

No. 751,078.

PATENTED FEB. 2, 1904.

J. C. KNUPP.
WELL DERRICK.

APPLICATION FILED OCT. 31, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

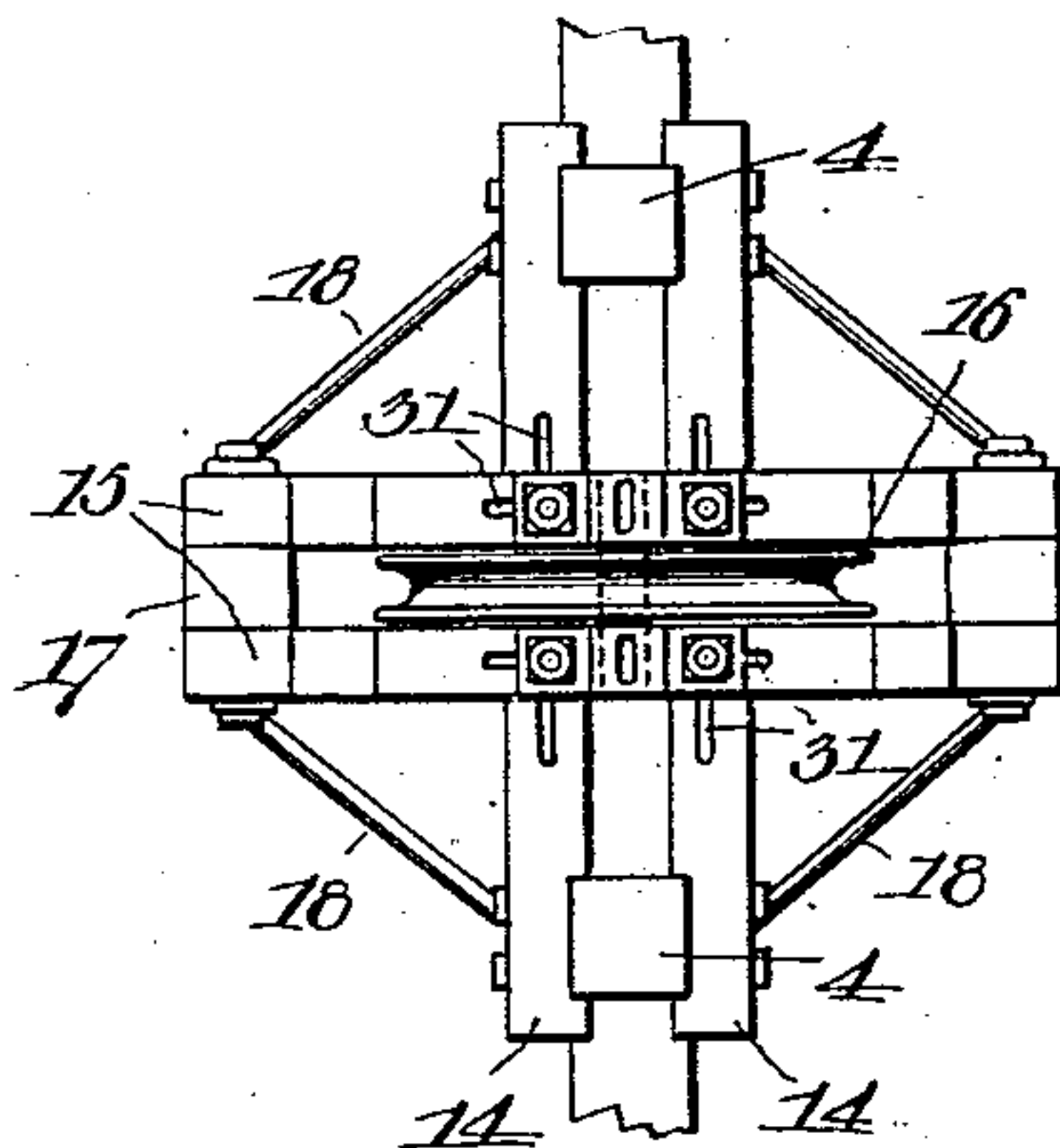


Fig. 3.

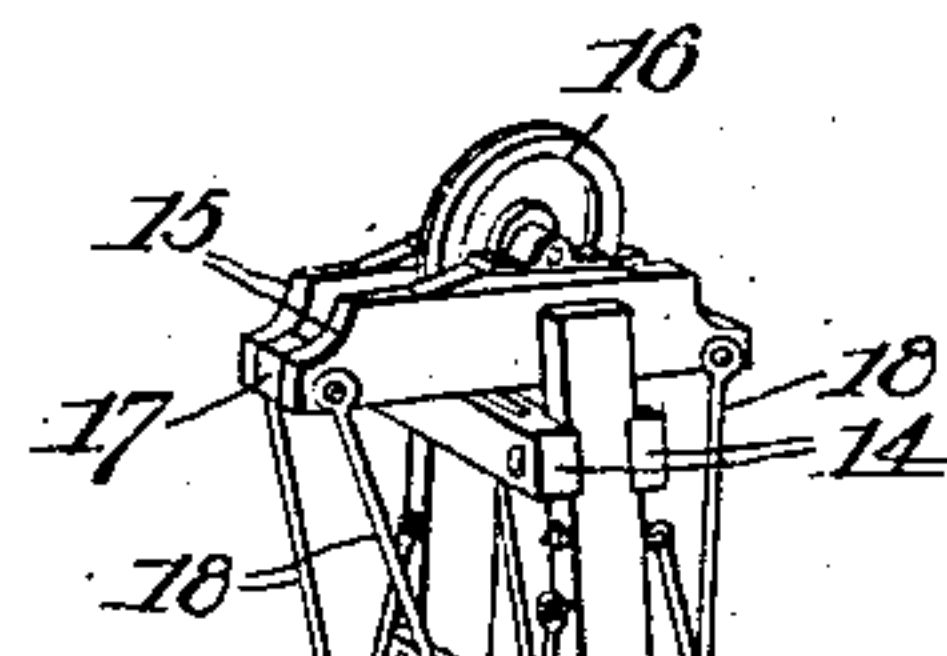


Fig. 4.

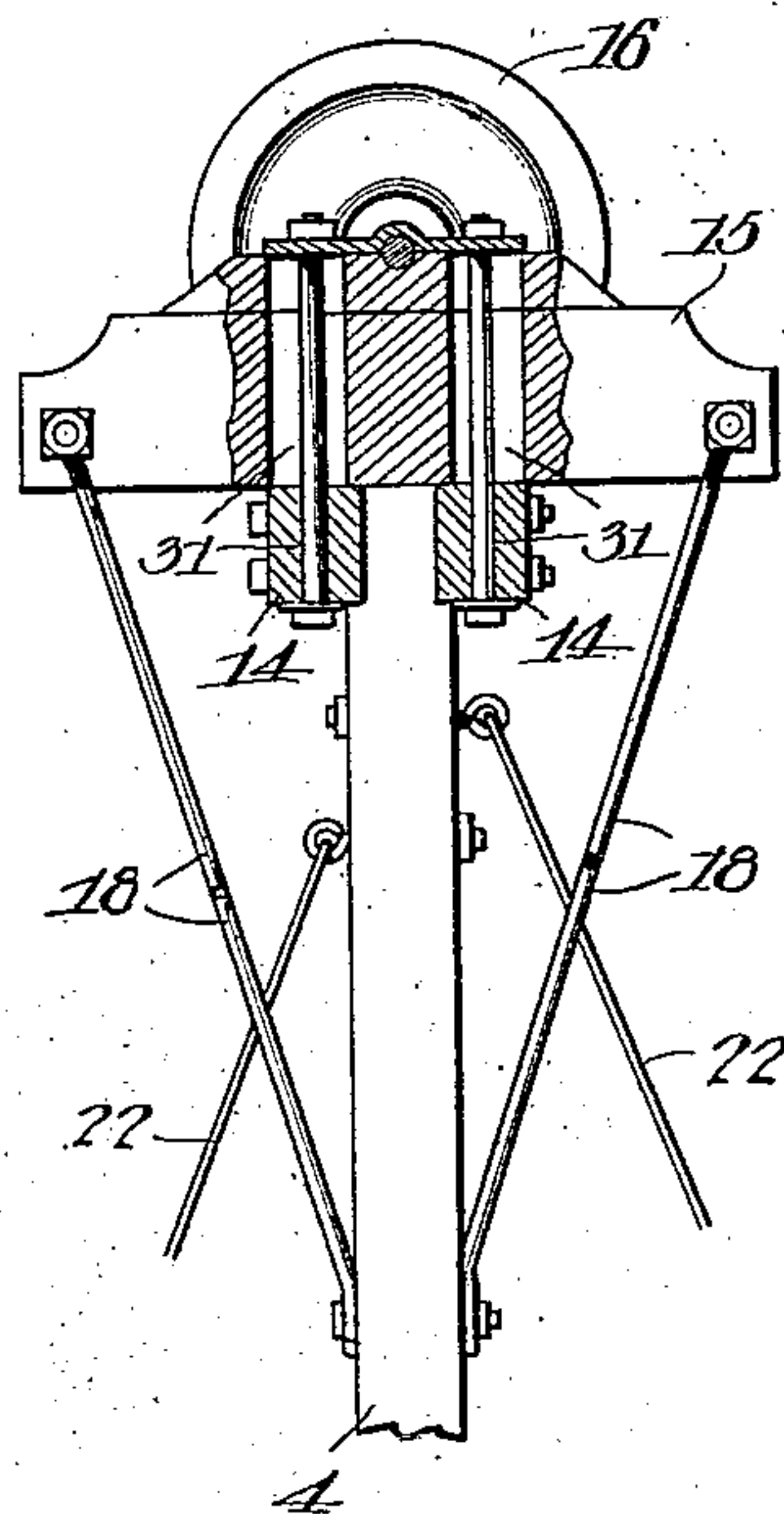
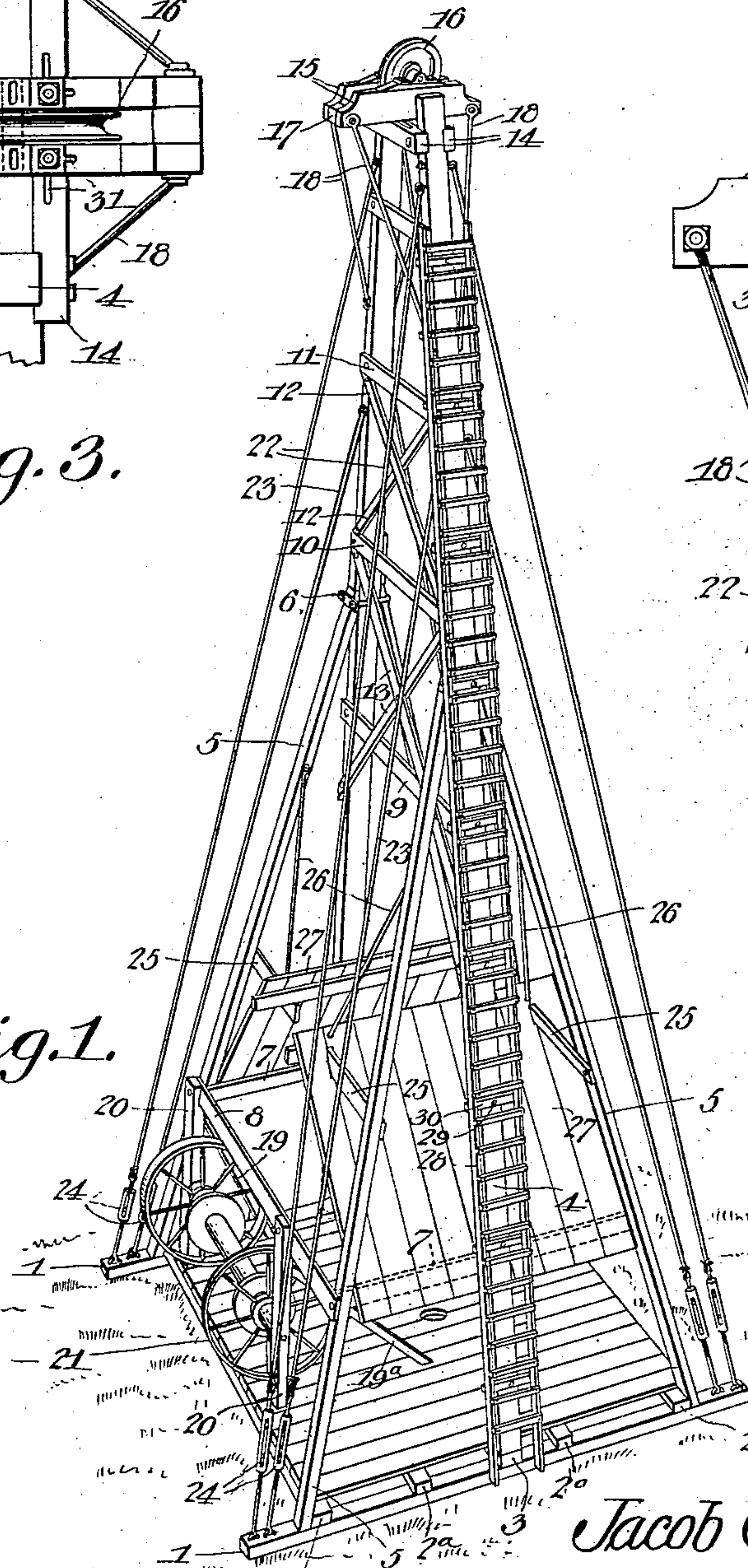


Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

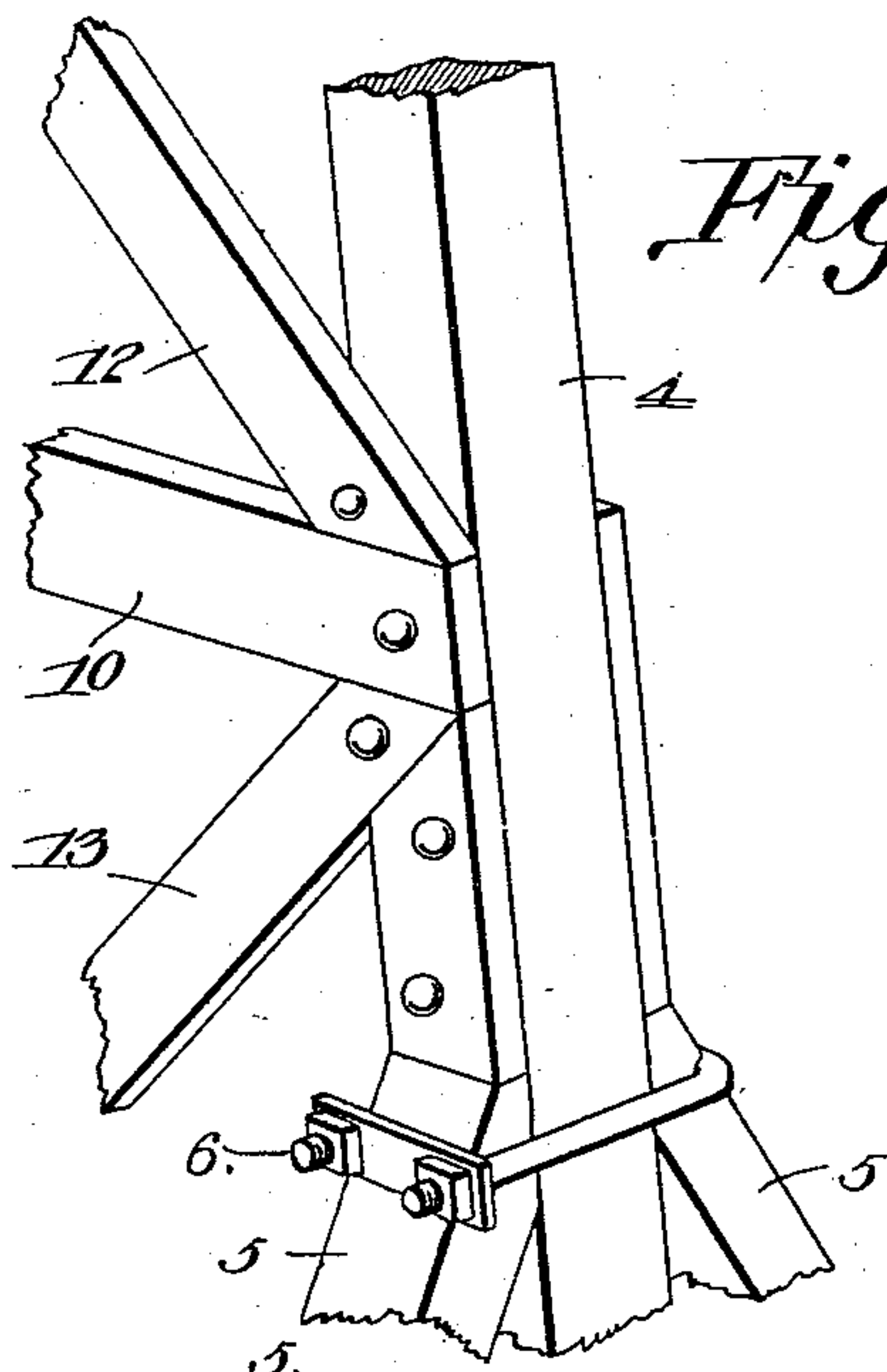


Fig. 5.

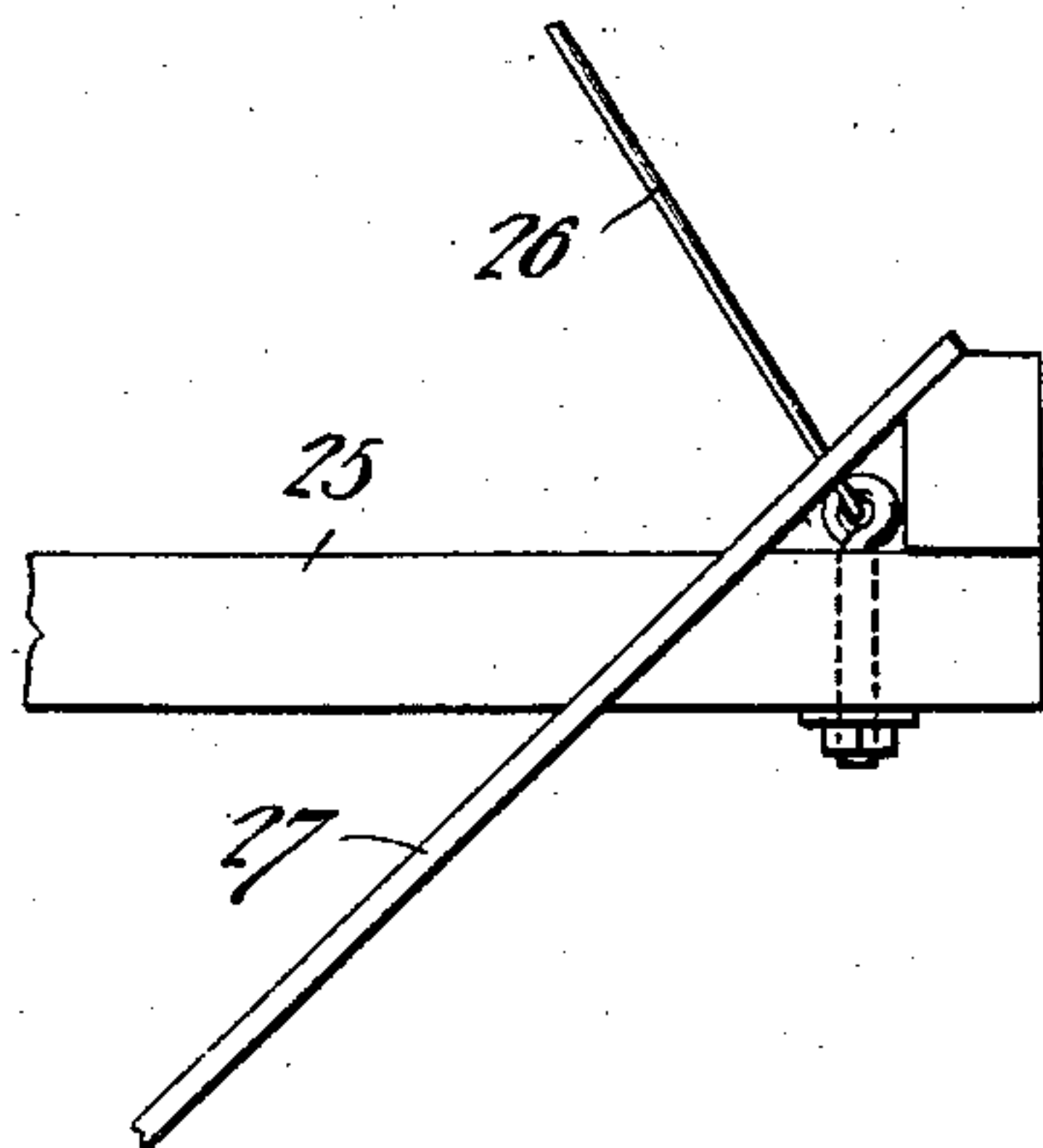


Fig. 6.

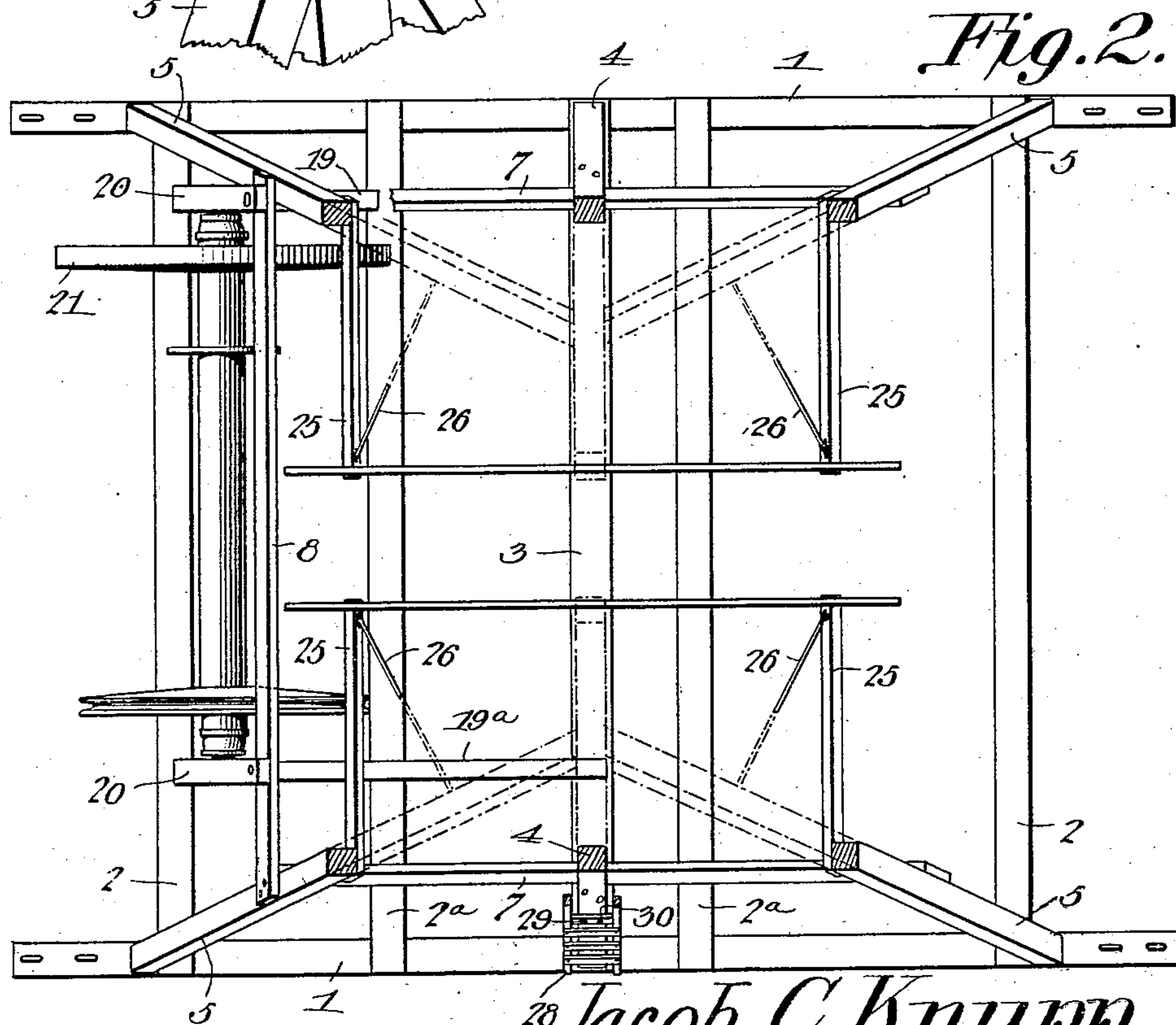


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

JACOB C. KNUPP, OF WARREN, PENNSYLVANIA.

WELL-DERRICK.

SPECIFICATION forming part of Letters Patent No. 751,078, dated February 2, 1904:

Application filed October 31, 1903. Serial No. 179,355. (No model.)

To all whom it may concern:

Be it known that I, JACOB C. KNUPP, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented a new and useful Well-Derrick, of which the following is a specification.

This invention relates to derricks of that class which may be applied more particularly in drilling oil-wells, gas-wells, Artesian wells, and for similar purposes; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

My present invention is an improvement on the well-derrick for which Letters Patent of the United States No. 731,109 were granted to myself on the 16th day of June, 1903; and it has among its objects to make a more substantial and durable structure, to provide supporting means for the bull-wheel of the driving machinery, to provide supporting means for the derrick-roofing, and to generally improve the construction.

With these and other ends in view my invention consists in the improved construction, arrangement, and combination of parts which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is perspective view of my improved derrick. Fig. 2 is a horizontal sectional view of the same, taken a short distance above the horizontal braces 7. Fig. 3 is a top plan view. Fig. 4 is an elevation, partly in section, of the upper part of crown of the derrick. Fig. 5 is a perspective view illustrating details of construction. Fig. 6 is a side elevation showing the roof-supporting braces.

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

As in my former invention, my improved well-derrick includes a base-frame composed of side sills 1 1, supporting cross-pieces 2 2 and 3. Rising from the ends of the central transverse cross-piece 3 are two uprights 4, which are connected with the side sills 1 1 by means of inclined braces 5 5, the upper ends of which are connected together and with the braces 4 by means of U-shaped clamp bolts

or clips 6, extending across the main uprights 4. Horizontally-disposed braces 7 connect the inclined pieces 5 5 of each side of the frame, said horizontal braces being also connected with the inclined uprights. An additional horizontal brace 8 connects the inclined braces at the rear side of the derrick-frame. Cross-braces 9, 10, and 11 connect the inclined uprights 4 4, said braces being secured to the rear edges of said uprights. Diagonal braces 12 are disposed to connect the ends of the upper cross-braces 10 and 11, and diagonal braces 13 connect the under edges of the cross-brace 10 with the rear edges of the uprights 4, said braces 13 crossing each other a short distance above the cross-piece 9 and having their lower ends secured to the uprights 4 below said cross-brace 9, with which they are connected by bolts or in any other suitable manner.

The uprights 4 are connected near their upper ends by means of transversely-disposed tie-bars 14, supporting the crown-blocks 15, having bearings for the shaft of the pulley 16. The ends of the crown-blocks are spaced by spacing-blocks 17, which serve to positively prevent the said crown-blocks from collapsing upon and interfering with the operation of the pulley. They also serve as rope-guides, as will be readily understood. The front and rear ends of the said crown-blocks are connected by suitable brace-rods 18 with the front and rear sides of the uprights.

To provide for the support of the flooring of the derrick, I provide auxiliary cross-braces 2^a upon the sills 1, said cross-braces being disposed between the outer braces 2 and the central brace 3. Uprights 20, supported upon the rear cross-brace 2, afford bearings for the bull-wheel 21, and inclined braces 19 and 19^a connect the said uprights, respectively, with the proximate cross-brace 2^a and with the central cross-brace 3.

Stay-rods 22 and 23, four of each, connect the upper end of the derrick and an intermediate portion of the same with the ends of the sills, each of said stay-rods being provided near its lower end with a turnbuckle 24, by means of which they may be tightened. In my former patent four such stay-rods are shown connect-

ing the upper extremity of the derrick with the ends of the sills; but the four additional stay-rods added by my present invention are found to materially brace and strengthen the device and enable me to effect a saving in lumber and other material, since lighter material may be employed when these additional stay-rods are used. I thus effect a gain in the lightness of the structure, and the construction, besides, is rendered more economical.

The braces 5 5 are provided with suitably-disposed inwardly-extending brackets 25, which are supported by metallic hangers or rods 26, connecting the outer ends of said brackets with the braces 5. Said brackets serve to support the sides 27 of the derrick-roof.

Ladders 28 are secured to one of the uprights 4 by means of bolts 29 and braces 30. By this construction the top of the derrick is made conveniently accessible whenever it shall become necessary to repair or adjust the parts connected with the top of the derrick, while, on the other hand, when the derrick is to be dismantled for the purpose of transporting the same from one place to another the ladders may be readily detached and separated from the timbers of the derrick.

The tie-bars, which serve as supports for the crown-blocks, as well as the said crown-blocks, are provided with slots, as 31, whereby they may be relatively adjusted, so as to bring the pulley directly over the drilling-hole, the necessity of which is readily understood. By the construction described the adjustment may be very easily and accurately effected.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains.

The parts constituting the derrick are so distributed and the relative strength is so proportioned that no superfluous weight is employed. The resistance is uniformly distributed throughout, so that a very economical structure is produced which will efficiently resist the strains to which it is liable to be subjected.

Having thus described my invention, I claim—

1. In a derrick, a base comprising sills and cross-pieces resting upon and connecting said sills, upwardly-converging uprights rising from the central cross-braces, inclined braces connecting said uprights with the sills exteriorly adjacent to the outer cross-braces, horizontal

braces connecting said inclined braces at the sides and at the rear end of the derrick, an inclined brace connecting the rear horizontal brace with the proximate cross-brace upon the sills, and uprights framed and supported upon the rear cross-pieces and connected at their upper ends with the rear horizontal brace and forming supports for the shaft of the bull-wheel.

2. In a derrick, a base, upwardly-converging uprights, connecting and bracing means for said uprights, brackets extending inwardly from the latter, hangers connecting the free ends of said brackets with the said uprights, and derrick-roof sections supported mainly by the said brackets.

3. In a derrick, a base comprising sills and cross-pieces supported thereon, uprights supported upon and rising from the central cross-piece, said uprights converging in an upward direction, cross-braces connecting the said uprights, diagonal braces connecting the said uprights intermediate the uppermost cross-braces, and diagonal cross-braces connecting the uprights, said diagonal braces being extended across and below the lowermost cross-brace.

4. In a derrick, a pair of main uprights supported upon a base-frame and converging upwardly, tie-bars connecting the upper ends of said uprights, crown-bars connected adjustably with said tie-bars, said crown-bars and tie-bars being each provided with slots, and connecting-bolts adjustable in said slots, and a pulley mounted between the crown-blocks.

5. In a derrick, a pair of main uprights supported upon the base-frame and converging upwardly, tie-bars connecting the upper ends of said uprights, crown-blocks supported upon said tie-bars, spacing-blocks interposed between the ends of the crown-blocks, and a pulley journaled between the latter.

6. In a derrick, a base-frame, a pair of upwardly-converging uprights supported thereon, side bars connecting the upper ends of said uprights, crown-blocks connected adjustably with said tie-bars and spaced apart by means of spacing-blocks, a pulley journaled between said crown-blocks, and brace-rods connecting the latter with the uprights.

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

JACOB C. KNUPP.

Witnesses:

J. G. GREENE,
D. C. GIND.