

June 23, 1931.

O. H. SCHUH

1,811,652

LIFTING DEVICE

Filed Feb. 8, 1930

2 Sheets-Sheet 1

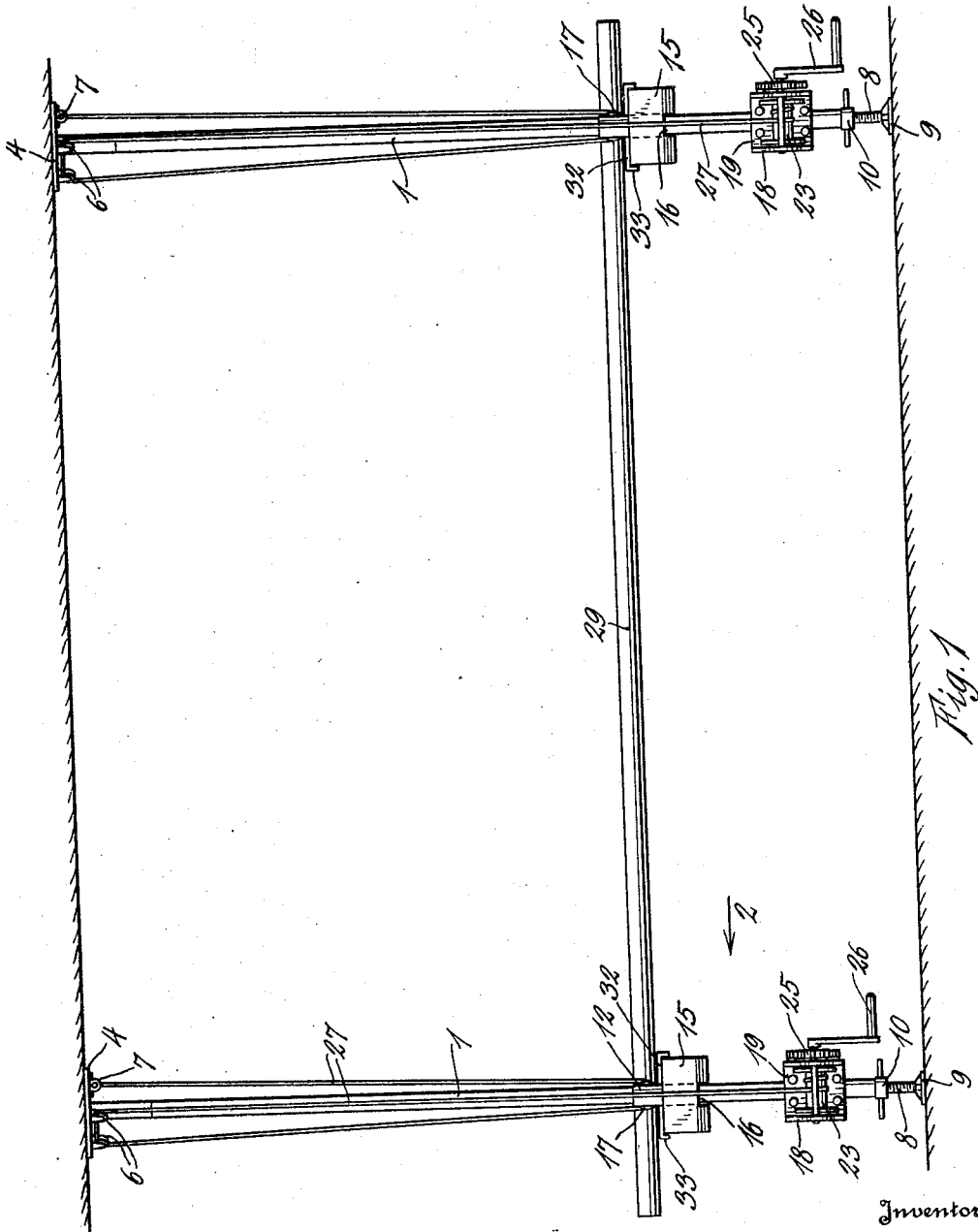


Fig. 1

Inventor

Otto H. Schuh.

by *A. J. O'Brien*

Attorney

June 23, 1931.

O. H. SCHUH

1,811,652

LIFTING DEVICE

Filed Feb. 8, 1930

2 Sheets-Sheet 2

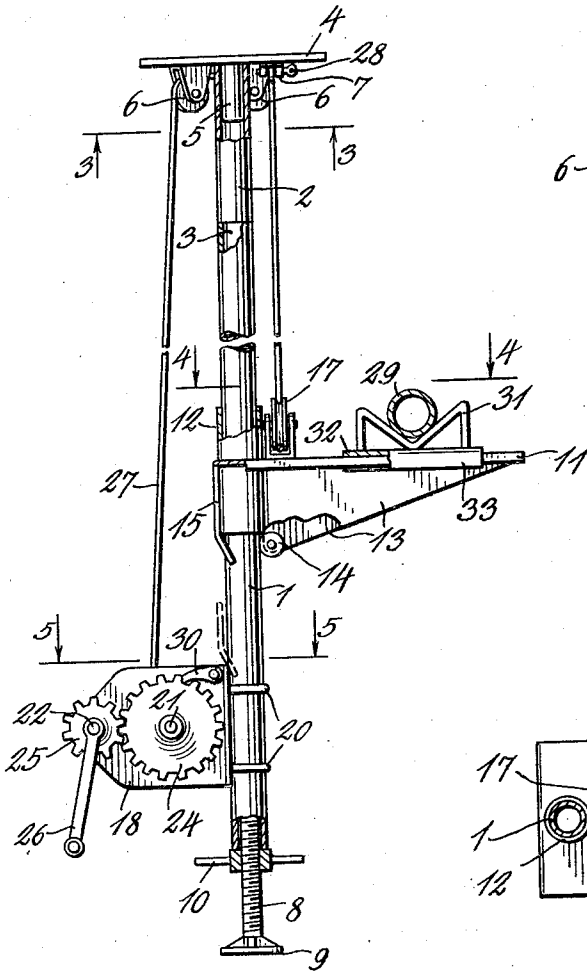


Fig. 2.

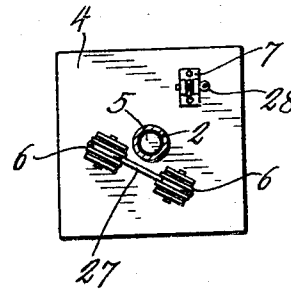


Fig. 3.

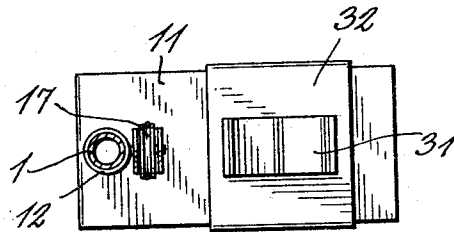


Fig. 4.

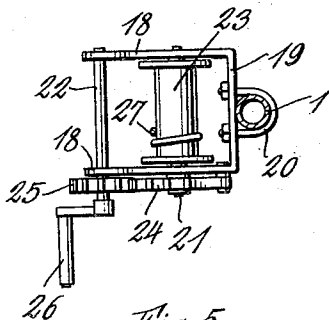


Fig. 5.

Inventor

Otto H. Schuh.

By

A. J. O'Brien

Attorney

UNITED STATES PATENT OFFICE

OTTO H. SCHUH, OF DENVER, COLORADO

LIFTING DEVICE

Application filed February 8, 1930. Serial No. 426,837.

This invention relates to improvements in lifting devices and has reference more particularly to a lifting device that is intended to be used by steam fitters and plumbers for the purpose of lifting heavy pipes and for holding them in elevated position, while they are secured in place to a support.

Where steam or water pipes are installed in building such as factories, refrigerating plants and greenhouses, it is often necessary to secure heavy pipes to the ceiling or in an elevated position to some suitable support. Unless some special means is provided for raising the pipes and for holding them in raised position, this becomes very difficult and requires a lot of time.

It is the object of this invention to produce a suitable lifting device that can be clamped in position between the floor and the ceiling of a room and which shall be provided with a bracket or shelf that is longitudinally movable and which can be raised and lowered by means of a windlass.

Another object of this invention is to produce a device of the type described which shall be so constructed that it can be readily taken apart so as to require the minimum of space during shipment and transportation.

The above and other objects that may become apparent as the description proceeds are attained by means of a construction which, briefly described, is as follows:

The lifting device consists of one or more sections of gas pipe to one end of which an abutment plate is removably secured and into the other end of which a screw extends. The outer end of this screw is provided with a base that is adapted to rest upon the floor and with a nut that is adapted to engage the lower end of the pipe. When the pipe is put in upright position between the floor and the ceiling, it can be clamped in this position by the action of the screw and nut. Slidably secured to the pipe is a bracket that is adapted to support the pipe that is to be raised. Secured to the lower end of the vertical pipe is the windlass that is provided with a cable and this cable extends upwardly and about two spaced pulleys that are secured to the underside of the abutment plate and

passes thence downwardly and about the pulley secured to the upper surface of the bracket and has its free end secured to a suitable anchoring device on the lower side of the abutment plate. When the windlass is operated, the bracket can be moved upwardly in a manner which will be obvious from the drawings.

Having thus briefly described the invention, the same will now be described in detail and for this purpose reference will be had to the accompanying drawings in which the preferred embodiment of the invention has been illustrated, and in which:

Fig. 1 is a view showing two of my lifting devices in place and a pipe supported on the movable brackets;

Fig. 2 is a side elevation looking in the direction of arrow 2, Fig. 1, portions being broken away to better disclose the construction;

Fig. 3 is a section taken on line 3—3, Fig. 2;

Fig. 4 is a section taken on line 4—4, Fig. 2; and

Fig. 5 is a section taken on line 5—5, Fig. 2, and shows a top plan view of the windlass.

In the drawings reference numeral 1 represents a gas pipe which may be made in one or more sections as may be desired. In Fig. 2 I have shown this pipe made in two sections, the upper of which has been designated by reference numeral 2. Where the pipe is made in several sections the upper sections are provided with plugs 3 that are adapted to extend into the upper end of section 1. The object of making this pipe in several sections is to make it possible to extend or shorten it so as to fit any building in which it may be used. An abutment plate 4 is secured to the upper end of the pipe and is provided with a central plug 5 that extends into the pipe in the manner shown in Fig. 2. The lower side of the abutment plate has secured to it two grooved pulleys 6 and an anchoring device 7. A screw 8 of a diameter substantially equal to the inside diameter of the pipe extends into the lower end of the pipe and is provided with a base 9 that rests on the floor. The screw is also provided with a nut 10 that can be rotated thereon and

which engages the lower end of the pipe in the manner shown. By turning the nut 10 the abutment plate 4 can be forced against the ceiling with sufficient pressure to hold the pipe in upright position.

A bracket comprising a plate 11 is slidably secured to the pipe. The rear end of this plate is provided with a tubular sleeve 12 whose inside diameter is substantially equal to the outside diameter of pipe 1. This tubular sleeve is secured to the bracket plate by being electro-welded thereto. Two triangular webs 13 are secured to the underside of plate 11, and have their ends secured to the sleeve 12 and form braces for the bracket. A roller 14 is secured between the two flanges 13 and is adapted to engage the outer surface of pipe 1 so as to reduce friction at this point. The rear end of plate 11 is bent downwardly as indicated by reference numeral 15 and is provided at its lower end with a notch 16 that embraces the pipe 1 in the manner shown in Fig. 1. The parts of the plate adjacent the notch are bent in the manner shown in Fig. 2. Secured to the upper surface of plate 11 near the tubular sleeve 12 is a pulley 17.

A windlass is secured to the lower end of the pipe and this consists of a frame formed from a steel plate having sides 18 that are connected by means of a straight portion 19. This plate is secured to the pipe by means of U-bolts 20. The sides 18 are provided with openings through which the shafts 21 and 22 extend. A spool or drum 23 is secured to the shaft 21 and is located between the sides 18. Secured to the outer end of shaft 21 is a gear wheel 24 and a small gear wheel 25 is secured to the outer end of shaft 22. A crank 26 is also secured to shaft 22, all as shown in Figs. 2 and 5. A cable 27 has one end secured to the drum 13 and the other to the anchoring device 7. This cable passes upwardly and around the pulleys 6 and thence downwardly and about the pulley 17, from which it extends upwardly to the anchoring device 7 and is secured to the latter by means of a pin 28. The lower ends of the plate 15 are bent slightly in the manner shown in Fig. 2 and engage the plate 19 when bracket 11 is in its lowermost position. The position of plate 15 in the lowermost position of the bracket has been indicated by dotted lines in Fig. 2. When the bracket is in its lowermost position, it is held against rotary movement about the pipe, so that the pipe 29 that is to be raised can be put into place. A pawl 30 is operatively associated with the gear 24 and holds it against rotation in one direction while permitting free rotation in the other direction. It is evident that when the windlass is operated so as to wind the cable 27 onto the drum 23, the bracket 11 will be moved upwardly. For the purpose of forming a support for the pipe 29 I have

provided a V-block 31 that is adapted to be placed on top of the bracket 11 in the manner shown in Figs. 2 and 4. This block may be cast solid or may have the shape of an M and is secured to a base 32 whose ends have downwardly extending flanges 33 that engage the sides of the bracket 11. The V-block can be adjusted towards and away from the pipe 1 so as to give considerable leeway in adjusting the position of the pipe. After the pipe 29 has been put in place on the brackets, the two windlasses may be operated simultaneously by two men and pipe 29 raised to any height above the floor and it can even be moved and held against the ceiling. It is also possible for one man to raise the pipe 29 but in such event, each end must be alternately raised a short distance.

From the above description it will be apparent that I have produced a lifting device that is especially well adapted for use in connection with the installation of steam, water and sewer pipes and which can be easily put into place and removed and which is also of such construction that it can be taken apart and packed in a small space for shipment and for transportation.

Having described the invention what I claim as new is:

1. A lifting device of the class described comprising, in combination, a tubular member, an abutment plate secured to the upper end thereof, a screw extending into the lower end thereof, a nut associated with the screw and adapted to engage the lower end of the tubular member, a supporting bracket slidably secured to the tubular member, and means for moving the bracket along the tubular member, said means comprising a windlass secured to the tubular member and connected to the bracket by means of cables.

2. A lifting device of the class described, comprising, in combination, a section of pipe, an abutment plate removably connected to one end thereof, a screw extending into the other end thereof, a nut associated with the screw and adapted to engage the adjacent end of the pipe, a bracket slidably connected with the pipe, a windlass secured to the pipe, and means for interconnecting the movable bracket and the windlass whereby the bracket can be moved along the pipe when the windlass is operated.

3. A lifting device of the class described comprising, in combination, a body member consisting of a section of pipe, an abutment plate removably secured to one end of the pipe, a screw extending into the other end thereof, a nut associated with the screw and adapted to engage the pipe, one end of the screw having a base, a bracket slidably connected with the pipe, a windlass secured to the pipe near the end into which the screw extends, means for interconnecting the windlass and the bracket whereby the latter can be

moved by the former, and means carried by the bracket for engaging the windlass and for holding the bracket against rotation on the pipe when it is in its lowermost position.

5 4. A lifting device of the class described comprising, in combination, a body member consisting of a section of pipe, an abutment plate removably secured to one end of the pipe, a screw extending into the other end
10 thereof, a nut associated with the screw and adapted to engage the pipe, one end of the screw having a base, a bracket slidably connected with the pipe, a windlass secured to the pipe near the end into which the screw
15 extends, a pulley carried by the abutment plate, a second pulley connected with the bracket, a cable having one end connected with the abutment plate and the other connected with the windlass, said cable passing
20 about both pulleys and means for holding the bracket against rotation about the axis of the pipe when it is in its lowermost position.

In testimony whereof I affix my signature.

OTTO H. SCHUH.

25

30

35

40

45

50

55

60

65