

J. E. NEIL.
LIFTING APPARATUS.
APPLICATION FILED SEPT. 18, 1912.

1,052,367.

Patented Feb. 4, 1913.

3 SHEETS—SHEET 1.

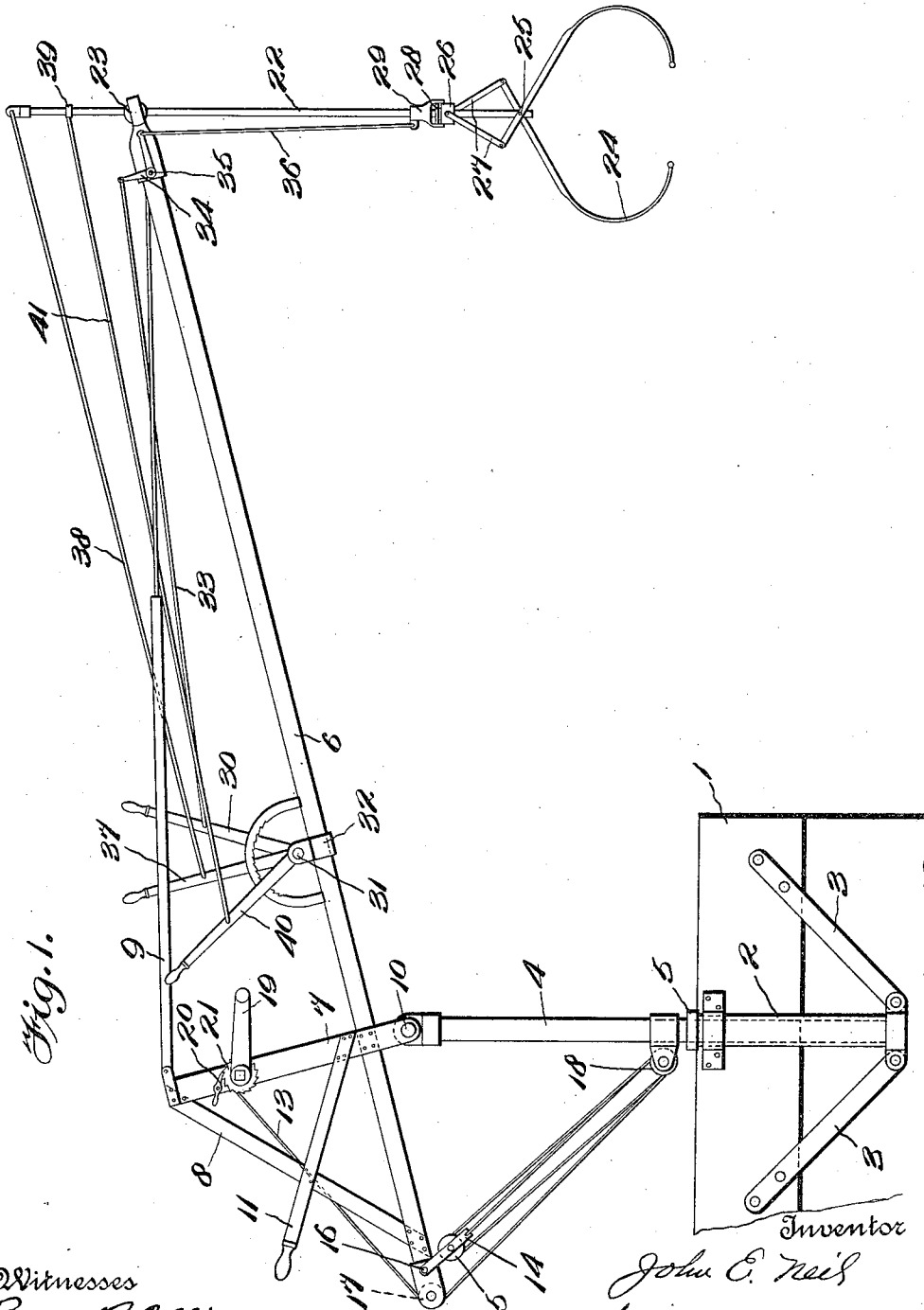


Fig. 1.

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3 SHEETS-SHEET 2.

Fig. 2.

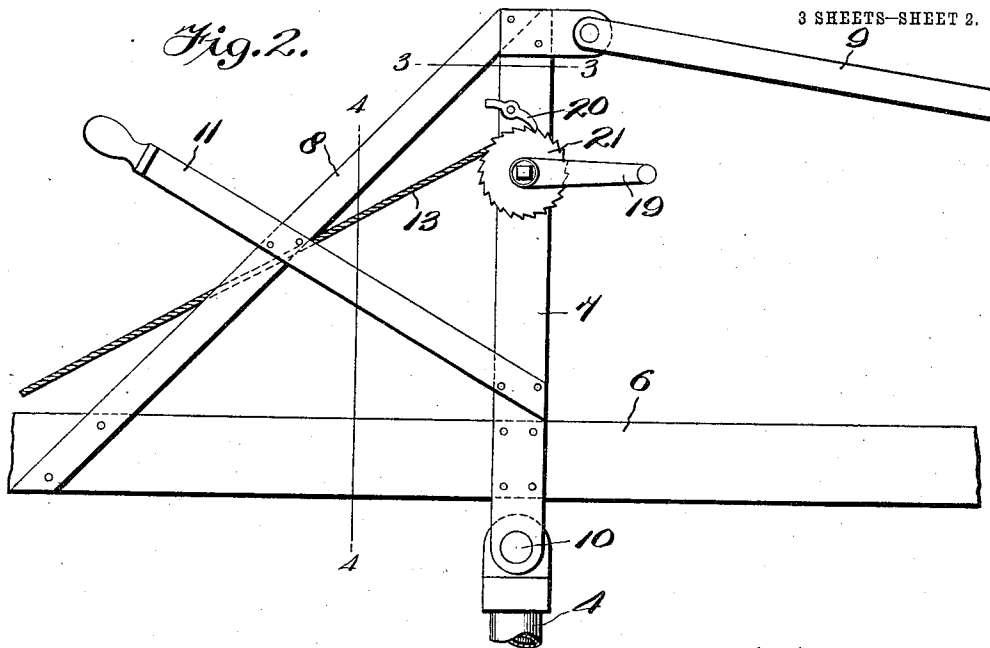


Fig. 3.

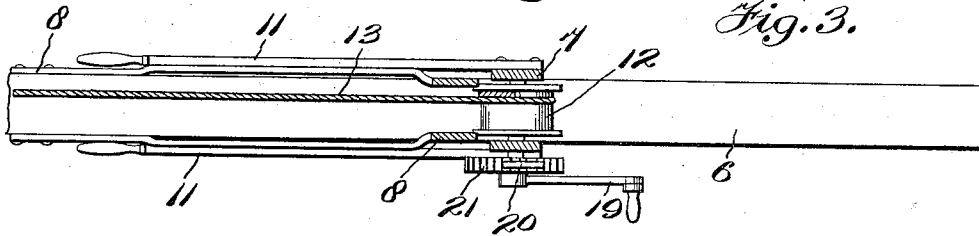
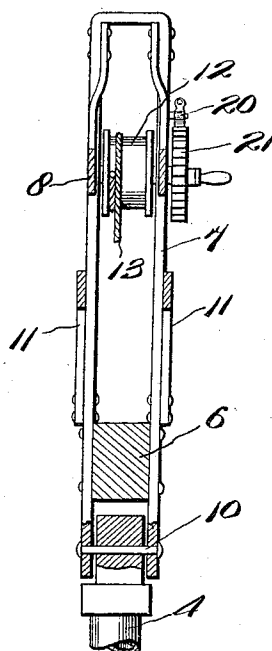


Fig. 4.



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3 SHEETS—SHEET 3.

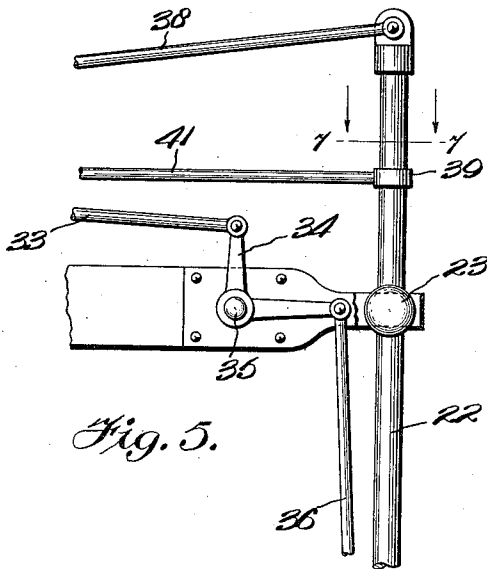


Fig. 5.

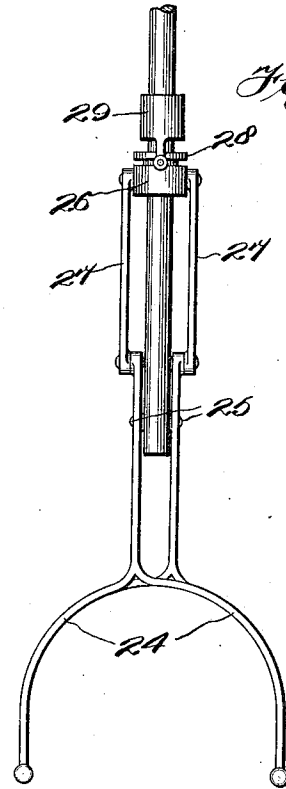


Fig. 6.

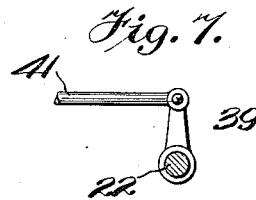
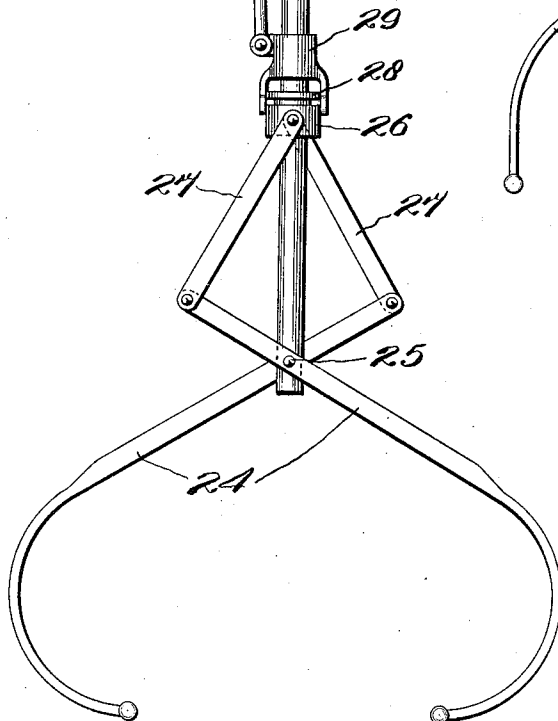


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN E. NEIL, OF PULLMAN, WASHINGTON.

LIFTING APPARATUS.

1,052,367.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed September 18, 1912. Serial No. 720,986.

To all whom it may concern:

Be it known that I, JOHN E. NEIL, a citizen of the United States of America, residing at Pullman, in the county of Whitman and State of Washington, have invented certain new and useful Improvements in Lifting Apparatus, of which the following is a specification.

The present invention relates to an apparatus for lifting sacks or other material in bulk and has for its special purpose to provide a machine whereby the articles may be lifted and transferred to another position in an easy and expeditious manner; wherein the apparatus is of simple construction and comparatively cheap to install.

With these and other objects in view the invention consists in the arrangement and combination of parts hereinafter claimed, and, while the invention is not restricted to the exact details shown and described, still, for the purpose of disclosure, reference is had to the accompanying drawings, in which like reference characters designate the same parts in the several views, and in which,

Figure 1 is a side elevational view of the apparatus complete; Fig. 2 is a side elevational view of the arm elevating device; Fig. 3 is a top plan view thereof taken on the line 3—3 of Fig. 2; Fig. 4 is a vertical sectional view of the same taken on the line 4—4 of Fig. 2; Fig. 5 is a side elevational view of the gripping tongs, and associated parts; Fig. 6 is a front elevational view thereof, and; Fig. 7 is a detailed view of the device for rotating the tongs.

Referring to the construction in detail 1 designates a suitable support having a sleeve 2 secured thereon, and braced by a pair of straps or bars 3, and shaft 4 is fitted within the sleeve 2 to rotate therein and has a collar 5 which bears against the upper end of the sleeve 2.

A beam 6 is secured to a yoke frame 7, and brace bars 8, reinforce the connection between the beam 6 and frame 7 as shown in Fig. 1; and a reach bar 9 connects the head of the yoke frame 7 with the extreme outer end of the beam 6. The yoke frame 7 is pivotally mounted on shaft bar 4 by a bolt 10 (see Figs. 1 and 4). The beam is adapted to be swung laterally and the shaft 4 turned in the sleeve bearing through the medium of a pair of handles 11 that are connected with the yoke frame 7 and the brace bars 8.

Instead of two handles one handle could of course be used as will be understood. The beam 6 is elevated to the required height through the medium of a windlass 12 that is journaled in the yoke frame 7, and a cable 13 is adapted to be wound on the windlass. Said cable has its respective ends secured to the windlass and to the frame 14 of the pulley 15 which is pivoted on the rear end of the beam 6, as at 16 in Fig. 1. Said cable is rove through the pulley 17 on the rear end of the beam 6, through a double pulley 18 secured to the shaft 4, and through the single pulley 15 just mentioned. The cable is wound on the windlass by a crank 19, and the desired elevation of the beam is maintained through the medium of a pawl and ratchet 20 and 21 mounted on the yoke frame 7.

The grapple and transferring mechanism consists of a shaft 22 having a universal support 23 on the extreme outer end of the beam 6 and a pair of tongs 24 pivoted at 2 on the lower end of the shaft 22. Said tongs are adapted to be opened or closed through the medium of a collar 26 which is slidable on the shaft 22, and connects with said tongs by a pair of links 27. The collar 26 has swivel engagement 28 with a sleeve 29 that is also slidable on the shaft 22. The sleeve 29 is adapted to be moved on the shaft through the medium of a lever 30, that is fulcrumed at 31 to a bracket 32 mounted on the beam 6. A rod 33 connects the lever 30 with the lever 34 that is pivoted at 35 to the beam 6; and a second rod 36 connects the other arms of said bell-crank lever with the sleeve 29. The shaft 22 is adapted to be swung bodily on the universal joint through the medium of a lever 37 that connects with the upper end of the shaft 22 by a rod 38. And shaft 22 is rotated through the medium of an arm 39 (see Fig. 7) secured on said shaft, and connected to the lever 40 by the rod 41.

It is obvious that those skilled in the art may vary the details of construction and arrangement of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

Having thus described my invention, what I claim as new and desire to protect by U. S. Letters Patent is:

1. In a hoisting and transferring apparatus the combination of a support; a shaft mounted to rotate on said support; a beam

fulcrumed on the upper end of said shaft; a shaft universally mounted on the extreme outer end of said beam, and having a portion projecting upwardly of said universal support; grapples movably mounted on the lower end of said last named shaft; lever and rod mechanism for actuating said grapples and said grapple shaft; and a windlass and cable mechanism for lifting said beam, substantially as described.

2. In a hoisting and transferring apparatus the combination of a support; a vertically disposed shaft on said support; a yoke frame fulcrumed on said shaft; a beam mounted on said yoke frame; reinforcing members connecting said beam with the yoke frame; a shaft universally mounted on the outer end of said beam, and having a portion projecting above said universal mount; a pair of grapples pivotally mounted on the lower end of said last named shaft; a lever and rod mechanism for actuating said grapples, and the grapple supporting shaft; and a windlass and cable mechanism for elevating said beam, substantially as described.

3. In a hoisting and transferring apparatus the combination of a support; a sleeve mounted on the support; a vertically disposed shaft mounted to rotate in said sleeve; a yoke frame fulcrumed on the upper end of said shaft; a beam mounted intermediate

its ends on said yoke frame; a beam brace bar connecting the yoke frame with said beam; a reach bar connecting the yoke frame with the extreme outer end of said beam; a handle secured to the yoke frame and the brace bar for swinging the beam laterally; a shaft universally mounted on the extreme outer end of the beam, and having a portion projecting above said universal mount; a pair of grapples pivotally mounted on the lower end of said last named shaft; a collar slidably mounted on said shaft; links connecting said collar with said grapples; a lever fulcrumed on the beam; connections between said lever and said sleeve for closing and opening the grapples; a second lever fulcrumed on the beam; connections between said second lever and the upper end of the shaft for swinging said shaft; a laterally disposed arm secured to said shaft; a third lever fulcrumed on the beam; connections between said third lever and said shaft arm for rotating said shaft; a windlass and cable mechanism for lifting the beam, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN E. NEIL.

Witnesses:

WILLIAM C. RAMERRER,
L. M. THOMPSON.