

United States Patent Office.

THOMAS SHAW, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO HIMSELF AND PHILLIP S. JUSTICE.

Letters Patent No. 84,221, dated November 17, 1868.

IMPROVED POWER-HAMMER.

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

Be it known that I, THOMAS SHAW, of the city and county of Philadelphia, Pennsylvania, have invented a new and improved Mode of Constructing Power-Hammers; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists, first, in mode of stopping hammer suddenly; second, in mode of combining flexible belt with links and spring; third, in mode of employing walking-beam; all as hereafter described.

In order to enable others to use and practise my invention, I will proceed to describe its construction and operation.

On reference to the accompanying drawing, which forms part of the specification,

Figures 1 and 3 represent side views of the hammer, and

Figure 2, a back view of the same.

Similar letters refer to similar parts, of which—

a is the anvil-block, projected from which are guides *c*, between which plays the hammer or ram *d*. Said ram is provided with a die, *e*.

f, fig. 1, is a die secured to anvil-block by means of wedge *g*, which may be forced under the same by screw *h*.

b b are supports secured to anvil-block *a*, the lower ends of which support the journal-bearings of crank-shaft *k*, which crank-shaft carries belt-pulley *i* and fly-wheel *o*; and to the crank is connected pitman-arm *m*. Said pitman-arm *m* is made adjustable by having its lower end slide into the lower tubular end of rod *n*, and is secured in position by screw *h*.

w w are walking-beams, pivoted in centre to supports *b b*, and carry on their outer ends pitman-rod *m* and spring *x*. Said spring, *x*, carries ram *d*, by means of belt *z* and links *J*.

p is a belt secured to the anvil-block at *y*, which passes partially around fly-wheel *o*, and is finally coiled around pulley *r*, or one end of shaft *v*. The other end of said shaft carries tightening-pulley *S*, to simultaneously slacken the driving-belt, and wind belt *p* around pulley *r*, or *vice versa*.

u u are arms secured to shaft *v*, which carry tightening-pulley *S* on their outer ends.

t is a lever secured on the outer end of shaft *v*, which may be operated by hand.

It is intended that the hammer shall be operated by a belt leading down from a rotating shaft, past loose pulley *S*, and around belt-wheel *i*, sufficiently slack as not to propel wheel *i*, unless tightened by loose pulley *S*, as hereafter described.

It will be observed that when lever *t* is forced down by hand, loose pulley *S* will thereby be pressed against said driving-belt, causing it to become more or less tight, creating thus sufficient friction to propel shaft *k*, and that elevating said lever *t*, said driving-belt will be slackened and wheel *r* will wind up belt *p*, thereby causing friction against fly-wheel *o*, which overcomes the momentum of the fly-wheel when shaft *k* is brought to rest.

It will be evident that by the rotation of shaft *k* the pitman-rod *m* will have a vertical movement imparted to it, equal to the throw of the crank, and there is thus given to the walking-beam *w* a like amount of vibration; but that the ram *d* will traverse a much greater distance, by reason of the intervention of spring and belt *x* and *z*, between the walking-beam *w* and the hammer, the operation being such as to throw said ram violently upon the anvil-block, and with a force proportioned to the velocity of the crank-shaft.

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

1. The combination of the hammer, flexible strap, links, spring, walking-beam, connecting rod, and crank-shaft, substantially as herein described.

2. The method, substantially as herein described, of simultaneously tightening the driving-belt and releasing the friction or clutch-belt, so as to suddenly start the machine, and by a reverse movement to as quickly stop the machine.

THOMAS SHAW.

Witnesses:

ELIAS J. SHAW,
WILLIAM MYERS.