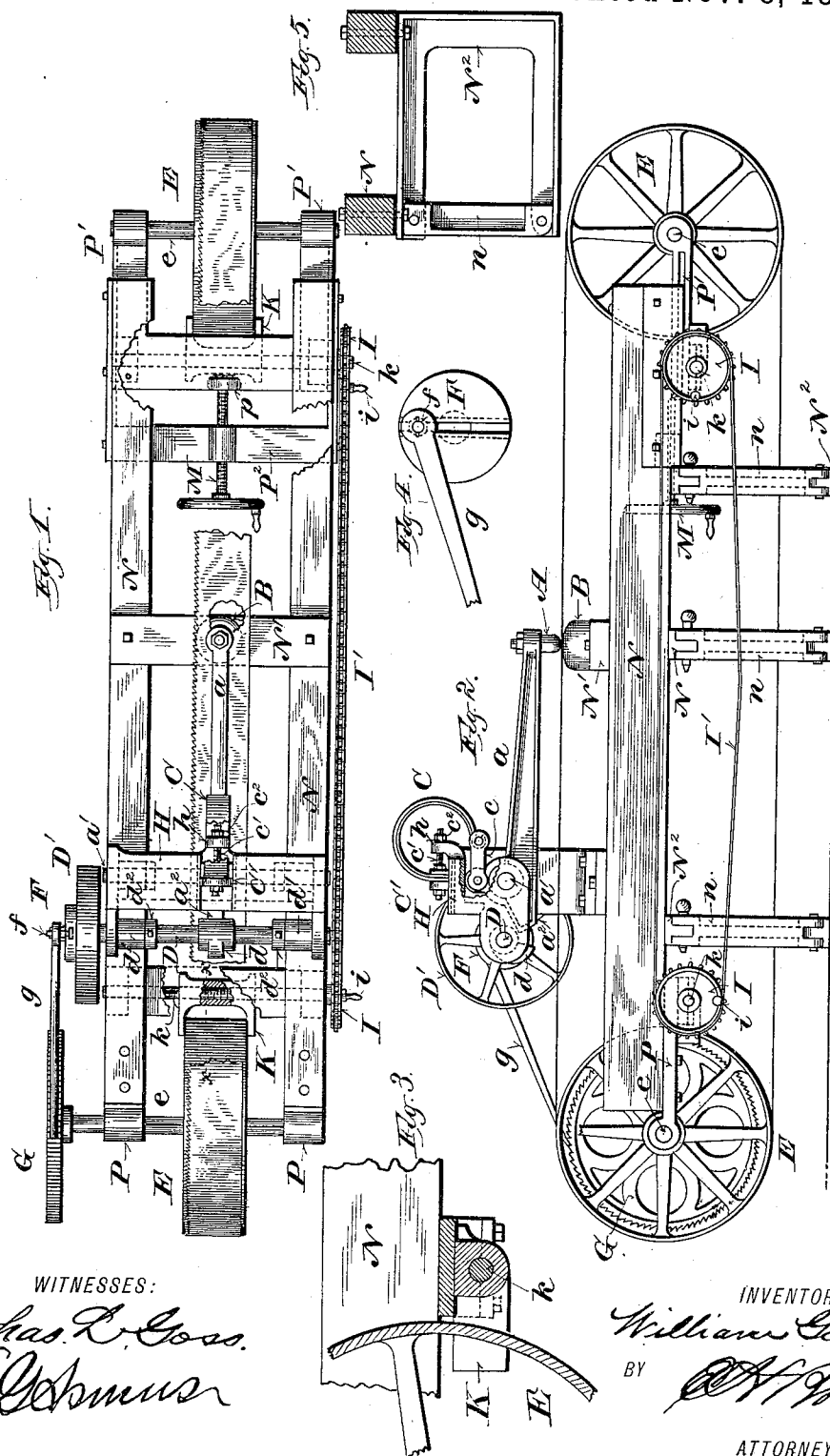


(No Model.)

W. GOWEN.
SAW HAMMERING MACHINE.

No. 372,668.

Patented Nov. 8, 1887.



WITNESSES:

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WILLIAM GOWEN, OF WAUSAU, WISCONSIN.

SAW-HAMMERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 372,668, dated November 8, 1887.

Application filed January 6, 1887. Serial No. 223,517. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GOWEN, of Wausau, in the county of Marathon and State of Wisconsin, have invented certain new and useful Improvements in Saw-Hammering Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to hammer a saw with facility and accuracy and to produce the desired tension therein.

It consists, essentially, of an anvil and hammer working therewith, mechanism for operating the hammer, an adjustable spring for imparting force to the stroke of the hammer and regulating the same, of laterally-adjustable drums arranged to support the saw in proper position to be operated upon by the hammer, and of certain other features, herein-after set forth.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a plan view of my improved machine. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional view on the line *x x*, Fig. 1, of one of the pulley-shifters. Fig. 4 is a side elevation, on an enlarged scale, of the crank-wheel and a portion of the pawl connected therewith for moving the saw between the hammer and anvil; and Fig. 5 is a cross-section of the frame, showing a side elevation of one of its supports.

N N is the frame of the machine, of any suitable form and construction, to support the operative parts. Said frame N rests upon and is secured to four-sided supports N² N², one of the vertical sides *n n* of each of which is hinged thereto and may be opened for the purpose of inserting a saw and placing the same upon the supporting-pulleys.

In suitable bearings formed therefor in an overhanging bracket, H, bolted to the top of the frame N, is journaled the shaft *a'*, upon which is fixed the hammer-arm *a*. In a sleeve formed therefor at one end of the hammer-arm *a* is secured, by means of a nut, the re-

duced and threaded shank of the hammer A. On the opposite side of the shaft *a'* the hammer-arm *a* is formed with an extension, *a*². In boxes *d' d'* on the bracket H is mounted the shaft D, provided with the crank-wheel F, driving-pulley D', and the cam *d* arranged to work with the extension *a*² of the hammer-arm. By means of collars *d*² *d*², fixed thereon and bearing against the inner ends of the boxes *d' d'*, the shaft D is retained in place in its bearings.

C is a C-shaped spring connected at one end by means of a link, *c*, with an ear on the hub of the hammer-arm *a*, and secured at the other end to a slide, C', adjustable transversely to the bracket H and parallel with the hammer-arm *a* in grooved ways formed therefor in said bracket H. By means of the adjusting-screw *c'*, secured in the slide C' and passing through a perforated ear, *h*, on bracket H, and a nut, *c*², the tension of the spring C and the force of the stroke of the hammer A may be regulated as desired.

E E are drums or pulleys, loosely mounted upon feathered shafts *e e*, which are supported at each end of the machine, one in a fixed yoke, P, secured to frame N, and the other in the yoke B', adjustable parallel with the saw on ways formed upon or secured to the said frame N. By means of a screw, M, pivoted at its end in an ear, *p*, formed on yoke P' and working with a nut on the cross-piece P², secured to the frame, the pulley E, mounted in said yoke P', may be adjusted and the saw strained, so as to be acted upon by the pulley E at the opposite end of the machine, and thereby fed over anvil B, in position to be operated upon by the hammer A. Upon screw-shafts *k k*, journaled in the yokes P P', are mounted, with their upper faces bearing against the cross-sections of said yokes, shifting-blocks K K, embracing the rims of pulleys E E, as shown in Figs. 1 and 3. Upon the ends of the screw-shafts *k k*, at one side of the machine, are fixed the sprocket-wheels I I, which are provided with cranks *i i* and connected by a chain-belt, I'. The anvil B is supported upon and secured to a cross-girt, N', of frame N, in position to receive centrally the blows of hammer A.

Upon the end of the pulley-shaft *e*, mounted

in yoke P, adjacent to the crank-wheel F, is fixed the ratchet-wheel, G in position to be operated by the pawl g, pivoted upon the crank-pin f, which is adjustably secured in an undercut groove formed therefor in the face of said crank-wheel F, as shown in Figs. 1 and 4. The pulleys E E may, if desired, be elevated so as to carry the lower section of the saw between the anvil and hammer, and the frame-work of the machine variously modified to suit the varying circumstances and conditions under which the machine may be used. For example, the hammer and its connections may be permanently mounted upon an upright post or standard, and the pulleys E E supported in brackets from the floor of the mill where the machine is to be used. The support of one of the pulleys may be hinged to the floor, and the saw strained by a weight attached to said support or by other suitable devices.

My improved machine operates as follows: The saw having been placed upon the pulleys E E, by opening the sections n n of the supports upon which the machine rests, said pulleys E E are moved laterally upon their shafts e e, by means of the screw-shafts k k, working with the shifting-blocks K K, and the saw thereby adjusted laterally, so as to receive the blows of the hammer at the desired distance from either edge. In hammering a band-saw, I prefer to commence by hammering around the longitudinal center of the saw and then in parallel lines equidistant from said center line, alternating from one side to the other. A chalk or other mark may be made across the saw to indicate the point of beginning, and each time the mark returns to the anvil the saw is moved alternately in either direction the desired distance. Motion being communicated from suitable power to the shaft D, the cam d, working with the extension a² of the hammer-arm, alternately lifts and releases the hammer, while the pawl g, actuated by the crank-wheel F, works with the ratchet-wheel G, producing an intermitting rotation of the adjacent pulley E and a similar movement of the saw over the anvil B. The feeding mechanism is arranged to move the saw a given interval when the hammer A is lifted from the anvil. With each elevation of the hammer-arm by the cam d, the spring C is compressed, and when released by said cam imparts a certain impetus, adjusted as desired by means of the hand-screw c², to the descending hammer. The crank-pin f may be moved toward or away from the center of the crank-wheel F, so as to move the saw by greater or less intervals, as desired.

I claim—

1. In a saw-hammering machine, the combination, with a hammer and anvil, of laterally-adjustable pulleys arranged to support the saw in position to be operated upon by the hammer, substantially as and for the purposes set forth.

2. In a saw-hammering machine, the combination, with a hammer and anvil, of laterally-adjustable saw-supporting pulleys, an oscillatory hammer-arm, and a C-spring connected therewith and arranged to impart force to the blows of said hammer, substantially as and for the purposes set forth.

3. In a saw-hammering machine, the combination, with a hammer and anvil, of laterally-adjustable saw-supporting pulleys, an oscillatory hammer-arm, an adjustable C-spring connected therewith and arranged to regulate the force of the hammer-strokes, substantially as and for the purposes set forth.

4. The combination, in a saw-hammering machine, with a hammer and anvil, of laterally-adjustable saw-supporting pulleys, and a C-spring linked at one end to the hammer-arm and secured at the other end to an adjusting-screw, substantially as and for the purposes set forth.

5. The combination, in a saw-hammering machine, with a hammer and anvil, of saw-supporting pulleys, laterally-adjustable shifters engaging said pulleys, and screws arranged to move said shifters and pulleys, substantially as and for the purposes set forth.

6. The combination, in a saw-hammering machine, of a hammer and anvil, laterally-adjustable saw-supporting pulleys, shifters connected with said pulleys, and screws engaging said shifters and connected so as to be operated simultaneously and to move said pulleys together, substantially as and for the purposes set forth.

7. The combination, in a saw-hammering machine, of a hammer and anvil, saw-supporting pulleys, and a pawl and ratchet-wheel arranged to turn one of said pulleys, substantially as and for the purposes set forth.

8. The combination, in a saw-hammering machine, of a hammer and anvil, saw-supporting pulleys, a ratchet-wheel mounted upon one of the pulley-shafts, and a pawl connected with an adjustable crank-pin and arranged to work with said ratchet-wheel, substantially as and for the purposes set forth.

9. The combination, in a saw-hammering machine, of a hammer and anvil, saw-supporting pulleys, shifting-blocks engaging said pulleys, screws supporting and working with said shifting-blocks, and sprocket-wheels mounted upon said screws and connected by a chain belt, substantially as and for the purposes set forth.

10. The combination, in a saw-hammering machine, of a hammer and anvil and laterally-adjustable saw-supporting pulleys, one of which is supported in bearings adjustable parallel with the saw, substantially as and for the purposes set forth.

11. The combination, in a saw-hammering machine, of a hammer and anvil, an oscillatory hammer-arm having an extension at the end opposite the hammer, a cam arranged to work with said extension, a crank mounted

upon the cam-shaft and carrying a pawl, saw-
supporting pulleys, and a ratchet-wheel
mounted upon the shaft of one of said pul-
leys in position to be operated upon by said
5 pawl, substantially as and for the purposes set
forth.

12. The combination, in a saw-hammering
machine, with a hammer and anvil, of a saw-
supporting device and mechanism arranged

to adjust the saw laterally upon the anvil, 10
substantially as and for the purposes set forth.

In testimony that I claim the foregoing as
my own I affix my signature in presence of two
witnesses.

WILLIAM GOWEN.

Witnesses:

CHAS. L. GOSS,
E. G. ASMUS.