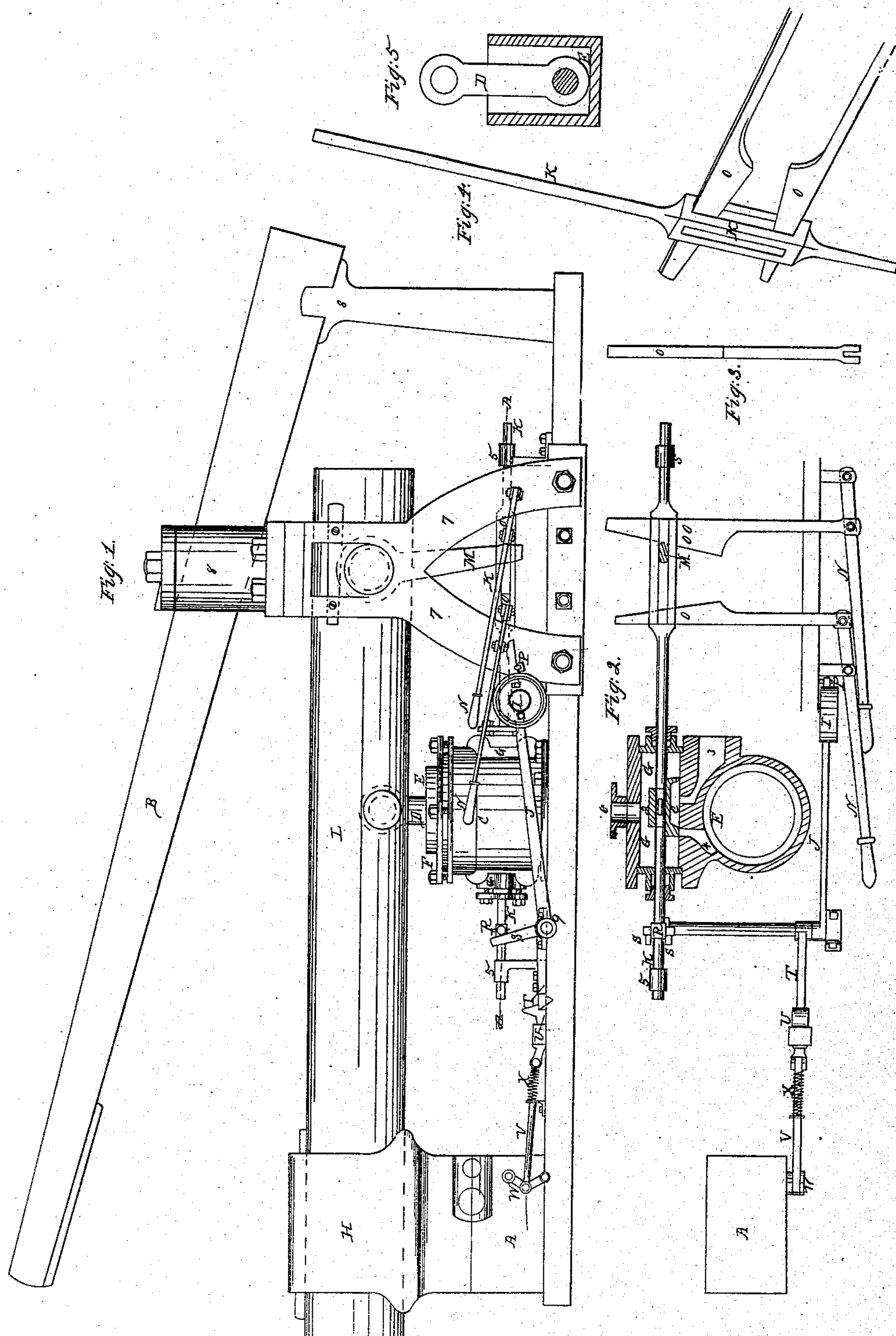


P. L. WEIMER.  
STEAM HAMMER.



# UNITED STATES PATENT OFFICE.

PETER L. WEIMER, OF READING, PENNSYLVANIA.

## STEAM-HAMMER.

Specification of Letters Patent No. 10,486, dated January 31, 1854.

*To all whom it may concern:*

Be it known that I, PETER L. WEIMER, of Reading, in the county of Berks and State of Pennsylvania, have invented a new and useful Improvement in Steam Forge-Hammers; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a side elevation of a steam hammer. Fig. 2 is a plan on the line A A. Fig. 3 is a side view of the adjusting wedge. Fig. 4 is a perspective view of the adjusting wedge. Fig. 5 is a section of the hollow piston and plunger.

The letters of reference in all figures corresponding, Fig. 1, A is the anvil, H the hammer, L the lever or helve, B the spring or tappet.

8 8 are supports for the spring.

D is the link connecting the hollow piston E with the lever or helve L.

C is the steam cylinder, F the packing gland.

G G is the steam chest.

2 is an ordinary D slide valve.

6 is the opening admitting steam into the chest, 4 the steam port, 3 the exhaust port.

K K is the valve stem.

R is a small cross head keyed fast to the valve stem.

S is a forked arm fastened to the shaft 9 and lies loose in contact with the cross head R.

5, 5, are the standards for guiding the valve stem K K.

T is an arm fastened to the shaft 9, and latches into the catch U.

X is a spiral spring for the purpose of keeping the catch U in its place when the hammer rises off the anvil.

W are toggle levers one end of which is fastened to the anvil. The other end is secured to the bed plate of the hammer.

V is the connecting rod between the toggle W and the catch U.

J is an arm made fast to the shaft 9.

I is a weight fastened to the arm J for the purpose of carrying back the valve 2 after the force of the blow of hammer has detached the arm T from the catch U.

P is a latch for the purpose of securing the arm J in a stationary position when it

is desirable not to use this part of the apparatus.

N N are hand levers for the purpose of varying the blow of the hammer as well as for adjusting the hammer to the various thicknesses of material to be forged, by means of the wedges O O to which they are connected and the valve stem K K.

M is an arm fastened to the helve of the hammer and is for the purpose of operating the slide valve 2 by means of the slotted valve stem K K.

7 7 are the supports of the journals of the helve.

The great disadvantage the present helve hammers in taking steam before they strike their blow is my object to overcome and so arrange the valve that the steam cannot enter the cylinder until the hammer has struck its blow, thus allowing the hammer its full power. At the same time all the various blows are retained by means of the slotted valve stem and adjusting wedge.

W is a toggle one end of which is fastened to the anvil. The other is fast to the bed plate of the hammer.

V is a connection from the toggle to the catch U.

X is the spiral spring.

The manner of operation is as follows: The hammer rises and in falling on the anvil or anything thereon causes it (the anvil) to crush or spring in its bed, thereby causing the center of the toggle to move in the direction of the arrow, drawing with it the catch U by means of the connecting rod V and releasing the arm T from its hold in the catch U, when the weight I on the arm J will fall, carrying with it the valve 2 by means of the forked arm S operating on the small crosshead R, which is keyed on the valve stem K K, and admit the steam into the cylinder through the passage 4, when the hammer will rise and the spiral spring X will draw the catch U and toggle W into position to again receive the arm T, when the hammer in its rise shoves the valve forward by means of the arm M and the valve stem K K and small cross head R operating on the forked arm S raising the weight I on the arm J, when the apparatus is ready for another blow of the hammer. In using this apparatus the arm and weight is first detached from the catch P and the back adjusting wedge O is

withdrawn to its thinnest part so that the hammer in falling cannot by means of the arm M open the valve 2. The forward adjusting wedge is used to vary the exhaust  
5 steam as well as for gaging or holding the hammer against the spring, which is effected by withdrawing said wedge, when the valve 2 will remain stationary, and the full pressure of steam remain under the piston  
10 thus preventing the hammer's falling. The various changes are effected without stopping the hammer; neither is it necessary to latch the arm J in the catch P when not  
15 using this part of the apparatus, though by doing so it is out of gear. By this arrangement a hammer will be able to strike a more severe blow than one in which the steam is admitted into the cylinder before the hammer has struck its blow. From the fact  
20 that when the steam is admitted into the cylinder before the blow is struck it serves to in a great measure arrest the force of the blow by striking the steam in the cylinder before the hammer reaches the anvil or material thereon.  
25

I make no claim to being the originator of not admitting steam into the cylinder until after the hammer has struck its blow. The same being effected by others, though by different arrangement of device from  
30 that which I employ.

Having thus described the nature of my invention and improvement, I wish it to be understood that I do not claim admitting  
35 steam into the cylinder of steam hammers by means of the recoil of the anvil caused by the blow of the hammer. But

I claim—

The arrangement of the toggle W, the catch U, the arm T, the arm J, the weight I,  
40 and shaft 9 for the purpose of opening the valve, admitting steam into the cylinder, from the concussion or spring of the anvil in its bed caused by the force of the blow of the hammer.

PETER L. WEIMER.

Witnesses:

GEO. W. TODD,

DANIEL P. SHENFELDER.