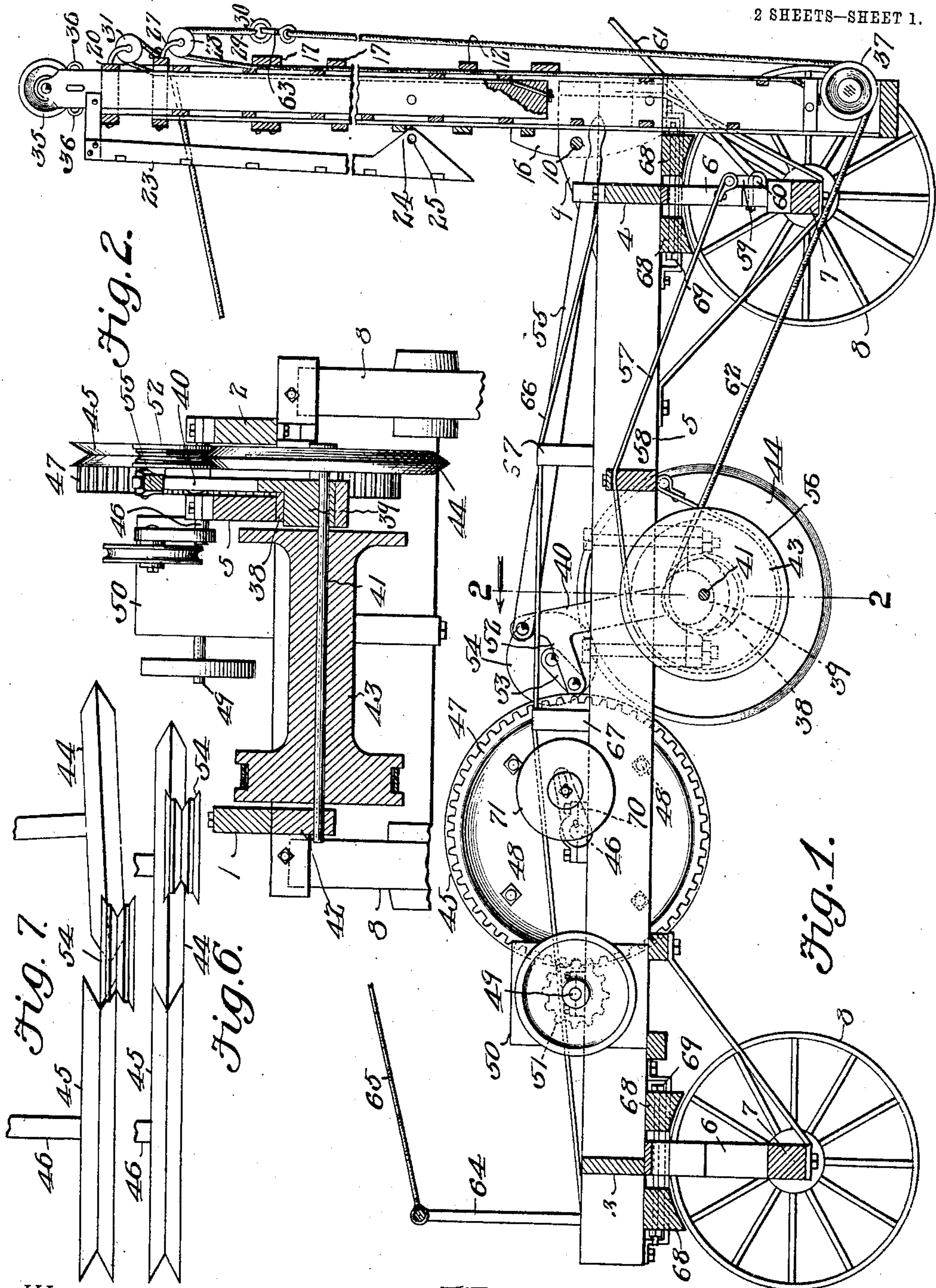


No. 829,694.

PATENTED AUG. 28, 1906.

W. O. COVEY.  
OIL WELL DERRICK.  
APPLICATION FILED DEC. 8, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

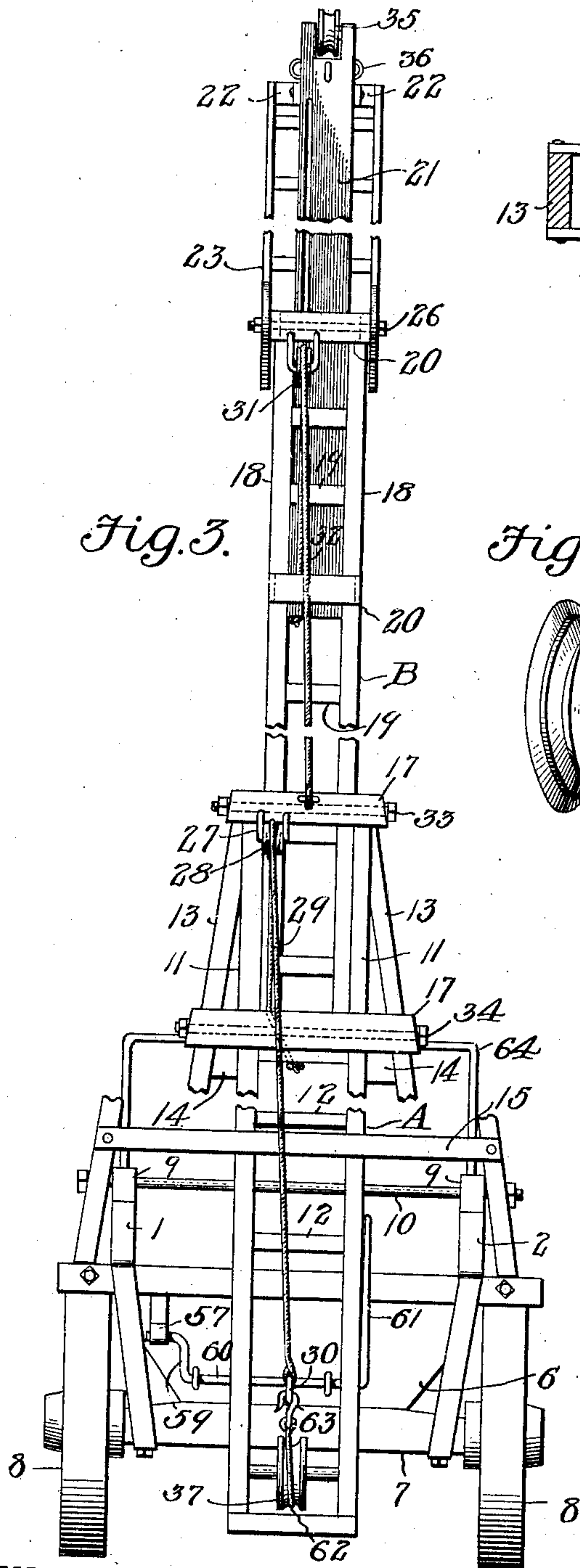


Fig. 3.

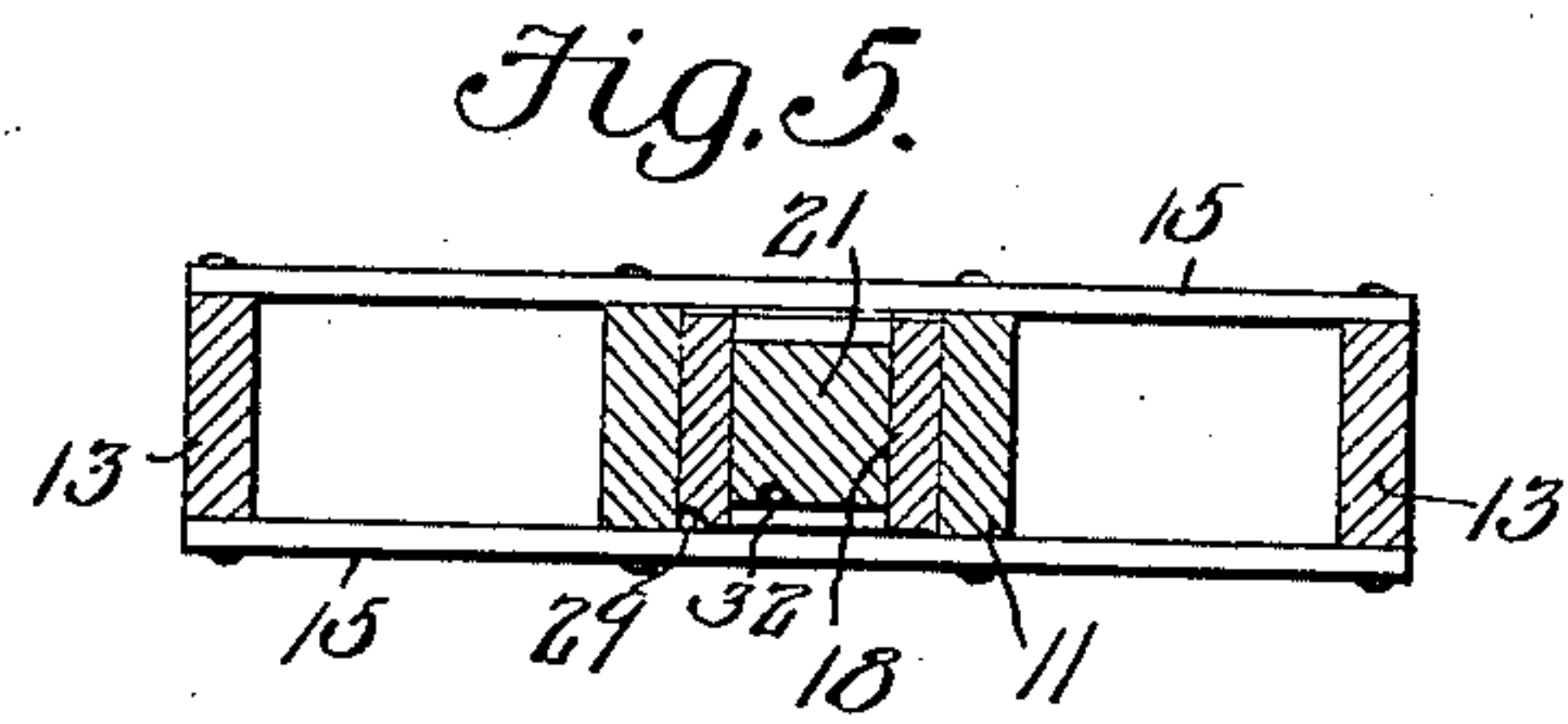


Fig. 5.

Fig. 8.

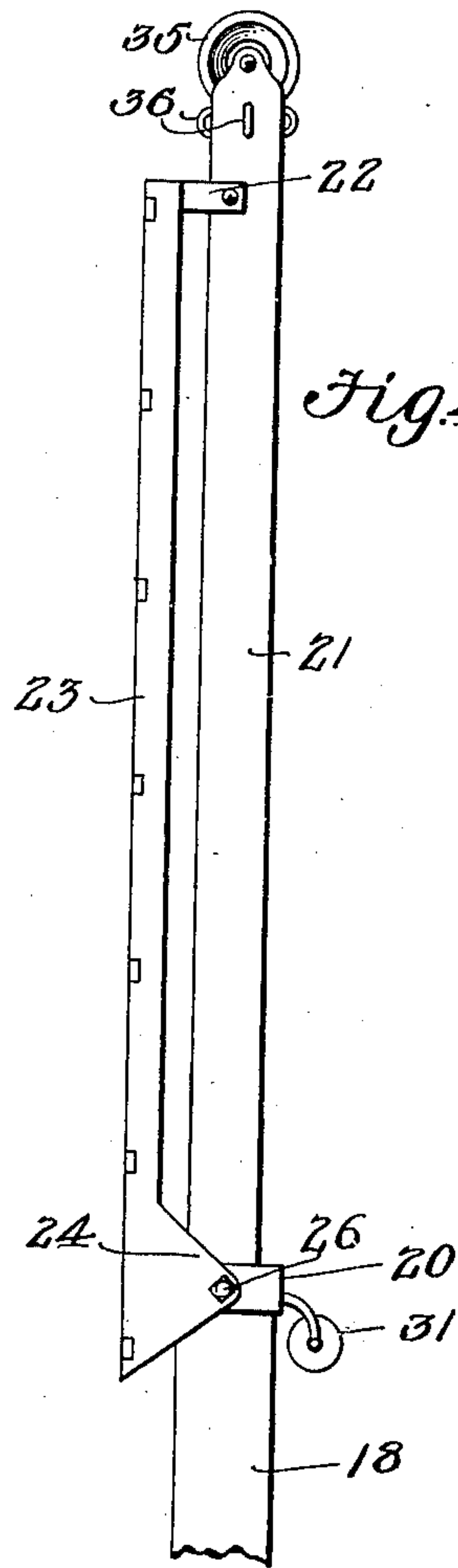
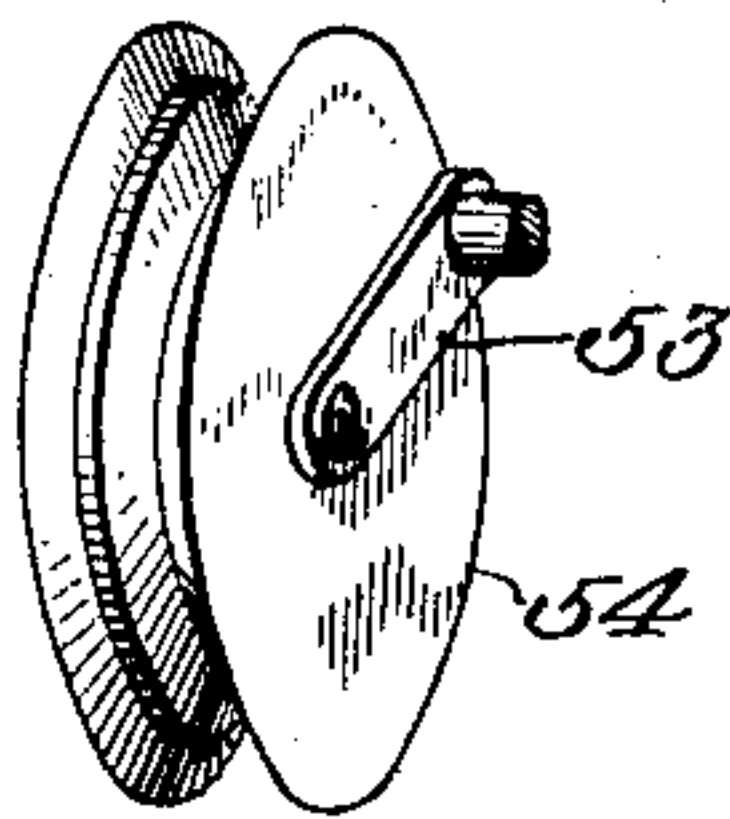


Fig. 4.

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# UNITED STATES PATENT OFFICE.

WARREN O. COVEY, OF MARIETTA, OHIO.

## OIL-WELL DERRICK.

No. 829,694.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed December 8, 1905. Serial No. 290,964.

*To all whom it may concern:*

Be it known that I, WARREN O. COVEY, a citizen of the United States, residing at Marietta, in the county of Washington and State of Ohio, have invented a new and useful Oil-Well Derrick, of which the following is a specification.

This invention relates to an improved portable derrick for oil-wells which may be usefully employed for the purpose of cleaning out wells, pulling tubing, pumping, and for the various other purposes for which a machine of this class is generally employed, the objects of the invention being to present a portable derrick which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be made when desired.

In the drawings, Figure 1 is a longitudinal vertical sectional view of a machine constructed in accordance with the principles of the invention. Fig. 2 is a transverse sectional view taken on the plane indicated by the line 2 2 in Fig. 1. Fig. 3 is a front elevation showing the mast extended. Fig. 4 is a side elevation of the upper section of the mast extended, showing the means for securing the same in extended position. Fig. 5 is a sectional view taken through the mast collapsed. Figs. 6 and 7 are detail plan views showing different positions of the reel operating and reversing mechanism. Fig. 8 is a perspective detail view of the reversing-pulley.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

A frame is provided which has been illustrated as including side beams or sills 1 2 and front and rear end pieces 3 and 4, said sills and end pieces being suitably framed together. An additional longitudinal frame

member 5 is provided, the same being suitably spaced from the sill 2. The frame is mounted upon bolsters 6 6, which are supported upon axles 7 7, having carrying-wheels 8 8, enabling the frame and the parts connected therewith to be conveniently transported from one place to another. The sills are provided near their rear ends with boxes, as 9, supporting a rod or bolt 10, upon which the extensible mast is hingedly supported.

The mast has in the drawings been illustrated as being composed of three sections; but it may within the scope of the invention be made up of two or more sections, as preferred. The lowermost section A is composed of upright parallel members, such as planks 11 11, which are connected and spaced by means of transverse braces 12, forming ladder-rungs and inclined upwardly-converging members, such as planks 13 13, the upper ends of which are spaced from the planks 11 by means of wedges 14, while the planks 11 and 13 are securely connected at intervals by means of braces 15. The lower diverging ends of the planks 13 are provided with boxes 16, engaging the bolt or rod 10, with which the lowermost derrick-section is thus hingedly connected. The derrick-section A is reinforced at and near its upper end by metallic bands or ferrules 17, through which the bolts and connecting members used in connecting the parts together are extended, such bolts and connecting members being thereby reinforced and prevented from breaking or snapping under any strain to which the device is liable to be subjected. The second mast-section B is composed of parallel planks 18, connected and spaced apart by means of ladder-rungs 19, said second section being of suitable dimensions to enable it to slide between the component members 11 of the first or lowermost section and said second section being likewise reinforced at its ends and at suitable intervals by metallic bands 20. The third, and in the present instance the uppermost, section of the mast is composed of a beam 21 of suitable dimensions to enable it to slide between the side members 18 and the rungs 19 of the section B. Hingedly connected with the beam 21 near its upper end are brackets 22, carrying a suitably-constructed ladder 23, the side rails of which are provided near their lower ends with triangular or beveled projections 24, enabling them to slide over obstructions without danger of



hanging or binding. The projections 24 have perforations 25 for the reception of a bolt 26, adapted to extend through the upper end of the section B and through the lower end of the beam 21 when the mast is extended, for the purpose of securing the section B, the beam 21, and the ladder 23 in extended position.

Connected with the metallic band 17 at the upper end of the section A is a bracket 27, upon which is journaled a pulley 28. A rope or flexible member 29, which is guided over said pulley, is secured at one end to the lower end of the section B, and it is provided at its other end with a link 30. Supported at the upper end of the section B is a pulley 31, over which is guided a rope or flexible element 32, one end of which is connected with the upper end of the section A and the other end of which is connected with the lower end of the beam 21, constituting in this case the uppermost section of the mast. It will be seen that by applying draft to the end of the rope 29, having the link 30, the section B of the mast will be elevated or extended and that simultaneously the beam 21 will be extended as the pulley 31 advances from the point at which the rope 32 is connected with the top of the section A. When the mast has been fully extended, a bolt or connecting member 33 is passed through alining apertures in the sections A and B at the upper end of the section A, and an additional bolt or connecting member may be inserted, as shown at 34, through the lower extremity of the section B, said bolts or connecting members being extended through the metallic bands 17. The bolt or connecting member 26 is then placed in position, and the sections of the mast are thus firmly secured with relation to each other in extended position. The top section or beam 21 carries at its upper end a crown-pulley 35, and it is provided with holders, such as staples 36, for the reception of guy-ropes, whereby the mast may be braced. The bottom section A carries near its lower end a guide-pulley 37.

The longitudinal frame-beam 5 supports a boxing 38, in which is mounted a disk 39, having an arm or lever 40, whereby it may be turned or adjusted in the boxing. Eccentrically in the disk 39 is journaled one end of a shaft 41, the other end of which has a bearing in a box 42 upon the frame-beam or sill 1. The shaft 41 carries a reel 43, to one end of which a slight rocking movement may be imparted by oscillating the eccentric disk 39 in its bearing by means of the arm or handle 40. The rocking end of the shaft 41 carries a bevel-edged friction-disk 44, which is adapted to engage a grooved edge friction-disk 45 upon a suitably-supported shaft 46, which also carries a spur-wheel 47, the latter being connected with the friction-wheel 45 by means of bolts 48. A directly-driven main

shaft 49, which is preferably driven by a convertible gas and gasoline motor, (conventionally indicated at 50,) carries a pinion 51, that meshes with the spur-wheel 47, thus imparting motion to the spur-wheel and to the parts driven thereby.

The arm or lever 40, connected with the eccentric 39, has a laterally-extending bracket 52, in which is pivoted a crank 53, carrying a small friction-disk 54, which is adapted to engage either the friction-disk 44 or the friction-disk 45, it being provided with a grooved edge, which is adapted to straddle the beveled edge of the disk 44 or the outer flange of the disk 45. The disk 54, it will be observed, serves to constitute an idler operating between the disks 45 and 44 to reverse the direction of rotation of the latter when desired. This idler may be readily detached when its presence is not required.

Pivotally connected with the arm 40 is an operating-rod 55, which extends within convenient reach of the operator. The shaft 41 also carries a friction-wheel 56, over which passes a band-brake 57, one end of which is made fast to a cross-bar 58 of the frame, while its other end is connected with a crank 59 upon a shaft 60, having an operating handle or lever 61, whereby the brake may be set when desired. Wound upon the reel 43 is a rope 62, which may be guided over the pulley 37 at the lower end of the mast and which is provided with a hook 63, adapted to engage the link 30 at the lower end of the rope 29. Near the front end of the frame is an arch 64, adapted to support the mast when the latter is collapsed and folded. A flexible guide member 65 connects the arch 64 with the upper end of the bottom section of the mast. The sills or side members of the frame are provided with trusses 66 and struts 67 to enable them to resist any strain to which they may be subjected when the machine is in operation. In suitable hangers upon the under sides of the sills and directly above the wheels upon which the frame is mounted for transportation are supported brake-blocks 68, which are connected in pairs by means of bolts 69, by tightening which the wheels may be blocked when the machine has been leveled in position for operation. The shaft 46 is provided with a crank 70, upon which a spud-wheel 71 is adjustably mounted to be used in pumping or cleaning oil-wells and for like purposes, which will be readily understood.

When the improved machine is to be transported from one place to another, the mast is collapsed and folded down, so as to rest upon the arch 64. When the machine is to be extended for operation, the hook 63 of the rope 62 is connected with the link 30 of the rope 29, and the machine is then operated to wind the rope 62 upon the reel 43, the mast-sec-



tions being meanwhile bolted or otherwise secured together in a collapsed condition. Downward strain being thus exercised upon the pulley 37, the mast will swing upon the hinged bolt 10 and gradually assume an erect position, which it maintains by tilting slightly in a forward direction until the lower mast-section abuts upon one of the brake-blocks 69, the mast being prevented from tilting farther by the guy member 65. The mast-sections are then disconnected and further draft is exercised upon the rope 29 by winding the rope 62 upon the reel until the mast-sections have been extended, after which they are securely connected in the manner hereinbefore described to prevent the mast from collapsing. The hook 63 is now disengaged from the link 30 and the rope 62 may then be carried over the crown-pulley, and the machine is then ready to be used in any manner and for any purpose for which a derrick of this class is commonly applied.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. It is economical in its construction, simple and easily operated, and thoroughly efficient for the purposes for which it is designed.

Having thus described the invention, what is claimed is—

1. In a machine of the class described, a collapsible and extensible mast comprising a plurality of slidably-connected sections, and a ladder hingedly connected with the top section and provided with suitably beveled guiding members.

2. In a machine of the class described, the combination with a frame, of a collapsible and extensible mast hingedly connected with said frame and comprising a plurality of slidably-connected sections, a ladder hingedly connected with the uppermost section, and means whereby the several sections may be secured in collapsed and in extended relation.

3. In a machine of the class described, the combination with a frame, of a collapsible and extensible mast hingedly connected with said frame and comprising a plurality of slidably-connected sections, a ladder hingedly connected with the uppermost section and having suitably beveled guiding members, and a securing-bolt adapted to extend through said guiding members and through the adjacent sections of the mast to secure said sections against collapse.

4. In a machine of the class described, a wheel-supported frame, a collapsible and extensible mast hingedly connected with said frame, a reel supported in the frame, a rope wound upon the reel and adapted to be guided over a guide member near the lower end of the mast and to be secured to the latter, and means for operating the reel.

5. In a machine of the class described, a wheel-supported frame having side sills, boxes upon said sills, a bolt or rod extending through said boxes, a mast-section hinged upon said bolt and comprising upright parallel members and upwardly-converging members suitably spaced and connected with each other, a pulley supported near the lower extremity of the mast-section, a reel supported in the frame, a flexible member connected with and wound upon the reel, guided over the pulley at the lower end of the mast-section and provided with a hook at its extremity, extensible mast-sections connected slidably with the hinged mast-section, suitably guided flexible means for extending the mast-sections, and a link for connecting said flexible means detachably with the flexible member connected with the reel and guided over the pulley at the lower end of the hinged mast-section.

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

WARREN O. COVEY.

Witnesses:

JOHN BENNETT,  
EMMA B. ZIMMER.