Nov. 4, 1924.

1,514,262

J. H. SANTMYER

MINE JACK

Filed July 5, 1923

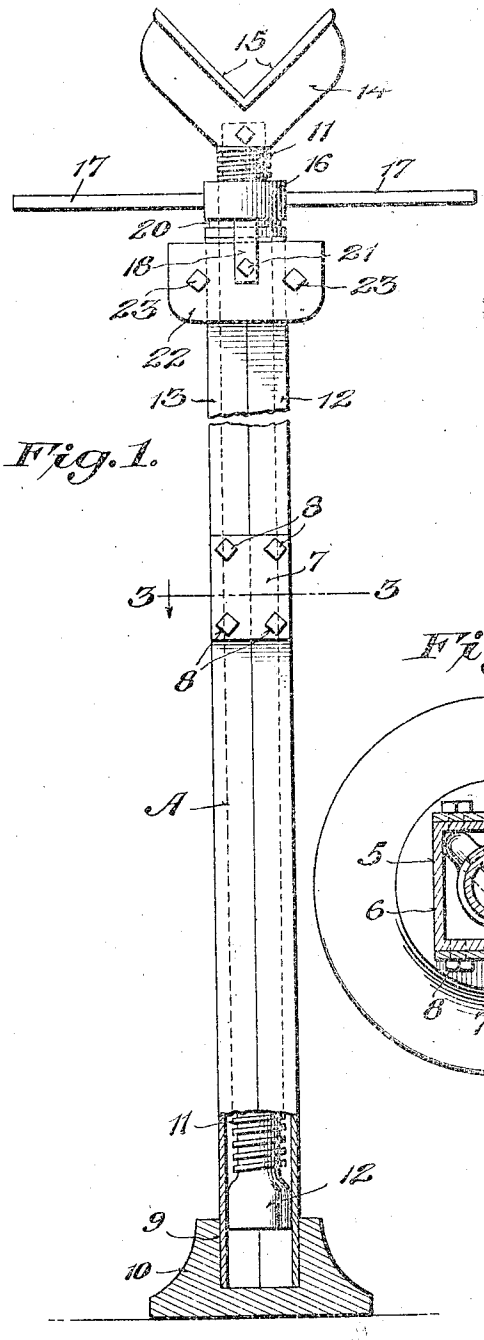


Fig. 1.

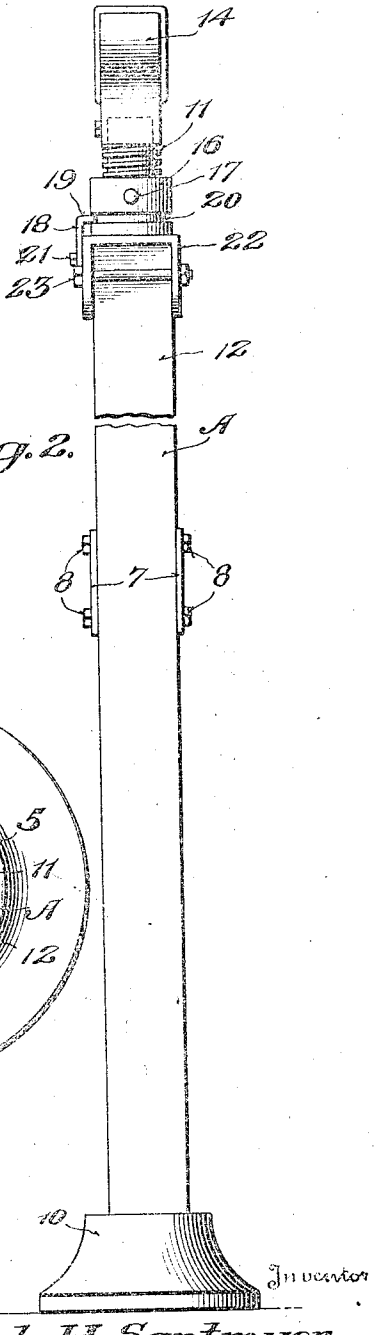
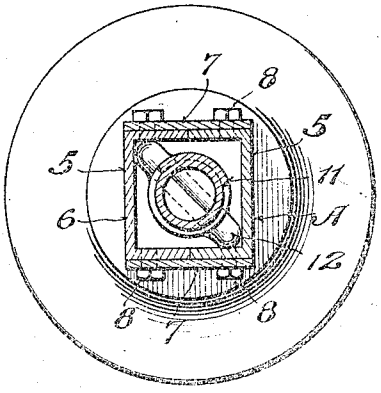


Fig. 2.

Fig. 3.



Witnesses:-

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UNITED STATES PATENT OFFICE.

JACOB H. SANTMYER, OF UNIONTOWN, PENNSYLVANIA.

MINE JACK.

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To all whom it may concern:

Be it known that I, JACOB H. SANTMYER, citizen of the United States, residing at Uniontown, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Mine Jacks, of which the following is a specification.

This invention relates to an improvement in mine jacks particularly adapted for use in erecting the top timbers in mining high veins of coal.

In the practice now generally employed, the tops of the tunnels are supported by horizontal timbers which are held in position by vertical struts and as timbers of the proper size and strength are very heavy and the miner is required to put them up alone, he is encouraged, even at the risk of his own life, to utilize only the lightest timbers which are unsafe and quite frequently break down under the load of slate disposed thereabove. Thus since each miner is required to elevate and support the top timbers entirely by his own efforts it follows that this work is very slowly performed, and also by selecting the lighter timbers in order to ease the work, a structure is erected which does not embrace the maximum strength.

When the light structure breaks down it is then repaired by two or more timbermen who substitute strong timbers for the weaker ones which have failed, consequently increasing the cost of operation and curtailing production.

In an effort to overcome the above mentioned difficulties, mine jacks for supporting the top timbers have been heretofore devised, but all of these jacks as far as I am aware, are provided with three or more supporting legs, and with a hand crank and ratchet arrangement for elevating the timber supporting head. A mine jack of this type is very objectionable because in some places the jacks have to be set in a very small space between one of the walls of the tunnel and the tracks, and the spaced legs occupy entirely too much room for practical purposes. Quite frequently the floor of the tunnel is very uneven, and this adds to the labor in setting up the jack, as well as increasing the time of setting up. Furthermore, mine jacks of this type are more or less costly to manufacture. With a ratchet type of mine jack it is necessary, whenever it is desired to lower the head which supports the top timber, to raise the head a triffe in order to release the locking dog. The load above the timber may be greater than can be held back by the hand crank, and consequently the top timber and the slate thereabove is liable to drop down and either seriously injure or kill the miner who is operating the jack.

Several of the objects of my invention are to provide a mine jack which can be readily handled by the individual miner and also which is sufficiently strong to withstand the load of slate thereabove; capable of being readily transported so as to be successively employed in advance of each mining operation; adapted to be readily positioned on uneven surfaces of the mine floor; provided with an actuating mechanism which will with certainty retain the load without the latter being manually held back by the operator; extremely simple in construction and, therefore, cheap to manufacture.

With the above and 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.

In the accompanying drawings,

Figure 1 is a side elevation of a mine jack constructed in accordance with my invention, the base being shown in section.

Figure 2 is an end elevation thereof, and

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

In carrying the invention into effect I have provided a mine jack having a strong supporting standard of approximately five feet in length whereby a top timber may be readily positioned on the jack and subsequently elevated thereby to the required height, after which the vertical timbers for supporting the horizontal timbers may be readily positioned.

To that end, as shown in the accompanying drawings, I have provided a standard A which is preferably formed of opposed channel bars 5—5 of metal, the channels facing each other so as to conjointly form a rectangular opening 6. The channel bars 5—5 are rigidly secured together by means of clamp plates 7—7 which are secured to the respective flanges of the channel bars 5 by means of bolts 8. The lower end of the

standard A is fitted into a correspondingly shaped rectangular opening or socket 9, formed in a solid molded base 10.

Disposed within the standard A and movable longitudinally relative thereto is an elongated and preferably hollow screw 11, the lower end being flattened as shown at 12 to thereby fit within the inner angles 13 of the standard A to freely slide therein without rotation relative to said standard. The upper end of the screw 11 projects above the upper end of the standard A, and fixedly secured to said upper end is a horn 14 having an angular seat 15 for receiving the horizontal timber.

An actuating nut 16 bears against the upper end of the standard A and has threaded engagement with the screw 11. This nut is provided with a plurality of actuating arms 17—17. In order to retain the nut 16 against longitudinal movements relative to the standard A during the rotation of said nut, I have provided a keeper 18 having a finger 19 at its upper end for engagement within a peripheral groove 20 formed in the nut 16. This keeper is secured by a screw 21 to a bracket 22 which embraces the standard A and is clamped thereto by means of bolts 23—23.

In operation, the miner lowers the head 14 to its lowermost position by means of the arms 17 and nut 16. A horizontal timber is then positioned within the seat 15 of the head 14. The nut 16 is then turned by means of the arms 17 and the horizontal timber is thus elevated to the required height. The vertical timbers are then positioned under the horizontal timbers and the head 14 is lowered until said horizontal timber rests solidly on the vertical timbers.

It will be noted that by means of the screw and nut connection between the standard and the head I have provided an adjusting mechanism which is free from all danger of slipping and consequently danger to the miner is positively prevented. It will be noted that this jack is largely constructed of stock material and consequently the jack is not only simple in construction but is cheap to manufacture. By providing the solid base 10, the jack is adapted to be readily positioned on uneven ground with a minimum amount of labor and time, and within a minimum space.

I claim:

1. A jack of the class described comprising a base, complemental standard-forming channel bars, having their channel portions facing each other thereby to form a hollow standard, means for securing and uniting the side flanges of the opposite channel members together, and a screw supporting-and-carrying bracket arranged at the upper end of said channel members and constituting means for securing the upper ends of said members together.

2. A jack of the class described comprising a base having a socket, a pair of channel bars assembled with their open sides toward each other and having their lower ends fitting into and held together by said socket, plates attached to the side flanges of said channel bars thereby to hold the same together, and a combined screw supporting and bar clamping member arranged at the upper end of said standard.

3. A jack of the class described comprising a standard including a pair of channel members assembled with the edges of the channel portion in meeting relation, a base receiving one end of said channel members, clamping plates for securing the medial portions of said channel members together and an inverted U-shaped bracket mounted at the top end of the said channel members, and a screw operatively supported on said bracket.

4. A jack of the class described comprising a standard including a pair of channel members assembled with the edges of the channel portion in meeting relation, a base receiving one end of said channel members, clamping plates for securing the medial portions of said channel members together and an inverted U-shaped bracket mounted at the top ends of said channel members and the depending flanges thereof overlying the seam provided by the meeting edges of said channel members, bolts passing through said flanges and engaging the backs of said channels, and a screw operatively supported on said bracket.

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

JACOB H. SANTMYER.

Witnesses:

FRANCIS B. CURRY,

E. W. WILKINSON.