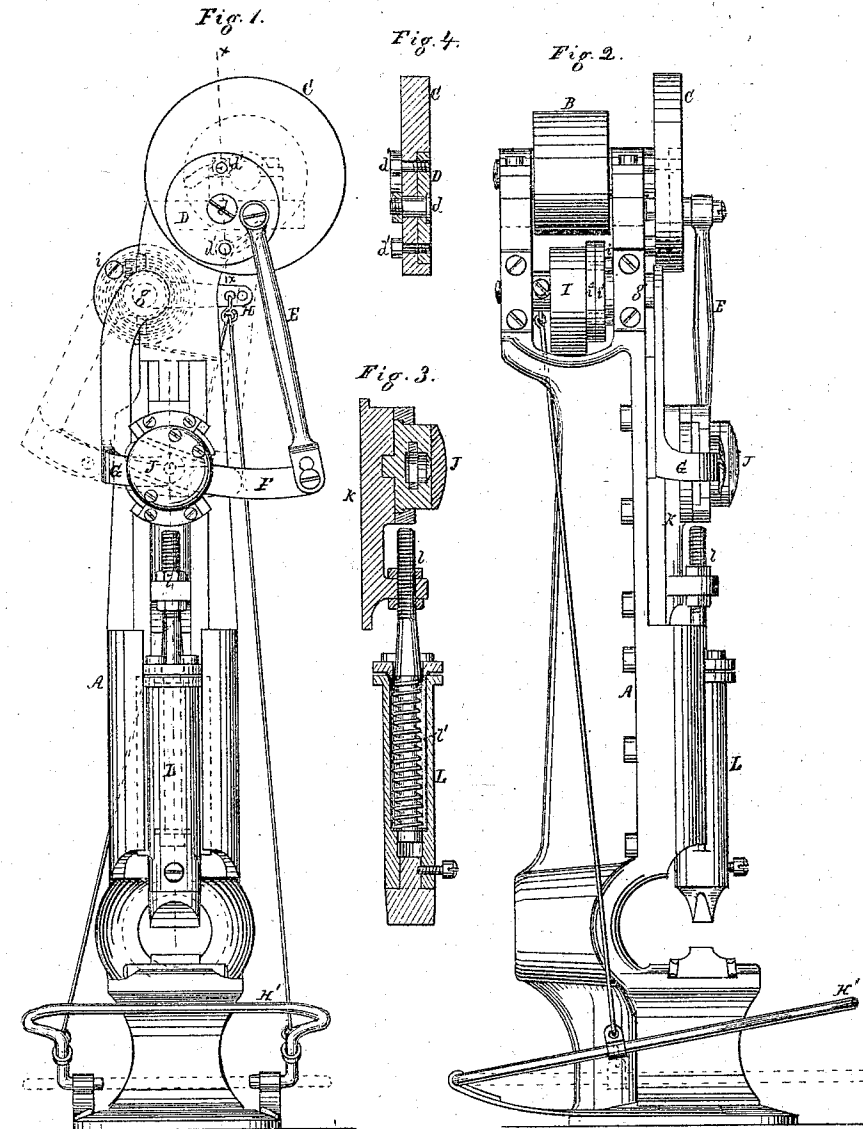


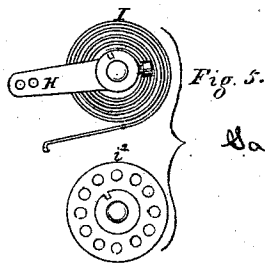
S. PENNOCK.
Power-Hammers.

No. 137,092.

Patented March 25, 1873.



Witnesses:
Joe A. Taylor.
Balthus D. Long.



Inventor:
Samuel Pennock
by his Attorney
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UNITED STATES PATENT OFFICE.

SAMUEL PENNOCK, OF KENNETT'S SQUARE, PENNSYLVANIA.

IMPROVEMENT IN POWER-HAMMERS.

Specification forming part of Letters Patent No. 137,092, dated March 25, 1873.

To all whom it may concern:

Be it known that I, SAMUEL PENNOCK, of Kennett's Square, Pennsylvania, have invented certain Improvements in Power-Hammers, of which the following is a specification:

The object of my invention is to render a power-hammer adjustable at the pleasure of the operator, so as not only to vary the force of the blow, but also the length of the stroke, and thus render its employment advantageous in a class of work to which it has heretofore been deemed inapplicable.

In the accompanying drawing, which shows my improvements as embodied in the form now best known to me, Figure 1 represents a front view; Fig. 2, an end view; Fig. 3, a longitudinal section through the hammer-bar; Fig. 4, a section through the crank-pulley on the line *xx* of Fig. 1. Fig. 5 shows the details of the counterbalance-spring.

Upon a stout frame, *A*, is mounted a shaft carrying a pulley, *B*, which may be rotated from any suitable prime mover. A wheel, *C*, mounted on the same shaft carries a crank-disk, *D*, adjustable on a pivot, *d*, by means of slots and set-screws *d'*. A pitman, *E*, pivoted eccentrically to this disk is rendered adjustable relatively to its axis of rotation—that of the wheel *C*—by the means above described. This pitman is pivoted to and vibrates a radius-link, *F*, pivoted to a crank-arm, *G*, of a rock-shaft, *g*, moved in one direction by a crank, *H*, and foot-treadle *H'*, and in the other by a coiled spring, *I*, the tension of which is regulated by means of a set-screw, *i*, passing through a disk fixed on the shaft and taking into one of a series of holes on a plate, *i'*, secured to the spring, as is well understood. The radius-link slides through a slot in a rocking disk, *J*, turning freely in its bearings in a reciprocating slide-bar, *K*, which moves up and down in guides in the frame in the usual way. The hammer-bar *L* also slides in ways in the frame, and is connected with the slide-bar *K* by a nut and set-screw, *l*, to regulate the relation of the hammer to the anvil. In order to give a quick, lively blow to the hammer its bar is made tu-

bular, and the shank of the screw *l* is extended down into it and surrounded by a coiled spring, *l'*, as shown in Fig. 3.

My improved power-hammer operates as follows: When the parts are in their normal position the joint between the radius-link *F* and crank-arm *G* coincides with the axial line of the hammer-bar and the pitman *E* reciprocates without moving the hammer. To bring the hammer into play the workman bears on the foot-treadle, which, through the rock-shaft and crank-arm *G*, draws the fulcrum of the radius-link *F* away from the rocking disk *J*, as shown by the dotted lines in Fig. 1, the effect of which is to bring the joint between the pitman and radius-link nearer to the rocking disk and to vibrate it, the motion increasing as the pitman approaches the disk, and vice versa. The workman is thus enabled to control the length of stroke of the hammer with the utmost precision. When the treadle is released the counterbalance-spring *I* at once restores the parts to their normal position and stops the hammer.

I claim—

1. The combination of the pitman, radius-link, crank-arm, rocking disk, and slide-bar, substantially as set forth.

2. The combination of the pitman, radius-link, crank-arm, slide-bar, counterbalance-spring, and foot-treadle, substantially as set forth.

3. The combination of the radius-link, the pitman, and the adjusting-disk in the wheel which drives the pitman, substantially as set forth.

4. The combination of the slide-bar, the hammer-bar, and the adjustable spring connection between them, these parts being constructed and operating substantially in the manner set forth.

In testimony whereof I have hereunto subscribed my name.

SAMUEL PENNOCK.

Witnesses:

JOSIAH JACKSON,
B. P. KIRK.