

No. 842,799.

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I. E. MONROE.
DERRICK.

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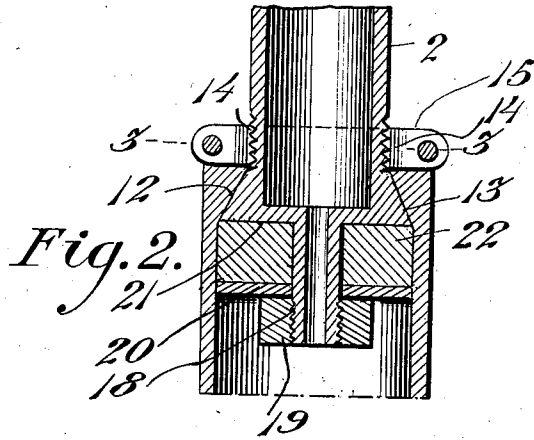
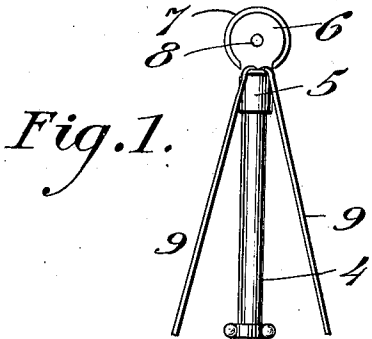


Fig. 5.

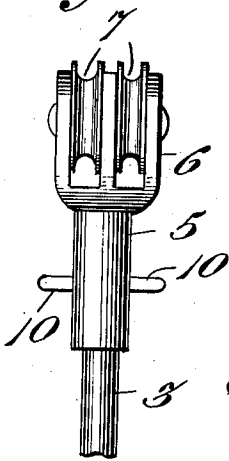


Fig. 3.

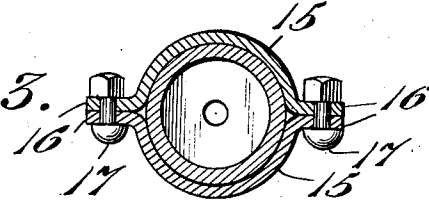


Fig. 4.

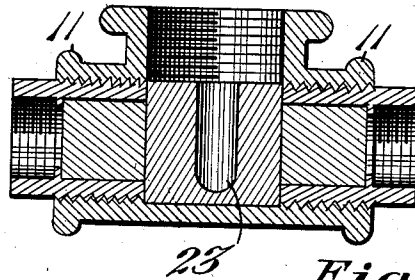


Fig. 7.

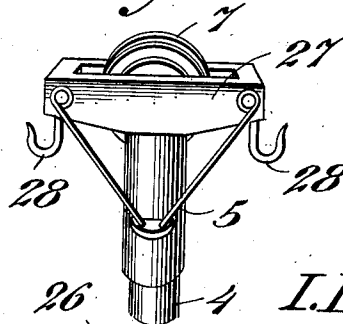
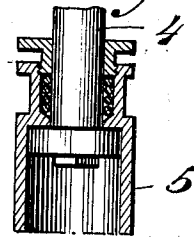
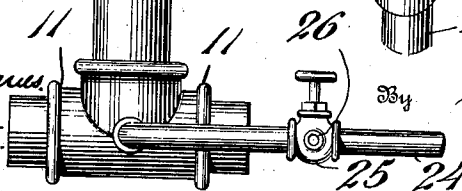


Fig. 6.



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DERRICK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ISAAC ERRETT MONROE, a citizen of the United States, residing at Combs, in the county of Ritchie and State of West Virginia, have invented new and useful Improvements in Derricks, of which the following is a specification.

This invention relates to derricks, the object of the invention being to provide a simple, reliable, compact, and portable derrick, especially designed for construction work, drilling, and operating oil-wells.

The main object of the invention is to provide, in connection with a plurality of telescopic extensible sections, means for bracing and stiffening the joints between the intervening ends of the several sections when the derrick is extended, whereby the supporting capacity of the derrick is materially increased and the derrick rendered safer and more reliable in use.

With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a derrick embodying the present invention, showing the same fully extended. Fig. 2 is an enlarged vertical section through one of the joints of the derrick. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a vertical longitudinal section through the base. Fig. 5 is a side elevation of the derrick-head shown in one of several forms. Fig. 6 is a view of another form of joint between the sections of the derrick. Fig. 7 is a perspective view of another form of derrick-head.

The derrick contemplated in this invention comprises a plurality of sections 1, 2, 3, and 4, telescopically fitted one into another in the manner indicated in Fig. 1, the lowermost section 1 being of the largest diameter, the next section of sufficiently less diameter to slide into the section 1, and so on, progressively, the last section 4 being the smallest of all the sections and being equipped with a supporting-head 5, which is shown in Fig. 1 as consisting of a collar fitted upon the upper end of the superimposed section 4 and provided with upstanding lugs 6, between which one or more pulleys 7 are mounted on a short shaft 8, connecting the lugs 6. If desired, the head 5 may also be provided with eyes or holes to receive guy-wires 9, as

shown in Fig. 1. In Fig. 5 the head is illustrated as provided with a plurality of pulleys 7 and laterally-projecting pins 10, to which the guy-wires may be connected. The lowermost section 1 is mounted upon a supporting-base 11, which may be of any desired form or construction, either in the form of a hollow T, as shown in Figs. 1 and 4, or flat or of any desired shape to suit the work for which the derrick is intended.

The joints between the intervening ends of the sections 1, 2, 3, and 4 may be described, with reference to Fig. 2, as follows: The lower section 1 is provided at its upper edge with an inwardly-extending conical shoulder 12. The lower end of the next succeeding upper section 2 is enlarged to form a corresponding conical shoulder 13, and when the derrick is extended to its full height the shoulders 13 meet the shoulders 12 of the several sections. Now in order to provide for a firm engagement between these conical or tapering shoulders 12 and 13 each section is exteriorly threaded, as shown at 14, and a split collar (shown in plan view in Fig. 3) is provided, the same embodying semicircular halves or portions 15, which are threaded upon their inner side to engage the threads 14 of the derrick-section which the stop-collar embraces. The sections 15 of the split stop-collar are provided with the outwardly-extending lugs or ears 16, which receive clamping-bolts 17, by which the threads of the sections 15 may be forced into engagement with the threads 14 of the derrick-section with any desired pressure. The threads 14 are located immediately above the top of the next succeeding lower section, as shown in Fig. 2, and in the operation of the split clamping-collar the sections thereof are first clamped together sufficiently to cause the threads thereof to engage the threads 14 of the derrick-section. The stop-collar as a whole is then turned by any suitable implement around the section with which it has a threaded engagement, said collar bearing against and upon the upper extremity of the next lower derrick-section, as clearly shown in Fig. 2. By thus turning the stop-collar the shoulder 13 is forced upward against and in firm unyielding contact with the shoulder 12 of the next lower section, thereby providing a firm seat and rigid joint between the interfitting derrick-sections.

The form of joint hereinabove described is carried out at each point where one derrick-

section fits into another, and therefore when the derrick is wholly extended to its full height, as shown in Fig. 1, it is just as rigid as if it were formed entirely in one piece. Each derrick-section, with the exception of the lowermost section 1, is provided with a downwardly-extending tubular stem 18, affording communication between the several sections, said stem being threaded to receive a nut 19, which screws up against a metal washer 20, between which and a shoulder 21, formed by reducing the end of the section, is placed a packing-washer 22, of rubber or any suitable material, which forms a liquid and fluid tight joint between the interfitting ends of the adjoining sections of the derrick, the nut 19 and metal washer 20 serving to compress the packing-washer 22 transversely and expand the same laterally to obtain the necessary close fit of the packing-washer against the inner surface of the derrick-section in which it is contained. Within the base 11 is an inlet-chamber 23, with which a fluid or liquid supply pipe 24 communicates, said pipe having fitted thereto at a suitable point a three-way cock 25, by means of which liquid or fluid may be admitted to the interior of the derrick-section for elevating the latter and exhausted therefrom through a drain-outlet opening 26 in the side of the three-way cock 25.

In Fig. 7 I have illustrated another form of derrick-head 5, in which said head is provided with a cross bar or frame 27, equipped with one or more pulleys 7, and provided at opposite ends with hooks 28, adapted to support objects hoisted by the derrick or to receive guy-wires for steadying the derrick when erected.

I claim—

1. A derrick embodying a plurality of tubular telescopic sections having interfitting ends, conical shoulders on said interfitting

ends, and means for forcing said conical shoulders into firm and unyielding engagement with each other when the derrick-sections are extended, substantially as described.

2. A derrick embodying a plurality of hollow telescopic sections, the adjacent interfitting ends of which are provided with the cooperating conical shoulders, and a combined stop-collar and clamp removably fitted to one section and adapted to engage the adjoining section to force the conical shoulders of the interfitting ends into firm and unyielding engagement with each other.

3. A derrick embodying a plurality of tubular telescopic sections, the interfitting ends of which are provided with cooperating conical shoulders, a split collar removably fitted on one section and having a threaded engagement therewith and adapted to bear against the adjoining section, the arrangement being such that by turning said collar, the conical shoulders of the interfitting ends are forced into firm and unyielding engagement with each other, substantially as described.

4. A derrick embodying a plurality of tubular telescopic sections, the interfitting ends of which are provided with cooperating conical shoulders, means for forcing said shoulders into firm and unyielding engagement with each other; a tubular stem on the interfitting end of one section extending into the other section; a packing-washer extending around said stem, and means for expanding said washer into fluid-tight engagement with the inside of the last-named section.

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

ISAAC ERRETT MONROE.

Witnesses:

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