Jan. 13, 1953 P. E. LICHTY ET AL 2,625,369

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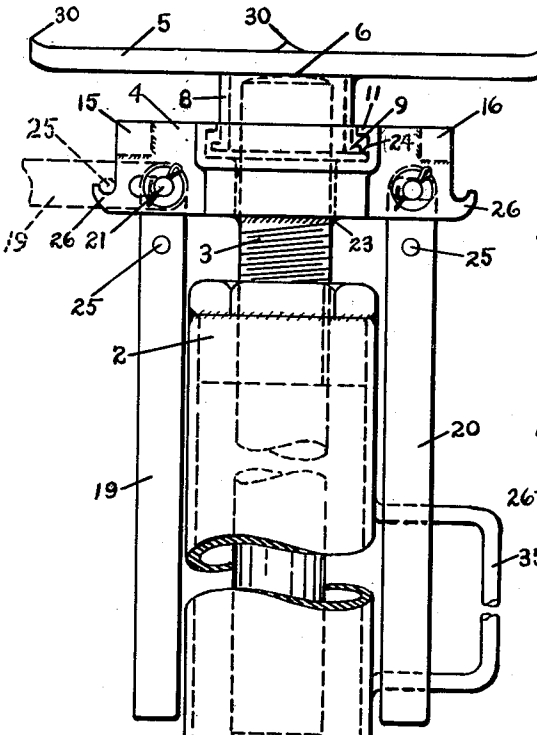


Fig. 1

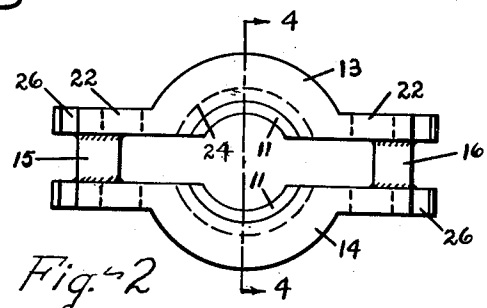


Fig. 2

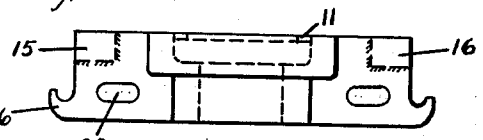


Fig. 3

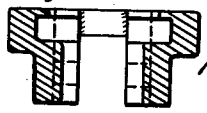


Fig. 4

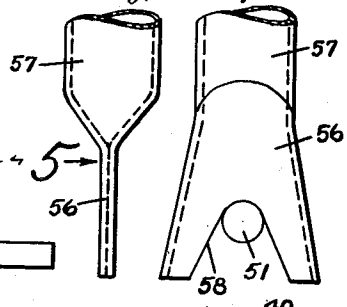


Fig. 5

Fig. 6

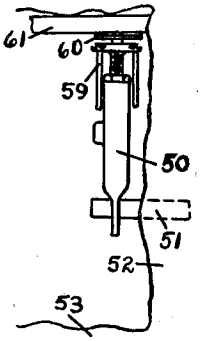


Fig. 7

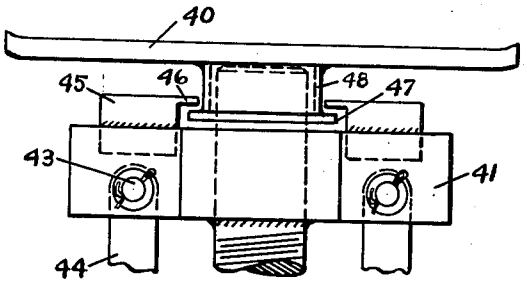


Fig. 8

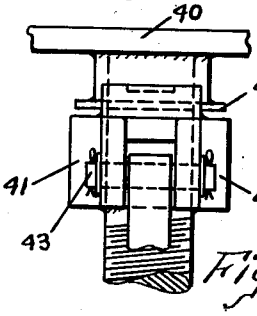


Fig. 9

Inventor

PAUL E. LICHTY

CLAYTON B. HOUSEWORTH

By Jordan C. Mack

Attorney

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JACK

Paul E. Lichty, near Rittman, and Clayton B. Houseworth, Seville, Ohio, assignors to The Akron Products Company, Seville, Ohio, a corporation of Ohio

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1 Claim. (Cl. 254—101)

1

This invention relates to a jack designed particularly for supporting the roof structure in a mine. It includes various features which distinguish it from the prior mine jacks. These include, for example, the hinged handles which are used for raising and lowering the jack and are of particular value when the jack is located adjacent a wall or other structure. It includes a triangular top plate with turned up corners which bite into the roof of the mine so as to prevent slippage. It includes a novel method of mounting the top plate on the jack and particularly the combination of this mounting with the bracket which supports the hinged handles.

In one preferred form of the jack the base is notched so that the jack may be supported over a horizontal bar or the like, one end of which is embedded in a wall.

The various novel features of the jack will be more apparent from the following description, which has reference to the drawings, in which

Fig. 1 is a side view of the jack with parts of the post broken away;

Fig. 2 is a plan view of the bracket which supports the handles;

Fig. 3 is a side view of the bracket;

Fig. 4 is a section on a somewhat reduced scale, of the bracket on the line 4—4 of Fig. 2;

Figs. 5 and 6 are side views taken at 90 degrees to one another, showing a preferred construction of the base of the jack for mounting on a horizontal bar or the like which juts from the wall of a mine, as illustrated in Fig. 7;

Fig. 7 is a view of a preferred construction of the jack mounted between the roof of a mine and a horizontal bar extending from the wall.

Fig. 8 is a side view of a modified bracket and top plate, and;

Fig. 9 is a side view of the same, taken at right angles to the view shown in Fig. 8.

The jack post 1 is preferably made of welded tubing if it is to be used to support the heavy weights found in mines. If made of 11 gauge, S. A. E. 1020 welded tubing it will stand up under pressures of up to sixteen tons and such construction is recommended for mine jacks. If the jack is to be used for lighter work, pipes of different types may be employed. It may be desirable to fill the post so that it is not so easily dented. This is most simply done by inserting in it a wet wooden plug which will expand and fill the interior of the post.

The post is closed at the top by a plug 2 which is threaded internally to receive the screw 3. This screw extends upwardly through the bracket

2

4 and supports the top plate 5. The top plate is mounted loosely over the upper end 6 of the screw. The sleeve 8 is welded to the underside of the top plate. The annular flange 9 extends laterally from the bottom of the sleeve and this fits under the lip 11 which protrudes inwardly from the wall of the bracket 4 through which the screw 3 passes. This bracket is preferably made up of two halves 13 and 14 which are united at both ends by the blocks 15 and 16 which serve as stops to limit the movement of the handles 19 and 20. These handles pivot on the rivets 21 which pass through openings 22 in the bracket and are held in place by cotter pins or the like. The screw 3 fits up through the central opening between the two halves of the bracket and is welded to it at 23. This central opening is wide enough at 24 to receive the flange 9 and this wide portion is of sufficient depth to allow tilting of the top plate at an angle of, for example, 15 degrees or more to the horizontal. This gives the jack flexibility and permits it to be used against sloping roof structures.

The handles 19 and 20 are pivoted so that when not in use they drop vertically along opposite sides of the jack. When the jack is to be raised or lowered they may be easily lifted to the horizontal position and then will give needed leverage for turning the bracket. The blocks 15 and 16 serve as stops to limit their upward swing so that they may be used to lift the jack when desired. In the preferred construction shown in Figures 1–3 the openings 22 are elongated. When one or both of the handles 19 and 20 are to be used for lifting the jack, they are first moved outwardly to move the supporting pins or rivets 21 outwardly in these slots 22. The handles are then swung to the horizontal position and then pushed in to engage the studs 25 on the hooks 26 which are located at opposite ends of the bracket 4. Figure 1 shows in dotted lines the handle 19 held in the horizontal position in this manner.

The rounding of the upper end 6 of the screw gives minimal frictional contact between the screw and the underside of the top plate as the screw is turned underneath it. The three corners of the top plate are turned up at 30 a slight amount so that they will bite into the wood or coal or other structure of the roof. This facilitates raising the jack against a sloping roof. It likewise prevents the top plate from turning with the screw.

The base plate 32 is flat as ordinarily the ground on which the jack is to be supported is

horizontal. It may be square, round or any shape. The handle **35** is preferably so located that when the screw **3** is turned down into the lug **2** substantially as far as the structure permits, the handle is at substantially the longitudinal center of gravity, so that the two ends of the jack substantially balance each other. This facilitates carrying the jack by the handle. It is not necessary that the top plate be triangular. In Figs. 8 and 9 a square top plate **40** is shown. In this modified structure the bracket is composed of the two parts **41** and **42**. These are held together by the pins **43** which pivotally support the handles **44**. They are spaced by lugs **45** on each of which is a lip **46** which protrudes over the flange **47** of the sleeve **48** which is welded to the bottom of the top plate. The central opening through this bracket has sheer walls. The protruding lips which hold the flange are located on the lugs and these lugs permit tilting of the top plate as previously described. There are no studs on the handles and no hooks at the ends of the bracket as in the preferred form shown in Figs. 1–3.

In one preferred form of the invention illustrated in Figs. 5, 6 and 7, the base plate is omitted and the bottom of the jack is notched. This permits the jack indicated by the reference numeral **50** in Fig. 7 to be supported by a rod **51** or the like, which is driven into the wall **52** of a mine, generally some little distance above the floor **53**. A chief advantage in mounting the jack in this manner is that it leaves the floor of the mine clear for the movement of machinery and the like. The notch is formed by flattening the bottom **56** of the tubing **57** which forms the jack post and then notching this as illustrated, at **58**. The notch may be of any desired shape. Two or more notches may be used but normally a single notch will be preferred and this will usually be rounded at the top to fit over a rounded rod **51** so that the jack may be erected at any angle. In using the jack, the notch is placed over the rod **51**, and then by means of the handles **59** the top plate **60** will be raised until it presses firmly against the roof structure **61** which may be a beam or the like.

Thus, the jack may be mounted on the floor or may be mounted on a support which projects from the wall of the mine. The top plate is swivelly mounted and may be tilted at an angle to accommodate itself to the slope of the roof structure. The handles are pivotally supported so that they fall to the sides of the jack when not in use, and may be raised one at a time for raising or lowering the jack when it is placed close to the wall of a mine or other structure. The jack will be constructed of different materials, depending upon the use to which it is to be put. The diameter and length of the screw and post may be whatever the conditions demand. Thus, the invention is not limited to the details shown but is defined in the appended claim.

What we claim is:

A jack in which the top plate is a steel plate with the corners turned up, a sleeve welded to the underside of the top plate, with a flange extending laterally from its bottom edge, a screw the top end of which fits loosely within the sleeve and is rounded to make a small area of support for the top plate, a bracket with downwardly extending handles pivotally attached to the bracket so that they may be raised for use in turning the bracket, the bracket being formed with a central opening through which the screw passes, means on the bracket protruding inwardly over said flange at the opening to prevent separation of the top plate and sleeve from the bracket, the screw being fastened to and protruding downwardly from the bracket, and a jack post into which the downwardly protruding portion of the screw is threaded, the bottom of the jack being thin and notched deeply so that it may rest astride a bar.

PAUL E. LICHTY.
CLAYTON B. HOUSEWORTH.

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