No. 811,368.

PATENTED JAN. 30, 1906.

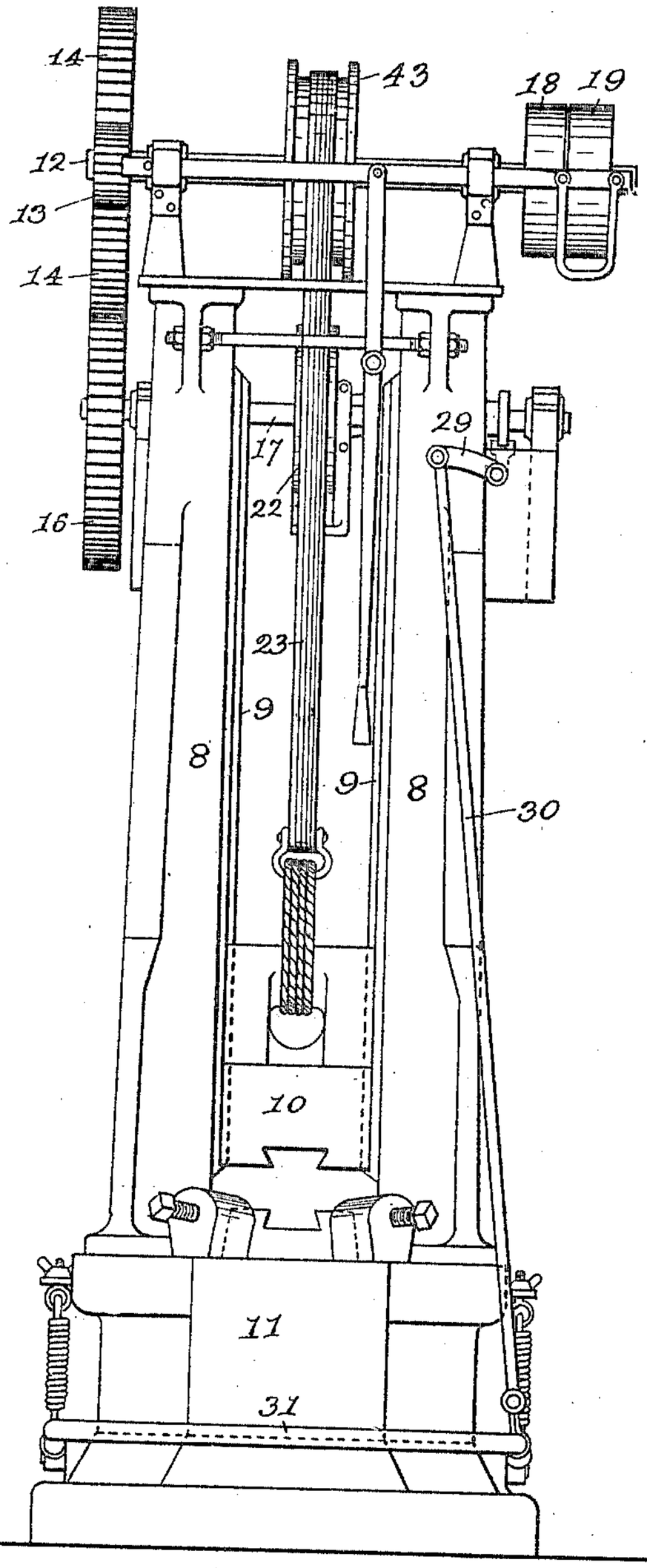
E. S. BRETT.

DROP HAMMER.

APPLICATION FILED MAY 26, 1905.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses
J B Hayward
H G Goodwin

Inventor
Edward Samuel Brett
per Charles I Powell
Attorney

No. 811,368. PATENTED JAN. 30, 1906.

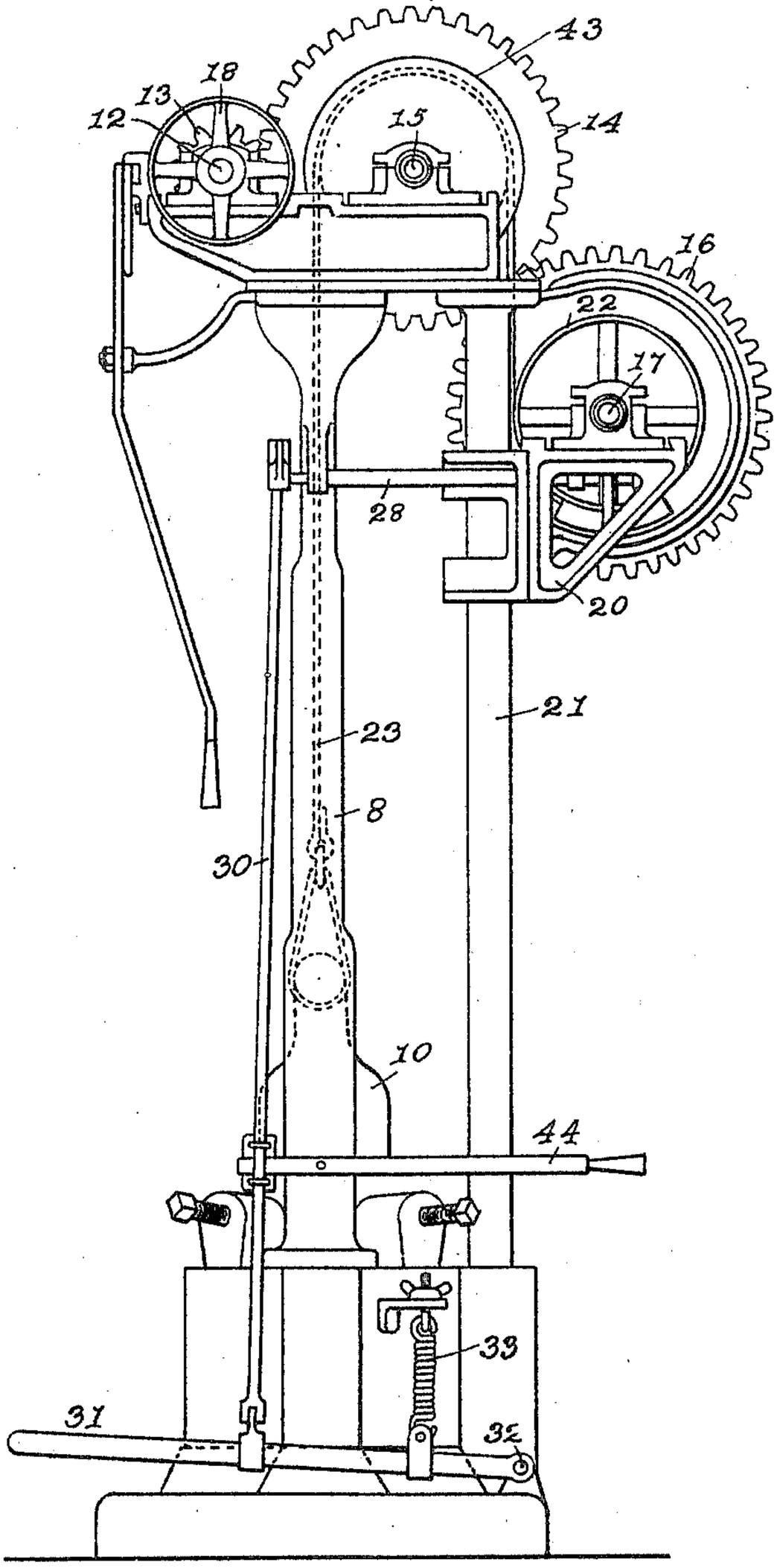
E. S. BRETT.

DROP HAMMER.

APPLICATION FILED MAY 26, 1905.

3 SHEETS—SHEET 2

Fig. 2.



Witnesses
J B Hayward.
H. Goodwin

Inventor
Edward Samuel Brett
per Charles I Powell
Attorney

No. 811,368. PATENTED JAN. 30, 1906.

E. S. BRETT.

DROP HAMMER.

APPLICATION FILED MAY 26, 1905.

3 SHEETS—SHEET 3.

Fig. 3

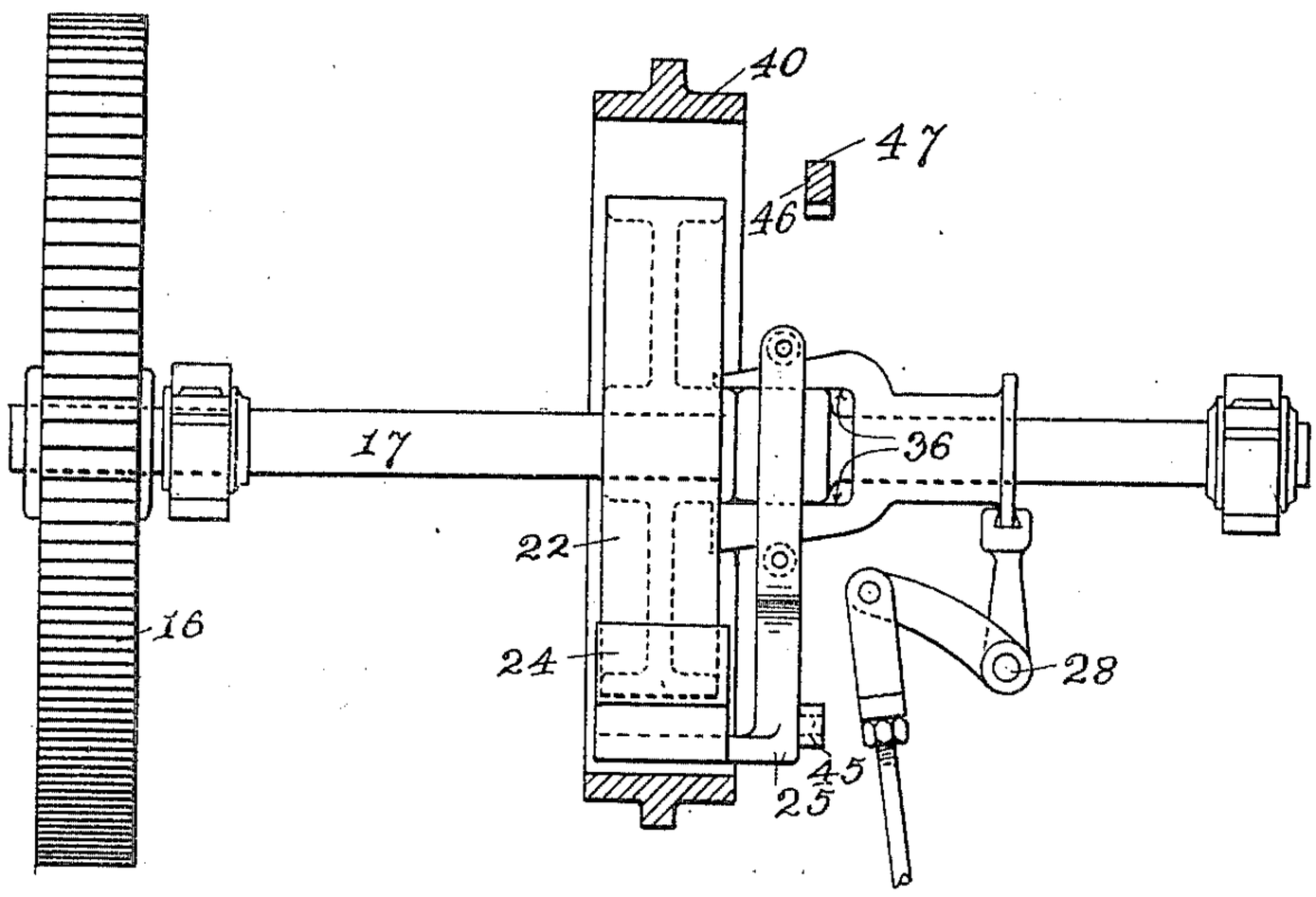


Fig. 4

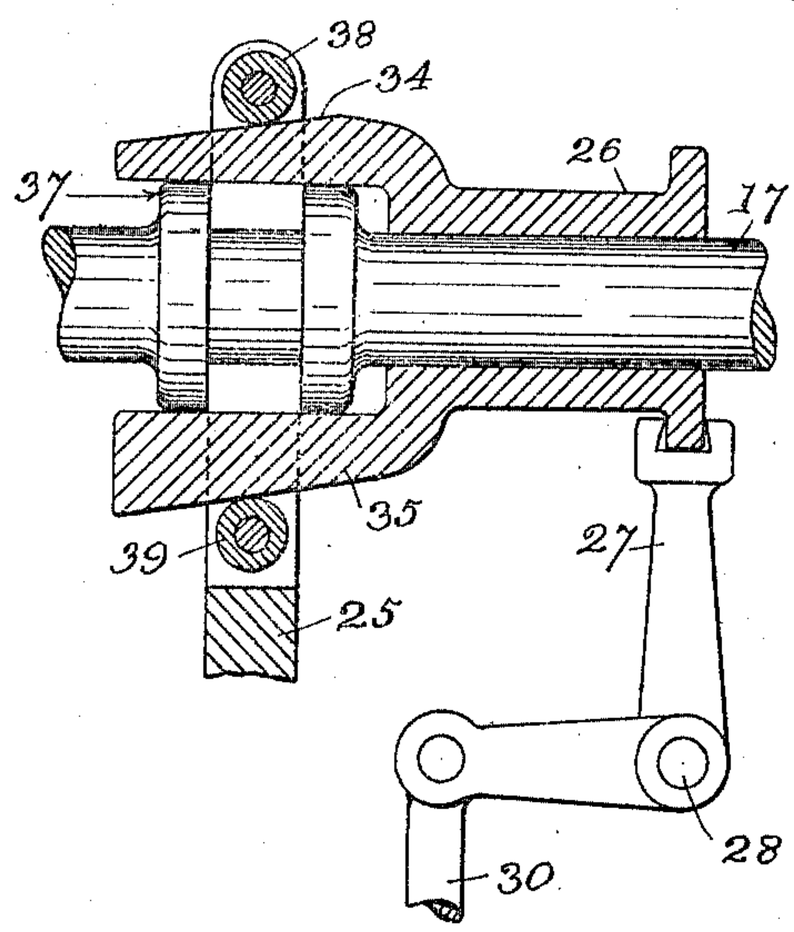
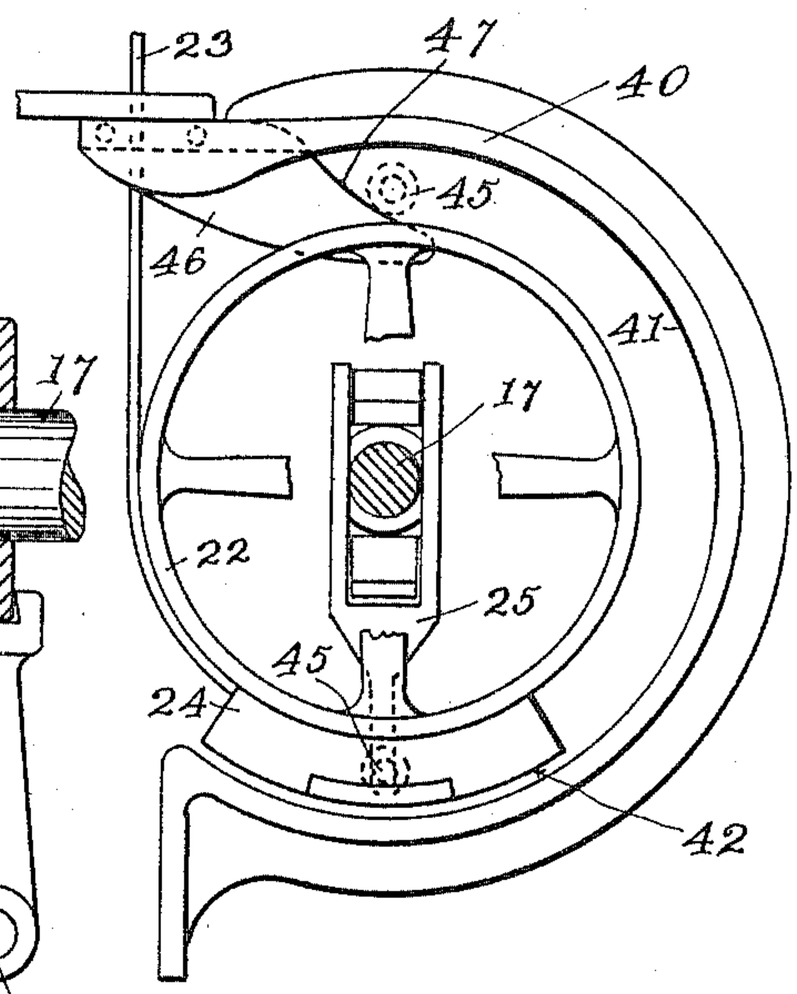


Fig. 5.



Witnesses
J B Hayward
G. Gobdwin

Inventor
Edward Samuel Brett
per Charles J Powell
Attorney

UNITED STATES PATENT OFFICE.

EDWARD SAMUEL BRETT, OF COVENTRY, ENGLAND.

DROP-HAMMER.

No. 811,368. Specification of Letters Patent. Patented Jan. 30, 1906.

Application filed May 26, 1905. Serial No. 262,305.

To all whom it may concern:

Be it known that I, EDWARD SAMUEL BRETT, a subject of the King of Great Britain, residing at Ashfield, Counden Road, Coventry, England, have invented certain new and useful Improvements in Drop-Hammers, of which the following is a specification.

This invention relates to improvements in drop-hammers; and its object is to provide an improved combination and arrangement of gearing by which such hammers are operated, also improved means by which the band or rope for lifting the hammer is put into motion, also improved means whereby the hammer may be held in a raised position.

I have illustrated this my invention in the accompanying drawings, in which—

Figure 1 is a front view, and Fig. 2 a side view, of a drop-hammer constructed according to this my invention. Fig. 3 is a detail view of the means for putting the lifting-band into motion. Fig. 4 is an enlarged view of a portion of the means for putting the lifting-band into motion. Fig. 5 illustrates the means for supporting the hammer in a raised position.

8 8 are columns having slide-surfaces at 9 9, between which the hammer-head 10 moves in its rising and falling movements. These columns are secured to the anvil-block 11, all of which are made substantially after the usual manner. Upon the upper part of the columns 8 is suitably carried the driving-shaft 12, upon which is secured the toothed wheel 13, which gears into the larger toothed wheel 14, which is secured upon the shaft 15, the wheel 14 again gearing into the wheel 16, which is secured upon the shaft 17. The shaft 12 is driven by fast pulley 18, by the side of which is a loose pulley 19. The shaft 17 is carried upon a suitable bracket 20, which is rigidly secured to pillars 21 at the rear side of the machine. Upon the shaft 17 is secured the pulley 22, upon which the lifting-band 23 is made to wrap itself. This band 23 is secured to the frictional gripping-block 24, the said block being rigidly secured to the arm 25, which is operated as follows: Upon the shaft 17 is a sliding sleeve 26, which may be moved backward and forward by means of the cranked lever 27, carried upon the part-rotative shaft 28, which is operated by means of the lever 29, the link-rod 30, and the treadle 31, which is pivoted at 32. These operations will be clearly understood upon reference to the drawings. The lever 31 is raised by the spring 33 or other convenient means.

Referring again to the sleeve 26, it will be seen that there are two projecting cams 34 and 35. The inside surfaces 36 of these cams are made parallel to the axis of the shaft 17 and slide upon the collar 37, which forms a support to the said cams. The exterior surfaces of these cams act upon the rollers 38 and 39, which are pivotally carried in the arm 25, and consequently when the sleeve 26 is moved toward the pulley 22 the gripping-block 24 is drawn tightly upon the surface of the said pulley 22; but when the said sleeve 26 is moved away from the pulley 22 the said gripping-block 24 is lifted from the pulley 22.

40 is a part-circular frame whose inner surface 41 is made concentric to the shaft 17, and the exterior surface 42 of the gripping-block 24 is also made to agree with the said interior surface 41. The frame 40 is rigidly secured by any suitable means to the fixed parts of the machine.

The action of the machine will therefore be as follows: The pulley 18 is driven by suitable belt from any convenient motor-shaft, and thereby the wheel 13 drives the wheel 14, which carries with it also the pulley 43, which is also secured to the shaft 15. The wheel 14 drives the wheel 16, which carries with it also the pulley 22, which is secured to the shaft 17. These series of wheels and pulleys will run continuous so long as the band is upon the pulley 18; but their motion will cease when the band is put upon the pulley 19. In order to raise the hammer-head 10, the foot is placed upon the treadle-lever 31, by which the rod 30 is drawn downward, and thereby the lever 27 is moved inward, by which the block 24 is drawn tightly upon the pulley 22, so that the said block is carried around upon and with the said pulley as far as may be determined by the operator. By slightly removing the foot from the lever 31 the spring 33 lifts the said lever, and thereby the block 24 is released from the pulley 22, and the weight of the hammer-head 10 causes it to fall and also to bring back the block 24 again to its starting-point ready for a repeat operation. It will be seen, of course, that for a light blow the block 24 will be held upon the pulley 22 for a short time only, so that it will travel only a short distance with the pulley 22, so as to raise the hammer-head 10 through

a short distance only, and when a heavier blow is required a longer distance of travel to the block 24 will be given. When the foot is entirely removed from the lever 31, the spring 33 will raise it sufficiently to bring the rear side 42 of the block 24 against the surface 41 of the frame 40 and hold it there with sufficient tightness to support the hammer-head at whatever point it has been arrested.

If desired, the surfaces 41 and 42 may be roughened, notched, or otherwise prepared to facilitate their holding power. When the block 24 is held free of the pulley 22 and of the surface 41, the hammer-head will fall. It will also be understood that instead of or in addition to the foot-lever 31 a hand-lever 44 may be connected up to the rod 30, so as to be operated from any desired convenient position.

It is desirable in hammers of this kind to insure that the gripping-block 24 shall not travel in its lifting movements beyond a given distance, and in order to effect this I have provided the following means: On reference to Fig. 5 it will be seen that upon the side of the arm 25 is placed the roller 45, and in conjunction therewith the plate 46 is secured to the frame of the machine, having the incline surface 47. Consequently when the block 24 is carried around until the roller 45 engages with the surface 47, as shown in dotted lines, the said roller commences to slightly rise up the incline surface 47, thereby forcing the sleeve 26 outward a sufficient distance to permit removal of the block 24 from the pulley 22, so that under no circumstances can the block 24 be carried around beyond this point.

By means of the gear-wheels and the pulleys, as shown, I am enabled to raise in a simple and effective manner hammer-heads of much greater weight than have been hitherto conveniently used, and by means of the gripping device and the hammer-supporting device such hammers are under a more perfect control than has hitherto been done.

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

1. In a drop-hammer, in combination with a hammer-head, a continuously-driven shaft, a lifting-pulley fixed thereon, a block operatively associated with said pulley and provided with an arm having a slot, rollers at opposite ends of said slot, a sleeve slidably and loosely mounted on the shaft of said pulley and provided with oppositely-inclined cam-surfaces interposed between and engaging said rollers, means for operating said sleeve to cause its cam-surfaces to move the block into or out of engagement with said pulley, and a band connected at opposite ends to said hammer-head and block, respectively.

2. In a drop-hammer, in combination with a hammer-head, a lifting-pulley, a circular frame partly surrounding said pulley, a block located between said pulley and frame, a lifting-band connected at opposite ends to said hammer-head and block, respectively, and means for moving said block into engagement with said pulley to cause the hammer-head to be lifted, or into engagement with said frame to hold the hammer-head at any desired elevation.

3. In a drop-hammer, in combination with a hammer-head, a lifting-pulley, a block operatively associated with said pulley, a band connected at opposite ends to said hammer-head and block, respectively, means for causing said block to frictionally engage said pulley, a roller on said block, and a fixed member having an inclined surface adapted to be engaged by said roller in the rotation of said pulley to cause the block to be forced out of engagement with said pulley, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD SAMUEL BRETT.

Witnesses:
N. GOODWIN,
J. B. HAYWARD.