

No. 664,693.

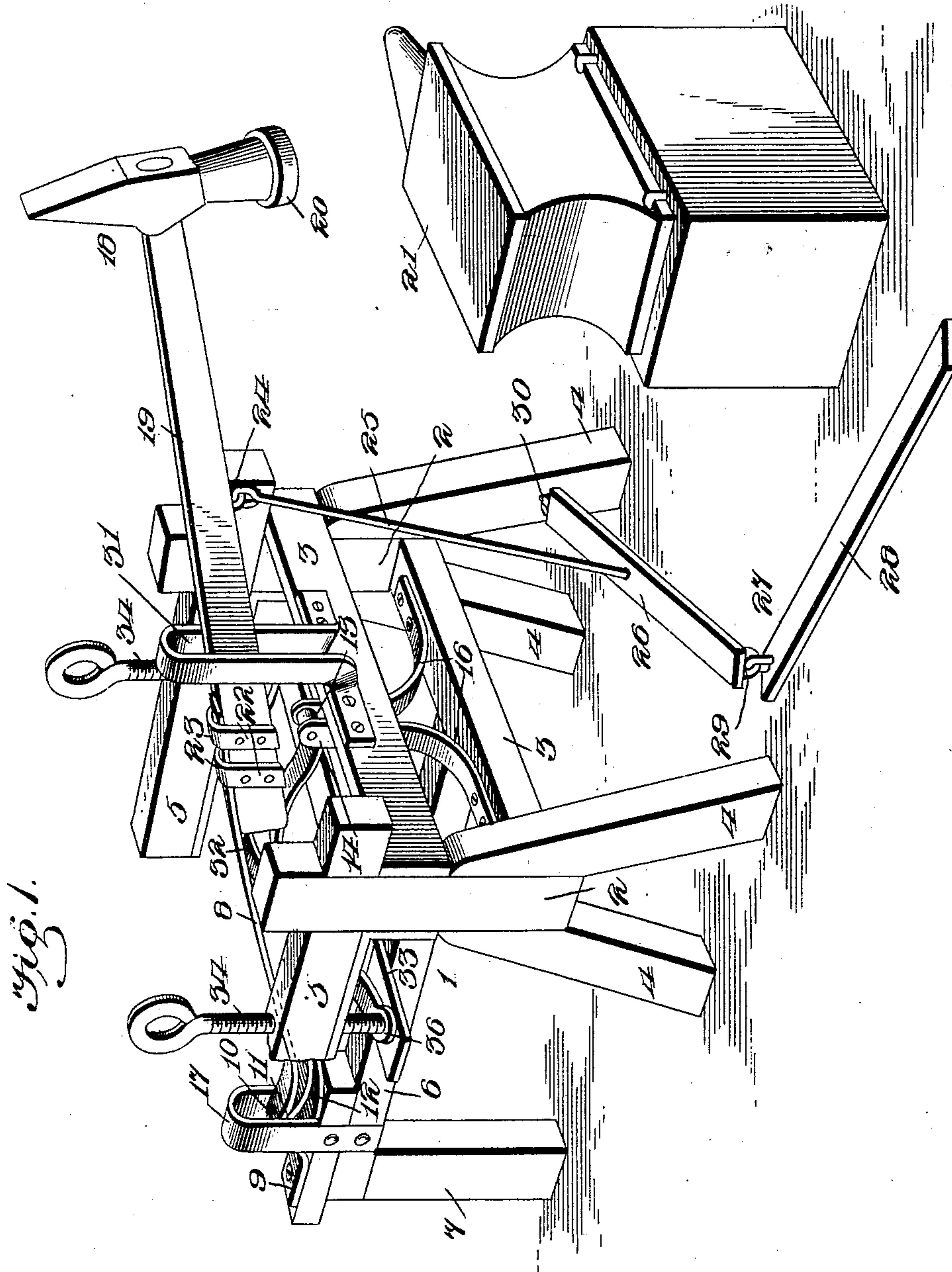
Patented Dec. 25, 1900.

J. WADE.  
BLACKSMITH'S HAMMER.

(Application filed Aug. 25, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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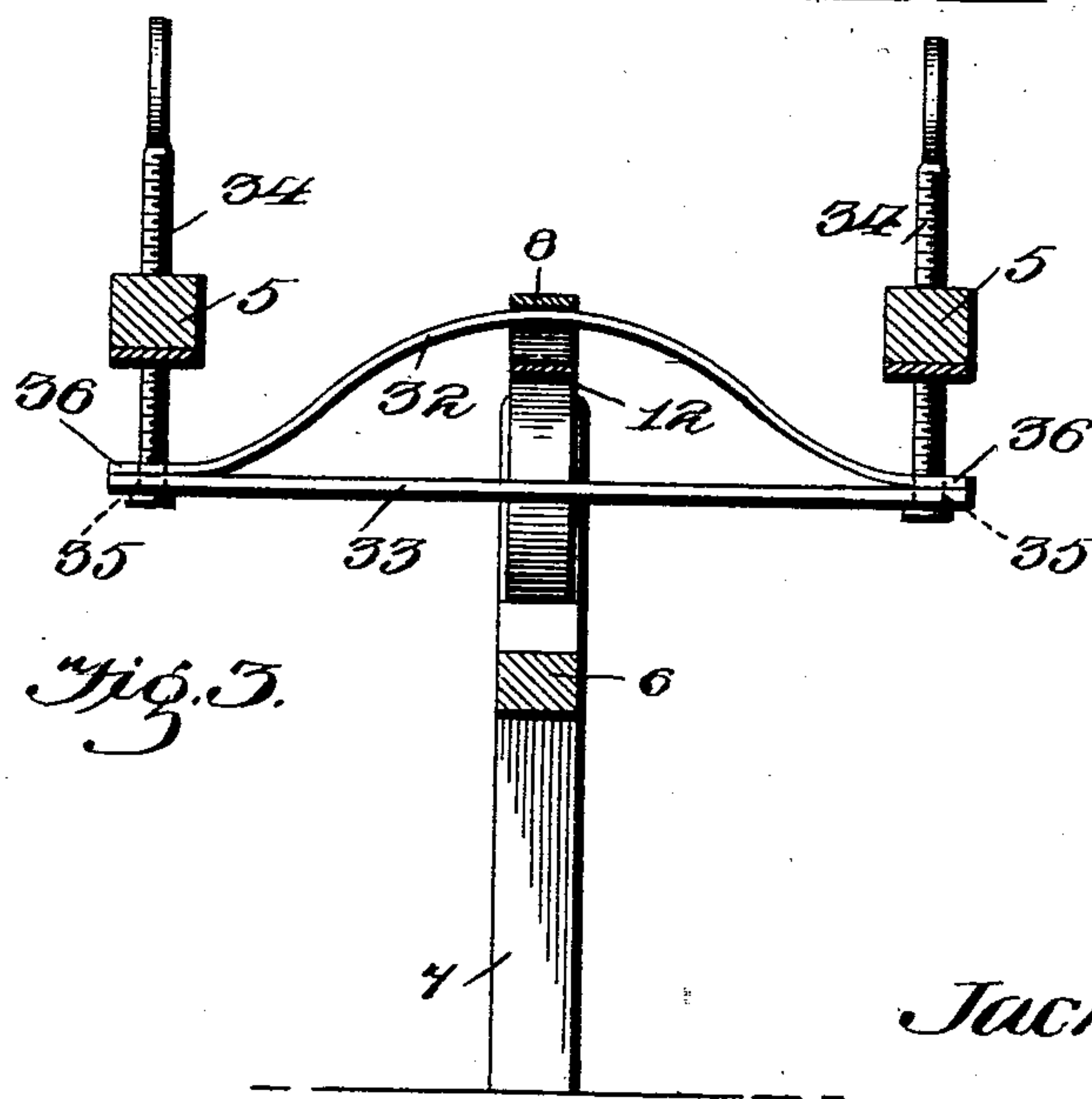
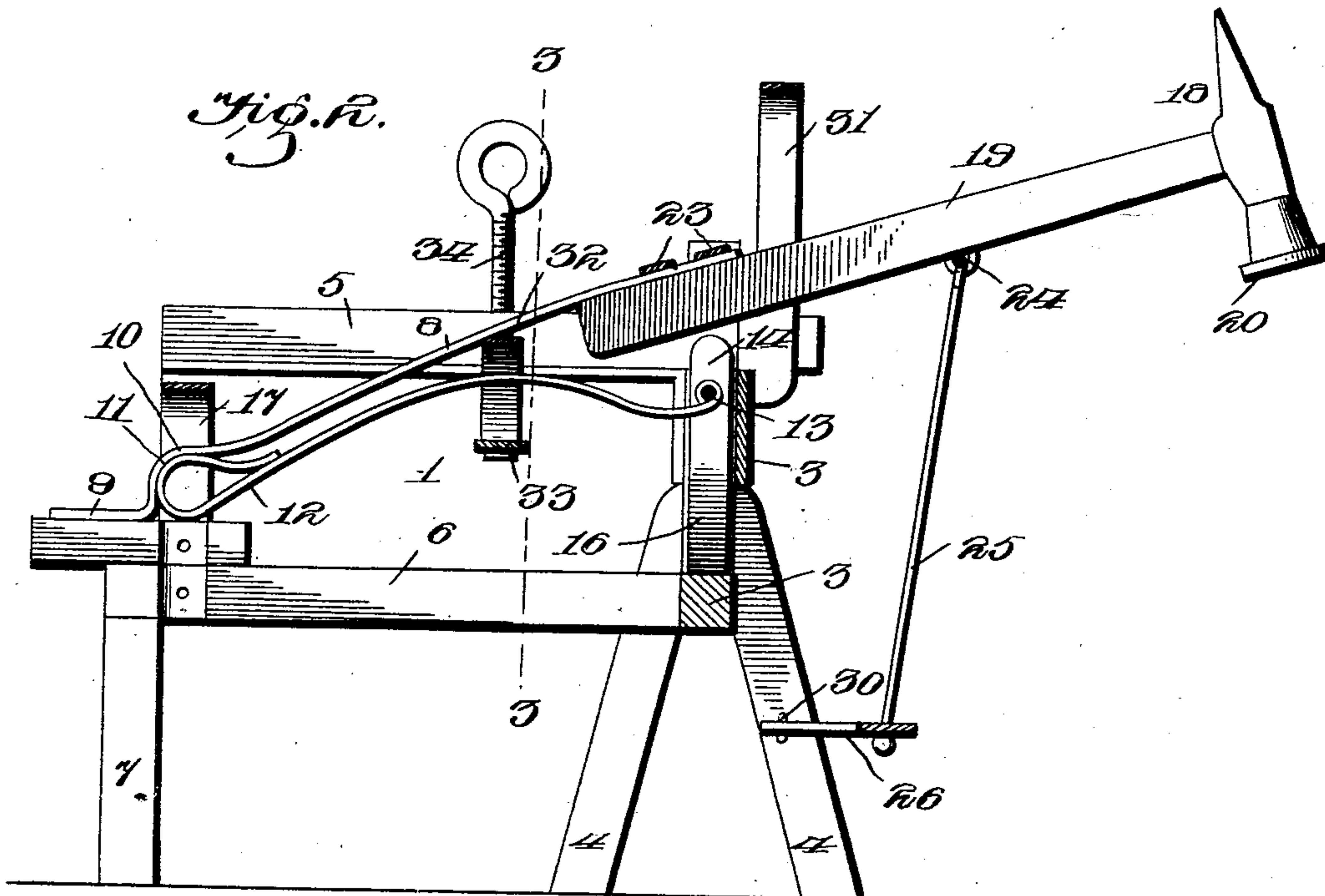
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

JACK WADE, OF LEXINGTON, MISSISSIPPI, ASSIGNOR OF THREE-FOURTHS  
TO L. Mc. GIBSON, E. D. GIBSON, AND W. J. EWELL, OF SAME PLACE.

## BLACKSMITH'S HAMMER.

SPECIFICATION forming part of Letters Patent No. 664,693, dated December 25, 1900.

Application filed August 25, 1900. Serial No. 28,050. (No model.)

*To all whom it may concern:*

Be it known that I, JACK WADE, a citizen of the United States, residing at Lexington, in the county of Holmes and State of Mississippi, have invented a new and useful Blacksmith's Hammer, of which the following is a specification.

This invention relates to mechanically-operated hammers designed for the use of blacksmiths, and has special reference to that type of devices technically known as "olivers."

To this end the invention contemplates a simple and efficient construction of mechanically-operated hammer having positive and reliable means to enable the blacksmith to do the usual forgework with a minimum amount of exertion, while at the same time permitting the operator to hammer the forgings and at the same time have both hands free for the manipulation of the work.

A further object of the invention is to associate with the machine improved means for mounting the hammer, whereby a maximum force may be imparted thereto, and also to provide means for varying the stroke of the hammer to suit different conditions of work.

A further object is to provide a blacksmith's hammer or oliver that can be associated for use in connection with any ordinary type of anvils, such as are commonly found in blacksmiths' shops.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The preferred embodiment of the improvements is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a blacksmith's hammer or oliver embodying the improvements contemplated by the present invention. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a vertical transverse sectional view on the line 3 3 of Fig. 2.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In carrying out the present invention the

working parts of the machine are carried by a supporting stand or frame 1, essentially comprising a pair of oppositely-arranged main standards 2, connected by a plurality of cross-bars 3 and supported at their lower ends upon suitable legs 4. In addition to the standards and the cross-bars connecting them the supporting stand or frame 1 of the machine is further provided at opposite sides thereof with the oppositely-located side arms 5 and at an intermediate point between said side arms and below the plane thereof with a rearwardly-extending centrally and longitudinally arranged beam 6, braced at its extreme rear end by a leg-standard 7 and constituting the main support for the vibratory hammer-carrying spring 8.

The forward end of the centrally-arranged main spring-support 6 is preferably joined at its front end to the lower one of the cross-bars 3 of the frame to provide a perfectly rigid and strong frame structure, while at the same time providing means for the proper support within the stand or frame of the said vibratory hammer-carrying spring 8. The hammer-carrying spring 8 is preferably in the form of a straight leaf-spring and is arranged to extend longitudinally of its support 6 within the vertical plane of the latter; but, as plainly illustrated in the drawings, the spring 8 normally stands in an inclined or oblique position in order to provide for the proper stroke of the hammer carried thereby. The spring 8 is perfectly free to vibrate, and the rear extremity thereof is secured fast, as at 9, to the rear end portion of the main spring-support or beam 6 of the frame. From its fast end 9 the said spring 8 inclines upwardly and forwardly, and contiguous to its point of attachment with the stand or frame the same is provided with a laterally-bowed bearing-offset 10, which loosely fits over and bears upon a fixed rounded bearing-head 11, formed at the rear extremity of the brace or brace-bar 12. This brace-bar 12 is arranged longitudinally of the machine stand or frame and is detachably bolted or otherwise suitably secured at its front end, as at 13, to the upstanding holding-bracket 14, which may be conveniently mounted upon the lower one of the cross-bars 3, and essentially consists of a



pair of reversely-bowed bracket-arms 16, suitably united together to provide a complete bracket for the proper rigid support of the front end of the brace or brace-bar 12.

5 The fixed rounded bearing-head 11 at the rear extremity of the brace or brace-bar 12 lies upon the spring-support 6 beneath the hammer-carrying spring 8 and within the vertical plane of the bearing-offset of said spring, and a slotted keeper 17 embraces the bearing-joint, consisting of the offset 10 and the head 11, and projects a material distance above the said offset 10 to accommodate the vertical play of the hammer-carrying spring at this point.

In connection with the construction just described it is to be observed that the rounded bearing-head 11, by reason of being located in advance of the fixed end 9 of the hammer-carrying spring, necessarily in some measure acts as a fulcrum-point therefor, but in its ordinary function the said fixed head 11 serves to brace the fast end of the hammer-carrying spring and relieve it from undue strain during the operation of the hammer. Inasmuch as the offset 10 of the hammer-carrying spring will loosely work over the rounded head 11, it thus provides what might be properly termed a "pivotal joint" for the hammer-carrying spring at its fixed end, which will greatly increase the freedom of action of the spring, besides relieving its fastenings from undue strain.

The vibratory hammer-carrying spring 8 is designed to have fitted to the free swinging end thereof the swinging or vibratory hammer 18. The hammer is of any of the usual forms employed by blacksmiths, and essentially consists of the handle 19 and the hammer-head 20, the latter being designed to work over the anvil 21, with which the machine or oliver is associated. The hammer-handle 19 is provided with one or more cuffs 22 at the end thereof opposite the hammer-head, which cuffs are formed with engaging loops 23, offset from one side of the hammer-handle and adapted to receive therein the free end of the spring 8. The cuff or cuffs of the hammer-handle are tightly slipped over the front end of the hammer-carrying spring to provide a tight slip-joint connection between the hammer and the spring, so that the same will move or vibrate in unison, while at the same time permitting the hammer to be readily detached and used as an ordinary hand-hammer, should this be desired.

To provide for mechanically operating the hammer in connection with the vibratory carrying-spring therefor, the hammer-handle is designed to have loosely and detachably connected to an intermediate point thereof, as at 24, the upper end of a link 25, the lower end of which is loosely connected to an intermediate portion of the inner section 26 of the sectional treadle 27, consisting of the said inner section 26 and the outer shiftable sec-

tion 28, loosely united at their contiguous ends, as at 29, by a coupling or joint permitting of the outer section 28 being swung around or shifted to any convenient position for the operator. The unattached end of the outer shiftable section 28 of the treadle is designed to rest upon the floor or ground, while the end of the inner treadle-section 26, opposite its connection with the section 28, is pivotally mounted, as at 30, upon the machine stand or frame 1. The hammer is guided in its vertical movement or vibration by the upright slotted hammer-guide 31, loosely receiving therein the hammer-handle 19 and secured fast to one of the cross-bars of the machine stand or frame.

It is desirable in the use of the machine or oliver to provide means for adjusting or regulating the stroke of the hammer 18 to suit the conditions of the work to be accomplished. This is effected through the medium of a stroke-adjusting device associated with the hammer-carrying spring 8, and in the present invention this stroke-adjusting device essentially consists of the transversely-arranged adjustable fulcrum-bar 32, a holding-bar 33, and adjusting-screws 34. The said holding-bar 33 extends transversely across the machine stand or frame and receives at its opposite ends the lower extremities of the adjusting-screws 34, which are adjustably mounted in the threaded openings 35 in the opposite side bars 5 of the machine stand or frame. The transverse fulcrum-bar 32 is provided at its ends with perforated ears 36, loosely receiving the adjusting-screws 34 and resting upon the holding-bar 33, and the said fulcrum-bar 32 is preferably of a bowed formation, so as to bear directly under and against the hammer-carrying spring 8 at a point intermediate the ends thereof. By adjusting the elevation of the transverse fulcrum-bar 32 the main fulcrum for the spring 8 will necessarily be raised or lowered thereby to provide for varying the throw or stroke of the hammer 18 and also regulating the tension of the spring 8 according as it is desired to have a quick or slow movement of the hammer.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described mechanically-operated hammer or oliver will be readily apparent to those skilled in the art without further description, and it will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the stand or frame, an adjustable ful-



crum for said spring intermediate its ends, and a hammer having its handle detachably united with the free end of the spring.

2. In a machine of the class described, the stand or frame, a vibratory spring having a fixed support at one end, a brace-bearing for the spring contiguous to its fixed support, a fulcrum for the spring intermediate its ends, and a hammer carried solely upon the free end of the spring, substantially as set forth.

3. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the stand or frame, and provided contiguous to such point of support with a pivotal bearing-joint, a fulcrum for the spring independent of said bearing-joint, and a suitably-actuated hammer having its handle supported upon the free end of the spring, substantially as set forth.

4. In a machine of the class described, the stand or frame, an inclined or obliquely-arranged hammer-carrying spring having a fixed support at one end upon the stand or frame, a brace-bearing for the spring, a fulcrum for the spring, and a suitably-actuated hammer whose handle is provided with a detachable slip-joint connection with the free end of the spring, substantially as set forth.

5. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the frame, a brace arranged within the frame and having a bearing-head engaged by the spring contiguous to its fixed end, a fulcrum for the spring, and a suitably-actuated hammer having its handle supported upon the free end of the spring.

6. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the stand or frame, and contiguous to its point of support being provided with a bearing-offset, a brace-bar supported longitudinally within the frame and provided at one end with a rounded bearing-head loosely engaged by the bearing-offset of the spring, and a suitably-actuated hammer having its handle

supported upon the free end of the spring, substantially as set forth.

7. In a machine of the class described, the stand or frame, a vibratory or swinging hammer, a sectional treadle consisting of inner and outer sections loosely connected at their contiguous ends, the inner treadle-section being supported upon the stand or frame, and the outer section being shiftable to different positions, without disconnection from the inner section, and a link connection between the hammer-handle and the inner treadle-section, substantially as set forth.

8. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support upon the stand or frame, and an adjustable fulcrum for said spring, substantially as set forth.

9. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring secured fast at one end, a hammer supported upon the free end of the spring, and a vertically-adjustable fulcrum arranged to engage beneath the spring at a point intermediate its ends, substantially as set forth.

10. In a machine of the class described, the stand or frame, a vertically-vibrating hammer-carrying spring secured fast at one end upon the stand or frame, a hammer supported upon the free end of the spring, a stroke-adjusting device for the hammer comprising a transversely-arranged holding-bar, adjusting-screws engaging with said bar and supported by the stand or frame, and a transversely-arranged fulcrum-bar carried by said screws and holding-bar and engaging beneath the hammer-carrying spring at a point intermediate the ends thereof, substantially as set forth.

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

JACK <sup>his</sup> X WADE.  
mark

Witnesses:

J. A. SHARPE,  
J. A. COOPER.