

(No Model.)

2 Sheets—Sheet 1.

O. U. STAHLMAN.
PUMPING JACK.

No. 602,482.

Patented Apr. 19, 1898.

Fig. 1.

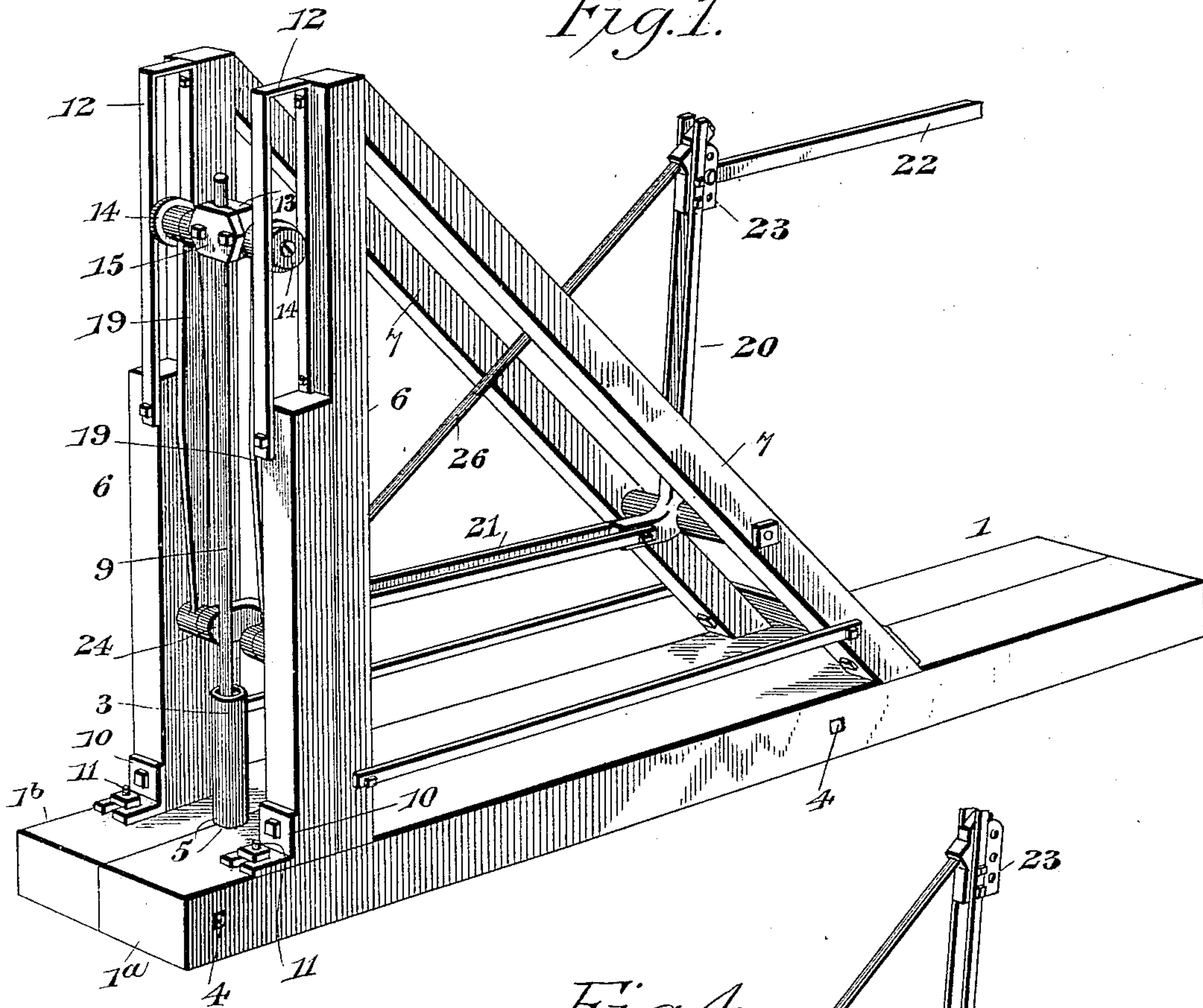


Fig. 4.

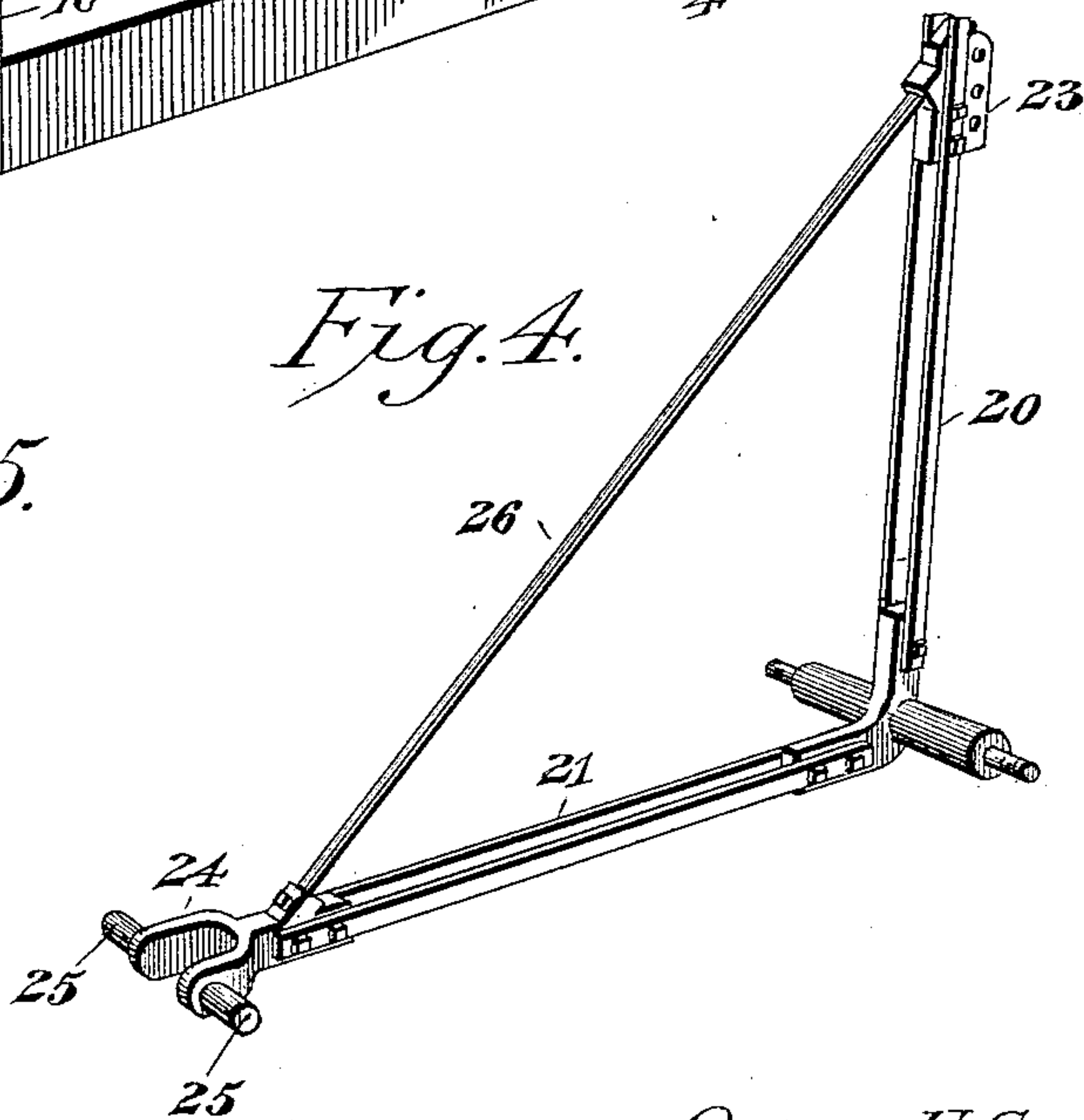
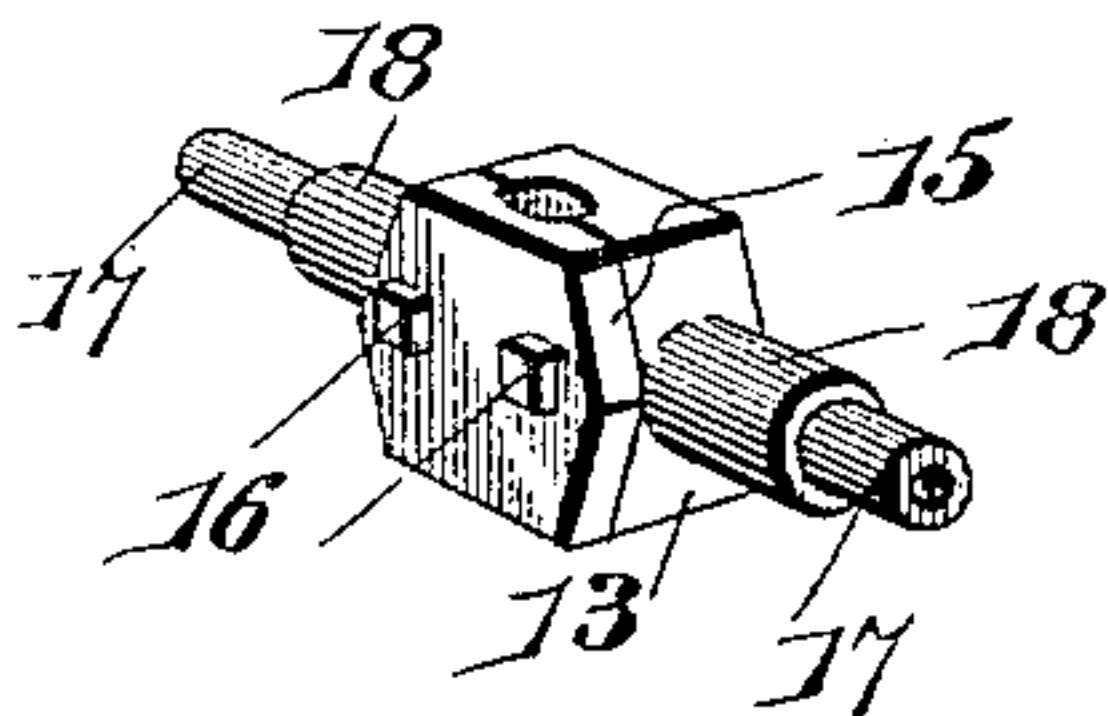


Fig. 5.



Inventor

Orison U. Stahlman

Witnesses

Jas. H. McLaughlin

By his Attorneys,

[Signature]

Chas. H. Snow & Co.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

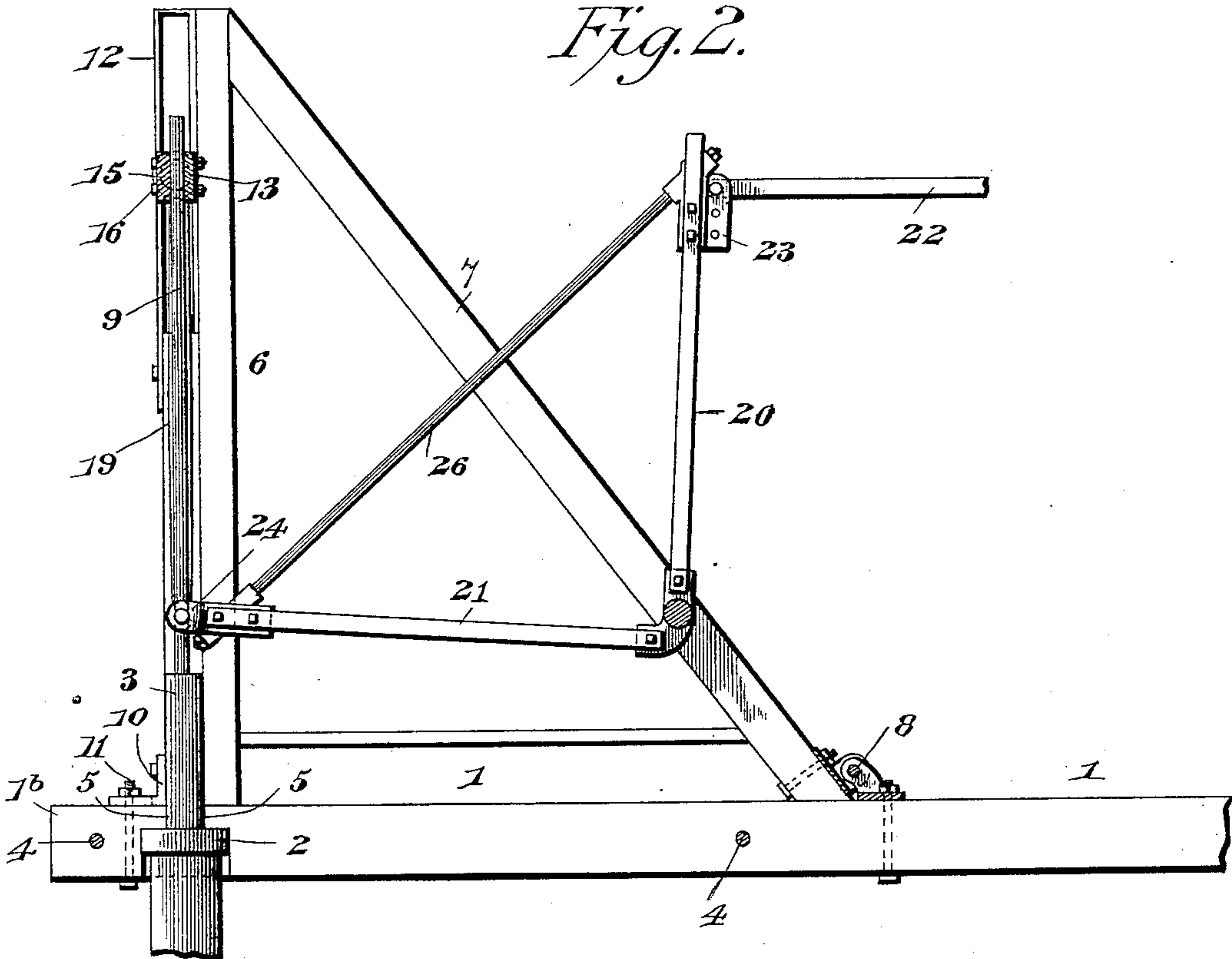
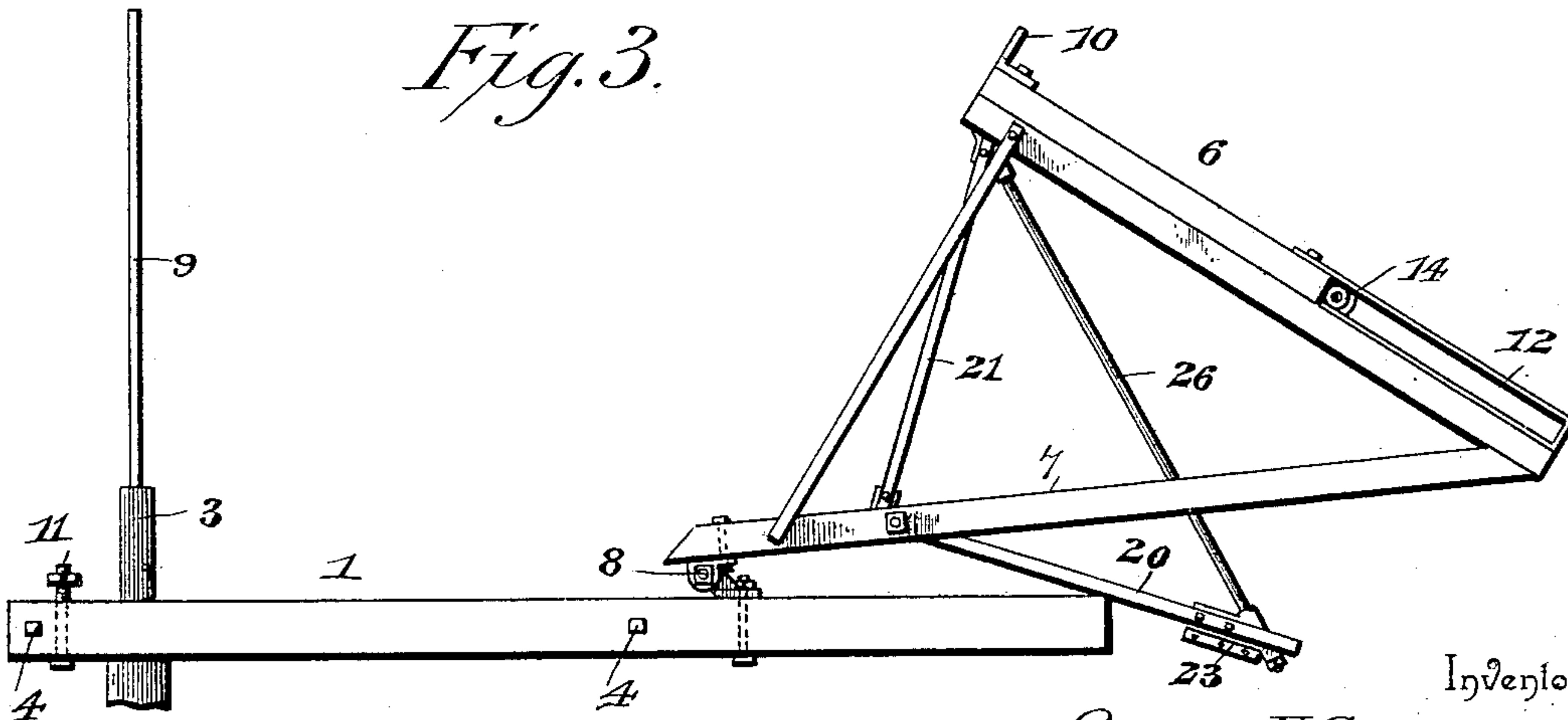


Fig. 3.



Inventor

Orison U. Stahlman

Witnesses

James L. McLaughlin

By *His* Attorneys,

[Signature]

Cashnow & Co.

UNITED STATES PATENT OFFICE.

ORISON URSINUS STAHLMAN, OF NORTH BALTIMORE, OHIO.

PUMPING-JACK.

SPECIFICATION forming part of Letters Patent No. 602,482, dated April 19, 1898.

Application filed August 31, 1897. Serial No. 650,176. (No model.)

To all whom it may concern:

Be it known that I, ORISON URSINUS STAHLMAN, a citizen of the United States, residing at North Baltimore, in the county of Wood and State of Ohio, have invented a new and useful Pumping-Jack, of which the following is a specification.

My invention relates to a pumping-jack for use in connection with oil-well pumping apparatus, and has for its objects to provide a simple and efficient construction and arrangement of parts, including a tilting frame supporting the V and attachments, whereby the apparatus may be removed from the path of a pump or polishing rod; to provide for the drawing of the rods; to provide efficient means for attaching the apparatus to well casing and tubing; to provide means for guiding the pump or polishing rod; to prevent vibration and consequent binding thereof in operation, and to otherwise simplify and strengthen the parts and connections to facilitate the mounting and dismounting of the apparatus.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a pumping-jack constructed in accordance with my invention applied in the operative position to a pumping device. Fig. 2 is a longitudinal section of the same. Fig. 3 is a side view of the apparatus with the frame in its inoperative position to release the pump-rod. Fig. 4 is a detail view of the V and attachments. Fig. 5 is a similar view of the cross-head.

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

1 designates a sill of sectional construction by which attachment is made to the casing-head 2 and to the tubing 3, said sill having parallel contacting members 1^a and 1^b, connected by transverse bolts 4 and provided in their meeting edges contiguous to one end with registering notches, forming a seat 5. The seat at the lower surface of the sill is of sufficient diameter to receive the casing-head

and securely clamp the same when the bolts are tightened, while said seat contiguous to the upper surface of the sill is contracted to fit the well-tubing, and thus simultaneously clamp the latter when the bolts are tightened. By this arrangement the sill is firmly secured in place, and in operation the casing is relieved of the strain due to the operation of the pump-rod, as will be apparent as the invention is more fully disclosed.

Mounted upon the sill is a tilting frame consisting of parallel uprights 6, located, respectively, upon opposite sides of the seat 5, and rear braces 7, inclined downwardly and rearwardly from points near the upper ends of the uprights to the sill. These braces are preferably hinged, as at 8, to the sill to provide for the rearward tilting or displacement of the frame to the position illustrated in Fig. 3 when it is desired to draw the pump-rod, (illustrated at 9,) while the said frame is normally held in its operative or upright position by means of angle plates or brackets 10, secured to the lower extremities of the uprights and having slotted feet resting upon the upper surface of the sill and engaged by bolts 11. It is obvious that the frame may be released for backward tilting movement by removing the nuts on said bolts.

The uprights are cut away or reduced from intermediate points toward their upper ends and are provided with parallel-sided, preferably metallic, guides 12, in which operate the extremities of a cross-head 13, said extremities of the cross-head being preferably constructed to form journals upon which are mounted antifriction-rolls 14 to fit in the guides and thereby reduce the friction during the operation of the mechanism, while accurately guiding the cross-head in a path in alinement with the pump-rod. Carried by the cross-head and preferably forming a part thereof is a clamp for the upper end of the pump-rod, and in the construction illustrated said clamp consists of a removable clamp-plate 15, cooperating with a contiguous fixed part of the cross-head and held in place by means of bolts or collar-screws 16. In addition to the reduced terminal journal portions

17 of the cross-head, upon which are mounted the above-mentioned antifriction-rolls, said cross-head is provided with enlarged journal portions 18 for the reception of eyes at the upper extremities of connecting-rods or pitmen 19, said connecting-rods or pitmen being the means whereby motion is communicated to the cross-head from an oscillatory V or triangle mounted upon the frame, preferably contiguous to the lower ends of the braces 7. The V is constructed, as in the ordinary practice, with approximately right-angularly-disposed arms 20 and 21, to the former or upright of which is adapted to be attached an operating-rod 22, actuated by suitable machinery, (not shown,) said upright arm being provided at its upper extremity with ears 23 to facilitate such engagement. The other or approximately horizontal arm of the V is provided at its extremity with an attached T-head 24, bifurcated or cut away between its arms to arrange lateral trunnions 25 approximately in the vertical plane of the well-tubing. Mounted upon these trunnions 25 are the eyes at the lower extremities of the connecting-rods or pitmen 19. A diagonal brace 26 preferably connects the arms of the V contiguous to their extremities.

From the above description it will be seen that the oscillation of the V or triangle is adapted to cause a reciprocatory movement of the cross-head controlled by the parallel-sided guides on the uprights, and as said guides are arranged in the vertical plane of the well-tubing it is obvious that the pump-rod is actuated in a straight line, and is thereby held from lateral vibration and from binding.

It is obvious, furthermore, that by disengaging the clamp on the cross-head from the extremity of the pump-rod and also releasing the angle clips or brackets at the lower extremities of the uprights the frame of the apparatus may be tilted rearwardly to the position illustrated in Fig. 3 to provide for the drawing of the pump-rod and that the return of the parts to their normal or operative position after the replacement of the pump-rod may be accomplished without loss of time. Thus one of the main operations in connection with oil-well pumping is facilitated, the sill or base of the frame remaining permanently in position and thus avoiding the delays incident to the operation of withdrawing the pump-rods in accordance with the common practice.

Furthermore, it will be seen that the application of motion to the cross-head is approximately in the plane of the pump-rod, by reason of the peculiarly-constructed T-head, carried by the lower or approximately horizontal arm of the V, and therefore that unnecessary loss of power is avoided.

Furthermore, it will be seen that by reason of the framework and the peculiar attach-

ment of the sill to the casing and well-tubing the operation of the mechanism causes downward pressure upon said casing and tubing during the upward movement of the pump-rod, thus equalizing the strain and causing the operation to proceed without the risk of displacing or unnecessarily vibrating either the casing or the tubing.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In an oil-well pumping-jack, the combination with a sill provided with clamping means for engaging a well-casing, of a tilting frame hingedly mounted upon the sill remote from said clamping means, and having front uprights seated at their lower ends upon the sill contiguous to said clamping means, securing devices for detachably fastening the lower ends of the uprights to the sill to maintain the frame in its upright position, and pumping apparatus mounted upon the frame and provided with means for engaging a pump-rod, said pumping apparatus being removed from the path of the pump-rod when the frame is tilted rearwardly, substantially as specified.

2. In an oil-well pumping-jack, the combination with a sill, provided with clamping means for engaging a well-casing, of a tilting frame having rearwardly and downwardly inclined braces hingedly mounted upon the sill remote from said clamping means, and front uprights seated upon the sill contiguous to said clamping means, and depending vertically from said braces, angle-brackets carried by the uprights and having slotted feet in contact with the sill, securing-bolts engaging the slotted feet to maintain the frame in its normal or upright position, and pumping apparatus carried by the frame for attachment to a pump-rod, substantially as specified.

3. In an oil-well pumping-jack, the combination of a tilting frame, a cross-head mounted upon said frame for reciprocatory movement in the vertical plane of a pump-rod and having a clamp for engaging the pump-rod, and an oscillatory V mounted upon the frame and operatively connected with said cross-head, the frame being adapted to tilt rearwardly when the clamp on the cross-head is disengaged from the pump-rod, substantially as specified.

4. In an oil-well pumping-jack, the combination of a frame, a cross-head mounted for reciprocation in guides on the frame and provided with a clamp for engagement with a pump-rod, a V mounted for oscillatory movement upon the frame and provided at the extremity of one of its arms with means for attachment to an operating-rod, and at the ex-

5 tremity of its other arm with a bifurcated T-head having alined lateral trunnions, and connecting-links or pitmen terminally mounted respectively upon said trunnions and journal portions of the cross-head, substantially as specified.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in the presence of two witnesses.

ORISON URSINUS STAHLMAN.

Witnesses:

JOHN M. DE LONG,
GEO. W. EWING.