March 10, 1931. V. FAZIO 1,795,548

TIMBER JACK

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Fig. 2.

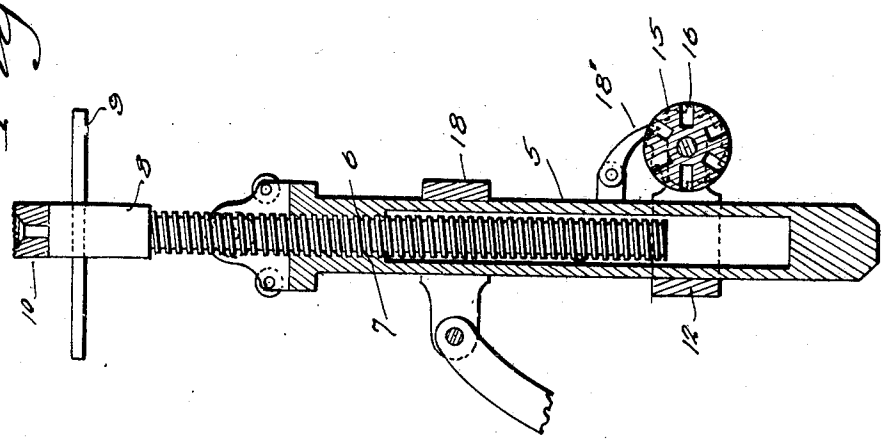
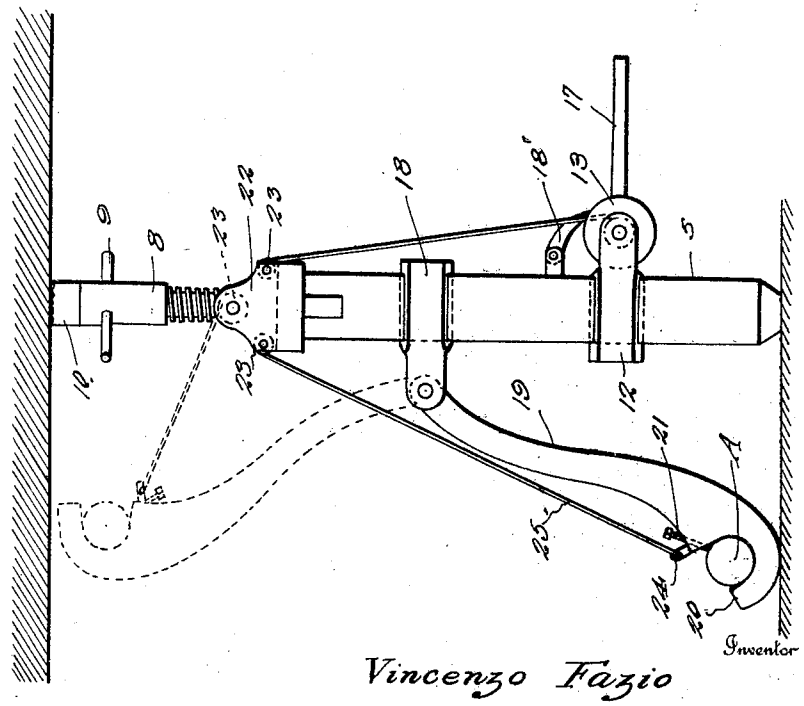


Fig. 1.



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Fig. 4.

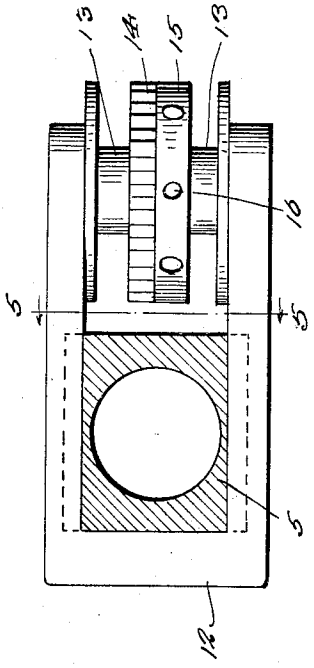


Fig. 6.

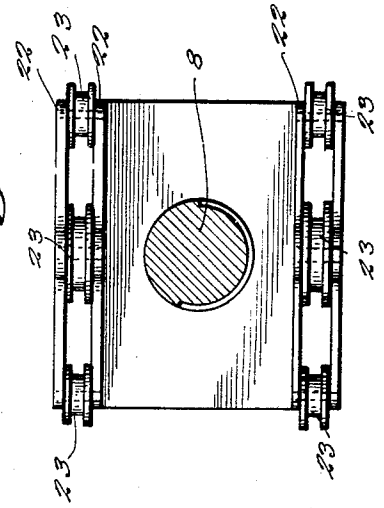


Fig. 5.

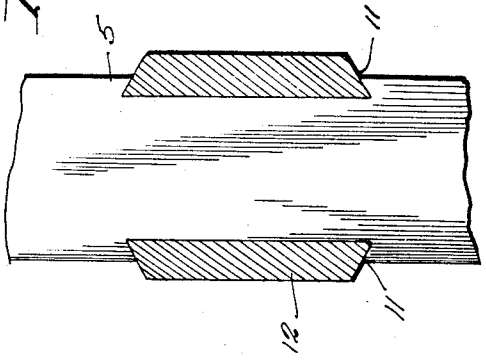
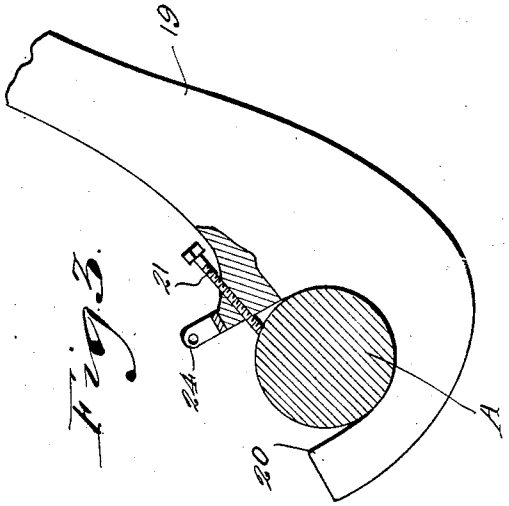


Fig. 3.



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1,795,548

UNITED STATES PATENT OFFICE

VINCENZO FAZIO, OF SCRANTON, PENNSYLVANIA

TIMBER JACK

Application filed November 1, 1928. Serial No. 316,587.

This invention relates to new and useful improvements in timber jacks primarily adapted for use in mines, tunnels, pits and the like and aims to provide a simple, useful and convenient means for elevating timbers to the roofs of mines, tunnels, pits and the like.

An important object of this invention resides in the provision of a jack of this character that may be securely retained in substantially vertical position within a mine, tunnel or pit regardless of the height of the tunnel or pit, and that when once secured in position will be so retained in a rigid manner in order that the timbers may be quickly raised without any liability of the jack slipping from position.

With the foregoing and other objects in view as the nature of the invention will be better understood, the same comprises the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a side elevation of my improved timber jack as actually in use.

Figure 2 is a detail longitudinal section.

Figure 3 is an enlarged view partly in elevation and partly in cross section of the timber receiving end of the lifting arm that comprises an essential feature of the jack.

Figure 4 is an enlarged horizontal section through the lower tubular member of the jack looking in a downward direction.

Figure 5 is a section through the cable drum holder taken substantially upon the line 5—5 of Figure 4, and looking in the direction of the arrows, and

Figure 6 is a somewhat enlarged section taken through the jack directly above the lower stationary tubular member thereof and looking downwardly thereon to illustrate the guide means for a pair of cables that are employed in conjunction with the present device.

Now having particular reference to the drawings, my novel jack consists of a tubular bar 5 closed at its lower end and adapted to be arranged at the lower end upon the floor of the tunnel or mine as illustrated in Figure 1. The upper end of this tubular bar is open and the bore at the upper open end is of reduced diameter and provided with internal worm threads 6. Threaded into the tubular bar 5 at the upper internally threaded end thereof, is a solid worm bar 7, the upper end of which is provided with an enlarged head 8 having a cross turning handle 9. Swivelly mounted upon the upper end of this said head 8 is a mine or tunnel ceiling engaging member 10 so as to permit the solid bar 7 to be rotated to force this member into engagement with the ceiling, and the lower end of the tubular bar 5 into engagement with the floor of the mine so as to securely retain the jack in relatively vertical and rigid position between the said floor and ceiling.

Opposite sides of the hollow bar 5 adjacent the lower end thereof are formed with relatively wide dove-tailed channels 11—11, which receive the opposite dove tailed side legs of a somewhat elongated and U-shaped cable drum holder 12. Rotatably mounted between the free ends of the legs of this carrier 12 is a double cable drum 13 formed centrally with a ratchet gear or wheel 14, and an annulus 15 formed at its periphery with spaced sockets 16 for the reception of a drum rotating handle 17.

Pivoted to the hollow bar 5 directly above this drum is a ratchet dog 18′ for engagement with the teeth of said ratchet 14 to prevent rotation of the double drum in an unwinding direction.

Adjacent the upper end of this hollow bar 5 the same opposite sides thereof are provided with additional dove tailed channels for receiving the dove-tailed side legs of a somewhat elongated U-shaped arm attaching bracket 18. The free ends of the side legs of this bracket 18 are at the opposite sides of the tubular bar 5 from the free ends of said cable drum holder 12, and pivoted therebetween is a somewhat elongated lifting arm 19. The free end of this arm 19 is provided at the outer surface of the arm with a timber

receiving notch 20, and in order to retain the timber A therein an elongated set screw 21 is threaded through the arm and adapted to be turned inwardly for engagement with the timber as clearly illustrated in Figure 3.

At the upper end of the tubular bar 5 and at opposite sides thereof are spaced plates or tongues 22—22 between which are arranged cable guide pulleys 23, the center pulley being disposed somewhat above the two endmost pulleys as clearly illustrated in Figures 1 and 2. In the back of the timber receiving notch of the lifting arm 19 and adjacent opposite sides of the arm are tongues 24 to facilitate the attachment of a pair of cables 25 thereto, these cables extending upwardly and being trained over the guide pulleys 23 at opposite sides of the tubular bar 5. These cables are then extended downwardly toward the double drum 13, and are associated with the opposite ends of the drum so that when the drum is rotated by manipulating the handle 17 these cables will be wound upon the drum for obviously elevating the lifting arm 19 to the desired position such as is shown by the dotted lines in Figure 1, this raising of the arm obviously elevating the timber A so that the same may be secured in position upon the mine or tunnel ceiling.

In view of the foregoing description when considered in conjunction with the accompanying drawings it will be apparent that I have produced a novel, simple and useful timber jack that is well adapted for all the purposes heretofore designated. Even though I have herein shown and described the invention it is to be understood that minor changes may be made therein without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a timber jack of the class described, an adjustable length standard adapted to be secured in relatively vertical position within a mine, tunnel or the like, a lifting arm pivoted at one end to said standard, said arm at its free end being provided with a timber receiving notch, and means carried by said arm at said free end for engagement with the timber in said notch for retaining the timber in said notch, and manually operable means movably connecting the arm and said standard whereby the arm may be raised.

2. In a timber jack of the class described, an adjustable length standard adapted to be secured in relatively vertical position within a mine, tunnel or the like, a lifting arm pivoted at one end to said standard, said arm at its other end provided with a timber receiving notch, a bolt threaded through said arm at said one end for engagement with the timber in said notch, manually operable means movably connecting the arm and said standard whereby the arm may be raised, said means consisting of a drum mounted for rotation adjacent the lower end of the standard, a cable connection between the arm and drum, and guide means adjacent the upper end of the standard over which said cable is arranged.

3. In a timber jack of the class described, a pair of telescopic members combining to provide a jack standard, manual means whereby the members may be moved inwardly or outwardly to facilitate the rigid arrangement of the standard at a substantially vertical position within a tunnel, mine, or the like, a lifting arm pivotally associated at one end with said standard, said arm at its free end being provided with a timber receiving notch, a bolt threaded through said arm at said free end for engagement with the timber in the notch for retaining the timber within said notch, and manually operable means connected to the lifting arm whereby said lifting arm may be swung upwardly for raising the timber toward the ceiling of the mine or tunnel.

4. In a timber jack of the class described, a pair of telescopic members combining to provide a jack standard, manual means whereby the members may be moved inwardly or outwardly to facilitate the rigid arrangement of the standards at a substantially vertical position within a tunnel or mine, a lifting arm pivotally associated at one end with said standards, said arm at its outer end being provided with a timber receiving notch, a bolt threaded in the last mentioned end of said arm and having one end extending into said notch for engagement with a member arranged therein, a series of pulleys mounted on one of said members, a drum rotatably mounted on the side of one of said members opposite to the lifting arm, cables connected to the outer end of said arm and trained through said pulleys and engageable with said drum whereby said arm may be moved on its pivot, and means connected with said standard and engageable with said drum for locking the latter against casual rotative movement.

In testimony whereof I affix my signature.

VINCENZO FAZIO.