

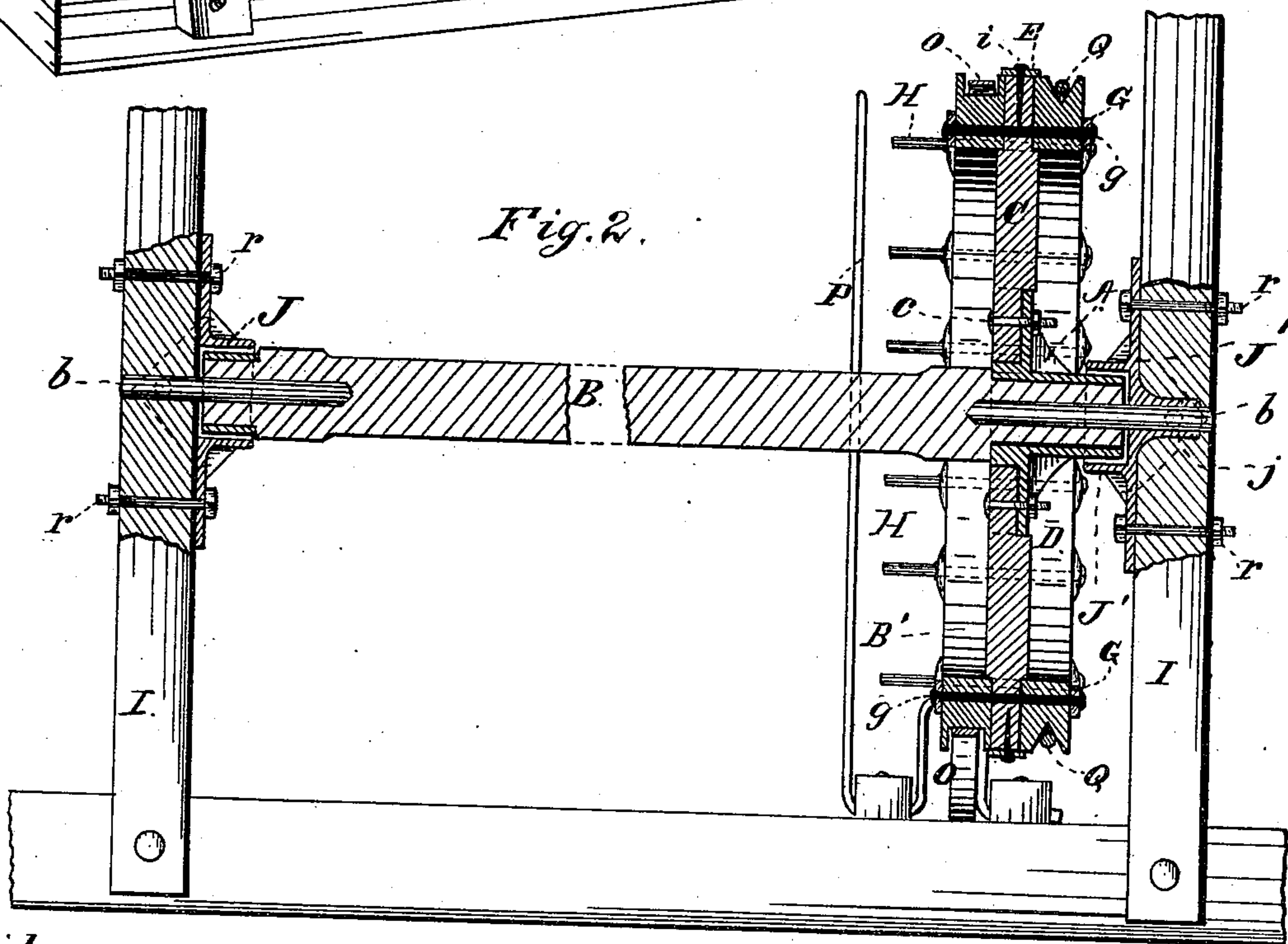
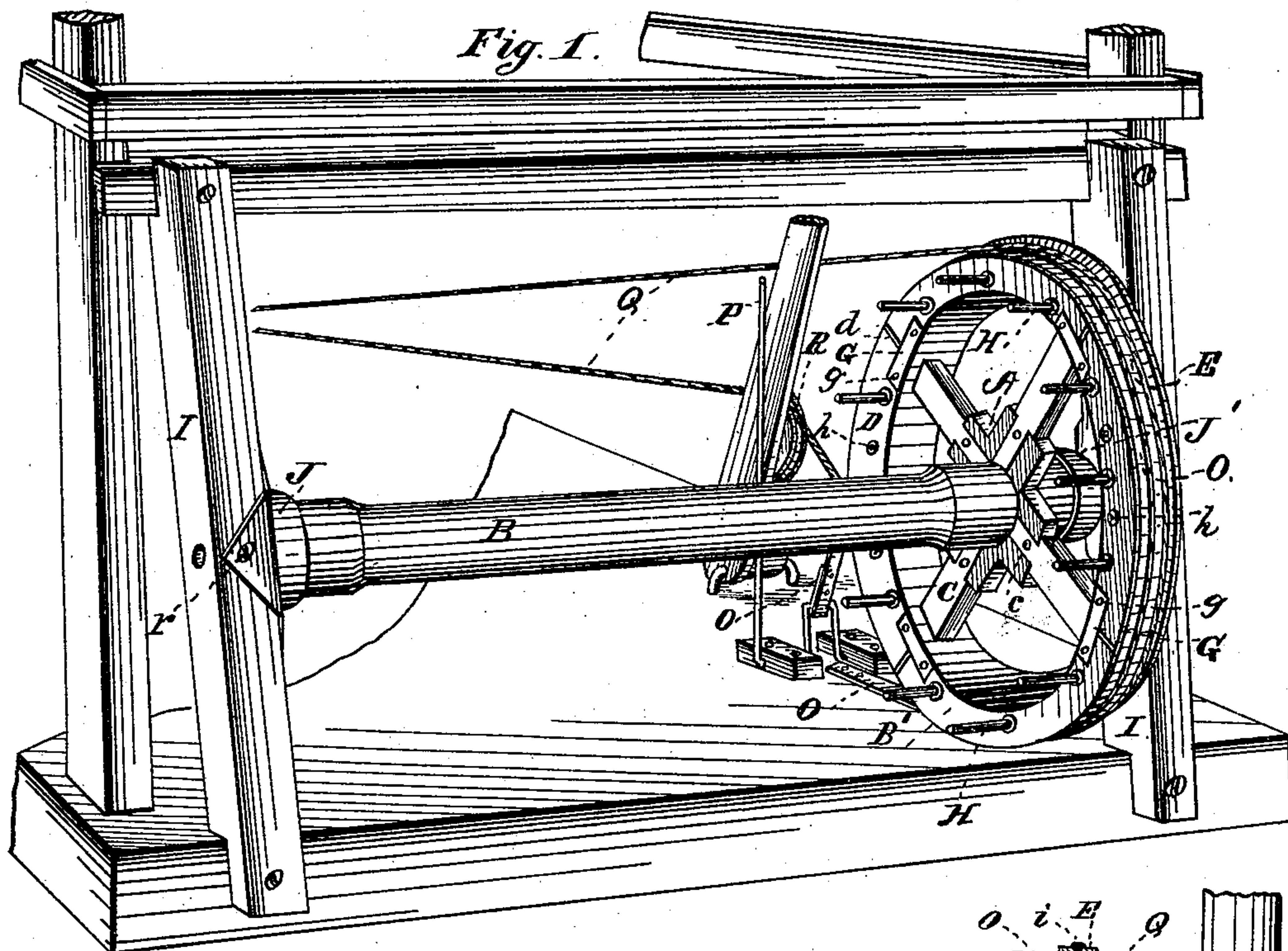
(Model.)

2 Sheets—Sheet 1.

W. R. EDELEN.
Bull Wheel for Oil Wells.

No. 234,859.

Patented Nov. 30, 1880.



Witnesses,
M. J. Brundied.
B. H. Brundied.

Inventor.
William R. Edelen.

(Model.)

2 Sheets—Sheet 2.

W. R. EDELEN.
Bull Wheel for Oil Wells.

No. 234,859.

Patented Nov. 30, 1880.

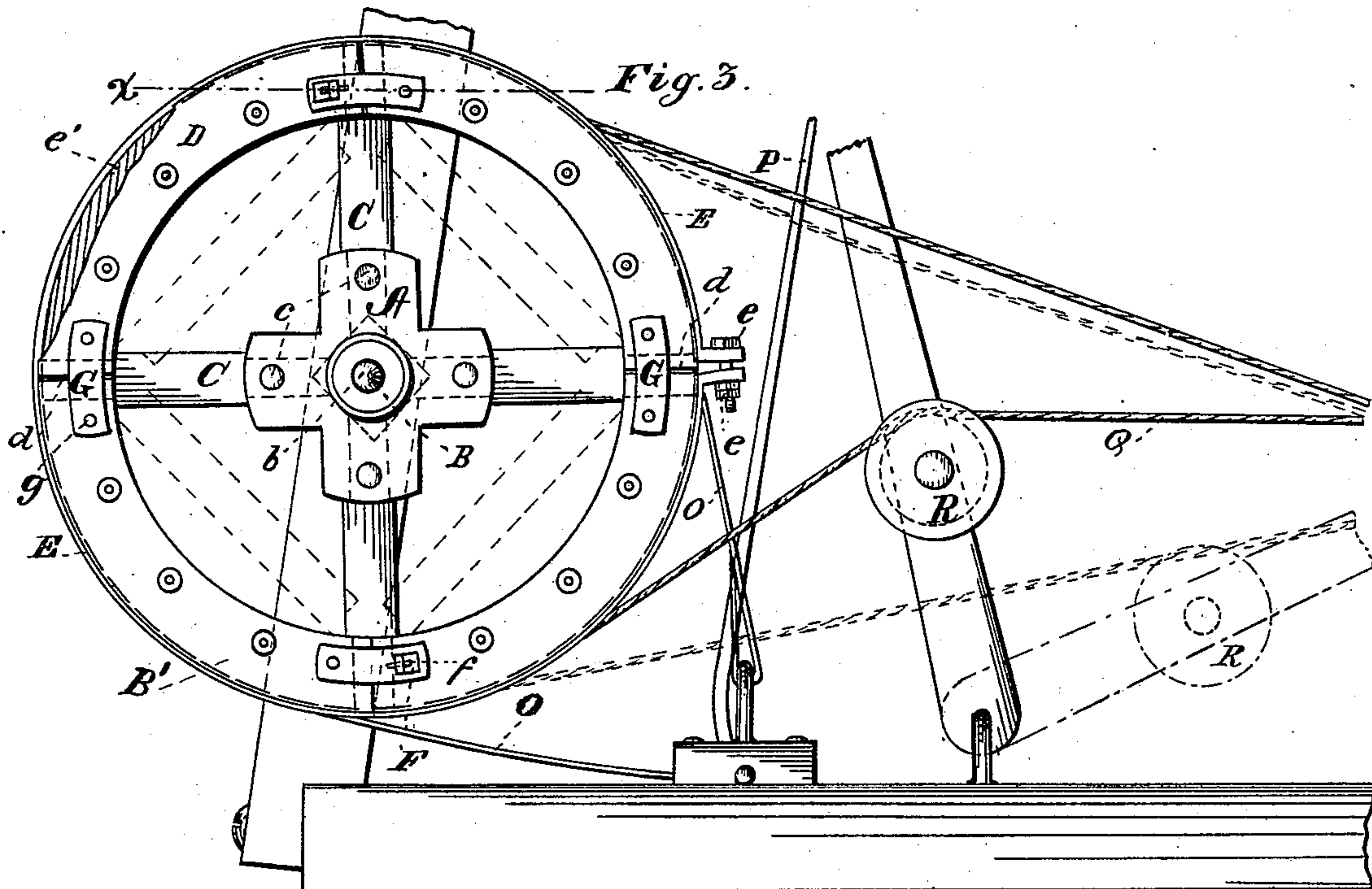


Fig. 4.

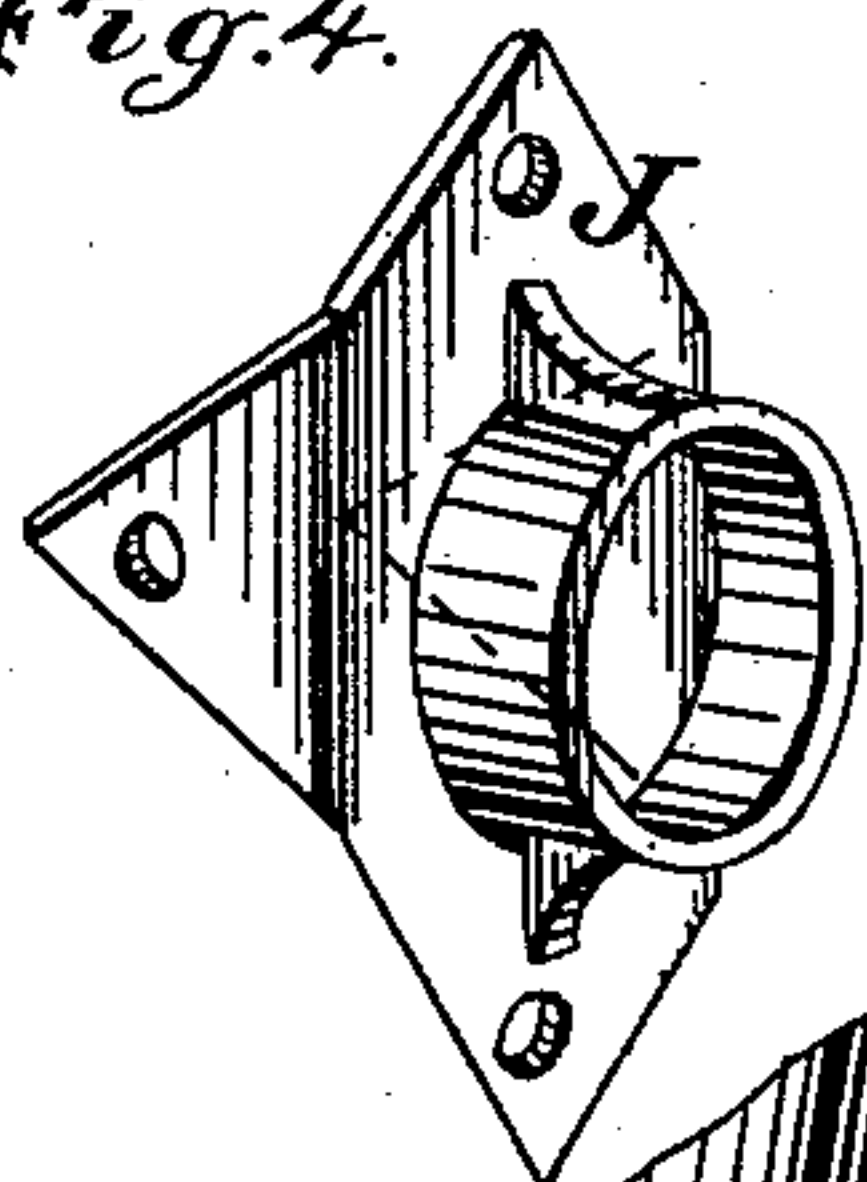


Fig. 5.

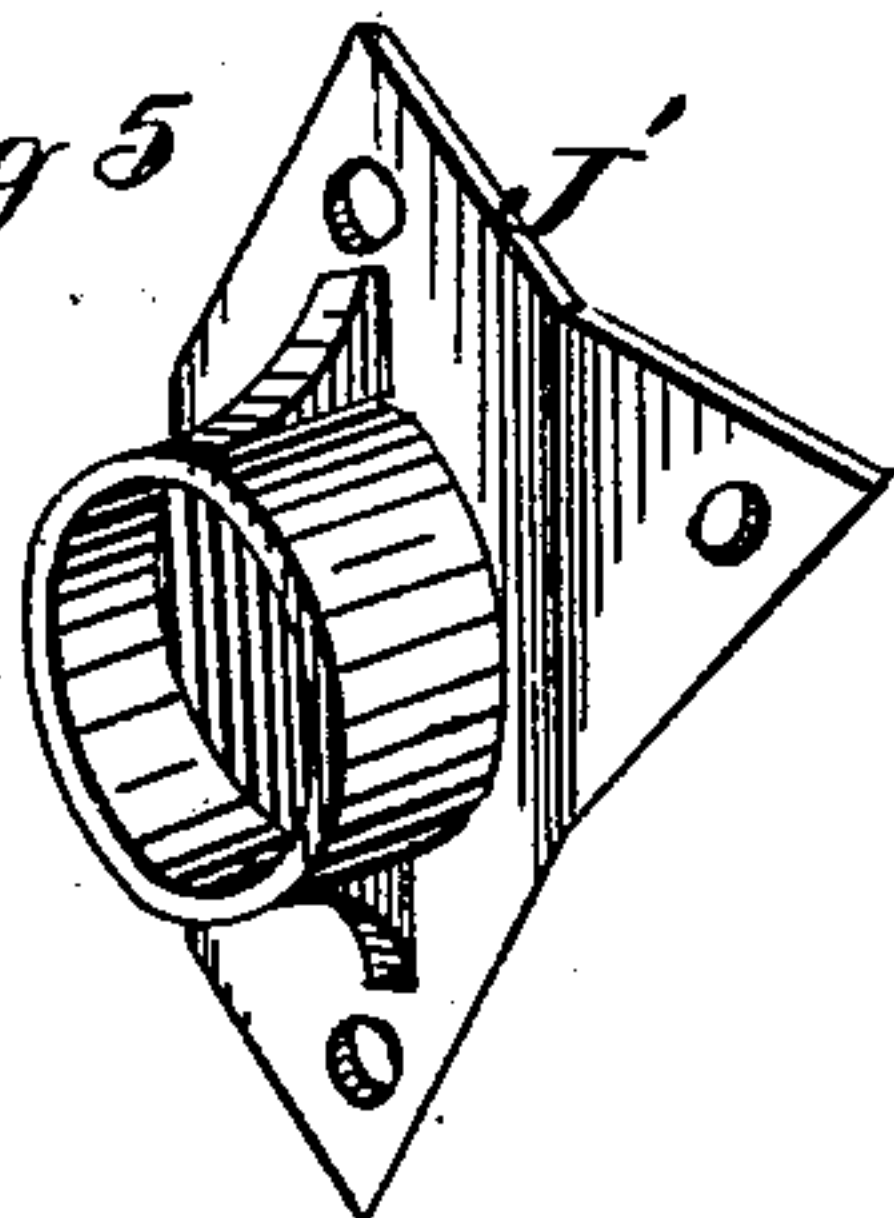


Fig. 6.

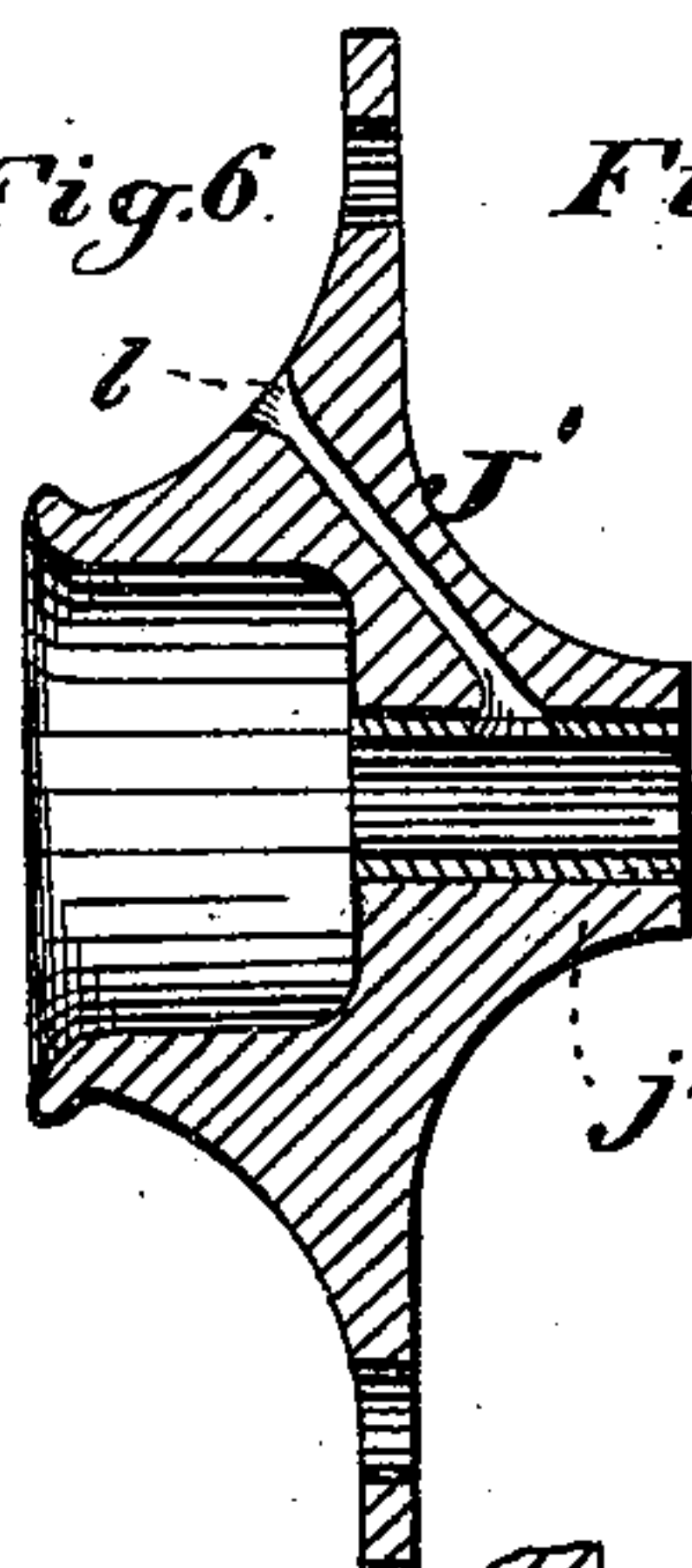


Fig. 9.

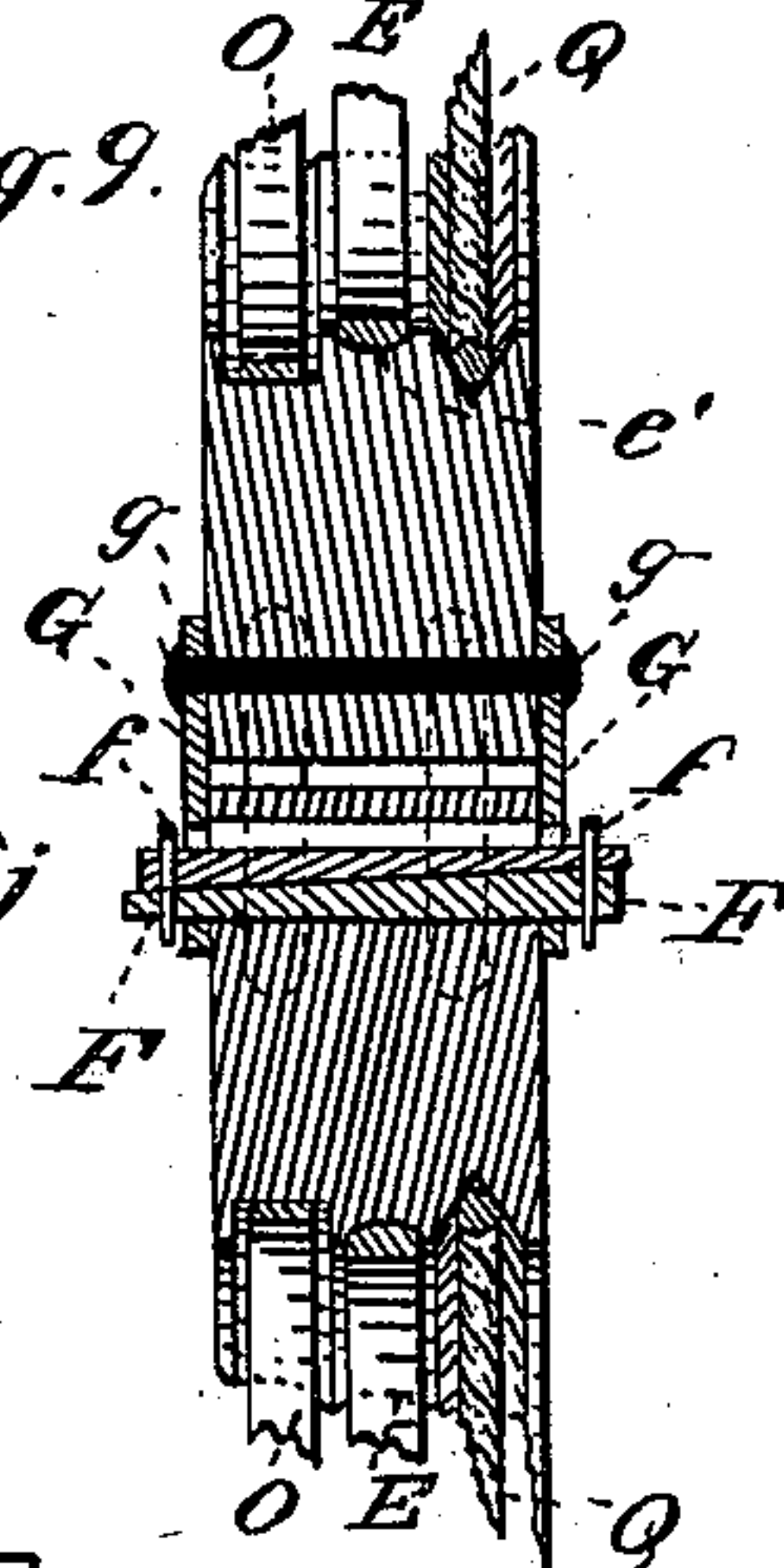


Fig. 7.

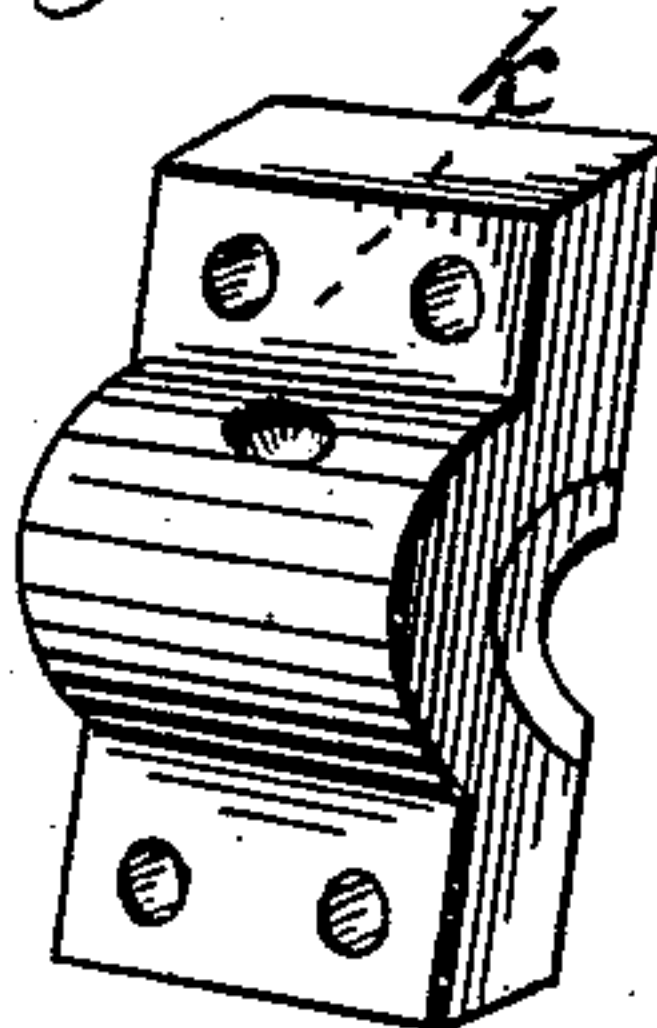
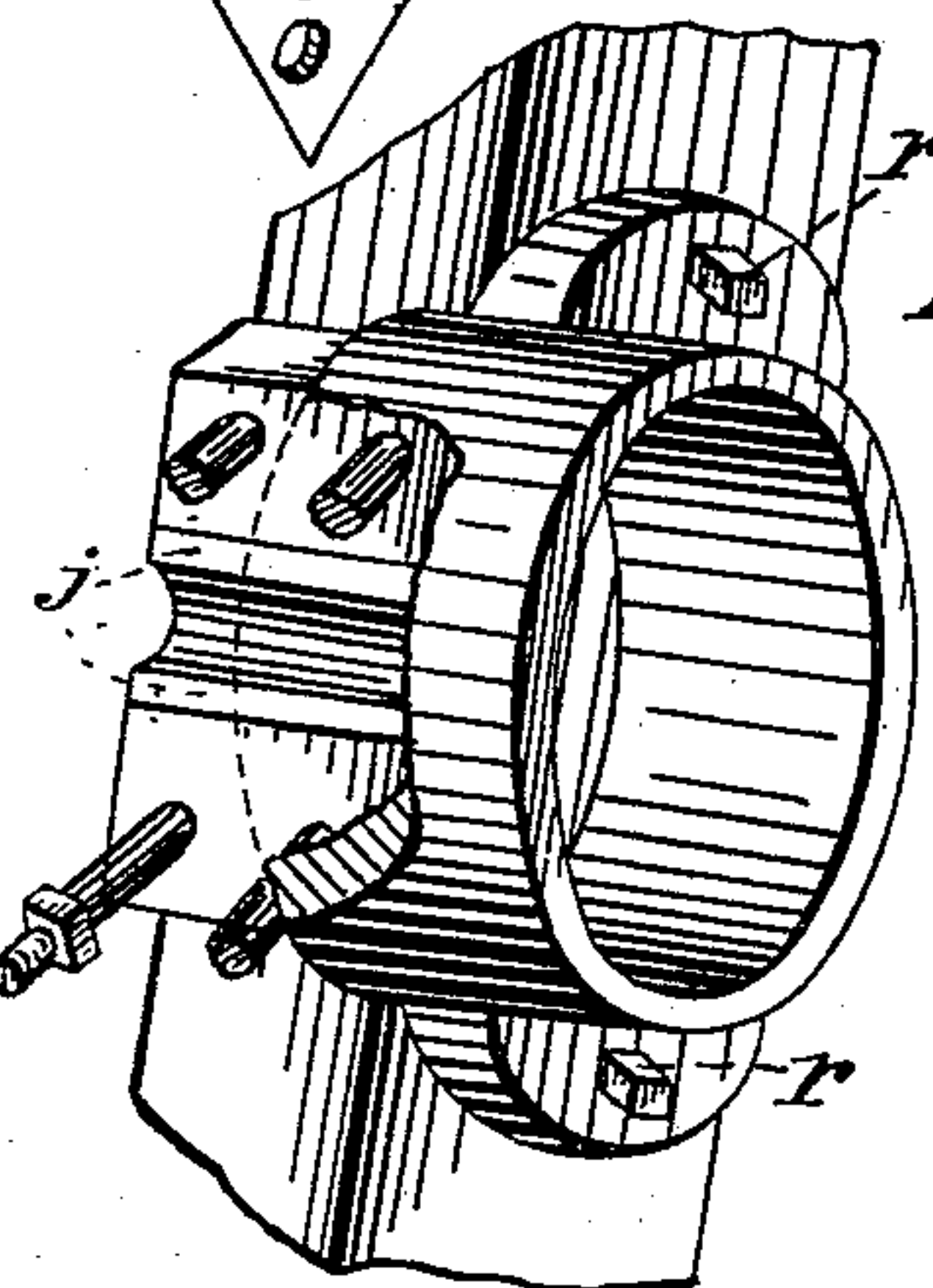
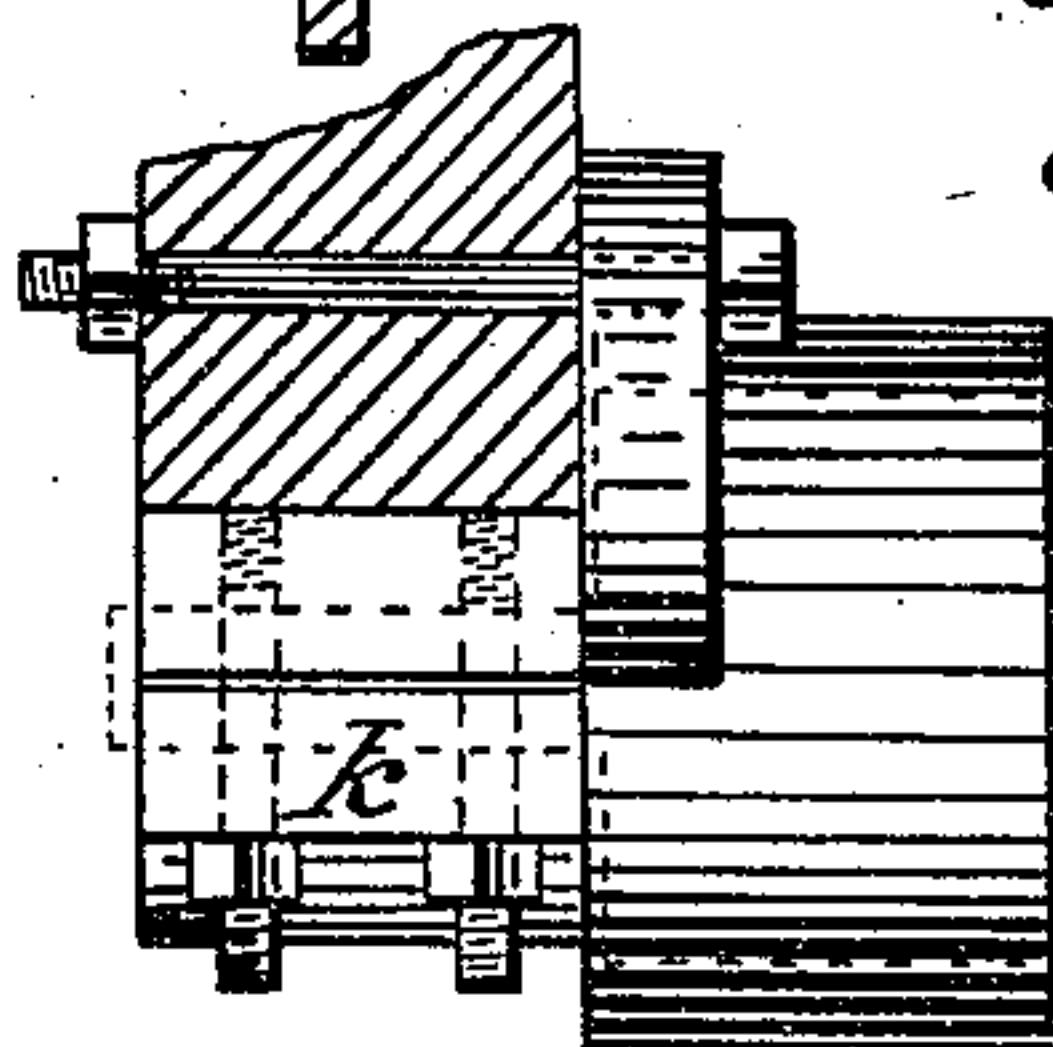


Fig. 8.



Witnesses.

N. J. Brundage.
B. A. Brundage.

Inventor.

William R. Edelen.

UNITED STATES PATENT OFFICE.

WILLIAM R. EDELEN, OF OIL CITY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO BENJAMIN F. BRUNDRED, OF SAME PLACE.

BULL-WHEEL FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 234,859, dated November 30, 1880.

Application filed March 3, 1880. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM R. EDELEN, of Oil City, in the county of Venango and State of Pennsylvania, have invented certain
5 new and useful Improvements in Bull-Wheels for Oil-Wells; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to
10 make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to improvements in
15 bull-wheels.

Heretofore such wheels have been constructed of wood, the arms or spokes being secured by nails to a shaft, and the periphery, which is composed of segments, secured in a similar
20 manner, and the gudgeons which carry the shaft rest in holes bored into the uprights attached to one side of the derrick used, thus forming journals for supporting said wheels. The above method of constructing bull-wheels
25 is objectionable, for these reasons: the segments frequently fly off the periphery, the arms or spokes rend from the shaft, the gudgeons break, or the uprights or supports for holding the gudgeons are split, often killing
30 or injuring some of the employes at the wells, owing to the high speed the wheels are run when lowering the drilling-tools.

The object of my invention is to provide a bull-wheel so constructed that none of its parts
35 can fly or break, and if certain parts are broken they are held in their normal position by the improved devices to be hereinafter more fully described.

The invention consists of a metal spider provided with radial slots for holding and securing the arms, and also the devices for holding the segments together laterally.

It also consists of wedges passing through plates for drawing the segments together.

45 It further consists of a tire or band encircling the circumference of the wheel to hold the segments in position.

It further consists of bands secured to the supports or standards for holding the bull-
50 wheel in position should the gudgeons break.

It also consists in having the bands pro-

vided with a box and cap, and secured to the outside of the supports for greater security.

It further consists in having the tug-rope constantly on the bull-wheel and operated by
55 a binding-pulley.

It also consists in having the tug-rope and brake-band on one and the same wheel.

In the drawings, Figure 1 is a perspective view of the improved bull-wheel, showing part
60 of a derrick. Fig. 2 is a vertical section of the invention through the arms of the wheel. Fig. 3 is a side elevation with one of the segments partly broken away, showing the binding-tire, also braces in dotted lines. Fig. 4 represents
65 a perspective view of a band without a box. Figs. 5 and 6 represent different views of a band provided with a box. Fig. 7 represents a perspective view of a band provided with a cap and box. Fig. 8 is a top view of the same
70 device. Fig. 9 is a section taken through the dotted line *x* of Fig. 3, showing the wedges.

The invention consists of a spider, A, with a central opening, either round or square, as shown in Figs. 2 and 3, for securing it to a
75 bull-wheel shaft, B. Said spider is provided with radial slots for securing the arms C of the bull-wheel and held in position by bolts *c*. The extreme ends of arms C pass through mortises formed centrally and between the segments D.
80 Said segments are preferably not in contact at all their joints *d*. A slight space is left to allow for tightening the wheel, which is accomplished, either by drawing the tire or band
85 E, by means of the bolt and nut *e*, tightly around its periphery, or else drawing said segments together by means of the keys or wedges F at Fig. 9. Said wedges F are preferably
90 made of hard wood and kept from slipping out of place by driving nails *f* through their projecting ends. (Shown at Figs. 3 and 9.)

The segments are held together by means of clamping-plates G, secured on opposite side of the wheel by rivets *g*, passing through the body of said segments, and also by keys or wedges
95 F, heretofore described. Said segments may also be held together laterally by the hand-holds H, and also by rivets *h*. Said hand-holds are provided with shoulders on the inside and riveted on their opposite sides.
100

The hand-holds are employed to rotate the wheel by hand after stopping the engine, when

it is necessary to slightly elevate the drilling-tools for unscrewing and for other purposes. The tire or band E can be welded, or made of pieces lapped and riveted together before placing it on the wheel, and then driven on said wheel tightly and secured by nails *i*, as shown at Fig. 2, and is to prevent said wheel from flying to pieces when driven at great velocities. The preferable method of constructing said tire E is to have it resting in a slight groove, *e'*, (shown at the broken segment of Fig. 3, and also at the sectional view, Fig. 9,) and provided with a nut and bolt, *e*, hereinbefore described.

The bull-wheel shaft B is provided with ordinary gudgeons, *b b*, and supported by standards I, which are bolted to the derrick. (Shown at Fig. 2.) Secured to each of said standards are safety-bands J J', which encompass the ends of, but do not come in contact with, said shaft B. The band J at Fig. 2 receives the end of said shaft. The gudgeon rides in a journal bored into the standard. The opposite band, J', receives the gudgeon in a babbitted box, *j*, which is the continuation or hub *j'*, projecting from the rear side of its plate. Said box is provided with a hole, *l*, for lubricating. (Shown at Fig. 6.) Each band is preferably secured on three sides of the standards I by bolts *r*, which prevent it from being wrenched from its fastenings should the gudgeons break. It also prevents the upright from splitting.

The safety-band shown at Figs. 7 and 8 is essentially the same, but provided with a cap, *k*, for taking up the wear. It is bolted on the outside of the uprights or standards, thus giving greater strength to the standards, as their entire thickness receives the strain from the bull-wheel, while the other device, having a journal in the center of the standards, weakens them considerably.

The bull-wheel B' has three annular grooves turned in its face, which are adapted for the tire E, for holding said wheel together, and the brake-band O, which is provided with a lever, P, for operating said band, and it is also provided with a bull-rope, Q, for rotating said wheel. With my improved device the bull-rope is not removed from the wheel, as in the old methods of operating. When it is necessary to rotate the bull-wheel the grooved binding-pulley R is pressed against said bull or tug rope, as shown at Fig. 3, which gives said tug-rope sufficient friction on the bull-wheel face to cause the wheel to rotate and elevate the tools, after which it is released, as shown in dotted lines, thus slacking the tug-rope, which remains in its groove on the bull-wheel. The brake is put on the bull-wheel by

pulling on the lever P, and held on until the strain is taken from said wheel, when it is released.

I am aware that a single bull-wheel has been employed at oil-wells and operated by a bull-rope.

I am also aware that a brake-band has been employed on a separate and independent wheel where a pair of wheels are used, (as is the present cumbersome method of making bull-wheels.)

I am further aware that binding-pulleys are old, but not in the connection I use them. I therefore do not claim such devices, broadly.

I am aware that bull-wheels have been made with a solid body secured between two circular flanges provided with axial bosses, and I do not claim such construction; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the arms of a bull-wheel, a spider provided with arms and supporting adjustable segments, substantially as shown and described.

2. In combination with the arms of a bull-wheel, segments forming its periphery, handhold rods H, rivets *h*, and binding-plates G, secured by rivets *g* and tightening-keys F, for the purposes as shown and described.

3. In combination with a bull-wheel shaft, the safety-bands J J', provided with a neck or stud, *j'*, and journal *j*, substantially as shown and described.

4. In combination with bull-wheel segments, a binding tire or band, E, resting in an annular groove, *e'*, and a bolt and nut, *e*, for adjusting and securing the periphery of a bull-wheel, substantially as shown and described.

5. In combination with a bull-wheel provided with three grooves on its periphery, a bull-rope, Q, constantly remaining on said wheel, whether during its rotating or not, a binding pulley and lever, and a brake-band, substantially as shown and described.

6. In combination with a single bull-wheel, a brake and bull-rope, and a friction-pulley for regulating the tension of said bull-rope, substantially as shown and described.

7. In combination with standards I, the safety-bands J J', provided with lugs for encompassing the standards and the ends of a bull-wheel shaft, substantially as shown and described.

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

WILLIAM R. EDELEN.

Witnesses:

B. F. BRUNDRED,

C. D. W. LILLIENDAHL.