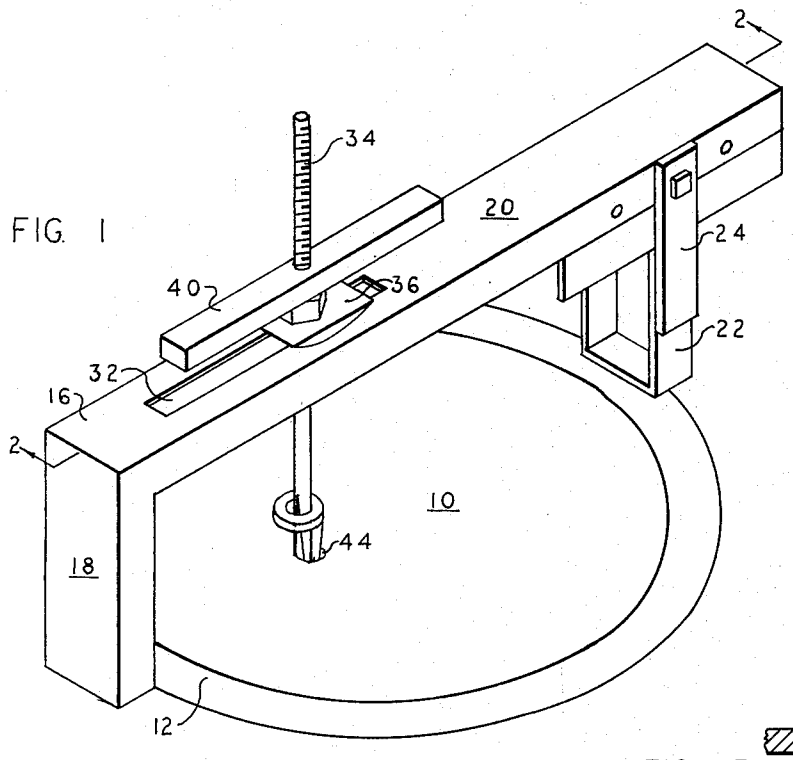
June 13, 1961 J. E. ALLISON 2,988,330

PULLER FOR MANHOLE COVERS

Filed Nov. 12, 1958

FIG. 1



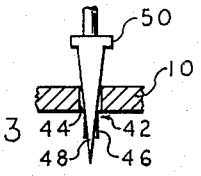


FIG. 3

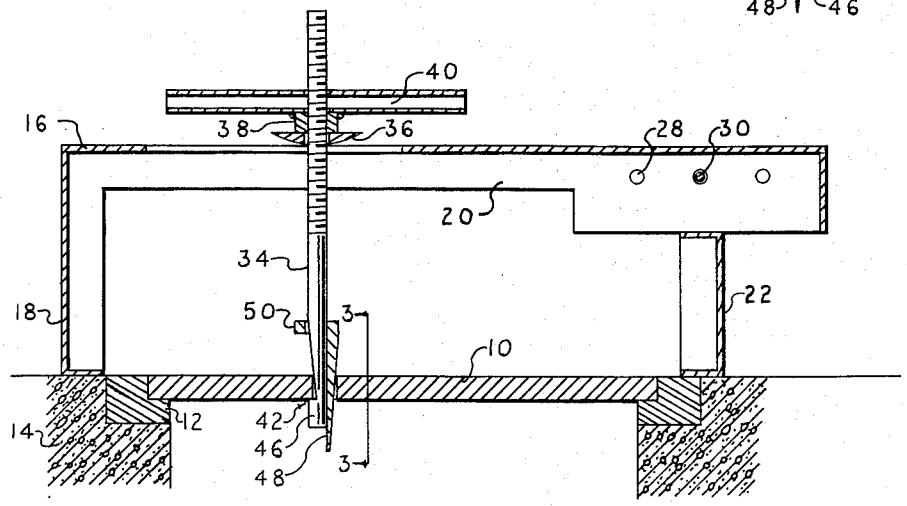


FIG. 2

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PULLER FOR MANHOLE COVERS

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This invention pertains to removing manhole covers and more particularly, manhole covers which have become stuck in place due to rust or application of paving materials over them.

In water sewer and other utility work, a problem exists in removing manhole covers. Often these covers are located in streets and alleys. After they have been in place for a long period of time, a great deal of rust forms between the manhole cover and the metal ring on which it rests. In addition to this, often seal coats are applied to the paving where the manhole is located. The asphalt and gravel in these seal coats wedge between the cover and the ring to make removal even more difficult.

The customary way of removal at the present time is to place a pick through the hole customarily found in these covers, and to pry upward on the end of the handle. If the cover cannot be removed this way, the cover is intentionally broken and removed in pieces.

An object of this invention is to provide a device for removing manhole covers.

Another object of this invention is to provide a hook especially adapted to enter the holes in manhole covers and be securely attached therein.

A further object of this invention is to provide a manhole remover which is adapted to fit any of several sizes of manholes.

Still further objects are to achieve the above with a device that is sturdy, compact, simple, and reliable, yet inexpensive and easy to manufacture.

The specific nature of the invention as well as other objects, uses, and advantages thereof will clearly appear from the following description and from the accompanying drawing, in which:

FIGURE 1 is a perspective view of a device according to this invention in place over a manhole cover.

FIGURE 2 is a sectional view of the device and cover.

FIGURE 3 is a sectional view taken on line 3—3 of FIGURE 2.

As seen in the accompanying drawings, the device is for the purpose of pulling a manhole cover such as **10** which is set within metal ring **12**. Customarily the metal ring is set by concrete **14** into the surface of a street.

The puller itself includes L-shaped frame member **16**. The shorter leg **18** of this L-shaped member rests, when in use, upon ring **12** surrounding the cover. It is vertically aligned so that it supports the longer leg **20** as a beam horizontally disposed above the cover. Near the other end of the longer leg of the L-shaped member is leg **22** which also is vertically aligned and rests upon the ring **12**. This second leg has bifurcated upper portion **24** with holes **26** therethrough. The longer leg **20** has a plurality of holes **28** which are horizontally aligned, therefore pin **30** may be placed through the holes **26** and one of the holes **28** in the longer leg. In this manner the position of the second leg **22** is adjusted relative to the leg **18** so that the device may be used for different sizes of manholes.

The L-shaped member **16** and the leg **22** is conveniently made from strap and channel iron. They are welded in conventional manner.

The longer leg **20** has elongated slot **32** from top to bottom therethrough. The slot extends from adjacent leg **18** to a position about half way the length of this long beam. Vertically aligned rod **34** extends through

this slot. The rod also passes through spacer **36** which rests upon top of the beam or longer leg. The spacer has a plane upper surface with a hole through it normal to the plane upper surface. The lower surface of the spacer is convex, having the segment of a cylinder as its shape. The axis of the cylindrical lower portion is at right angles to the beam, therefore the rod may swing in a direction of the beam without binding.

The upper portion of the rod has threaded thereon nut **38**. The nut has two radial handles **40**. In this manner means inner-connecting the rod and beam are provided for forcing the rod upward relative to the beam. The bottom of the rod has hook **42** which enters opening **44** in the cover to exert vertical upward force upon the cover. This hook resembles a crochet hook. That is, the rod is constricted in cross sectional area as the lower end is approached and has knob **46** at the extreme lower end. The knob of course is smaller in diameter than the opening normally found in the manhole cover.

Wedge **48** prevents the hook or knob from becoming disengaged with the cover. This wedge has the thick upper end which tapers to a point or edge at the bottom. With the hook in place and the wedge driven downward, the wedge contacts the hook and the edge of the opening in the cover so as to hold the hook securely within the opening in vertical force exerting position. Ring **50** attached to the thick upper end of the wedge maintains the wedge on the rod while not in use. The axis of the ring is generally parallel to the longitudinal axis of the wedge and coincides with the axis of the rod **34**. The ring encircles the rod.

In use the puller is placed over the manhole cover. Preferably the legs are adjusted so that the distance between the legs is such that each rests on the ring surrounding the cover. It is not essential that leg **22** rests upon the ring. Because it is further from the rod **34**, it may rest upon the cover **10** itself. The hook or knob **46** is passed through the opening **44** in the cover. The rod is moved upward either manually or by the aid of the nut **38** until the hook engages the lower surface of the cover. The wedge **48** is then driven downward until the hook is firmly secured to the cover. Then the nut **38** is rotated by the use of the handles **40** so that the cover is broken loose from the ring despite how badly it may have been rusted in place, or wedged in place by asphalt and gravel.

Thus it may be seen that I have provided the device for quickly and easily removing manhole covers despite how badly they may have been stuck in place.

It will be apparent that the embodiment shown is only exemplary and that various modifications can be made in construction, materials, and arrangement within the scope of the invention as defined in the appended claims.

I claim as my invention:

1. A device for removing manhole covers comprising: a frame having a horizontal beam, a plurality of legs depending from said beam and adapted to contact a ring surrounding the manhole cover to be removed, thus supporting the beam over the cover, a vertical rod, means interconnecting the rod and beam for forcing the rod upward relative to the beam, a hook attached to the lower end of said rod, the hook adapted to enter an opening in said cover and exert vertical force upward on said cover, a wedge contacting said hook and the edges of said opening in the cover so as to hold the hook securely within the opening and in vertical force exerting position while the rod is forced upward relative to the beam.

2. The invention as defined in claim 1 wherein said hook is constructed by constricting the cross-sectional area of the rod as the lower end is approached with a knob at the extreme lower end.

3. The invention as defined in claim 2 wherein said

wedge has a ring attached at the thick upper end thereof, the axis of said ring generally parallel to the longitudinal extent of the wedge, and said ring encircles said rod.

4. A device for removing manhole covers comprising: an L-shaped frame member; the shorter leg of said member being vertically aligned and adapted to stand on a ring surrounding the cover; the longer leg of said member having an elongated slot from top to bottom therethrough; another vertically aligned leg attached near the end of said longer leg adapted to stand on the ring, thus supporting said longer slotted leg as a beam over the cover; a vertically aligned rod extending through said slot; a spacer resting on the slotted leg, the spacer having a hole through which extends said rod, the spacer having a convex lower surface which contacts said slotted leg; the upper end of the rod being threaded; a nut threaded on said rod, the nut having handles extending radially therefrom; a hook on the lower end of the rod; and a wedge contacting the hook so that when the hook is passed through an opening in the cover, the hook may be securely wedged into place.

5. The invention as defined in claim 4 wherein said second mentioned vertically aligned leg has a bifurcated upper portion with holes therethrough which extends on either side of the slotted leg, the slotted leg having a plurality of horizontal holes therethrough, and a pin through the holes in the bifurcated portion and one of the holes in the slotted leg, thereby selectively adjusting the width between the vertically aligned legs so that the device may be used for different size manholes.

6. The invention so defined in claim 4 wherein said hook is constructed by constricting the cross-sectional area of the rod as the lower end is approached with a knob at the extreme lower end.

7. The invention as defined in claim 6 wherein said wedge has a ring attached at the thick upper end thereof, the axis of said ring generally parallel to the longitudinal extent of the wedge, and said ring encircles said rod.

8. A device for removing covers comprising: a frame, a vertical rod depending from the frame, means including the frame for forcing the rod vertically upward, a hook attached to the lower end of said rod, the hook adapted to enter an opening in said cover and exert vertical force upward on said cover, a wedge contacting said hook and

the edges of said opening so as to hold the hook securely within the opening and in vertical force exerting position while the rod is forced upward.

9. The invention as defined in claim 8 wherein said hook is constructed by constricting the cross-sectional area of the rod as the lower end is approached with a knob at the extreme lower end.

10. The invention as defined in claim 9 wherein said wedge has a ring attached at the thick upper end thereof, the axis of said ring generally parallel to the longitudinal extent of the wedge, and said ring encircles said rod.

11. In a device for removing an object having an opening in it, the device having a frame, a rod extending from the frame, means interconnecting the frame and the rod for forcing the rod toward the frame, a hook attached to the extreme end of the rod away from the frame, the hook adapted to enter the opening in the object and exert force on the object toward the frame, the improvement comprising: a wedge contacting said hook and the edges of said opening in said object so as to hold the hook securely within the opening and in force exerting relationship while the rod is forced toward the frame.

12. The invention as defined in claim 11 wherein said wedge has a ring attached to the thick end thereof, said thick end of the wedge being closer to the frame than the other end, the axis of said ring generally parallel to the longitudinal extent of the wedge, and said ring encircling said rod.

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