

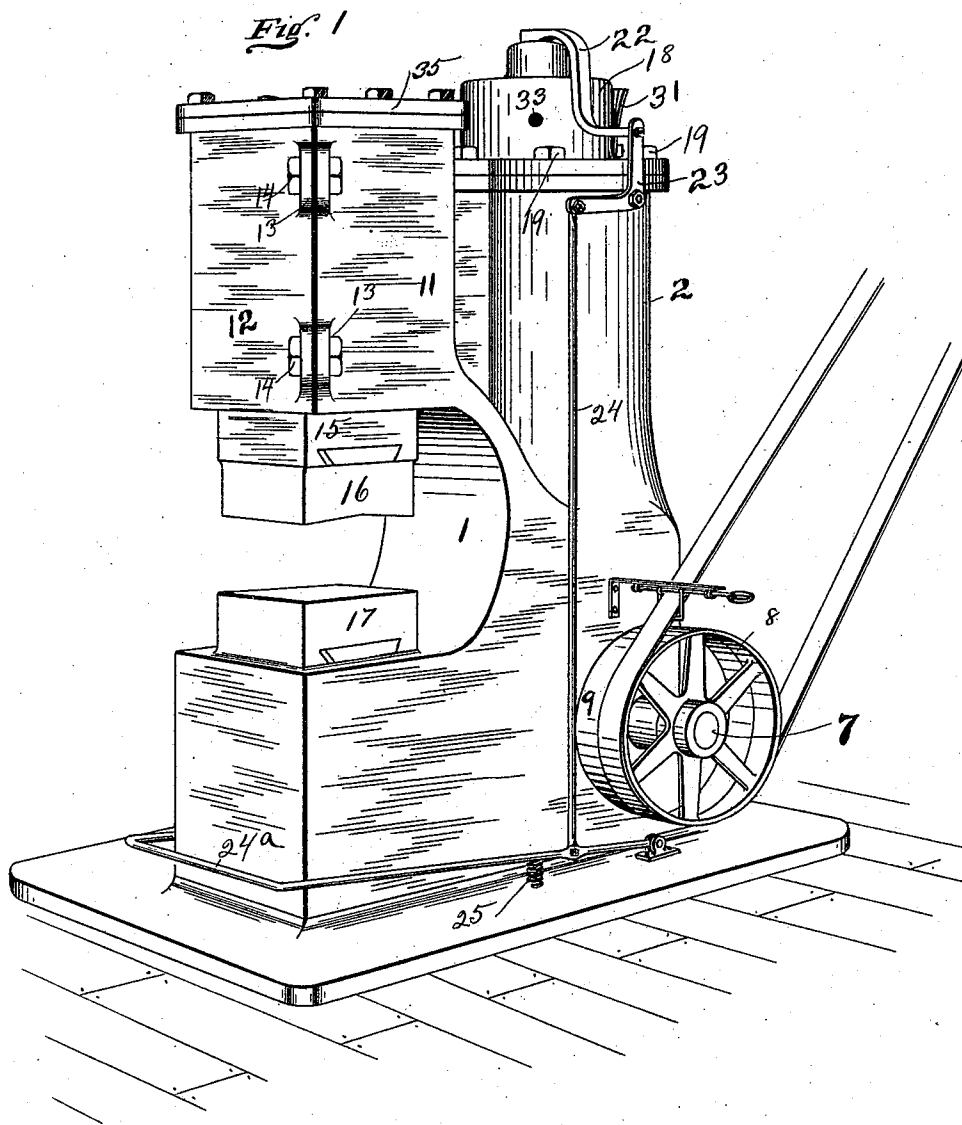
(No Model.)

3 Sheets—Sheet 1.

J. G. ROSEMAN.
POWER HAMMER.

No. 576,616.

Patented Feb. 9, 1897.



Witnesses:
C. J. Cross,
Bertha Finch.

Inventor
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By Fred W. Bond

Atty.

(No Model.)

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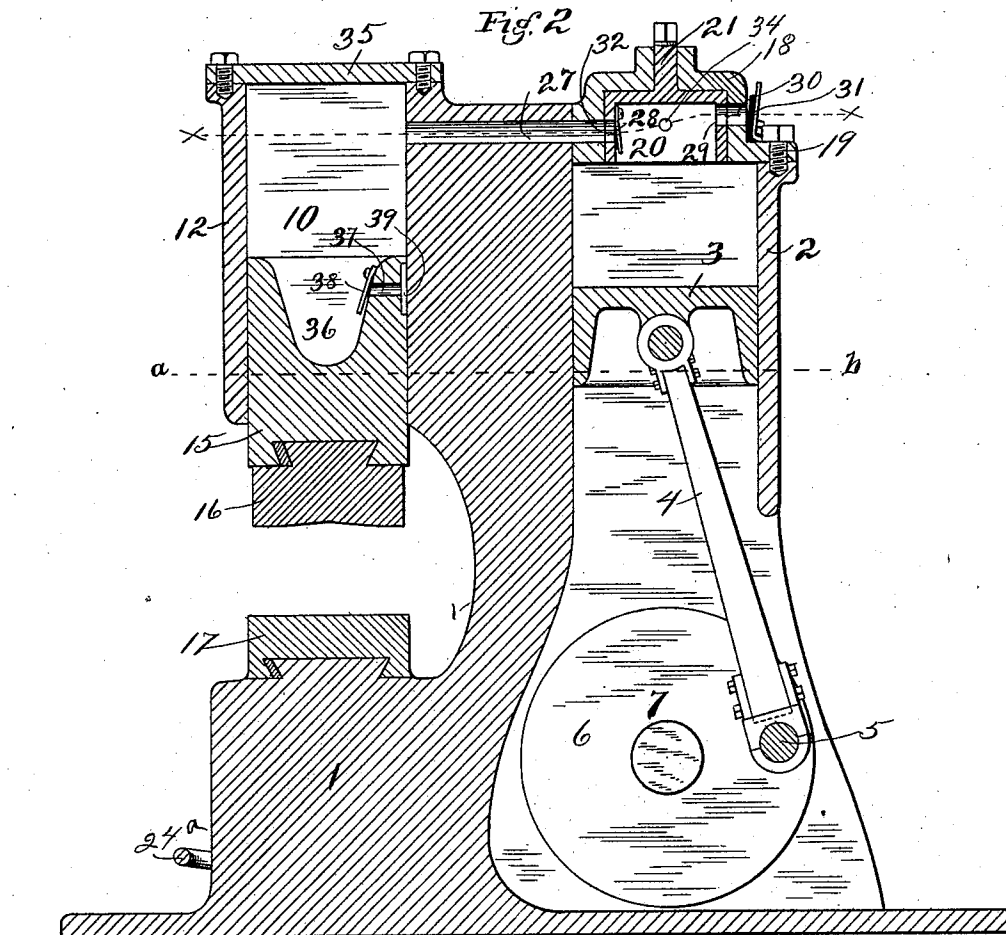
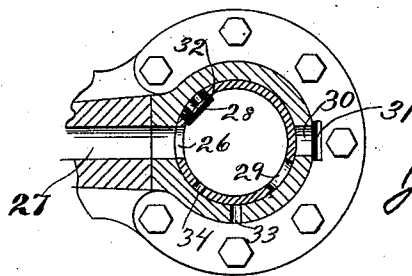


Fig. 3.



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Fig. 4.

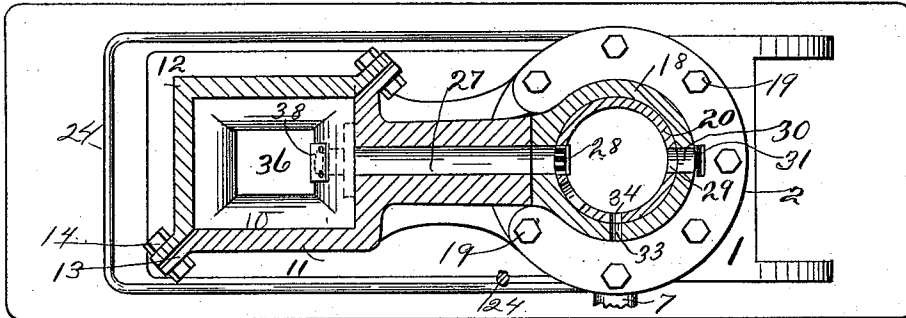


Fig. 5.

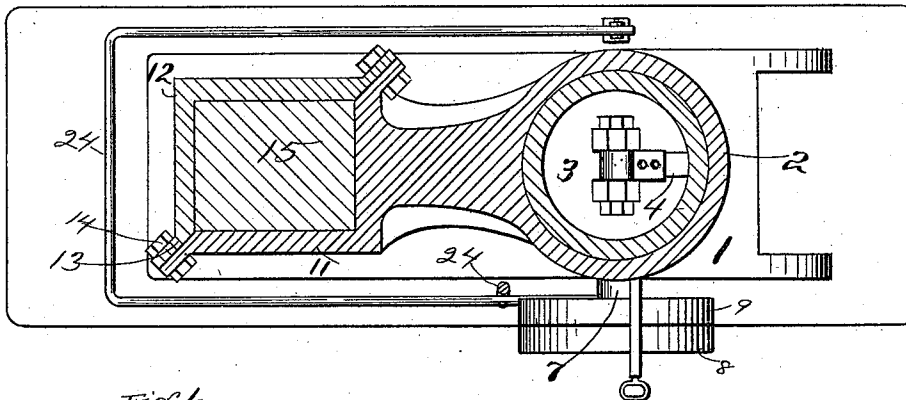


Fig. 6.

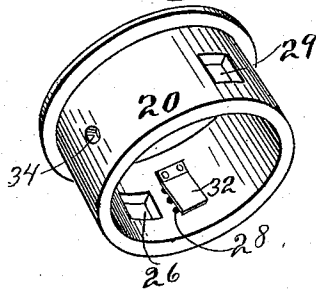


Fig. 7.

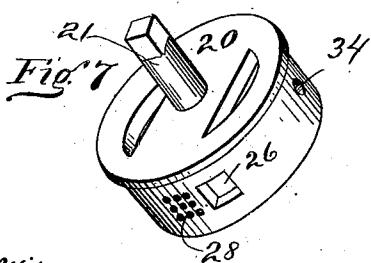
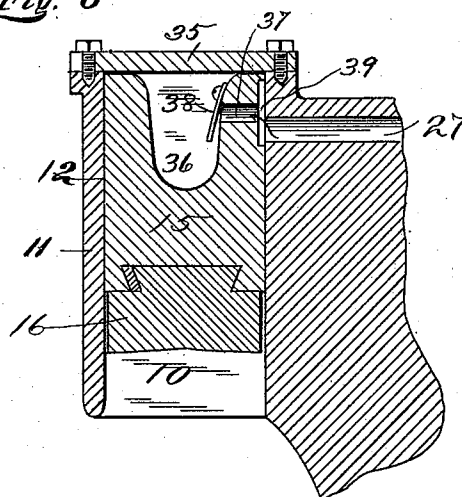


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN G. ROSEMAN, OF MASSILLON, OHIO, ASSIGNOR OF ONE-HALF TO
ERNEST F. DIEHM, OF SAME PLACE.

POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 576,616, dated February 9, 1897.

Application filed April 25, 1896. Serial No. 589,063. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. ROSEMAN, a citizen of the United States, residing at Massillon, in the county of Stark and State of Ohio, have
5 invented certain new and useful Improvements in Power-Hammers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being
10 had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a perspective view of the hammer, showing all of the parts properly assembled. Fig. 2 is a vertical section. Fig. 3 is
15 a horizontal section of the valve and its chamber, showing a top view of the valve-chamber casing and a portion of the connection between the valve-chamber and the hammer-cylinder, showing the aperture or passage
20 connecting the hammer-chamber and valve-cylinder. Fig. 4 is a view through line *x x*, Fig. 2, except that the hammer is shown complete instead of the vertical section shown in
25 said Fig. 2. Fig. 5 is a similar view through line *a b*, Fig. 2. Figs. 6 and 7 are detached views of the regulating-valve, showing said valve in different positions. Fig. 8 is a vertical section of the hammer-head and its chamber, showing the hammer elevated and also
30 showing a portion of the air-passage connecting with the valve-chamber.

The present invention has relation to power-hammers; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the
35 claims.

Similar figures of reference indicate corresponding parts in all the figures of the drawings.

40 In the accompanying drawings, 1 represents the base or bed of the hammer, which is constructed of sufficient weight and strength to carry out the objects and purposes of the hammer. The base or bed 1 is provided with the
45 piston-cylinder 2, which cylinder may be and preferably is formed integral with the bed or base 1.

Within the cylinder 2 is located the piston 3, to which piston is connected the pitman 4,
50 said pitman 4 being properly connected to the wrist-pin 5 or its equivalent, said wrist-pin

being properly connected to the wheel 6, said wheel being securely attached to the power-shaft 7, which power-shaft is provided with the ordinary tight and loose pulleys 8 and 9.
55 To one side of the cylinder 2 is located the hammer-chamber 10, which hammer-chamber is formed integral with or attached to the sides 11 and the removable portion 12, said parts 11 and 12 being securely connected together by means of the flanges 13 and the
60 clamping-bolts 14, said bolts and flanges being located diagonally opposite each other, as illustrated in Figs. 4 and 5, thereby forming the vertical walls of the hammer-chamber in
65 two sections or halves and at the same time providing a better means for taking up the wear of the chamber and hammer-head. The hammer-head 15 is formed of a size and shape to closely fit the inner walls of the chamber
70 10 and is formed of such a length that the proper reciprocating movement can be imparted to the hammer-head 15, as hereinafter described. To the hammer-head 15 is attached in the ordinary manner the hammer
75 or die 16, and directly below the hammer or die 16 is located the anvil 17, which anvil is properly connected in any convenient and well-known manner to the bed or base 1.

Upon the top or upper end of the cylinder 80 2 is located the valve-chamber 18, which valve-chamber may be and preferably is formed separate from the piston-cylinder and securely connected to said piston-cylinder by means of suitable lug-bolts 19. Within the
85 valve-chamber 18 is located the valve 20, which valve is provided with the shank 21, the outer end of which is angular, and upon which angular end is attached the valve-operating arm 22, said arm being connected
90 to the said L-lever 23 or its equivalent, said lever being properly attached to the rod 24, which rod extends downward and its bottom or lower end pivotally connected to the treadle
95 24^a, said treadle being for the purpose of operating the valve 20 by means of the foot, and for the purpose of automatically bringing the treadle into its normal position a
100 spring or springs, such as 25, may be provided, or, if desired, other forms of springs may be employed, as the only object to be accomplished by the use of the spring or springs is

to automatically operate the treadle when the foot of the operator is taken off the treadle. When it is desired to impart a strong and full reciprocating movement to the hammer-head 15 and its hammer 16, the port 26, located in the valve 20, is placed in alinement with the aperture 27, which aperture leads to the hammer-chamber 10, as illustrated in Fig. 2, and as the piston 3 is drawn downward a portion of the air contained in the hammer-chamber 10 and above the hammer-head 15 will be drawn therefrom, which causes the hammer-head and its hammer to be forced upward by atmospheric pressure upon the outer and lower end of the hammer. As the piston 3 is forced upward the air contained in the cylinder 2 will be forced into the chamber 10, thereby permitting or allowing the hammer-head, together with its hammer, to drop.

It will be understood that the stroke of the hammer can be regulated by the movement of the valve 20, which movement will close or partially close, as desired, the aperture 27, thereby regulating the stroke, said valve being operated by means of the treadle 24^a and the intermediate attachments.

When it is desired to run the machine idle, the valve 20 is turned so as to bring the valve-port 28 opposite or in alinement with the aperture 27, which brings the port 29 in alinement with the opening 30, which opening is provided with the valve 31, and as the piston is drawn downward the valve 31 will be closed, which prevents air from entering the valve-chamber through the opening 30, but at the same time allows air to be drawn from the hammer-chamber 10, the valve 32 being so arranged that it will open during the downward stroke of the piston and close during the upward stroke, thereby preventing air from entering the hammer-chamber during the upward stroke, and as the piston 3 moves upward the air contained above the piston will be forced out through the opening 30, the valve 31 being so arranged that it will open for the outward passage of air and close against inward passage of air.

For the purpose of allowing sufficient air to enter the cylinder 2, so as to relieve excessive suction, the vent 33 is provided, which vent is located through the valve-chamber casing. The valve 20 is also provided with the port 34, which port comes in proper alinement with the vent 33, thereby causing the piston to run easily during the time the machine is running idle. For the purpose of cushioning the hammer-head 15 and preventing the same from striking the upper plate 35 of the hammer-chamber 10 the aperture 27 is located a short distance below the top of the hammer-chamber 10, as illustrated in Fig. 2; that is to say, said aperture enters the chamber at a distance below the top thereof. For the pur-

pose of preventing the air from escaping from the recess 36 the valve 38 is provided. For the purpose of better permitting the air to enter the recess 36 the side of the hammer-head adjacent to the aperture 27 is provided with the recess 39, which recess is formed of sufficient length to allow air to enter the opening 37 in advance of said opening coming into alinement with the aperture 27, and also allow air to enter the recess 36 when the hammer-head 15 is at its full height, thereby permitting the air to release the hammer-head.

It will be understood that in order to prevent rapid wear of the parts inclosing the reciprocating hammer the packing should be formed of such material that a close fit can be formed, thereby preventing atmospheric air from entering the chamber above the hammer-head.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hammer of the class described the combination of a bed or base provided with a hammer-chamber, reciprocating hammer-head therein and a piston-cylinder, a reciprocating piston therein, a valve-chamber communicating with the piston-cylinder and provided with a vent, and an opening 30, a valve for said opening, a valve in said valve-chamber provided with ports 26, 28, 29 and 34, a valve 32 for the port 28, the passage connecting the valve-chamber and hammer-chamber, the hammer-head having a recess in its upper end, and a side recess 39, a port connecting said recesses, and a valve for said port, substantially as set forth.

2. The combination of a bed or base provided with a hammer-chamber, a reciprocating hammer therein, and a piston-cylinder, a reciprocating piston therein, the passage connecting said hammer-chamber and piston-cylinder, the valve 20 in said passage provided with the ports 26, 28, 29, the vent 33 and the valve 32, and the valve-casing having the port 34, opening 30 and valve 31, substantially as and for the purpose set forth.

3. In a hammer of the class described a piston-cylinder, a reciprocating piston therein, a hammer-cylinder, a reciprocating hammer-head therein having a recess in its upper end and a side recess, a port connecting said recesses, a valve 38 for said port, an air-passage leading from the hammer-cylinder to the piston-cylinder, a valve in said passage and means for operating said valve, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN G. ROSEMAN.

Witnesses:

ERNEST F. DIEHM,
F. W. BOND.