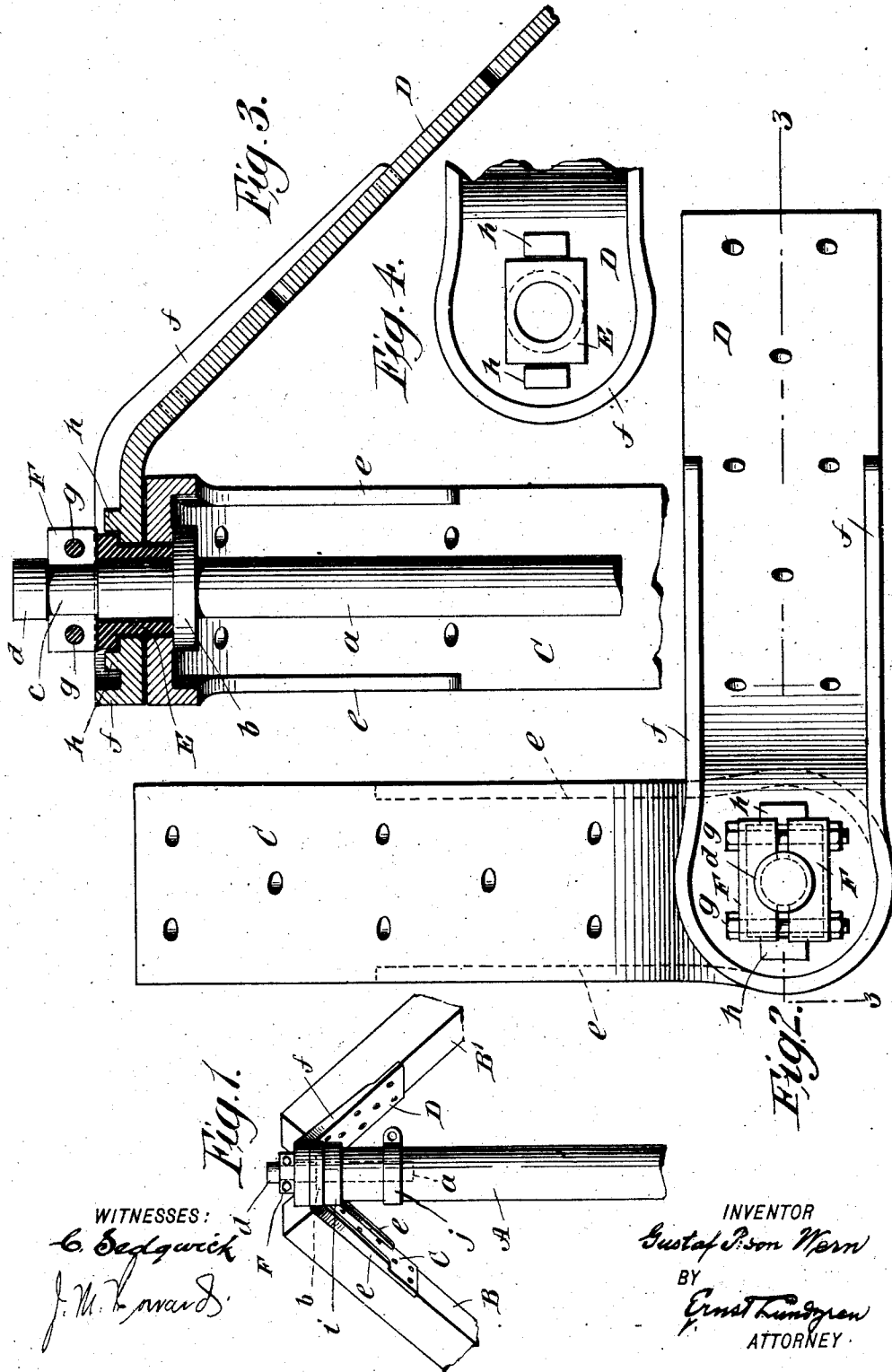


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G. P. WERN.
TOP FITTING FOR DERRICKS.
APPLICATION FILED SEPT. 11, 1906.



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TOP-FITTING FOR DERRICKS.

No. 854,189.

Specification of Letters Patent.

Patented May 21, 1907.

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To all whom it may concern:

Be it known that I, GUSTAF P. WERN, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Top-Fittings for Derricks, of which the following, taken in connection with the accompanying drawings and reference characters marked thereon, is a full, clear, and exact specification sufficient to enable others skilled in the art to make and use my improvements.

The object of this invention is to provide or produce simple, cheap and efficient top-fittings for derricks which may be easily and quickly applied in place for use, which will afford ample strength for uniting the parts and for holding them during use, which will prevent accidental disarrangement, afford security against undue wear, supply facilities for lubrication, and which will permit the parts of the derrick to be readily dis-united whenever required.

To accomplish all of the foregoing and to secure other and further advantages in the matters of construction, operation, application and use, my improvements involve certain new and useful arrangements or combinations of parts and peculiar features of construction, as will be herein first fully described and then pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a front elevation of the upper part of a derrick, including the mast or standard and two legs, with my improved top fittings in place in connection therewith. Fig. 2 is a top or plan view corresponding with Fig. 1 but on a scale considerably enlarged beyond that figure, showing the metallic portions but omitting the legs and mast or standard. Fig. 3 is a section and elevation on planes through lines 3—3 of Fig. 4, showing the various parts in detail. Fig. 4 is a plan view of a fragment of the upper leg strap shown in previous figures and representing the bushing in place but omitting the other elements.

In all these figures like reference characters are employed, wherever they occur, to indicate corresponding parts.

The derricks to which my improvements are especially applicable are usually composed of a mast, staff or standard which is capable of being turned in either direction about its axis, the same being held in up-

right or nearly upright position by braces or pieces called legs which are usually inclined but are sometimes horizontal. The hoisting appliances, of whatever character they may be, are applied in connection with the mast or standard in various ways or under various arrangements according to the character of the hoisting and swinging apparatus and the style of derrick.

A represents the mast or standard which may be of wood or metal.

B, B¹, represent inclined legs of a derrick, which legs are usually made of wood but which might be made of metal. The legs and the standard are to be united at top in a substantial and reliable manner and so as to permit all the operations or movements necessary in a hoisting and swinging derrick. For use in connection with a wooden standard I employ a pin or pintle *a* of considerable length, the same being driven or otherwise located in a suitable perforation provided in the axis of the mast. When the mast is made of metal a similar pin or pintle is employed and properly secured in the top. The pin *a* is provided with a flange *b* which generally bears upon the top of the mast. The pin is also recessed, as at *c*, affording a neck and a head, as *d*, for purposes that will hereafter appear.

C is a cast or wrought metal strap fitted to receive the upper end of one of the legs and to be securely connected therewith, the upper part of this strap being extended beyond the end of the leg, bent at an angle, if necessary, with the portion applied upon the leg and perforated to pass over the pin which is secured in the top of the mast. To render this strap abundantly strong and durable it is provided with a projecting marginal rib, represented at *e, e*, which extends on both margins and around the upper part of the strap and is located on the lower face thereof.

D is a strap for the other leg, B¹, called the top strap, for the reason that it rests upon the top of the strap C. It is also provided with a marginal rib, represented at *f*, extending around its upper part and on both margins, but on this strap the rib is located upon the upper surface instead of upon the under surface as on the under strap. The two straps may thus be made of comparatively light material while they afford ample strength for the purposes intended; and they are able to be fitted so that one will bear closely upon the top of the other, as indicated in Figs. 1

and 3. The top strap is provided with a perforation the same as the under strap, and the perforation in each strap is made large enough to accommodate the bushing which is employed around the pin.

E represents a bushing of any suitable material or composition and of any desired degree of hardness. This is introduced into the openings in the straps and upon the upper part of the pin *a*, affording a box or bearing for the part of the pin between the flange and the neck, which constitutes the journal for the upper end of the revoluble mast. The bushing rests upon the flange *b* of the pin and it is held in place for work, after the other parts have been assembled, by the application of a suitable yoke applied in the neck *c* and below the head *d*. The yoke is shown as composed of two similar parts, F, F, suitably recessed to embrace the neck of the pin and being perforated for reception of the removable locking bolts, *g, g*. While this yoke is shown as made in two parts, obviously it might be otherwise constructed and still answer the purpose required of it. By its use in connection with the projecting end of the pin, *a*, the parts are conveniently and securely locked against disarrangement after they have been properly assembled and the pin is not weakened by a perforation through it as would be otherwise required to accommodate a cross pin, as in the ordinary manner of construction. The bushing should be held from turning in its seat in the straps so that the wear will be entirely on the interior of the bushing, leaving the otherwise circular perforations in the straps wholly unworn. Any suitable means might be adopted for preventing the bushing from turning in its seat, but I prefer to make the head of the bushing rectangular, as indicated in Fig. 4, and to form lugs, as *h, h*, upon the strap D, substantially as indicated. The plain faces of the bushing bearing against these lugs, the bushing will be secured from turning in its seat, as will be apparent. Lubricating material for the journal is easily introduced at the opening between the portions of the yoke, which yoke may or may not turn with the pin.

The parts being constructed and mounted after the manner above indicated afford reliable top-fittings which are convenient to apply and assemble and which are equally convenient to be disassembled; and they will be found to otherwise admirably answer all the purposes or objects of the invention hereinbefore alluded to.

By the wearing of the openings in the straps as heretofore ordinarily constructed, the derrick gradually becomes weakened and incapable of withstanding the severe strains to which it is usually subjected; and the openings in the straps being under ordinary constructions elongated by wear, the mast is then no longer accurately held in place but

the union of the fittings becomes loose and the derrick becomes unstable with attending risk of damage and destruction and with waste of power and lack of smoothness of operation.

At *i* is represented the ordinary top hand of a derrick mast, the same being employed to prevent splitting of the top of the mast by reason of the strains brought thereon. This band is usually placed flush with the top of the mast and the curved portion of the rib *e* may ride thereupon.

The band *j* is usually in the form of a strap band with one or more eyes for receiving a sheave block or sheave blocks.

Having now fully described my invention, what I claim as new herein and desire to secure by Letters Patent, is—

1. The combination with a derrick mast, of a pin having a flange, a journal portion, and an annular recess above said journal portion, substantially as and for the purposes set forth.

2. In top-fittings for derricks, the combination of leg straps adapted to bear one upon the other, said straps being perforated and provided each with a marginal strengthening rib, the rib on the under strap being located on the under side and the rib on the upper strap being located on the upper side, substantially as and for the purposes set forth.

3. In top-fittings for derricks, the combination of leg straps perforated as explained, a pin affording a journal, and a bushing applied upon said pin and in the perforations of the leg straps, substantially as and for the purposes set forth.

4. In top-fittings for derricks, the combination of leg straps, a pin affording a journal, a bushing applied upon said pin and in said straps, and a removable retaining yoke also applied upon said pin, substantially as and for the purposes set forth.

5. In top-fittings for derricks, the combination with the pin and the leg straps, of a removable bushing having an angular head, one of the leg straps being provided with lugs to prevent the bushing from turning, substantially as and for the purposes set forth.

6. In top-fittings for derricks, the combination of the pin having a flange, a journal portion and an annular recess, of leg straps, a removable bushing applied in said straps and around the journal portion of the pin, and a removable yoke applied in the recess in the pin, substantially as and for the purposes set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

GUSTAF P. WERN.

Witnesses:

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J. M. HOWARD.