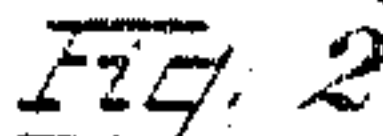
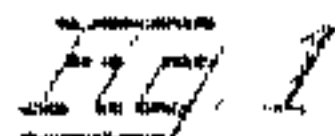


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Geo. H. Billman

by Obed B. Billman
his attorney.

UNITED STATES PATENT OFFICE.

WILLIAM H. WELCH, OF CLEVELAND, OHIO.

POWER-HAMMER.

955,623.

Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed September 29, 1909. Serial No. 520,082.

To all whom it may concern:

Be it known that I, WILLIAM H. WELCH, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Power-Hammers, of which the following is a specification.

My invention relates to improvements in power-hammers, the primary object of the invention being to provide a generally improved hammer of this class, which will be exceedingly simple in construction, cheap of manufacture, efficient in use, and much better adapted to its intended purposes than any other device of the same class, with which I am acquainted.

A further object of the invention is to provide a generally improved hammer actuating mechanism whereby the length and power of the stroke may be readily regulated to meet the exigencies of actual service while the driving-shaft is in the full operation and whereby the power-hammer may be thrown into and out of operation, all while the operator or attendant is in his working position at the anvil.

By the mechanism above referred to, means are provided whereby the operator in his working position may adjust the connections whereby the power-hammer may not only be brought to a standstill but gradually brought into action from said position to describe lengths of stroke and powers of blows of varying lengths and degrees as desired.

With the above mentioned ends in view, the invention consists in the novel construction, arrangements, and combination of parts, hereinafter described, illustrated in one of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings, forming a part of this specification, Figure 1, is a side elevation of a power-hammer constructed in accordance with this invention. Fig. 2, a top plan view of the same, a portion of the hammer-lever or helve being broken away for the purpose of clearer illustration of the power actuating mechanism.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved power-hammer comprises a base or bed portion 1, provided with an anvil-base 2, and bearing standards 3. The helve 4, carrying the hammer 5, is pivotally mounted upon the bearing standards 3, by means of a bearing or fulcrum shaft 6, said shaft, together with the helve 4, being preferably capable of vertical adjustment by being mounted in bearing-blocks 7, interposed between adjusting bolts 8, whereby said bearing-blocks may be adjusted vertically in the guide-ways or slots 9.

The anvil-block 10, is dove-tailed upon the anvil-base 2, whereby the same, together with the die-blocks 11, may be adjusted laterally to meet the position of the hammer 5.

The machine is adapted to be driven by means of a driving-shaft 12, transversely mounted in suitable bearings 13, on the bed 1, and provided at one end with a driving pulley 14, adapted to be driven by a suitable belting communicated with a suitable source of power.

The helve 4, is preferably mounted upon the fulcrum shaft 6, by means of a cross-head, consisting, in the present instance, of a pair of depending bearing-lugs 15, and as a means for resiliently connecting the helve to the actuating mechanism, hereinafter described, an oscillating lever or member 16, is pivotally mounted upon the bearing or fulcrum shaft 6, in the present instance, immediately beneath the helve 4, and connected to the latter by means of pivotally mounted vertically arranged connecting arms or bolts 17, passing through suitable openings in the helve and having projecting or free ends surrounded by cushioning coil-springs 18, said coil-springs 18, being adapted to be adjusted with respect to their resiliency by means of adjusting-nuts 19.

The oscillating lever or member 16, is provided, in the present instance, with a pair of depending connecting links 20, carrying an interposed bearing-block 21, said bearing-block, in the present instance, being pivotally mounted and secured to the connecting links 20, by means of a pivot-pin 22.

The lower ends of the connecting links 20, are pivotally secured to longitudinal yoke-links 23, extending rearwardly between the bearing standards 3, and connected thereto by means of a bearing shaft 24.

As a means for connecting the helve to the power actuating mechanism and regulating the lengths and power of its strokes, a longitudinally movable slotted-link or segment 25, is interposed between the depending connecting links 20, and is provided with a slot 25^a, adapted to receive and contain said bearing-block 21. The slotted link or segment 25, is pivotally connected and carried at its forward end by means of laterally and rearwardly extending bearing-ears or lugs 26, pivotally connected to vertically arranged arms 27, of a pair of pivotally mounted cranks by means of pivots 28. The crank-arms 27, are pivotally mounted on the driving shaft 12, and are provided with horizontally extending crank-arms 27^a.

As a means for oscillating or rocking the slotted link or segment 25, an eccentric-arm or rod 29, is pivotally connected at one end to the free end of said link or segment, and at the other is mounted upon an eccentric 30, mounted upon and carried by the driving shaft 12.

As a means for regulating the rock or throw imparted to the bearing-block 21, through the medium of the segment 25, and eccentric arm 29, the link or segment 25, is adapted to be shifted longitudinally through the medium of the bell-cranks by providing the crank-arms 27^a, with connecting arms 31, connected at their lower ends to pivot-pins or trunnions 32, extending through vertical slots 33, in the bed of the machine, and carried by a pivotally mounted foot yoke-lever 34, the free end of said yoke-lever passing about the anvil base 2, within convenient reach of the foot of the operator, whereby said bell-cranks may be readily moved to shift the link or segment 25, whereby the respective pivots 22, and 28, may be shifted to and from each other to regulate the length and stroke of the hammer as desired, it being evident that if the pivot 22, is brought into alinement with pivots 28, that no motion will be imparted to the oscillating lever or member 16, and the helve 4, connected thereto.

As a means for normally returning the foot-lever 34, together with its crank connections and the slotted link or segment 25, actuated thereby to a normally dead position, whereby no motion is imparted to the power-hammer, a pair of coil-springs 35, are carried at the side of the bed or base and connected to the side members of the yoke-levers 34, as shown.

From the foregoing description, taken in connection with the accompanying draw-

ings, the operation and advantages of my invention will be readily understood.

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

1. In a power-hammer, a helve-hammer, an oscillatory member attached thereto, a shiftable segment provided with a slot, a bearing member connected to said oscillatory member and slidable in said slot, and means for supporting and shifting said segment whereby the center of its pivoted portion may be brought into and out of alinement with said bearing member.

2. In a power-hammer, the combination with a hammer, an oscillating member provided with links carrying a bearing-block, a slotted segment taking over said bearing-block, a driving shaft provided with an eccentric and an eccentric-arm for rocking said slotted link; of means for supporting and shifting said slotted link relative to said bearing-block whereby the throw of said oscillating member may be regulated.

3. In a power-hammer, a bed provided with an anvil and a pivotally mounted helve-hammer, an oscillatory member attached thereto and provided with a pivot bearing, a pivoted segment provided with a slot slidably connected to said pivot bearing, means for oscillating said link, and means for supporting the pivoted portion of said link and moving the same to and from said pivot bearing whereby the latter may be brought into and out of alinement with said pivoted portion.

4. In a power-hammer, a helve-hammer mounted on a fulcrum shaft, an oscillatory member mounted on said fulcrum shaft and resiliently attached to said helve-hammer, links connected to said oscillating member and carrying a bearing-block, a pivotally mounted slotted segment in engagement with said bearing-block, means for rocking said slotted segment, and means for supporting the pivoted portion of said segment and moving the same to and from said bearing-block whereby the throw of the latter by the rocking of said segment may be varied.

5. In a power-hammer, a hammer, a pivotally mounted link, a bearing member connected to said hammer and slidably connected to said link, a pivotally mounted arm connected to and carrying the pivoted portion of said link and adapted to shift the same to and from said slidably connected bearing whereby to regulate the throw of said hammer, and means for rocking the free end of said link.

6. In a power-hammer, a reciprocating hammer, a rocking link member, a reciprocating member resiliently connected to said hammer and provided with a bearing slidably connected to said link member, an oscil-

lating arm carrying the pivoted portion of
said rocking link member and adapted to
shift said pivoted portion to and from said
slidably connected bearing, means for rock-
5 ing said link member, a foot lever connected
to and adapted to shift said oscillating arm
and link member during the rocking of the
latter, and means for normally holding said
rocking link member in a dead position rela-

tive to said slidably connected bearing and 10
reciprocating member.

In testimony whereof I have affixed my
signature, in presence of two witnesses.

WILLIAM H. WELCH.

Witnesses:

R. A. CASTNER,
O. C. BILLMAN.