May 27, 1924. 1,495,176

B. M. HILL

HOISTING MACHINE

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Fig. 1.

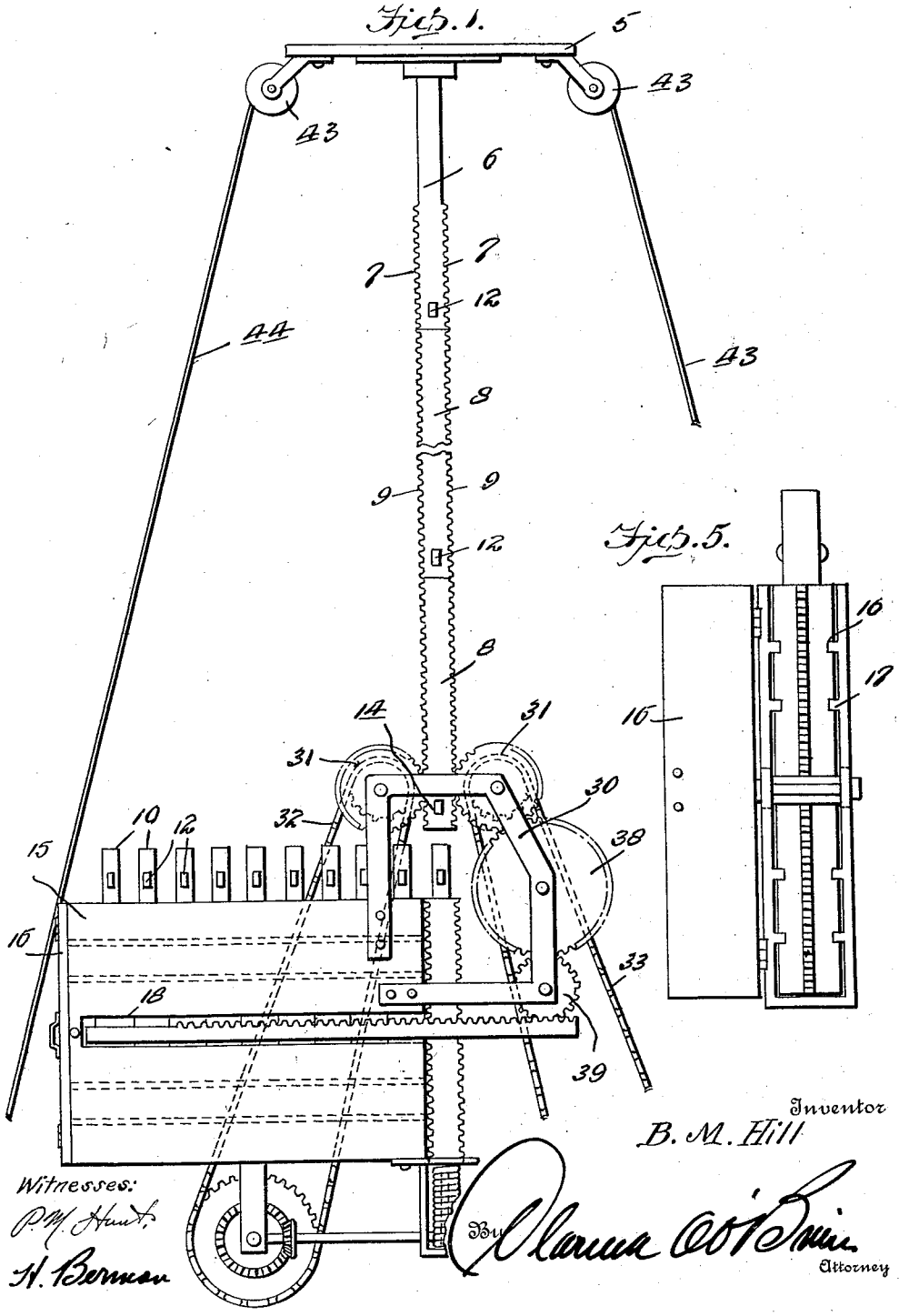


Fig. 5.

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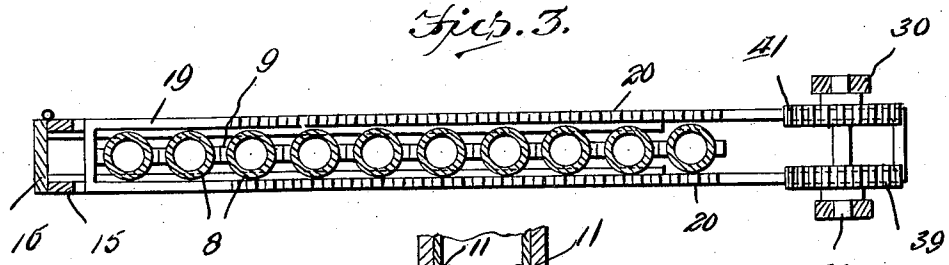
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Fig. 3.



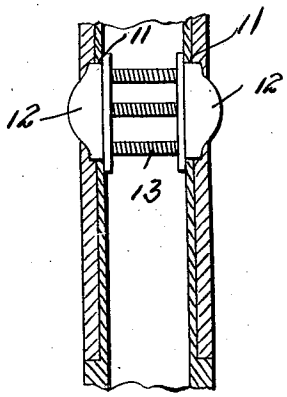
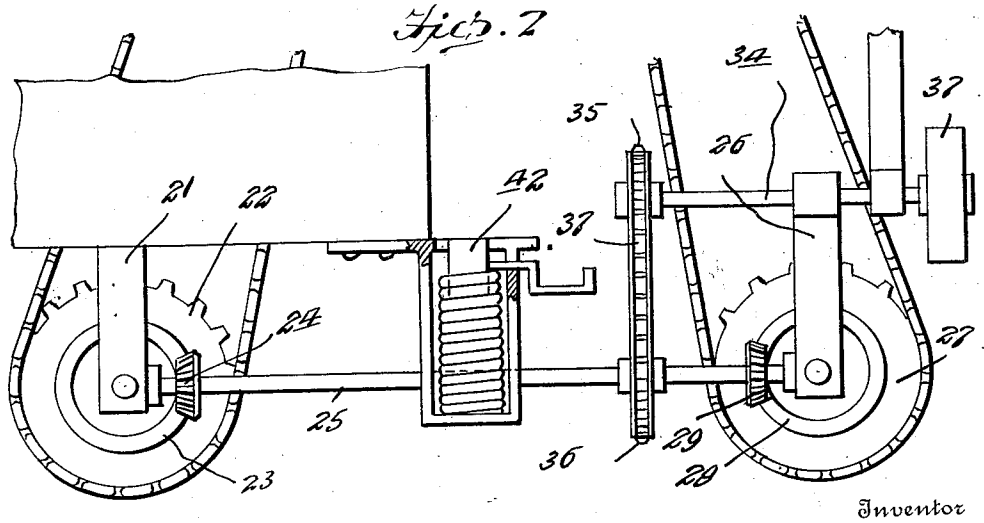


Fig. 4.

Fig. 2



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UNITED STATES PATENT OFFICE.

BENJAMIN MARSHALL HILL, OF CORINTH, MISSISSIPPI.

HOISTING MACHINE.

Application filed May 29, 1923. Serial No. 642,169.

To all whom it may concern:

Be it known that I, BENJAMIN M. HILL, a citizen of the United States, residing at Corinth, in the county of Alcorn and State of Mississippi, have invented certain new and useful Improvements in Hoisting Machines, of which the following is a specification.

In carrying out the present invention, it is my purpose to provide a hoisting device wherein the hoisting platform may be raised to great heights, and wherein the supporting bar for the platform comprises a plurality of sections, this supporting bar being built up in a novel and simple manner during the raising of the platform.

The primary object of the invention is to provide a hoisting device that is well adapted for lifting extremely heavy objects, and this with a minimum amount of power and while being extremely simple of construction, the device embraces the desired features of efficiency and durability.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination, and arrangement of parts as claimed.

In the drawings forming part of this application, like numerals of reference indicate similar parts in the several views, and wherein:

Figure 1 is a fragmentary elevation of my improved hoisting device.

Figure 2 is an enlarged fragmentary elevation of the lower end of the device.

Figure 3 is a detail longitudinal cross section of the carrier for the sections of the platform raising bar.

Figure 4 is an enlarged fragmentary detail section through a pair of these bar sections, and

Figure 5 is an end elevation of the carrier, the hinged door thereof being open.

Briefly described, my novel hoisting device comprises an elevating platform that is adapted to be raised by the upward movement of a supporting bar, this bar being of sectional formation, the sections thereof being supported in a carrier, and adapted to be associated with each other as the platform is being raised. The hoisting device is to be supported in any desirable manner, and the said platform supporting bar is adapted to be moved vertically through a suitable source of power, preferably an internal combustion engine.

With specific reference to the drawings, my novel device comprises a supporting platform 5 of suitable dimensions, pendent from which is a hollow tubular bar 6, the opposite sides of which are formed with rack teeth 7. Adapted for telescopic arrangement with each other are other hollow tubular bars 8 that are formed on their opposite sides with rack teeth 9. Each of these bars 8 are formed at their upper ends with reduced extensions 10, that are adapted for engagement within the lower end of the next adjacent bar. As more clearly shown in Figure 4, the said reduced ends 10 of these bars 8 are provided with elongated openings 11, upon diametrically opposite sides, and normally projecting through these openings are the rounded edges of plates 12, which plates are maintained in this position, through the medium of transverse coiled springs 13. The lower ends of each of the bars 8 are provided with openings 14, through which said rounded edges of the plates 12 are adapted for projection as the bars are forced into engagement with each other, whereby the same are maintained in a true vertical position with respect to each other. My hoisting device comprises a carrier 15 that is open at its top side as well as its ends, the outer end thereof being equipped with a hinged door 16. The said bar sections 8 are positioned vertically within the carrier 15, and are provided upon opposite sides with channels 16, that receive inwardly directly spaced ribs 17 upon the inner side of the front and rear walls of the carrier for maintaining said bars in a vertical position. The front and rear walls of this carrier 15 are provided with horizontally disposed alined slots 18, the inner ends of which terminate at the inner end of the carrier 15. Positioned within these slots of the carrier and surrounding the bar sections 8 is a relative elongated rectangular yoke 19, the opposite longitudinal side bars of which are racked upon their upper sides as at 20.

Pendent from the carrier 15 is a hanger bar 21 upon which is journaled a sprocket gear 22, this sprocket gear being in turn formed with a bevel gear 23, that is in mesh with a bevel gear 24 upon a horizontal shaft 25. The opposite end of this shaft 25 is also journaled in a suitably supported shaft

hanger 26, also carrying a sprocket gear 27 that is formed with a bevelled gear 28 in mesh with a bevelled gear 29 also upon the shaft 25. Secured to the carrier 15 at the inner side thereof is a gear frame 30, to which is journaled spur gears 31 at opposite sides of the frame, and adapted to intermesh with the said rack teeth 9 of the bar sections 8. Each of these spur gears 31 are formed with sprocket wheels, and trained over one of these sprocket gears and the said sprocket gear 22 of the shaft 25 is a sprocket chain 32, while also trained over the sprocket gear formed upon the other spur gear 21, and the said other sprocket gear 27 upon the hanger 26 is a chain 33.

Immediately above the sprocket gear 27 is a suitably journaled cross shaft 34, one end of which is provided with a sprocket gear 35 in alinement with a sprocket gear 36 upon the longitudinal shaft 25. Trained over these gears is a sprocket chain 37. The opposite end of the cross shaft 34 carries a belt pulley 38, whereby the shaft 34 may be rotated through the medium of a belt from a suitable source of power.

The gear frame 30 also carries a relatively larger spur gear 38, that is in mesh with one of the spur gears 31, and is also in mesh with a relatively smaller gear 39 keyed adjacent one end of a cross shaft 40. This cross shaft 40 is journaled within said frame 30 and carries another gear 41. The gears 40 and 41 intermesh with the rack teeth 20 of the longitudinal bars comprised in the rectangular yoke 19, and it will at once be apparent that when the shaft 34 is rotated, the platform bar comprising the section 8 will be moved upwardly and as the platform bar is being moved upwardly, the sections 8 comprising the same will be moved inwardly towards the open end of the carrier 15. Beneath the open end of this carrier 15 is a spring pressed plunger 42 that is normally held down by the foot of the operator, and after the last mentioned section of the platform bar is moved to a position as shown in Figure 1, this plunger 42 is released for consequently moving the next bar section in a vertical direction for thereby interlocking the same with the bar section directly thereabove.

The opposite sides of the platform 5 carry spring rollers 43, to which are connected the upper ends of stay cables 44, the opposite ends of these stay cables being suitably anchored to the ground.

Numerous advantages of a hoisting device of this character will be readily appreciated by those skilled in the art, and even though I have herein shown and described the most practical embodiment of the invention with which I am now familiar, it is nevertheless to be understood that minor changes may be made therein, without departing from the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim as new, and desire to secure by Letters-Patent, is:

A section assembling and hoisting apparatus comprising a carrier provided at its opposite sides with slots, said carrier being open at its end, a series of sections adapted to be arranged in a row in the carrier and between the side walls thereof which are provided with the slots, a spring pressed plunger mounted below the open outlet end of the carrier, a yoke mounted for movement along the slots in the side walls of the carrier and receiving the row of sections between its opposite sides, means for lifting the sections successively above the carrier and including means for simultaneously moving the yoke along the slots of the carrier.

In testimony whereof I affix my signature.

BENJAMIN MARSHALL HILL.