No. 712,676. Patented Nov. 4, 1902.

W. HECKART.

DERRICK.

(Application filed May 26, 1902.)

(No Model.) 3 Sheets—Sheet 1.

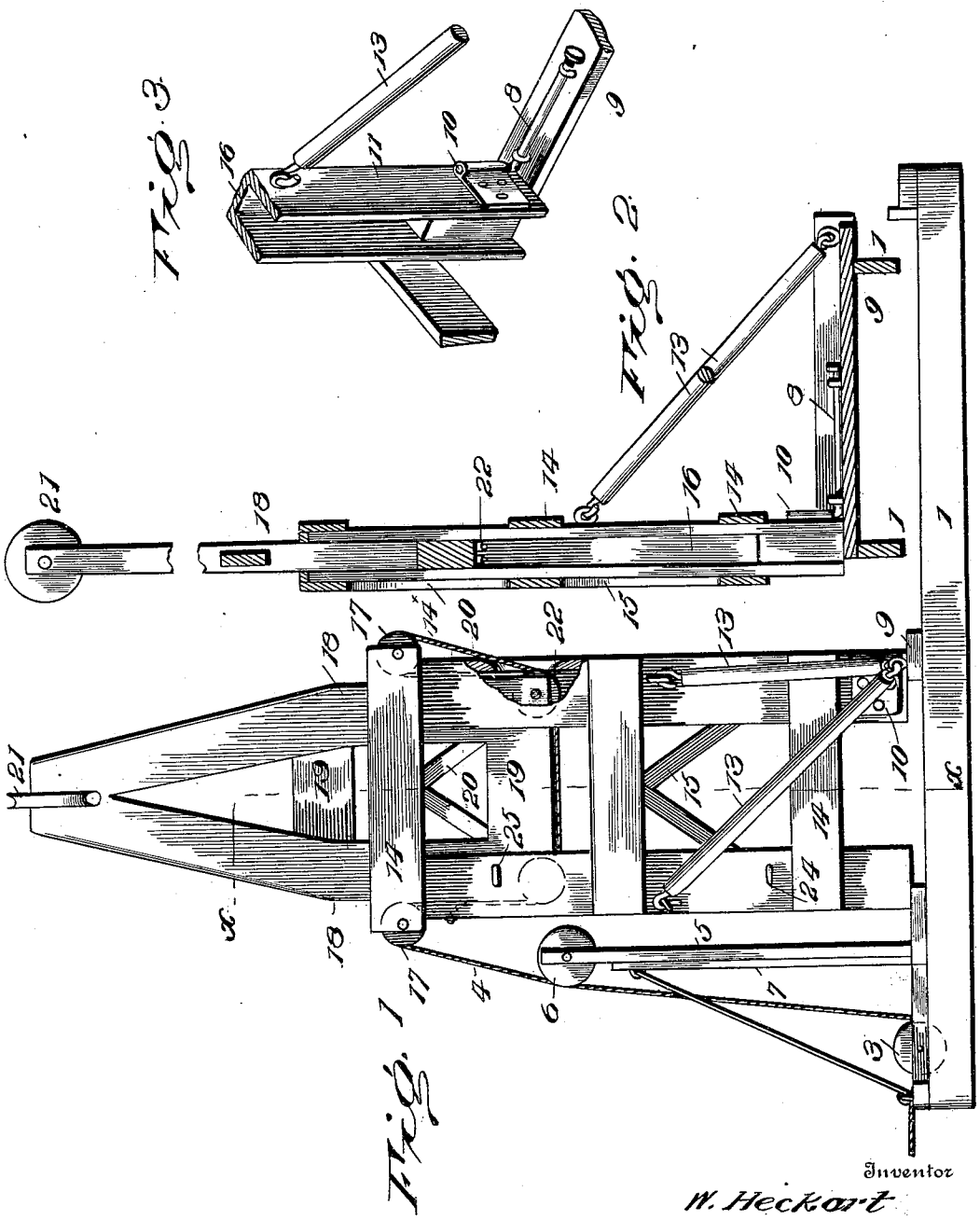


Fig. 3.

Fig. 2.

Fig. 1.

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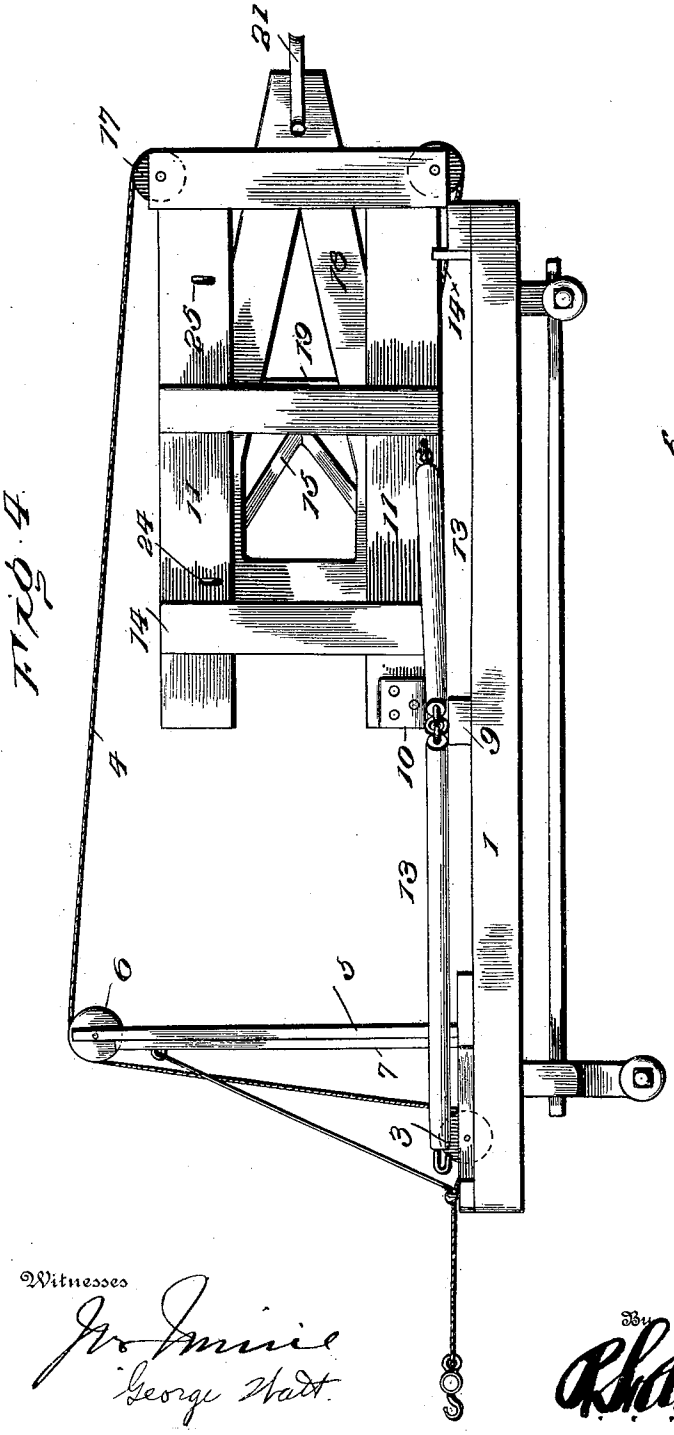


Fig. 4.

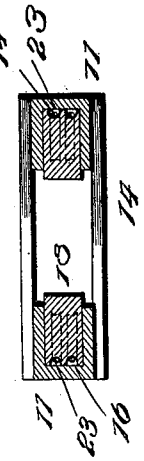


Fig. 5.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 7.

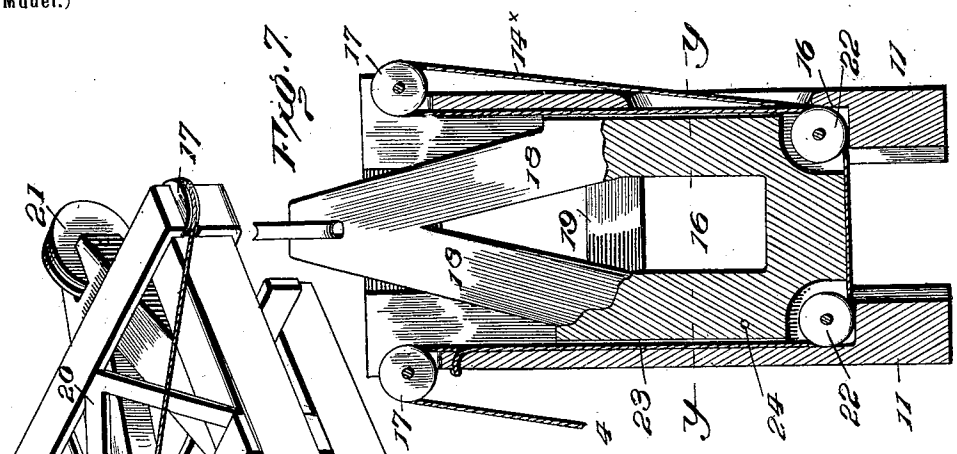


Fig. 6.

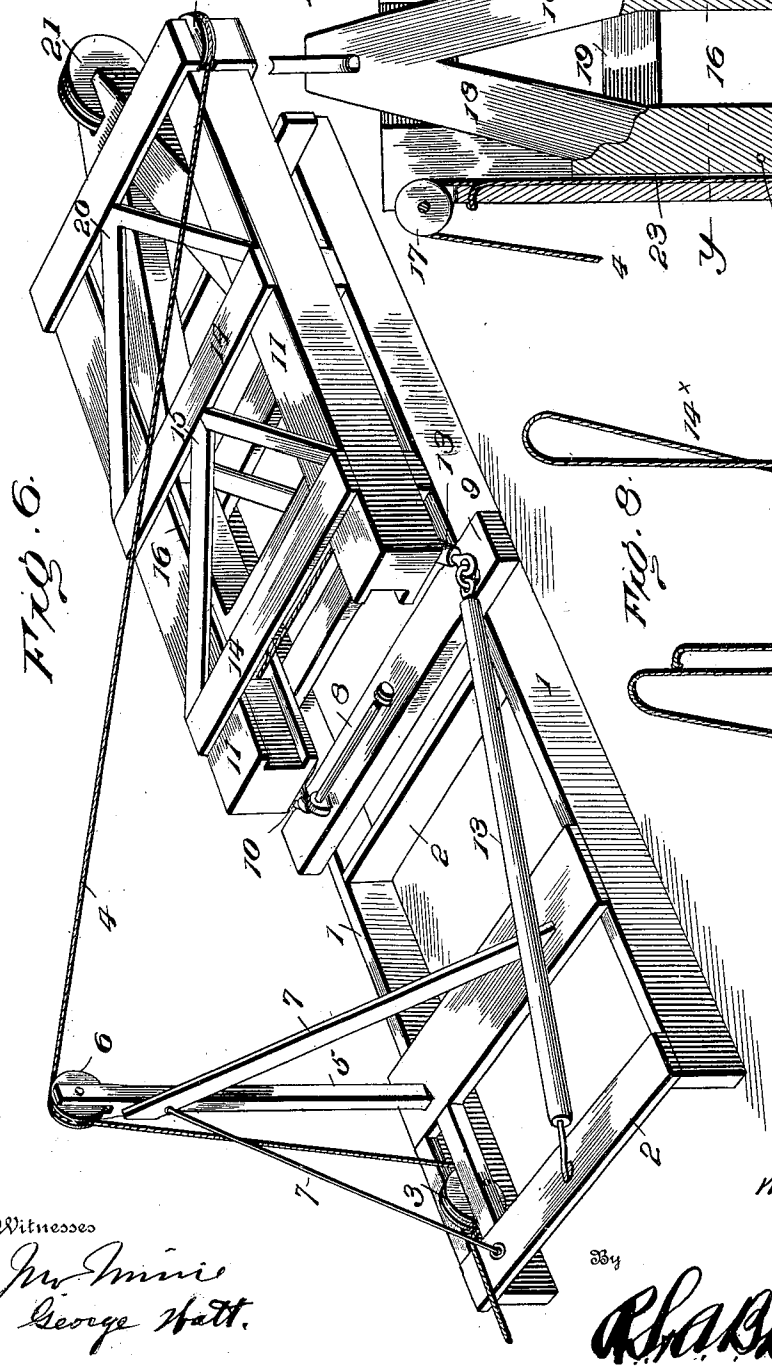


Fig. 8.

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UNITED STATES PATENT OFFICE.

WILLIAM HECKART, OF BRADNER, OHIO.

DERRICK.

SPECIFICATION forming part of Letters Patent No. 712,676, dated November 4, 1902.

Application filed May 26, 1902. Serial No. 109,067. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HECKART, a citizen of the United States, residing at Bradner, in the county of Wood and State of Ohio, have invented certain new and useful Improvements in Derricks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention provides a foldable derrick designed most especially for raising and lowering well-tubing, although adapted for general application for raising and lowering articles of weight and which are usually handled by means of hoisting mechanism of some kind.

An essential feature of this invention is the provision of a derrick which while capable of folding into a compact form is likewise adapted to be readily set up when required for service, the derrick being extensible, so as to be lengthened or shortened when erected.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a derrick embodying the invention, the same being shown erected. Fig. 2 is a vertical transverse section about on the line $x\ x$ of Fig. 1. Fig. 3 is a detail view in perspective showing more particularly the hinge-joint between the derrick and the base or platform. Fig. 4 is a front view similar to Fig. 1, showing the derrick turned so as to rest at one edge upon the base. Fig. 5 is a plan section about on the line Y Y of Fig. 7. Fig. 6 is a perspective view of the device, the derrick being shortened and folded. Fig. 7 is a front view of the derrick, partly in section, to show more clearly the arrangement of the sheave-pulleys and hoisting-rope. Fig. 8 is a perspective view of the part of the hoisting-rope applied directly to the extensible parts of the derrick.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The derrick is foldable and extensible and mounted upon a suitable base comprising longitudinal sills 1 and transverse connecting-beams 2. The base is of substantial construction and is adapted to be mounted upon running-gear of any character for ready transportation, so as to be moved from one place to another. A guide-pulley 3 is located near one corner of the base, and the hoisting-rope 4 passes therearound and is adapted to be connected either to a team or windlass for application of force thereto for attaining the desired end. An upright 5 is located near the guide-pulley 3 and is provided at its upper end with a pulley 6, over which the rope 4 passes, said upright 5 being stayed or braced in any substantial way, as shown at 7, which are guys or braces of any selected type.

The extensible derrick may comprise any number of sections telescopically related; but for the sake of simplicity two sections only are illustrated, the lowermost section being hinged to the base, so as to fold thereon, as indicated most clearly in Fig. 6. The hinge connection between the derrick and base is of such formation as to admit of the derrick turning so as to rest upon one edge or side, as indicated in Fig. 4, and then to turn into a vertical position, as indicated in Fig. 1. The hinge-joint is shown most clearly in Fig. 3 and comprises a rod of right-angular form having one member, as 8, pivoted to a cross-timber 9 of the base and having the other member 10 pivoted to a leg 11 of the lowermost section of the derrick. The members 8 and 10 may be pivoted to the parts 9 and 11 in any convenient way, so as to provide a substantial joint. The hinge-joint is located at one side of the base, so as to admit of the derrick when erected occupying a position at one side of the base, as shown most clearly in Fig. 2. When the derrick is erected, it is held in place by means of braces, stays, or guys 13 between the said derrick and base, as indicated most clearly in Figs. 1 and 2.

The lowermost section of the derrick comprises spaced legs 11, cross-pieces 14, and braces 15. The legs 11 are plowed or grooved in their inner edges or sides, as shown at 16,

to provide ways in which the topmost section is adapted to slide. Guide-pulleys 17 are located at the upper ends of the legs 11, and the hoisting-rope 4 passes thereover.

The topmost section of the derrick is slidably mounted in ways 16 of the lowermost section and comprises side pieces 18, cross-pieces 19, and braces 20. The upper end portions of the side pieces 18 are upwardly converged, and the pulley 21, over which the operating-rope (not shown) is adapted to pass, is located about at the point of convergence of the said side pieces. A pair of pulleys 22 are located at the lower end of each side piece 18, and vertical grooves 23 are formed in the outer edges of the side pieces 18 to receive parts of the hoisting-rope 4. The hoisting-rope is reeved in the following manner: One end of the rope is secured to a leg 11 and passes downward and around corresponding pulleys 22, thence up and over the pulleys 17 at the upper end of the opposite leg 11, thence down and beneath the remaining pulley 22, thence up and over the pulley 17 at the upper end of the leg 11, to which the end of the rope is firmly attached. The rope 4 after passing over the last pulley 17 passes over the pulley 6, thence around the pulley 3, and has the lifting force applied thereto.

As shown in Fig. 6, the upright 5 is located at the opposite side of the base from that adjacent to the side of the derrick having the pulley 17, over which the rope passes direct to the pulley 6. Hence a pull upon the rope 4 tends to turn the derrick upon one side into the position indicated in Fig. 4, and after the derrick is turned upon its edge a continued pull upon the rope 4 causes the derrick to stand on end or assume an upright position, as indicated in Fig. 1.

The derrick when erected is braced or stayed by the means 13, or in any desired way. The sections of the derrick are secured by means of a pin 24 or other locking means to prevent movement of the adjustable section during the erecting operation. After the derrick has been set up and braced the extensible section is released by withdrawal of the pin 24, and a further pull upon the rope 4 causes the movable section to be projected to the required extent, after which it is securely fastened by means of a pin 25 or other locking device. The derrick is now in position for use. The operating-rope (not shown) is adapted to pass over the pulley 21 and will be provided with the usual block and tackle and adjuncts common in hoisting mechanism and which are omitted from the present drawings to avoid confusion and to enable an understanding of the construction of the derrick being more readily obtained.

Having thus described the invention, what is claimed as new is—

1. In hoisting mechanism, a base, a derrick adapted to fold upon the base, a hinge connection between the derrick and base and comprising angularly-disposed members pivoted, respectively, to the base and derrick to admit of the latter having a lateral and vertical pivotal movement, and operating means for the derrick, substantially as set forth.

2. In combination, a base, an extensible derrick foldable upon the base, and a hoisting-rope adapted to effect a raising and a lowering of the derrick and a lengthening and shortening thereof, substantially as set forth.

3. In combination, a base, an extensible derrick hinged at one side to the base to turn laterally and vertically, guide-pulleys at opposite ends of the sections of the derrick, and a hoisting-rope for folding and unfolding the derrick and adapted to coöperate with the guide-pulleys of the derrick-sections to effect a lengthening and a shortening of the derrick, substantially as set forth.

4. In combination, a base, an upright at one side of the base, an extensible derrick hinged at one side to the side portion of the base having the said upright, a system of pulleys applied to opposite ends of the sections of the derrick, a hoisting-rope coöperating with the said system of pulleys and adapted to effect a folding and an unfolding of the derrick and a lengthening and a shortening thereof, means for securing the sections of the derrick in an adjusted position, and braces for the derrick and upright, substantially as set forth.

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

WILLIAM HECKART. [L. S.]

Witnesses:
W. C. SHOWALTER,
T. J. REES.