

April 10, 1945.

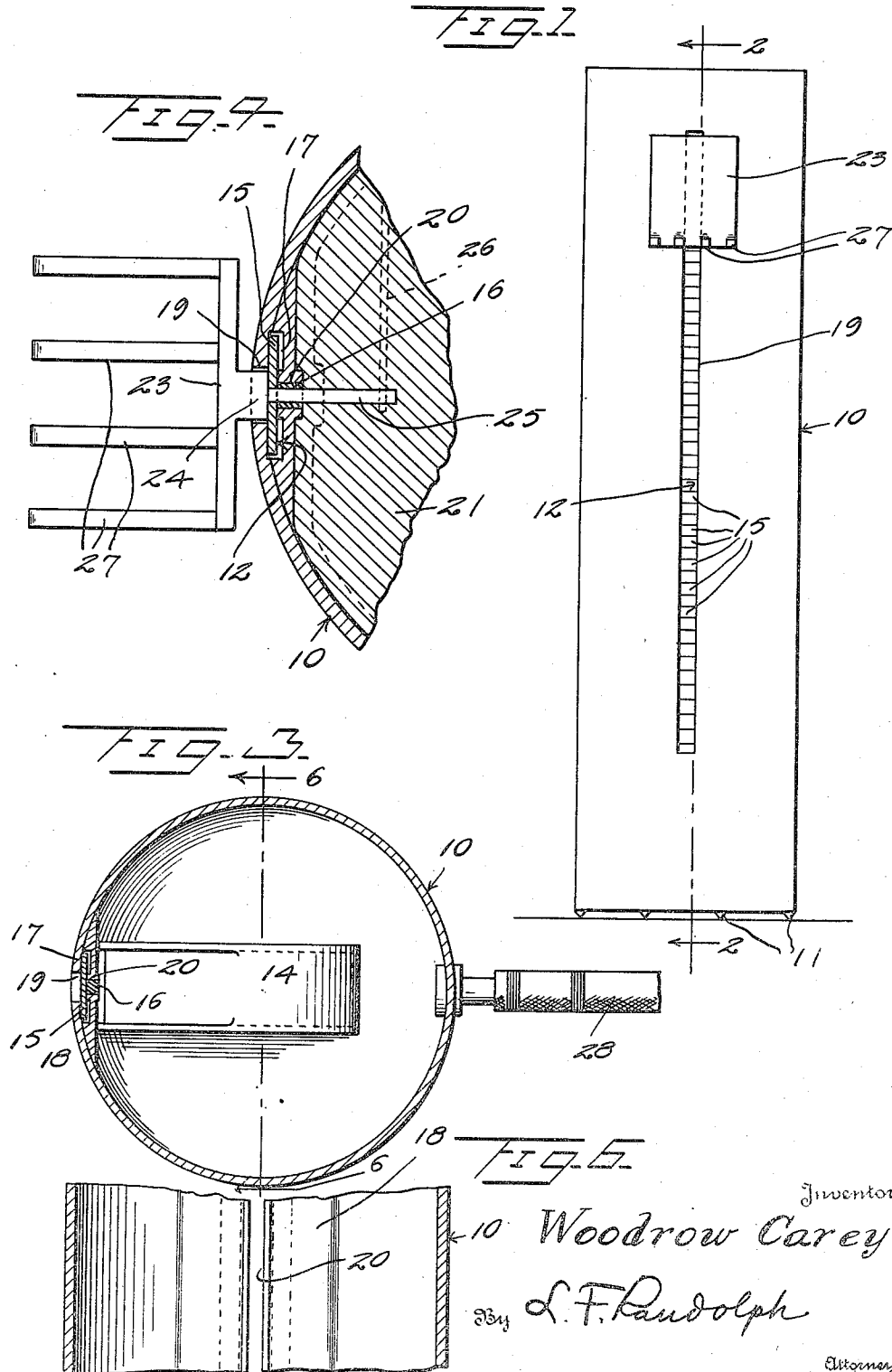
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2,373,455

HOIST

Filed April 5, 1944

2 Sheets-Sheet 1



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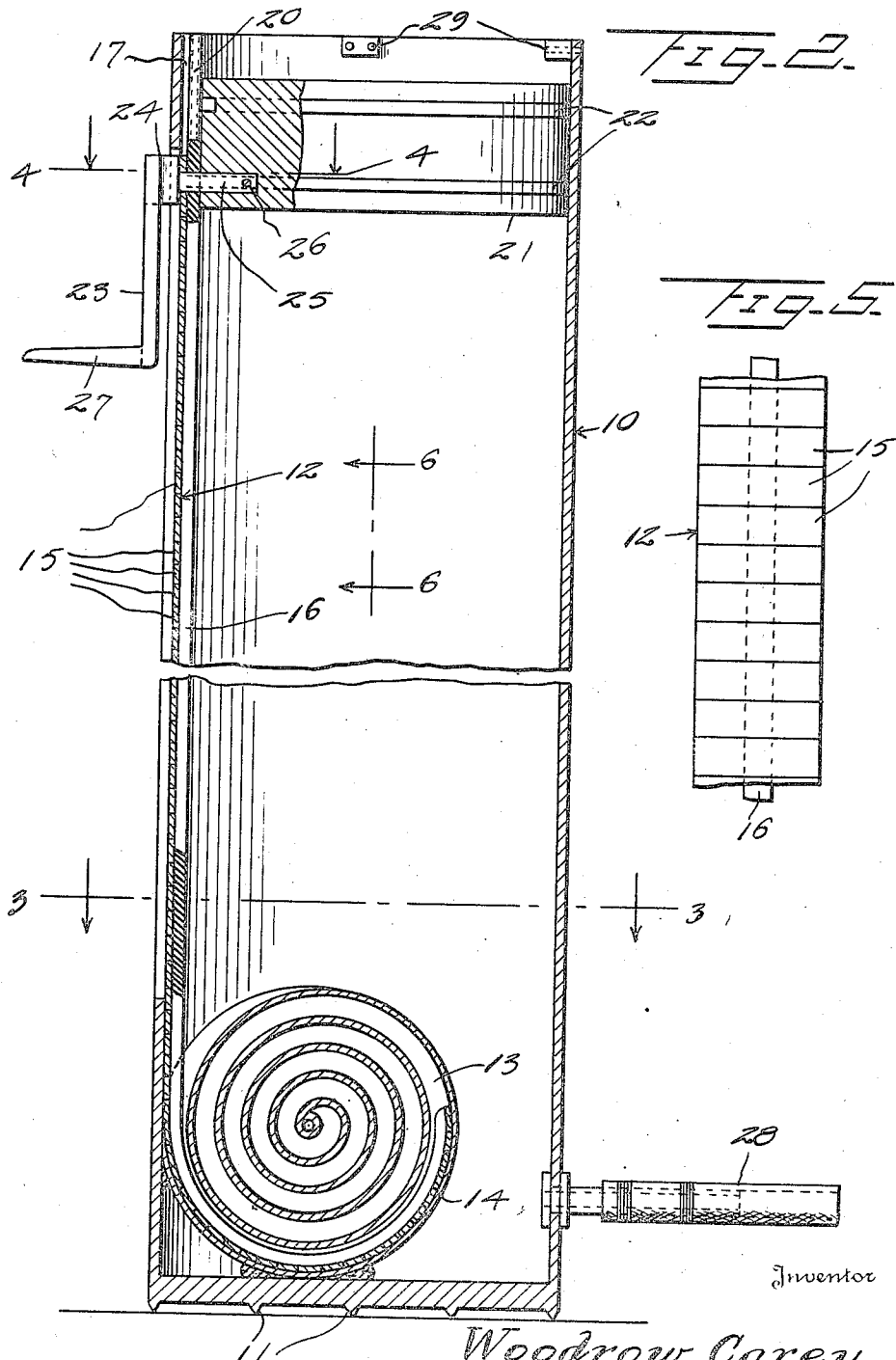
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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HOIST

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Application April 5, 1944, Serial No. 529,643

4 Claims. (Cl. 254—93)

This invention relates to a hoist or jack.

It is particularly aimed to provide a structure which is operable hydraulically and which may engage a load at the ground or floor line.

In addition, it is aimed to provide a novel structure wherein the shoe or platform which is engageable with the load to lift it, is carried by a vertically movable flexible means including a ceiling strip or a vertical opening or slot in which it moves.

I also aim to provide a novel housing for the flexible means when retracted.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a view of the hoist in front elevation;

Figure 2 is a vertical sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a horizontal section taken on the line 3—3 of Figure 2;

Figure 4 is a horizontal section taken on the line 4—4 of Figure 2;

Figure 5 is a fragmentary elevation of the flexible lifting element; and

Figure 6 is a vertical section, fragmentary, taken on the line 6—6 of Figure 3, with the flexible lifting means removed.

Referring specifically to the drawings wherein like reference characters designate like or similar parts, I provide a cylinder at 10 of metal or other suitable material and of any desired diameter and height, the same preferably having lugs 11 at its base to facilitate non-sliding engagement with the ground or a floor or the like.

Coacting with the cylinder 10 is a flexible lifting element generally designated 12, capable of projection and retraction. This lifting element when retracted, occupies the helical groove or space 13 of a container 14, suitably mounted within the cylinder 10 as shown. Such flexible element comprises a series of metallic, wooden or other rigid slats 15 preferably in contiguous relation as shown, and fastened to a flexible strap 16, preferably elastic and of rubber, including synthetic rubber, or the like.

It will be noted that the cylinder 10 has an elongated groove 17 in continuation of the groove 13 of the container 14, so that the slats 15 may be moved therein. The wall of the container at the portion in which the groove 17 is provided, is thickened as at 18 and in front of such groove, has an elongated slot 19 communicating there-

with and behind such groove has an elongated slot 20 narrower than the groove and also communicating therewith. The strip 16 snugly fits the slot 20 and functions as a gasket.

Slidable longitudinally of cylinder 10 is a follower or head 21 of metal or any other suitable material, preferably provided with one or more gaskets at 22, for instance, of rubber, including synthetic rubber, to wipe the inner surface of the cylinder. A platform or foot is provided at 23 to engage the load to be lifted. This platform has a shank 24 which is engaged in the slot 19 so that it will be guided and steadied, and it has a stud 25 extending inwardly therefrom through one of the slats 15 and thence into and through the rubber strip or gasket 16 and also into the head 21, preferably being anchored thereto as by means of a pin 26.

It will be particularly noted that the foot 23 has a series of tines 27 or any equivalent, which are capable of disposition directly on the ground, floor or any other supporting surface engaged by the cylinder 10, this being a great advantage over ordinary hydraulic jacks or hoists.

Any operating fluid, preferably an hydraulic fluid, is adapted to be supplied to and removed from the cylinder 10 from any suitable source as through a conduit 28, which fluid will raise or project the head 21 and accordingly extend the flexible element 12 and platform or foot, 23, so as to lift the load. As the hydraulic fluid recedes from the cylinder 10, head 21 will lower of its own weight and under the urgency thereof, the flexible element 12 will be restored into the helical groove 13. It is to be particularly noted that the strip 16 functions dually in securing the slats 15 together and in functioning as a gasket to seal the slot 20 against leakage of hydraulic fluid.

If desired, the contiguous edges of the slats 15 may be pivoted to each other. Above the head 21, I preferably provide limit stops 29.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. A hoist of the class described comprising a cylinder to receive hydraulic fluid, said cylinder having a groove, said cylinder having first and second slots on opposite sides of the groove communicating therewith and narrower than the groove, a head slidable in the cylinder according to the action of hydraulic fluid, a flexible element comprising contiguous slats movable in said groove, a band to which the slats are secured

occupying one of said slots, and functioning as a gasket, a platform for engagement with the load, said platform being secured to one of the slats and the strip and said head.

2. A hoist of the class described comprising a cylinder to receive hydraulic fluid, said cylinder having a groove, said cylinder having first and second slots on opposite sides of the groove communicating therewith and narrower than the groove, a head slidable in the cylinder according to the action of hydraulic fluid, a flexible element comprising contiguous slats movable in said groove, a band to which the slats are secured occupying one of said slots, and functioning as a gasket, a platform for engagement with the load, said platform being secured to one of the slats and the strip and said head, and a container within the cylinder having a helical passage to enable retraction of the flexible element.

3. A structure of the class described comprising a cylinder for admission and release of hydraulic fluid, a head slidable in the cylinder according to the action of hydraulic fluid, a platform carried by the head for engagement with the load, said cylinder having an elongated slot through which the platform extends, and means movable with the platform and head to seal said slot.

4. A structure of the class described comprising a cylinder for admission and release of hydraulic fluid, a head slidable in the cylinder according to the action of hydraulic fluid, a platform carried by the head for engagement with the load, said cylinder having an elongated slot through which the platform extends, means movable with the platform and head to seal said slot, said means consisting of a plurality of slidable slats disposed transversely of said slot.

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