J. E. JONES.

DERRICK FOR MINES.

APPLICATION FILED JAN. 29, 1913.

1,085,208.

Patented Jan. 27, 1914.

2 SHEETS—SHEET 1.

Fig. 4.

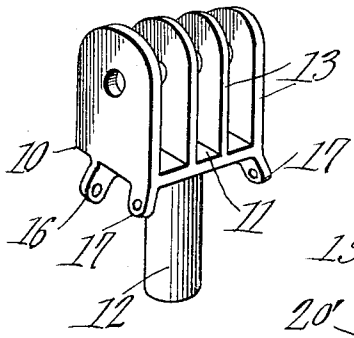

Fig. 1.

Witnesses

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Inventor

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2 SHEETS—SHEET 2.

Fig. 3.

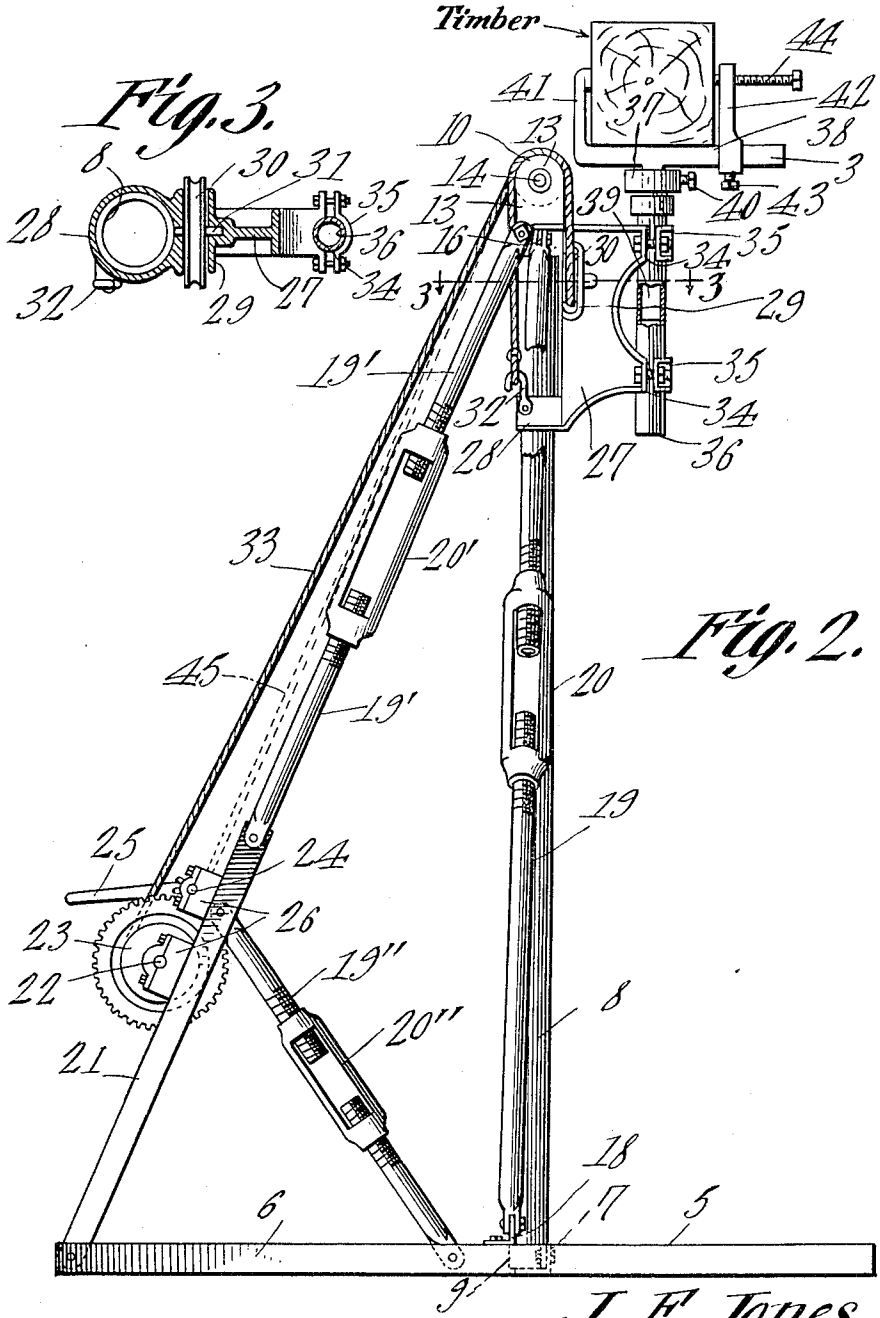

Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

JOB E. JONES, OF CARNEYVILLE, WYOMING.

DERRICK FOR MINES.

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Application filed January 29, 1913. Serial No. 745,017.

To all whom it may concern:

Be it known that I, JOB E. JONES, a citizen of the United States, residing at Carneyville, in the county of Sheridan and State of Wyoming, have invented a new and useful Derrick for Mines, of which the following is a specification.

The present invention appertains to a jack or derrick adapted to be employed in mines or other circumscribed spaces for raising or hoisting mine timbers, structural steel, or the like.

It is the object of the present invention to provide a derrick of the character indicated which may be readily, conveniently and efficiently employed in the passage or trackways of mines, for raising the various overhead or roof, wall and bracing timbers, or I-beams, rails and the like, which are commonly used for supporting or bracing the ceiling and walls of coal and other mines.

The present invention also aims to provide a device of the character indicated which shall be portable, in order that it may be readily conveyed from one place to another within the mine, which shall be simple, light, compact and powerful, and which may be employed or actuated by one man to hoist or raise the timber or the like to its proper position.

A further object of the present invention is to provide an apparatus of the character specified which shall be adjustable to accommodate various heights of mine passages or trackways or other peculiarities, and in order that the timbers may be hoisted to various heights or position.

With the foregoing general objects outlined, and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention has been illustrated in its preferred embodiment in the accompanying drawings, wherein corresponding reference characters have been employed to denote similar parts, and wherein:—

Figure 1 is a front view of the apparatus, showing the carrier lowered. Fig. 2 is a side elevation of the device, showing the carrier raised. Fig. 3 is an enlarged sectional detail taken on the line 3—3 of Fig. 2. Fig. 4 is an enlarged perspective view of the head or cap employed in carrying out the present invention.

Referring specifically to the drawing, the numeral 5 designates generally a base, which is preferably constructed of a metallic or angle iron frame, constituting the sills 6 connected at intermediate points by a tie or cross piece 7, there also being provided a tie or cross piece connecting each end of the sills, or as many cross pieces as are necessary to provide a substantial base.

Upon the base 5, there is mounted an upright or mast 8, the same being preferably tubular or fashioned from suitable piping, and having its lower end seated centrally on the base or on the cross piece 7 at an intermediate point, a strap 9 loosely embracing the lower end of the upright and being terminally secured to the cross piece 7 to retain the lower end of the upright in position.

Upon the upper end of the upright or mast 8, there is mounted a head or cap denoted generally by the numeral 10, and comprising a plate 11 seatable on the upper end of the upright and having a depending shank 12 adapted to be inserted or introduced into the upright. This plate 11 is provided with a plurality of upstanding parallel cheeks 13, four in number, and through which is passed an axle 14, a plurality of pulleys or guides 15 being mounted upon the axle and between the respective cheeks, the pulleys being three in number so as to provide two end and one intermediate pulley or guide. The plate 11 is also provided in its ends with the ears 16 and at the corners between the ends and one side, with the ears 17, the ears being apertured for the engagement of the guys or braces hereinafter referred to.

A transverse angle iron beam 18 is mounted upon the sills 6, and in reality constitutes a part of the base, the same having its ends protruding for a sufficient distance toward the respective sides.

As above indicated, the head or cap 10 is seated on the upright with the shank 12 entering the upright, and a pair of guys or braces 19 are loosely connected or pivoted at their ends to the respective ends of the beam 18, or the respective sides of the base, and to the ears 16 of the head. These guys

or braces each comprise two parts separated at an intermediate point and connected by a turn buckle 20, the said turn buckles being shown as being external, but they may be internal as well. A pair of similarly extensible guys or braces 19′ are also loosely connected or pivoted to the ears 17 of the head, the said guys or braces embodying the interposed turn buckles 20′, and having their lower ends loosely connected or pivoted to the upper ends of a pair of angle iron members 21. These angle iron members 21 are pivoted to the rear end of the base, or to the rear ends of the respective sills 6, extensible guys or braces 19″ being pivoted at their upper ends to the respective members 21 adjoining their upper ends, and being pivoted at their lower ends to the respective sills 6 adjoining the beam 18. The guys or braces 19″ are provided with the interposed turn buckles 20″. The angle iron members 21 in reality constitute extensions of the respective guys or braces 19′. The guys or braces 19, 19′ and 19″ are preferably constructed or fashioned from piping or other suitable tubular stock, having their ends flattened or bifurcated to permit of their being pivoted as above indicated.

A winch is mounted on the members 21, the same comprising a shaft 22 carrying the barrel or drum 23 and a shaft 24 having a crank 25 attached to one end, the shafts 22 and 24 being journaled to the members 21 by means of the bearings 26. This winch may be of any preferred construction the shafts 22 and 24 being geared together or operatively connected, and the drum 23 being prevented from retrograde movement in any well known manner (not shown). The members 21 in connection with the members 19″ constitute an adjustable winch structure, it being noted that as the members 19″ are adjusted, the members 21 will be swung to various positions, so as to adjust the winch as desired. Thus, it will be noted that the members 21 may be adjusted to various positions to suit the dip or inclinations of the roadways.

A slide 27 is disposed on the front side of the upright or mast 8, and is provided at its upper and lower ends with the loops or collars 28 loosely embracing the upright. The slide 27 is also provided with a transverse opening 29 in which is disposed a vertically revolving pulley or guide 30, an axle 31 being passed inwardly through the opening 29 to support the pulley. A hook 32 is pivoted or secured to the lower collar 28, and at one side thereof, and to the said hook is connected one end of a cable or tackle 33, the cable extending upwardly and forwardly over the respective end pulley 15, then downward and around the pulley 30 carried by the slide 27, thence upward and backwardly over the other end pulley 15, and then downwardly to the drum 23, to which the other end of the cable or tackle is secured. Thus, there is provided a multiplying tackle permitting the slide 27 to be forcibly raised by the winch.

The slide 27 is provided at its forward side with a pair of vertically spaced seats 34 having coöperating or complementary caps 35, connected to the slide by bolts or the like. Between the seats 34 and the caps 35, there is clamped a tubular socket 36, which is preferably fashioned from piping, and which has a collar 37 welded or otherwise secured on its upper end.

The carrier comprises a horizontal bar 38 of non-circular or square cross section having an intermediate depending stem or shank 39 fitting in the socket 36, a set screw 40 being carried by the collar 37 for engaging the stem or shank 39 to clamp the carrier in various adjusted positions. This carrier bar 38 is provided at one end with an upstanding arm 41, an arm 42 being adjustable on the other end and carrying a lower set screw 43 for clamping it in position. An adjusting screw 44 is threaded through the upper end of the arm 42 in order that its inner end may be brought into engagement with the timber or beam or other object seated upon the carrier.

The structure or apparatus as above described is comparatively simple, light, compact and powerful, the same being capable of ready, convenient and efficient manipulation in its use, and being portable.

In use, the device may be readily conveyed to the locality or point in the passage or trackway of the mine, where it is to be employed for raising or hoisting timbers or the like. Then, it being understood that the slide 27 has been lowered, the timber may be readily positioned or placed on the carrier, the center of gravity of the timber being preferably disposed directly above the carrier so as to balance or equilibrate the timber. The timber may be readily raised onto the carrier by means of a snatch line, shown in dotted lines in Fig. 2 and indicated by the numeral 45, this line being adapted to pass over the intermediate pulley 15, so that one end may be attached to the timber and so that the other end may be wound up on the shaft 24. In this manner the timber may be snatched or hoisted onto the carrier without necessitating the handling of the timber manually, this being especially desirable when the timber is heavy or cumbersome. After the timber has been positioned on the carrier, the arm 42 having been adjusted, permits the adjusting screw 44 to be brought into contact with the timber to maintain the timber in position on the carrier. It will also be noted, at this point, that the carrier may be adjusted vertically or about its axis, and that the timber

may be held in a horizontal or inclined position, so that the timber may be hoisted to the proper position and height desired. The carrier may then be elevated or raised by means of the winch, the tackle multiplying or increasing the power so that the carrier and timber may be effectively and forcibly raised. It is also to be noted that the guys or bracing structure connecting the upper end of the upright and the base, are disposed at the rear half of the base, so as to leave the front half unobstructed, the carrier being disposed in front of the upright so as to support the timber above the front end of the base. The timber may thus be elevated to the proper position or height necessary or desirable, in order that the same may be suitably and efficiently braced or supported in position, after which, the carrier may be released from the timber, and the apparatus may be returned to initial or normal position for a new or repeated operation. The carrier is supported above the slide in such manner that the timber may be elevated above the upper end of the upright or above the head, the carrier even being adjustable to a higher position above the slide than as indicated in the drawings, and also being capable of being adjusted to various angular positions, if desired or necessary.

The present apparatus may be employed for divers purposes, as will be apparent to those skilled in the art, and its advantages will also be manifest from the foregoing. The present apparatus may be adjusted to accommodate various circumscribed spaces, by means of the extensible guys or braces 19, 19′ and 19″, it being noted that the guys 19 and 19′ serve to hold the head on the upper end of the upright as well as bracing the upright. Thus, the upright may be tilted in one direction or the other by adjusting the various guys 19 and 19′, it being understood that the various connections are sufficiently loose to permit of this adjustment. Also, the upright may be of any suitable length to accommodate the particular mine, it being noted that as the guys 19 and 19′ are contracted, the head is lowered so as to engage the upper end of the upright, irrespective of the particular length or height of the upright. The winch structure may also be adjusted, as above indicated, according to the dictates of necessity or advantage.

The carrier may not only be adjusted as above described, but may be substituted by another carrier, when it is not capable of holding certain timbers, or structural steel. The carrier may also be modified or altered in its construction, to accommodate various timbers or structural steel.

What is claimed is:—

1. In a device of the character described, a base, an upright seated centrally thereon, a head mounted on the upright, a pair of extensible guys connecting the head and the sides of the base, a pair of members pivoted to the rear end of the base, a pair of extensible guys connecting the said members and the head, a winch carried by the said members, extensible braces connecting the said members and the base, a hoisting member movable along the front side of the upright, and a tackle connecting the winch and hoisting member and guided over the head.

2. In a device of the character described, a base, an upright mounted centrally thereon, rigid guys connecting the upper end of the upright and the rear half of the base, a slide loosely engaging the upright, and a horizontal carrier bar having means to clamp an object thereon and having a depending shank adjustably and pivotally engaged to the slide.

3. In a device of the character described, a base, an upright supported thereby, rear members pivoted to the base, a winch carried by the said members, extensible members connecting the aforesaid members and the upper end of the upright, extensible braces connecting the aforesaid members and the base, a guide carried by the upright, a hoisting member movable along the upright, and a tackle connecting the winch and the hoisting member and trained over the said guide.

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

JOB E. JONES.

Witnesses:
WALTER WRIGHT,
HENRY P. COATS.