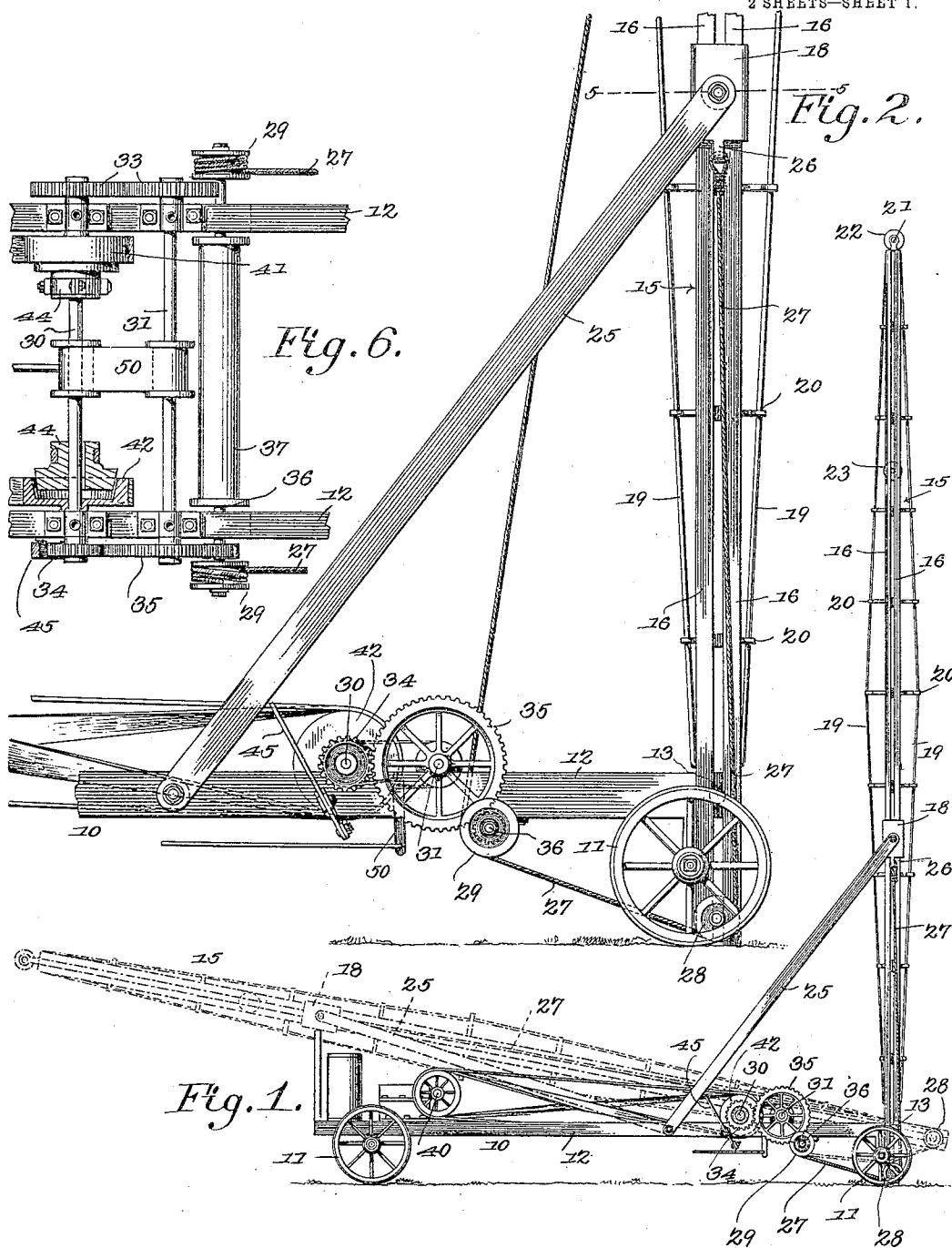


No. 801,372.

PATENTED OCT. 10, 1905.

S. M. FOLTZ.
OIL WELL DERRICK.
APPLICATION FILED NOV. 5, 1904.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

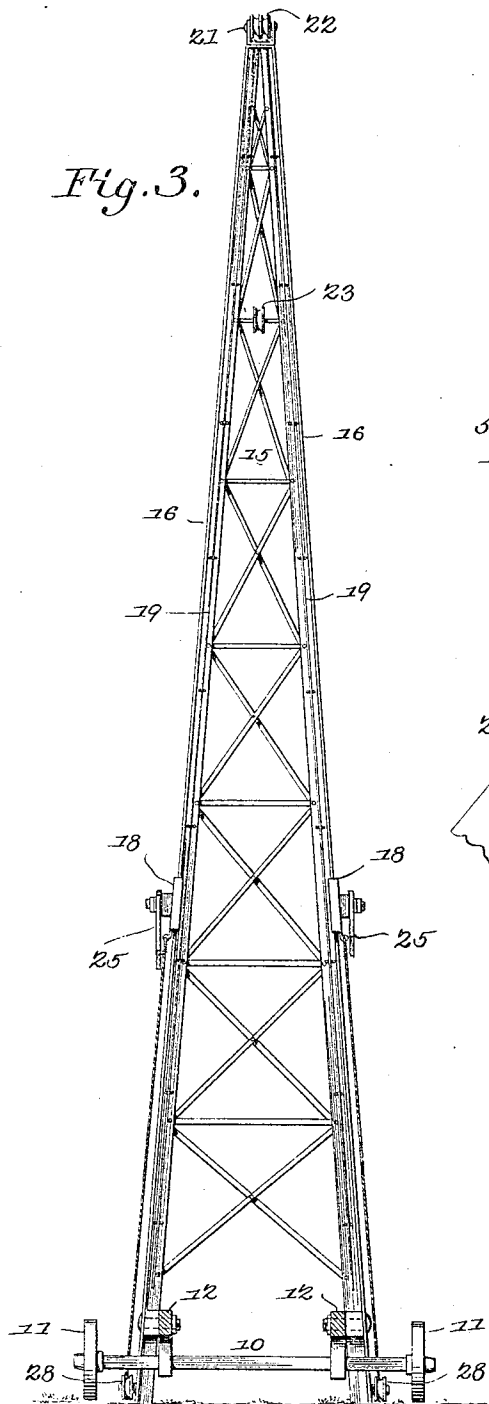


Fig. 4.

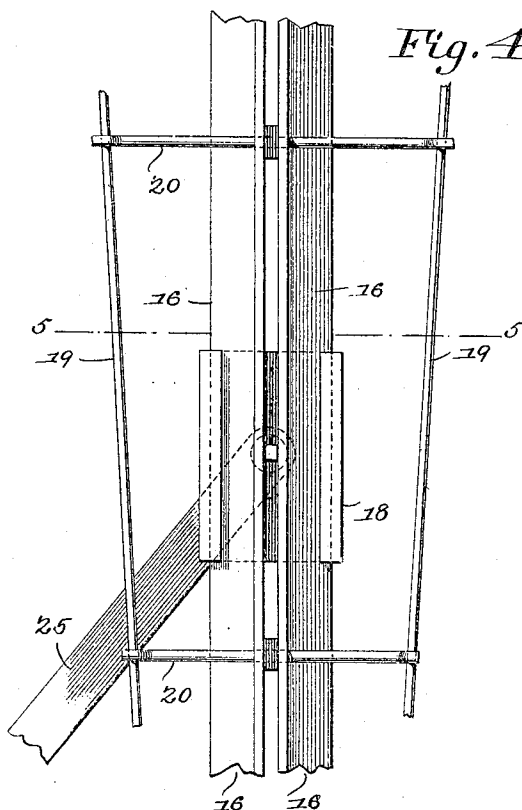
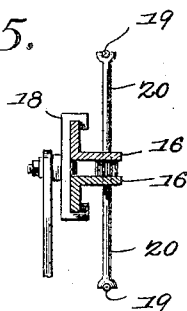


Fig. 5.



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SILAS M. FOLTZ, OF RAWSON, OHIO.

OIL-WELL DERRICK.

No. 801,372.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed November 5, 1904. Serial No. 231,566.

To all whom it may concern:

Be it known that I, SILAS M. FOLTZ, a citizen of the United States, residing at Rawson, in the county of Hancock and State of Ohio, have invented a new and useful Oil-Well Derrick, of which the following is a specification.

This invention relates to oil-well derricks, and has for its principal object to provide a derrick of simple construction that may be readily transported from place to place, provision being made for quickly raising the derrick to operative position and for lowering the same onto its wheeled support.

A further object of the invention is to provide a portable derrick so constructed and mounted on its wheeled carrying-frame that when moved to operative position the foot of the derrick will rest on the ground or other support and the running-gear or frame of the truck will not be subjected to stress while the derrick is in operation.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation of a derrick constructed in accordance with the invention, the position to which the derrick is moved for transportation being shown in dotted lines. Fig. 2 is a view similar to Fig. 1, illustrating on a somewhat larger scale the lower portion of the derrick. Fig. 3 is a front elevation of the derrick and its wheeled support. Fig. 4 is a detail view of one of the derrick legs or struts. Fig. 5 is a sectional plan view of the same on the line 5-5 of Fig. 4. Fig. 6 is a plan view, partly in section, of the hoisting-jack carried by the wheeled frame.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The device forming the subject of the present invention is one of that general class used in the oil regions for various purposes.

The wooden truck-frame 10 may be of any suitable length and provided with supporting-wheels 11. The main side sills 12 of the frame

are provided at their forward ends with pivot-bolts 13, forming the fulcrums on which the derrick 15 swings either to the position shown in full lines or that shown in dotted lines in Fig. 1, or when the derrick is erected it may be inclined more or less, as circumstances require.

The derrick proper is formed of two legs or struts each comprising a pair of angle-bars 16, the webs of which are riveted or otherwise secured together and preferably slightly spaced from each other by spacing blocks or washers 17. The outer faces of the derrick-legs are flat, and each leg receives and forms a guide for a slidable block 18. Each leg is braced by suitable truss-rods 19, passing over cross-bars 20, and may be arranged in the manner usually followed in forming a truss-beam. The upper ends of the two legs of the derrick are connected by a pivot-bolt 21, on which are mounted sheaves 22, over which the pulling-cable for the drill rod or tube may pass, and at a point below the top is an auxiliary sheave 23 to be used for other purposes—as, for instance, the passage of a supplemental cable. The two legs are of exactly the same construction, and the distance between their fulcrum-points 13 and their lower ends is preferably somewhat greater than the distance between the fulcrum-points and the ground when the derrick is in inoperative position, so that when the derrick is raised its lower end will rest directly on the ground or on blocks placed there for the purpose, and the front wheels of the structure will be relieved from all stress and danger of breakage while it is in operation.

To the opposite sides of the sills 12 of the truck are pivoted brace-rods 25, to the upper portions of which are pivoted slidable blocks 18. The lower ends of the blocks are provided with eyes or hooks 26 for the reception of cables 27, that pass over guiding-sheaves 28, disposed at the lower forward ends of the legs, and thence after passing under the front axle are wound around the drums or capstans 29.

The sills are provided with bearings for the support of a pair of shafts 30 31, that are connected at one end by a pair of gears 33 of equal size, one of the gears being loose on its shaft, a suitable clutching means being provided to engage the gear with the shaft when necessary. At the opposite ends of the shafts are gears in the form of a pinion 34 on the shaft 30 and a spur-gear 35 on the shaft 31, and by means of these gears the shaft 31

may be driven at different speeds. The frame is further provided with bearings for a shaft 36 of a winding-drum 37, around which the rod or tube pulling cable is wound, while both ends of the shaft extend for some considerable distance beyond the sides of the sills to permit the reception of the capstans or drums 29. This shaft 36 is connected by suitable gearing to the shaft 31, and the frame may be wound in either direction by means of a suitable gas-engine 40, that is arranged at the rear end of the frame.

On the shaft 30 are arranged two loose pulleys 41 42, connected by belts to driving-wheels on the engine, one of the belts being crossed. The shaft is further provided with a pair of connected clutches 44, that may operate by means of a lever 45, so that either one or other of the pulleys may be rigidly clutched to the shaft and the direction of rotation quickly reversed.

When the parts are in the dotted-line position shown in Fig. 1 and it is desired to hoist the derrick to an erect position, the winding-drum is turned, and the stress on the cables 27 will draw the blocks 18 downward toward the pivot-bolts 13. As soon as the movement is started the effectiveness of the adjusting device will gradually increase, and the derrick will be swung upward to an erect position. In order to prevent the derrick tilting forward to a dangerous angle, suitable stops 40 are arranged on each of the derrick-legs, these stops limiting downward movement of the slidable blocks 18.

In lowering the derrick the engine serves merely to resist the sudden return of the derrick to dotted-line position by gravity, or in place of using the engine in this manner an ordinary band or friction-brake 50 may be employed on the winding-drum.

The derrick being readily transported and readily adjusted to operative and inoperative position is found of considerable value in pulling up drill rods or tubes, thus materially reducing the cost of such operations.

Having thus described the invention, what is claimed is—

1. In a portable derrick, a wheeled frame, a derrick member pivotally connected thereto and arranged to be lowered onto the frame for transportation, a slidable block carried by the derrick, a brace-rod connecting the block to the frame, and means for pulling the block downward toward the pivot-point of the derrick to effect adjustment of the latter to a vertical position.

2. In a portable derrick, a wheeled frame, a derrick member pivotally connected thereto and serving when in erect position to partly support the wheeled frame, a slidable block carried by the derrick, a brace-rod connecting the block to the frame, a winding-drum, and a flexible cable or chain extending from the drum to the block.

3. In a portable derrick, a wheeled frame, a pair of sets of beams pivoted thereto and forming a derrick, a pair of brace-rods pivotally connected at one end to the wheeled frame, slidable blocks carried by the beams and movable longitudinally thereof, said blocks being connected to the brace-rods, a winding-drum carried by the wheeled frame, and cables connecting the drum to the blocks.

4. In a portable derrick, a carrying-frame, a derrick member pivotally connected thereto, a slidable block mounted on the derrick member, a brace-rod having its opposite ends connected respectively to the frame and block, a guiding-sheave near the foot of the derrick, a winding-drum carried by the frame, and a cable or chain extending from the slidable block around said sheave to said winding device.

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

SILAS M. FOLTZ.

Witnesses:

RAY W. OSBORN,
FRANK SMITH.