

No. 742,437.

PATENTED OCT. 27, 1903.

J. R. HUNTER.
MINE TIMBERING APPARATUS.
APPLICATION FILED MAR. 31, 1903.

NO MODEL.

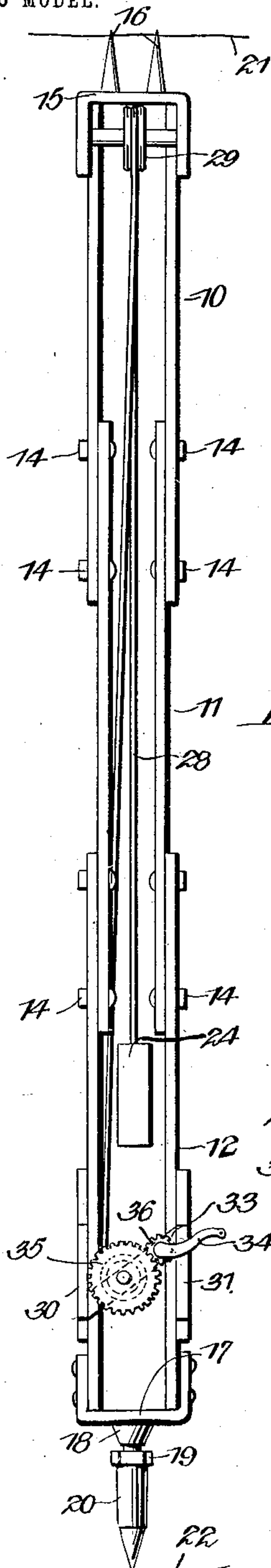


Fig. 1.

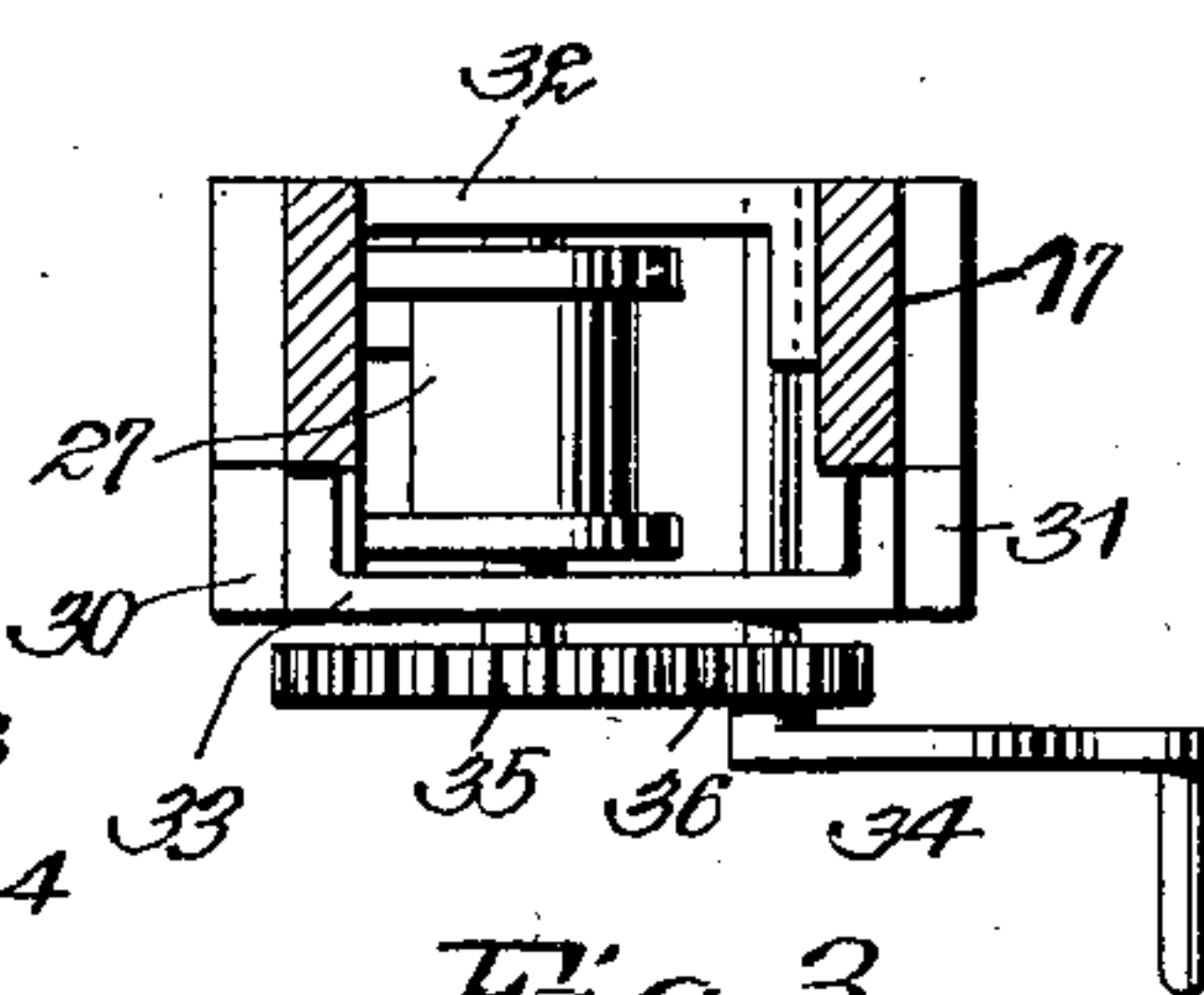


Fig. 3.

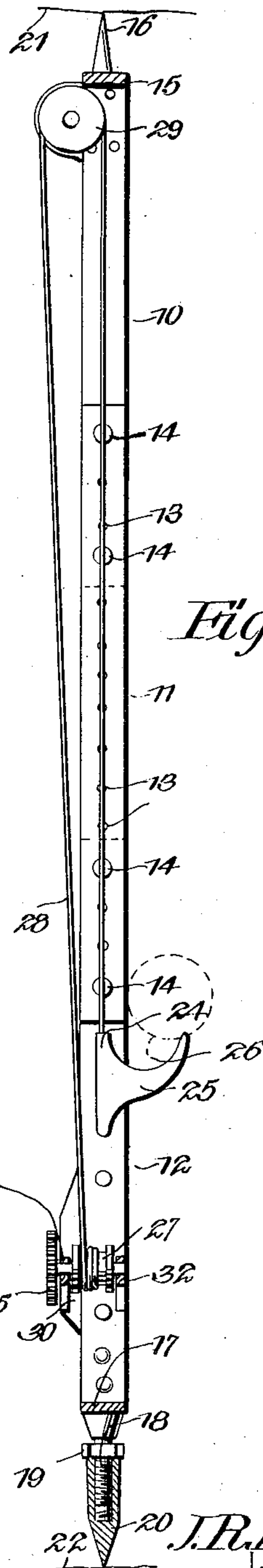


Fig. 2.

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JOHN R. HUNTER, OF WILKESBARRE, PENNSYLVANIA.

MINE-TIMBERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 742,437, dated October 27, 1903.

Application filed March 31, 1903. Serial No. 150,445. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. HUNTER, a citizen of the United States, residing at Wilkesbarre, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Mine-Timbering Apparatus, of which the following is a specification.

This invention relates to hoisting devices, more particularly to devices employed in mines for assisting in placing the timber-supports therein, and has for its object to provide a simply-constructed easily-applied portable device which is adapted for use in cramped or contracted localities.

Another object of the invention is to produce a device wherein a relatively long leverage may be employed upon the hoisting means without complicating the mechanism or interfering with the load being hoisted.

Other novel features of the invention will appear in the following description and be specified in the claims following.

In the drawings illustrative of the invention, in which corresponding parts are denoted by like designating characters, Figure 1 is a side elevation, and Fig. 2 is a front elevation, of the device applied. Fig. 3 is a transverse section, enlarged, on the line 3 3 of Fig. 2.

The improved device may be employed for hoisting any material for which it is adapted, but is more particularly applicable for use in mines, tunnels, and similar localities to assist in placing the timber-supports therein; but I do not wish to be limited to the use of the device for any particular purpose or in any particular locality.

The improved device consists in a supporting-frame longitudinally adjustable and adapted to be detachably connected to the ceiling and floor of the tunnel or "drift," as illustrated. The supporting-frame is constructed, preferably, in three or more sections adjustably united to provide for the longitudinal adjustment, and for the purpose of illustration the frame is shown in three sections—the upper section 10, the intermediate section 11, and the lower section 12—each section formed of spaced side members with their adjacent ends provided with spaced apertures 13, through which clamp-bolts 14 pass, as shown. By this simple means the frame may be readily extended or contracted longi-

tudinally within the range of the spaced apertures, as will be obvious. The side members of the upper end of the upper frame-section will be united to a "head-section" 15, from which spaced spike-points 16 rise, while the lower section 12 is similarly united by a foot-section 17, from which a threaded stud 18 extends, as shown. The stud 18 is provided with a nut 19, resting upon a pointed support 20, the latter having a longitudinal aperture in its larger upper end, in which the portion of the stud below the nut operates. The spikes 16 engage the "roof" of the tunnel, (indicated at 21,) while the foot-support 20 engages the "floor," (indicated at 22.) By this arrangement it will be obvious that the frame and its attachments may be set at any desired point and adjusted longitudinally to fit the distance between the ceiling and floor and then firmly "clamped" in position by rotating the nut 19 and forcing the spikes 16 and 20, respectively, into the ceiling and floor, and thus effectually preventing lateral movement. By providing two of the spikes 16 and spacing them apart the strength of the "grip" is materially increased and the ability to resist lateral strains correspondingly increased. The spaced spikes are therefore a very important feature of the invention and add materially to the efficiency and value of the invention.

Movable longitudinally of the supporting-frame is a load-supporting carriage 24, having a bracket 25 extending therefrom. The carriage is adapted to operate between the spaced side members composing the frame, as shown in Figs. 1 and 2.

Generally two of the hoisting devices will be employed at opposite sides of the tunnel, where heavy logs or timbers are to be hoisted; but one only may be employed, if required, and under all circumstances the "load" (indicated at 26) will rest upon the protruding brackets 25 and be carried upward along one side of the frame. The carriage 24 thus travels freely in the frame, and the log or other load carried thereby serves as a guide to retain the carriage in position between the side members of the frame.

The hoisting means consists of a winding-drum 27, supported upon the frame and from which a twisting chain or cable 28 leads over

a carrier-pulley 29 to the carriage 24, as shown, and the manner of mounting and operating this drum is one of the novel and important features of the invention, this mounting and the manner of operation being as follows: Extending from the lower section 12 of the frame are spaced brackets 30 31, connected by transverse bars 32 33, the winding-drum 27 being rotatively supported between these transverse bars. The axial line of the drum 27 is thus disposed transversely of the path of the carriage and its load, so that the operating-crank 34, which may be connected to operate the drum through gear 35 and pinion 36 when an increase of power is required, operates parallel to the path of the carriage of the load carried thereby. By this means a relatively long crank may be employed without increasing the extent of the projection of the drum-supporting means or complicating the apparatus by the addition of unnecessary gearing to provide means for operating a long crank without interfering with the load borne by the carriage.

In devices of this character the weight and ability to operate the device efficiently in cramped localities are very important, as they are required to be frequently transported and set up within very small areas. Hence the importance of any mechanism which provides for increased power without increase of weight or complication of the parts is very great, and the form and arrangement of mechanism herein disclosed produces these and other important and useful results in a much more convenient and efficient manner than by any device heretofore constructed. The relatively long crank 34 by this arrangement secures the same results as would be secured by the use of a plurality of gearing of graduated sizes and with a material reduction in weight, expense, and complication of parts.

The device may be constructed in any desired size and strength to adapt it to the work required.

Having thus described the invention, what I claim is—

1. In a device of the class described, a supporting-frame, a load-supporting carriage movable longitudinally of said frame, a drum mounted for rotation upon said frame transversely of said carriage, a hoisting-cable between said carriage and drum, and means for actuating said drum and operating thereon parallel to the path of the carriage, substantially as described.

2. In a device of the class described, a frame having means for detachable connection between the ceiling and floor of mines, tunnels or drifts, a load-supporting carriage movable longitudinally of said frame, a drum mounted for rotation upon said frame transversely of said carriage, a hoisting-cable between said carriage and drum, and means for actuating said drum and operating thereon parallel to

the path of the carriage, substantially as described.

3. In a device of the class described, a supporting-frame adjustable longitudinally and adapted to be detachably supported between the ceiling and floor of a mine, tunnel or drift, a load-supporting carriage movable longitudinally of the frame, a drum mounted for rotation upon said frame transversely of said carriage, a hoisting-cable between said carriage and drum, and means for actuating said drum and operating thereon parallel to the path of the carriage, substantially as described.

4. In a device of the class described, a supporting-frame having spaced spikes at one end adapted to engage one wall of the mine, tunnel or drift and carrying means at the other end for adjustable connection to the opposite wall of the mine or tunnel, a load-supporting carriage movable longitudinally of the frame, a drum mounted for rotation upon said frame transversely of said carriage, a hoisting-cable between said carriage and drum, and means for actuating said drum and operating thereon parallel to the path of the carriage, substantially as described.

5. In a device of the class described, a supporting-frame formed of a plurality of sections, longitudinally adjustable, one of the end sections being provided with spaced protruding spikes, and the other end section provided with a threaded stud having a nut operating thereon, a support against which said nut engages, whereby said frame may be "clamped" between stationary structures, a load-supporting carriage movable longitudinally of said frame, and means carried by said frame for operating said carriage, substantially as described.

6. In a device of the class described, a supporting-frame consisting of an upper section formed of spaced side members connected by a head-section having protruding spikes, said side members having spaced apertures therein, a lower section formed of spaced side members connected by a foot-section provided with a protruding threaded stud, said side members having spaced apertures therein, an intermediate section formed of spaced side members having spaced apertures corresponding to and adapted to register with the apertures in said upper and lower sections, clamps uniting said sections through said apertures, a foot-support having an aperture to receive said threaded stud, and a nut operating upon said stud above said support, substantially as described.

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

JOHN R. HUNTER.

Witnesses:

JAMES COOL,
THOS. TREDINNICK.