254 PUSHING & PULLING IMPLEMENTS.

139

No. 873,799. PATENTED DEC. 17, 1907.

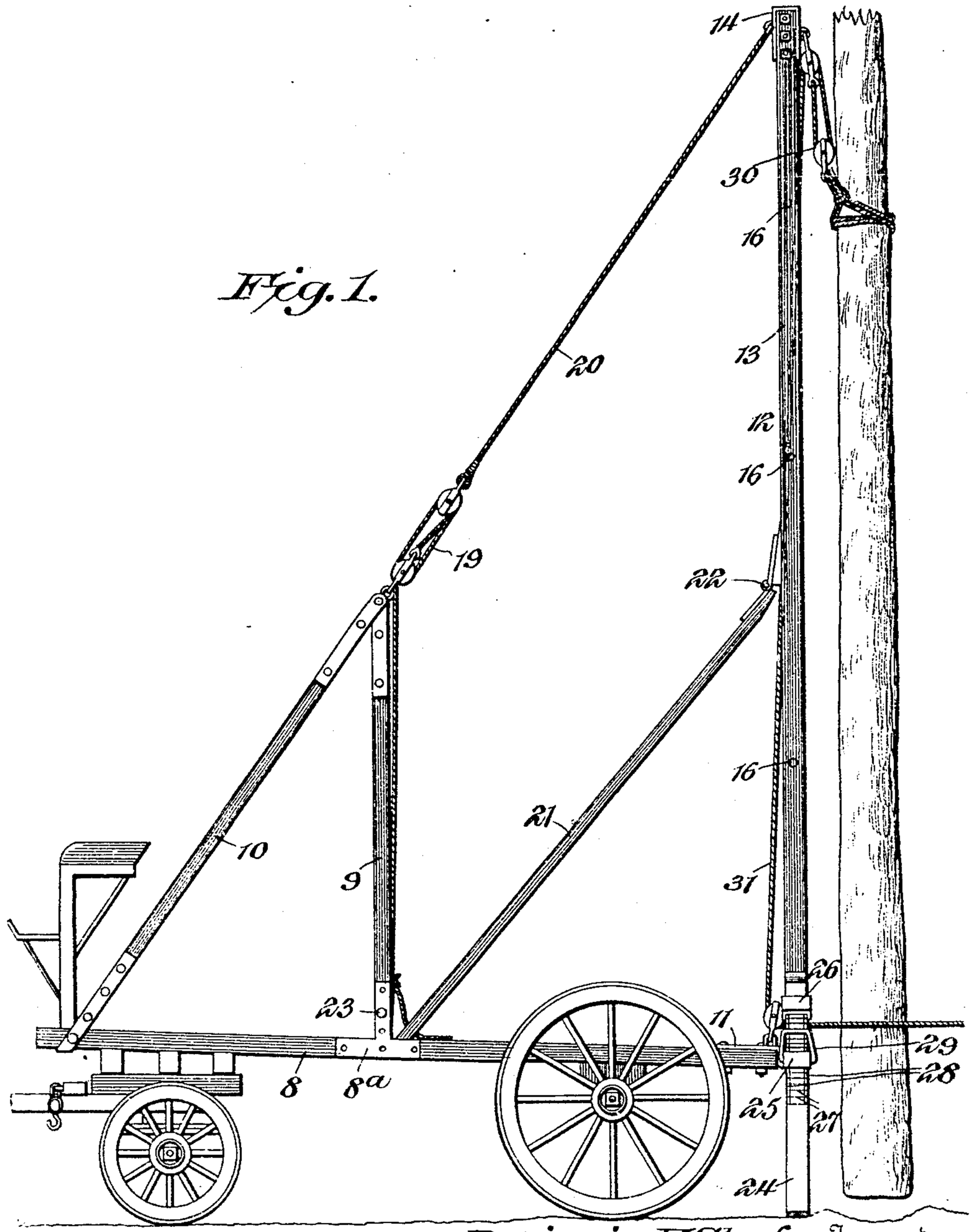
B. F. SHAFER.

HOISTING MECHANISM.

APPLICATION FILED APR. 29, 1907.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Howard D. Orr.
B. L. Slater

Benjamin F. Shafer, Inventor,
By E. G. Siggers.
Attorney

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3 SHEETS—SHEET 2.

Fig. 2.

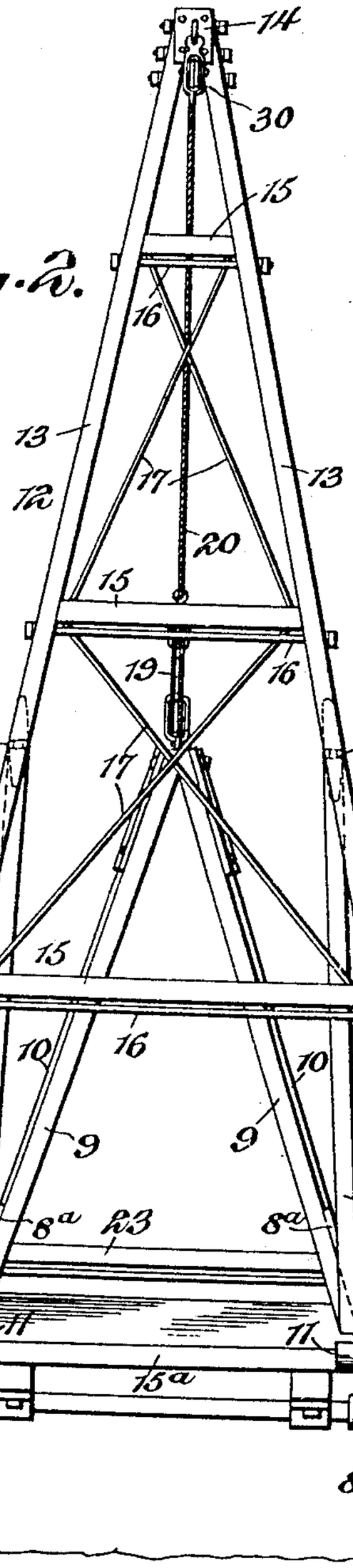


Fig. 6.

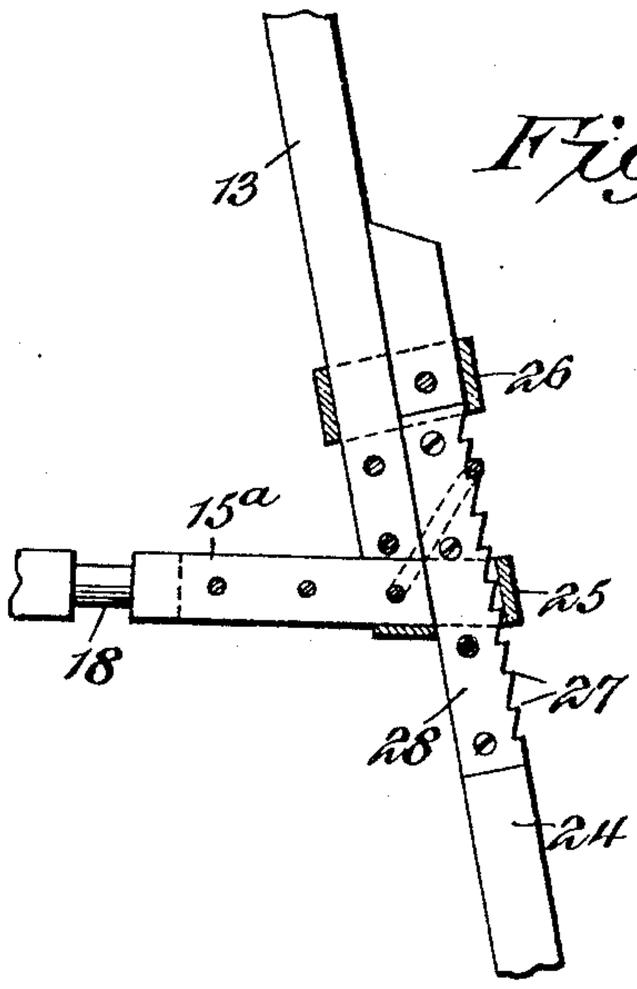
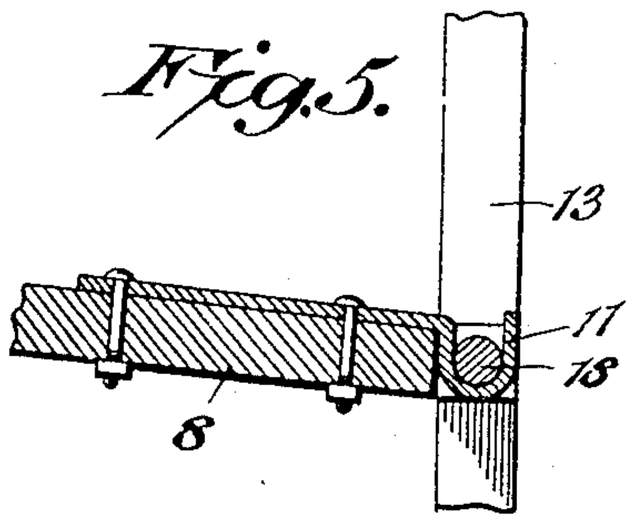


Fig. 5.



Witnesses
Howard D. Orr.
B. G. Peters.

Inventor,
Benjamin F. Shafer.
By C. L. Siggers.
Attorney

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3 SHEETS—SHEET 3.

Fig. 3.

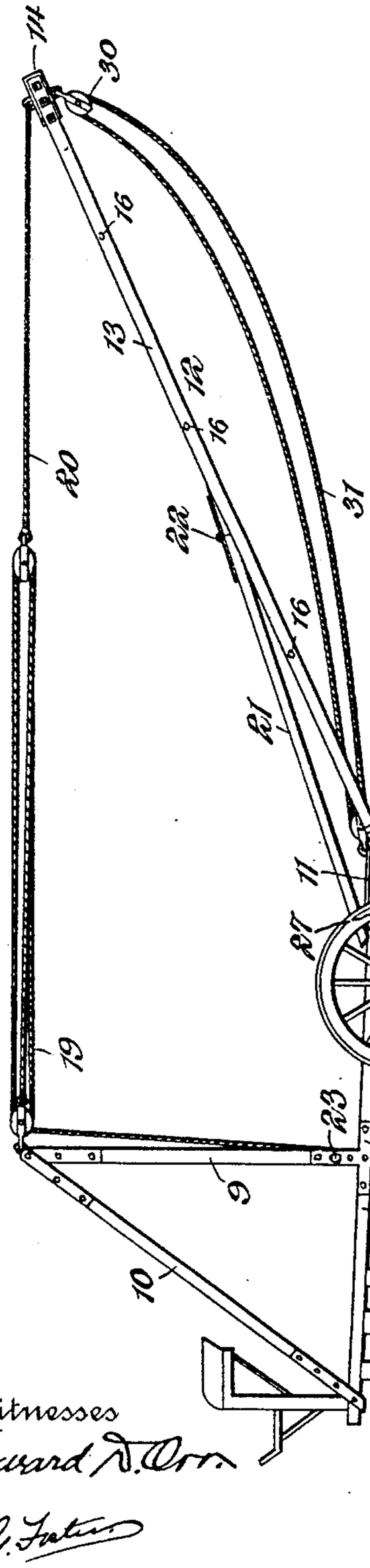
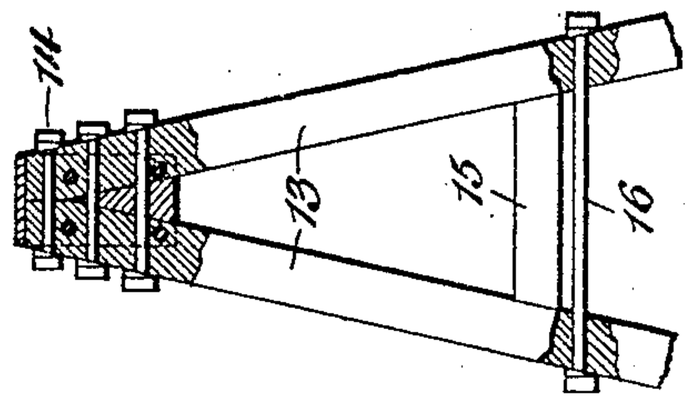


Fig. 7.



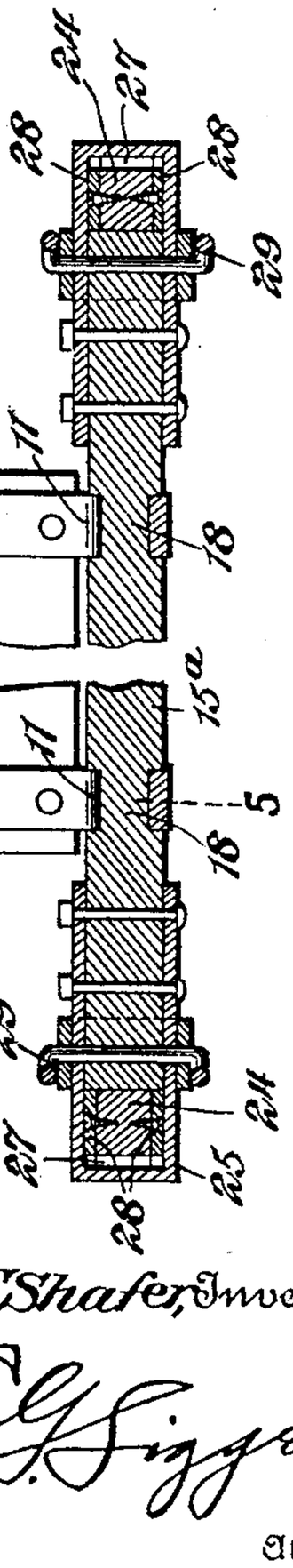


Fig. 4.

Witnesses
Howard D. Orr.
R. F. Yates

Benjamin F. Shafer, Inventor,
By E. G. Siggers.
Attorney

UNITED STATES PATENT OFFICE.

BENJAMIN F. SHAFER, OF CHESTER, PENNSYLVANIA.

HOISTING MECHANISM.

No. 873,799. Specification of Letters Patent. Patented Dec. 17, 1907.

Application filed April 29, 1907. Serial No. 370,886.

To all whom it may concern:

Be it known that I, BENJAMIN F. SHAFER, a citizen of the United States, residing at Chester, in the county of Delaware and State of Pennsylvania, have invented a new and useful Hoisting Mechanism, of which the following is a specification.

This invention relates to portable hoisting mechanism, and more particularly to means for setting and removing telephone, telegraph and other poles or supports, though not limited to this use.

The primary object of the present invention is to provide novel, simple and highly effective mechanism whereby a pole or other heavy object may be raised or lowered with ease and expedition and with a comparatively small force of men.

An embodiment of the invention, that has proven entirely satisfactory for the purpose, is disclosed in the accompanying drawings, wherein:—

Figure 1 is a side elevation showing the same supporting a pole. Fig. 2 is a rear elevation of the mechanism. Fig. 3 is a side elevation of the same, showing the mast or derrick lowered. Fig. 4 is a detail horizontal sectional view of the pivot support for the mast or derrick. Fig. 5 is a sectional view on the line 5—5 of Fig. 4. Fig. 6 is a detail view partly in section showing the mounting of one of the supporting legs. Fig. 7 is a detail view partly in section of the mast or derrick.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

The hoisting mechanism may be mounted on any well known type of dray or relatively heavy work wagon, and such a vehicle is shown in the accompanying drawings, and is designated as a whole by the reference numeral 8. Upon the front portion of the vehicle is mounted a frame consisting of uprights 9 and diagonal braces 10, the latter being connected to the upper ends of the former and to the front end of the vehicle bed. The lower ends of the uprights 9 are secured to the bed of the vehicle by T-shaped braces 8ª. Secured to the rear end of the vehicle are hooks 11 that project beyond such rear end and constitute journal bearings. A mast or derrick 12 consists of side bars or members 13 disposed in upwardly convergent relation and having their upper ends tied and secured together, as shown at 14, in Fig. 7. The braces are furthermore connected at intervals by cross bars 15 and tie rods 16, while diagonal crossed braces 17 are located in the spaces between the upper cross bars.

The lowermost cross bar, designated 15ª, is, as shown particularly in Figs. 4 and 5, provided with reduced rounded portions 18 that are rotatably mounted in the hooks 11, and thus permit the swinging of the mast or derrick. The swinging movement is secured by means of a block and tackle 19 secured at one end to the upper end of the frame 9—10, and having a cable connection 20 with the upper end of the mast or derrick. Braces 21 furthermore are hinged as shown at 22 to an intermediate portion of the mast or derrick, and have their lower ends slidable upon the bed of the vehicle, said lower ends being arranged to abut against the lower ends of the uprights 9 of the frame when the mast or derrick is in upright position, as shown in Fig. 1. They may, however, be slipped between the uprights 9, in which case, they will abut against the tie rod or bar 23. This latter arrangement is employed when the vehicle sets at an inclination, and in order to secure an upright position of the mast or derrick.

Supporting legs 24 are slidably mounted on the lower ends of the side members 13 of the mast or derrick, the lowermost cross bar 15ª having loops 25 that surround said legs. The legs also have loops 26 that surround and are slidable upon the side members 13. The outer sides of these legs are provided with teeth 27, preferably formed in plates 28 secured to the opposite sides of the legs, and holding yokes 29, pivoted to the lower ends of the side member, are arranged to interlock with the teeth to hold the legs against upward sliding movement. A suitable block and tackle 30 is suspended from the upper end of the mast or derrick, and the cable 31 therefrom may be hitched to a team or connected to any suitable source of power, as for instance, a motor or explosive engine that can if desired be mounted directly on the vehicle, all of which will be evident to those skilled in the art.

In moving the derrick, the mast 12 may be lowered, as shown in Fig. 3, so that it will pass freely beneath the cross wires or other elevated obstructions. When it is desired to elevate a pole or other object, either in setting or removing the same, the vehicle is placed so that the mast is directly at one side of the pole, or the position in which it is

to be placed, and said mast is arranged in vertical position. The legs 24 are then extended so that they will rest upon the ground, and thus will transmit the weight from the mast or derrick to the ground, consequently relieving the vehicle or movable support of said weight. The pole is then secured at its center of gravity, to the block and tackle, and the proper amount of force being applied to the cable 31, said pole or other object will be elevated. For setting a pole, the hole having first been dug, the pole is arranged in vertical position, the butt thereof lowered into the hole. In removing the pole, it is drawn out of this position and gradually swung to horizontal position as it is lowered. Experience has demonstrated that with a comparatively light frame, a long and heavy pole may be drawn from the hole without the necessity of digging away the earth about the bottom thereof. Furthermore with this structure, poles may be raised or lowered with ease and expedition with a comparatively small force of men, and while an engine or motor may be employed, draft animals have been found entirely satisfactory for the purpose, the same draft animals being used in the hoisting mechanism that are employed for drawing the vehicle.

From the foregoing, it is thought that the construction, operation, and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In hoisting mechanism of the character set forth, the combination with a movable support, of a frame carried by the support, a swinging mast or derrick mounted on the support, means connecting the frame and mast or derrick for swinging the latter, and a brace connected at one end to the mast or derrick and having its other end movable into and out of engagement with said frame on the swinging of the derrick or mast.

2. In hoisting mechanism of the character set forth, the combination with a wheeled vehicle, of rearwardly projecting hooks arranged on the rear end of the vehicle, a mast or derrick including side members and a cross bar, said cross bar being journaled in the hooks, and means connecting the upper end of the mast or derrick and the vehicle for swinging said mast or derrick.

3. In hoisting mechanism of the character set forth, the combination with a support, of a mast or derrick having a cross bar pivotally mounted on the support, guides secured to the cross bar, leg members adjustably passing through the guides, and means for securing the leg members in different positions.

4. In hoisting mechanism of the character set forth, the combination with a wheeled vehicle, of a derrick including spaced side bars and a cross bar connecting the side bars, spaced bearing devices secured to the vehicle and having the cross bar journaled therein, guides located outside the side bars, certain of said guides being secured to the cross bar, legs slidably mounted on the guides outside the side bars, and means for holding the legs in different positions.

5. In hoisting mechanism of the character set forth, the combination with a wheeled vehicle, of a frame mounted on the front portion of said vehicle, a swinging mast or derrick mounted on the rear end of said vehicle, means connecting the frame and mast or derrick for swinging the latter, and a brace hinged to the mast or derrick and having a free end movable into and out of engagement with the frame on the swinging of the mast or derrick.

6. In hoisting mechanism of the character set forth, the combination with a support, of spaced hooks projecting from the support, a mast or derrick having portions journaled in the hooks, and means mounted on the support and connected to the mast or derrick for swinging the same.

7. In hoisting mechanism of the character set forth, the combination with a wheeled vehicle, of a frame mounted on the front portion thereof, rearwardly projecting hooks carried by the rear end of the vehicle, a mast or derrick including side members, a cross bar connecting the side members, said cross bar being journaled in the hooks, connections between the upper end of the frame and the upper end of the mast or derrick for swinging the latter, a brace carried by an intermediate portion of the mast or derrick and having its lower end movable into engagement with the frame, legs slidably mounted on the lower ends of the side members of the mast or derrick, said legs being disposed on opposite sides of the vehicle and having teeth, and yokes pivoted on the lower ends of the side members and engaging the teeth to hold the legs against upward sliding movement.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN F. SHAFER.

Witnesses:
C. GODFREY,
H. G. UBIL.