,395, dated March 1, 1870.

IMPROVED DEVICE FOR REVERSING MOTION.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, CHARLES F. HADLEY, of Chicopee, in the county of Hampden, and State of Massachusetts, have invented a new and improved Device for Reversing Motion; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a front elevation as applied to steam-pumps and engines.

Figure 2 is an end elevation.

Figures 3 and 4 are details of the spring piston.

Figure 5 is a detail of the crank-lever.

This motion is designed for direct-acting steam-pumps, engines, or other machinery where reverse motion is required.

The object of this invention is to overcome dead points in machinery where continual reciprocating motion is required.

The projection A is cast upon the steam-cylinder, forming a recess for the crank-lever F and the stirrup G, upon which is bolted the plate B, securing the crank-lever pin M.

Upon the plate B is forged the stud I for the main lever H, connecting with the side rod T.

Upon the cam K is fitted the stud J for the stirrup G, connecting the cam K with the crank-lever F, also the lugs S S, communicating with the lever H.

The cam K is fitted to the valve-spindle L.

The spring cylinder C is secured to its place, in which is fitted to work freely the piston D, through which is made the mortise Q for the crank-lever F.

The piston D is forced back by the spiral spring E, and both secured by the nuts o o.

The slot R, through the spring cylinder C, is of sufficient length to allow the free motion of the crank-lever F.

The small valve P through the nut o for the admission of air when the piston is drawn forward, and closed when the piston is thrown back, forming a cushion to prevent sudden concussion.

To operate this device, move the lever H until it strikes one of the lugs S S on the cam K, moving it until the cam has passed the center, bringing the spiral spring E in operation, when the valve is thrown over and the machine is reversed.

By this device the same motion of the spring E gives a reverse motion to the cam.

Although this invention has been described as applied to a valve, yet I do not design limiting its application to this device, but intend to apply it to any machine in which a reciprocating movement is produced, as, for example, planing-machines, &c.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The spring cylinder C, the piston D, in combination with the crank-lever F and the stirrup G, in the manner and for the purpose set forth.

2. The employment of the spiral spring E, or its equivalent, in combination with the parts above described, operating substantially as described and for the purpose herein set forth.

CHARLES F. HADLEY.

Witnesses:

GEO. D. ROBINSON,
A. S. HUNTER.