No. 673,697. Patented May 7, 1901.

T. W. BRECKENRIDGE.

POWER HAMMER.

(Application filed Sept. 8, 1899. Renewed July 20, 1900.)

(No Model.)

Fig. 3.

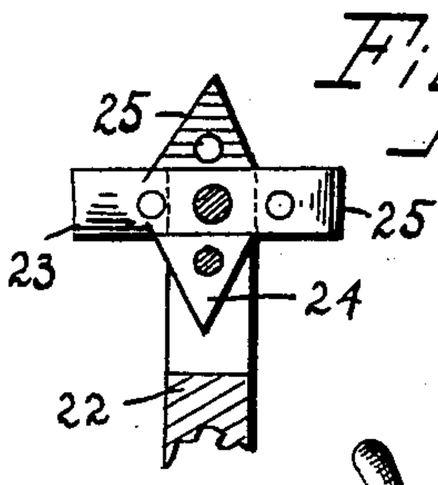

Fig. 1.

Fig. 2.

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THOMAS W. BRECKENRIDGE, OF GAINESVILLE, ARKANSAS.

POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 673,697, dated May 7, 1901.

Application filed September 8, 1899. Renewed July 20, 1900. Serial No. 24,332. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. BRECKENRIDGE, a citizen of the United States, residing at Gainesville, in the county of Green and State of Arkansas, have invented certain new and useful Improvements in Power-Hammers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in what may be designated as a "power-hammer;" and it consists in certain novel combinations and details of construction of parts, which will be fully described, and illustrated in the accompanying drawings.

The object of my invention, among others, is to provide a machine which will be found desirable and useful for all of the various purposes to which a machine of this character may be applied, it being understood that the uses for which my machine is adapted will be found to be various—as, for instance, the machine may be employed for dressing stone, driving nails or stakes, and for severing bars of iron in various lengths and for the formation of holes in such bars of iron. In fact, it would be a very difficult matter to enumerate the many purposes for which my machine will be found to be useful, as it is thought that it will reliably perform its office under any or all of the various situations or trials to which it may be subjected.

In the accompanying drawings, Figure 1 is a perspective view of my improved power-hammer or pounding-machine complete. Fig. 2 is a detail, partly in section, showing means employed for controlling the stroke of the hammer. Fig. 3 is a side view of a compound tool which may be employed in lieu of a hammer.

For convenience of reference to the various details of my invention and the necessary cooperating elements and accessories numerals will be employed, of which 1 and 2 indicate the side members of the framework upon which the mechanism employed by me in constructing my power-hammer is operatively mounted, while 3 and 4 are the end members of said frame, which may be secured in any preferred way to the side members 1 and 2, the frame when thus completed to be properly supported, as by the supporting-legs 5. Rotatably mounted in suitable bearings 6 on the frame thus or otherwise provided is the driving-shaft 7, to one end of which is secured a driving-pulley or the crank 8, while to the opposite end of said shaft is rotatably secured the disk 9, having the cam extension 10, as clearly shown in Fig. 1, the purpose of which will be hereinafter specifically set forth.

It will be understood that the shaft 7 passes entirely through the disk 9, and to the projecting end I fixedly secure in any preferred way, as by the hub 7^a, the radial arms 11, which may be tubular or square, as shown. Said arms 11, being tubular, are provided with a hollow opening, as indicated by the numeral 12, and mounted in said opening are the longitudinally-movable members 13, which are provided upon their inner faces with an offset or shoulder 14, formed by the lateral extension or head 15, while a corresponding shoulder 16 is formed upon the inner wall of the opening 12. Between said shoulders thus formed I dispose the spring 17, the tension of which is normally directed to hold the members 13 inward. The outer ends of the members 13 are provided with the lips 18, between which I pivotally secure by means of the bolt 19 the end of the handle 20 of the hammer 21. The hammer, it will be seen, may readily be removed from its pivotal union with the lips 18 and replaced by the tool-holding device 22, adapted to hold a compound tool, (shown in Fig. 1,) which, it will be seen, comprises the hammering-section 23, the hole-forming extension 24, and the cutting-blades 25, the latter being oppositely disposed with respect to each other.

It will be understood that to the hub 7^a any preferred number of arms 11 may be attached, though it is thought that four will usually be found amply sufficient for all practical purposes. The disk 9 being loosely mounted upon a rounded portion of the shaft 7 is adjustably held in position by the operating-lever 26, which is connected to the extension of the disk 9, comprising the cam-face 10, by the bar or link 27, as clearly set forth, and in order to hold the lever in an adjusted position I secure to a contiguous part of the

frame-section the segmental ratchet or bar 28, with the pivotal teeth of which the pawl or detent 29, carried by the lever 26, is designed to engage, and thereby hold said lever in an adjusted position.

The movable members 13 are each provided upon their inner and exposed edges with a lug or stem 30, upon which I rotatably mount the antifriction-roller 31, which is so disposed that it will be engaged by the peripheral face 32 of the cam extension 10, formed upon the disk 9.

Inasmuch as the disk 9 is held stationary by the detent 29 the result or operation will be that when the shaft 7 is rotated by the crank 8 or by a pulley, as the case may be, the antifriction-rollers will gradually ride upon the peripheral face 32 until the offset 10 is reached, when the action of the spring 17 will cause the member 13 to be violently drawn inward, and since the disk 9, with its cam extension, may be readily adjusted and securely held in such position by means of the lever 26 it is clear that the offset or shoulder may be readily so disposed that the hammer or other tool attached to the member 13 will be drawn inward out of contact with the object it is designed to strike at the instant of its contact therewith, thus enabling said hammer or other tool to move inward out of the way of said object and freely pass it and permit the succeeding hammer or tool to perform its office in a similar manner.

The tool-holder 22 or the handle 20, as the case may be, being properly pivoted between the lips 18 will be provided with sufficient play to permit a slight upward movement of the hammer or tool-holder sufficient to coöperate with the act of withdrawal as may be necessary to enable the tool to freely clear the object upon which it has been brought to bear.

It will be understood that various modifications may be made to the parts which I have just described without departing from the spirit of my invention, and I therefore wish to comprehend the substantial equivalent thereof.

It is thought that my improved hammering-machine will be found useful as an adjunct to a blacksmith's supply of tools and will prove an efficient aid to the stone-cutter, while a multiplied variety of other uses could be readily enumerated.

It is thought from the foregoing specification, considered in connection with the accompanying drawings, that the details of my invention have been fully stated, and I therefore deem it unnecessary to extend the description thereof.

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

1. In a power-hammer, the combination with a suitable supporting-frame, a shaft rotatably mounted thereon, a series of arms fixedly secured to the projecting end of said shaft, means to rotate the same, and a series of tool-holding devices connected to said arms and means carried by said arms to instantly withdraw said tools when they have struck the object with which they are designed to coöperate, as specified and for the purpose set forth.

2. In a power-hammer, a suitable supporting-frame and a shaft rotatably mounted thereon, in combination with a series of fixed arms carried by the end of said shaft, each of said arms being provided with telescoping members and a spring adapted to normally hold them in a contracted or telescoped position and additional means to overcome the tension of said spring at the instant said arms are in alinement with the object to be struck, as specified and for the purpose set forth.

3. In a power-hammer, a suitable supporting-frame and a driving-shaft mounted thereon in combination with a series of arms fixedly secured to the end of said shaft and having telescoping members, a tool-holding device pivoted to said members, a spring designed to hold said members normally drawn into said arms, and a cam-face disk loosely mounted on said shaft and means to adjust said disk whereby the cam-face thereof will overcome the tension of said spring and extend said members outward until the tool attached to said member has struck the object with which it is designed to coöperate, when said cam-face will release said member and permit its instant withdrawal from contact with said object, whereby the tool or hammer will be instantly withdrawn from the object struck in the manner specified and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOS. W. BRECKENRIDGE.

Witnesses:
R. A. BIGGS,
R. B. MAXWELL.