

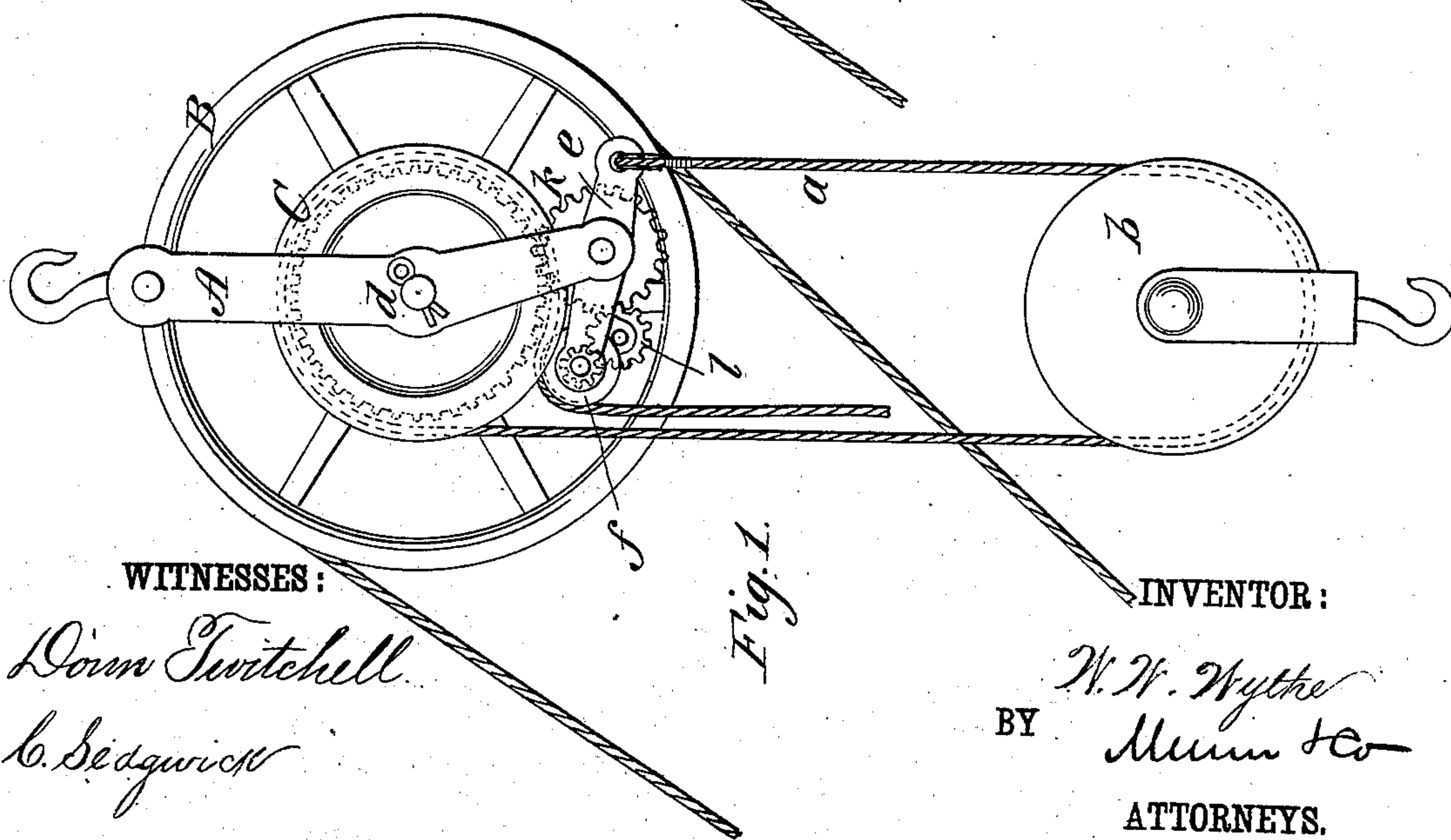
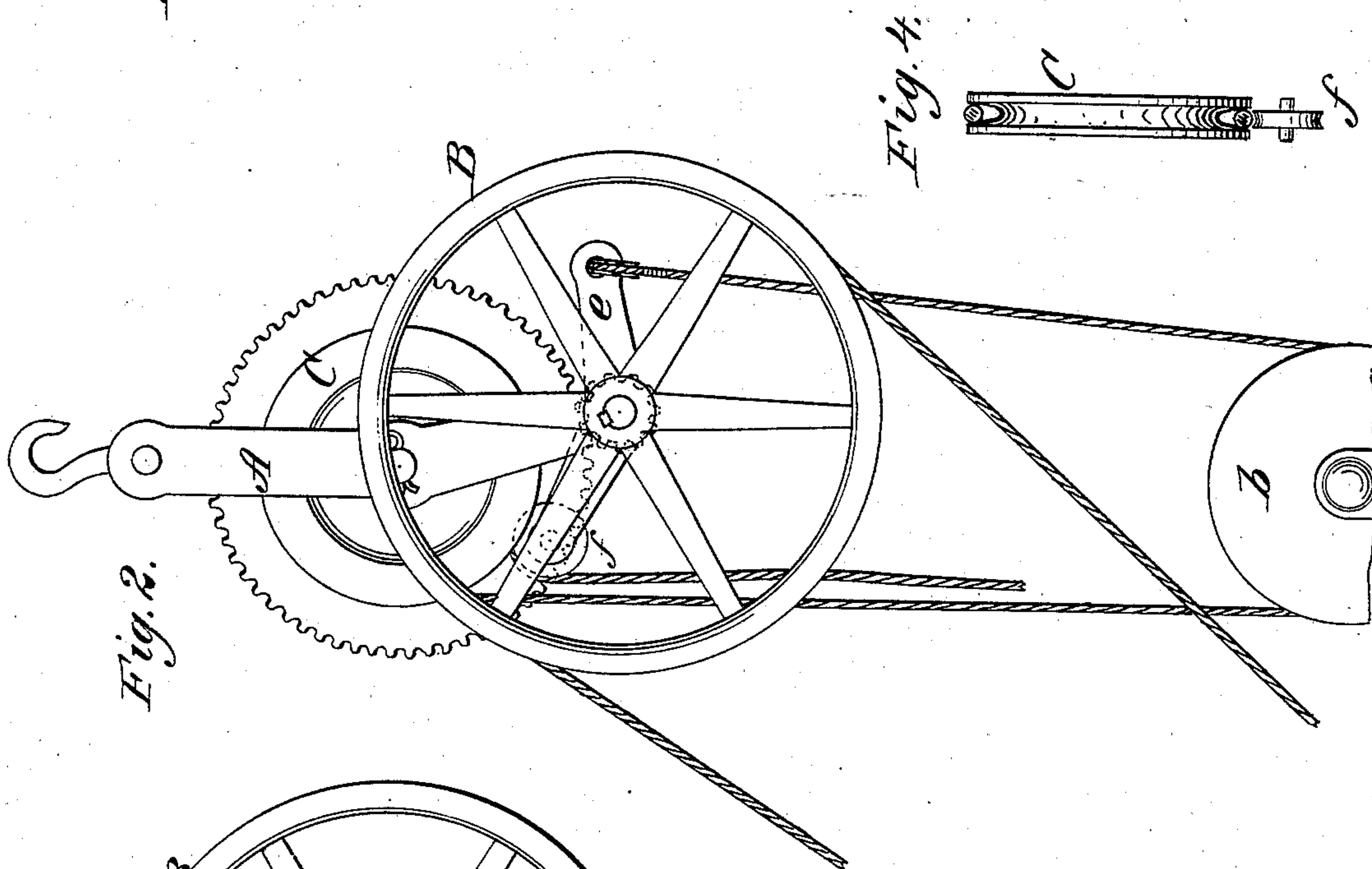
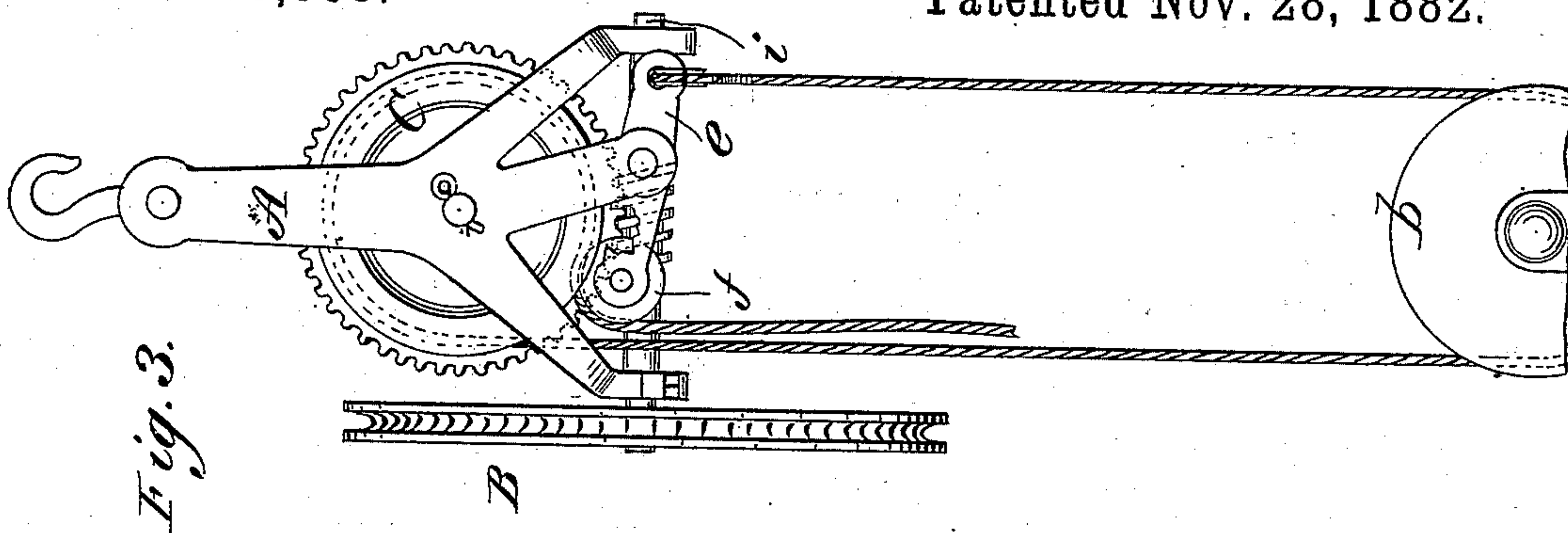
(No Model.)

W. W. WYTHE.

HOISTING GEAR.

No. 268,068.

Patented Nov. 28, 1882.



WITNESSES:

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WILLIAM W. WYTHER, OF RED BANK, NEW JERSEY.

HOISTING-GEAR.

SPECIFICATION forming part of Letters Patent No. 268,068, dated November 28, 1882.

Application filed April 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. WYTHER, of Red Bank, in the county of Monmouth and State of New Jersey, have invented a new and useful Improvement in Hoisting-Gear, of which the following is a full, clear, and exact description.

The object of my invention is to secure frictional adhesion of the rope to the drum or pulley of the hoisting mechanism, so that one end of the rope may be left to hang free without danger of the load descending by the slipping of the rope. To that end I combine with the hoisting-gear a friction-pulley arranged to press the rope into the groove of the pulley with more or less pressure, in proportion to the load that is being raised, as set forth more particularly hereinafter.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of hoisting-gear of simple form with my improvements applied. Fig. 2 is a side view, showing the hoisting-gear as fitted with my improvements and arranged for heavier loads. Fig. 3 shows hoisting-gear designed for the heaviest loads and as fitted with the improved devices. Fig. 4 is a detail view.

A in all the figures is the suspension-yoke of the gear. B is the wheel for the hand rope or chain. C is the grooved pulley, around which the hoisting-rope *a* passes, and *b* is the usual pulley, suspended upon the rope *a*, for attachment to the load.

Referring to Fig. 1, the hand-wheel B and the grooved pulley C are both fixed upon the shaft *d*. In the lower end of the yoke A is hung a lever, *e*, on one end of which is connected one end of the hoisting-rope *a*, and on the other end of the lever *e* is fitted a friction-pulley, *f*, the rim of which is grooved, and it is of a width to enter the groove in the pulley C, or nearly so. (See Fig. 4.) The hoisting-rope *a* passes from its attachment to the outer end of lever *e*, around the lower pulley, *b*, and thence upward over the grooved pulley C, beneath the same, and over the friction-pulley *f*, the end hanging free, as shown. It will be seen that by this arrangement the weight of

the load suspended by the rope *a* will tend to press the free end of the rope into the groove of the pulley C, the pressure being more or less, according to the weight, and thus an active frictional adhesion of the rope in the groove of the pulley is secured. This friction will be sufficient to hold the rope and prevent its slipping. If the angle of the groove in the pulley C is properly made, and if it is desired to obtain additional friction, especially when the pulley is made of iron, the sides of the groove may be covered with india-rubber or other soft material.

In Fig. 2 the arrangement is substantially the same; but in this case the gear is intended for lifting heavy loads, and the pulley C and hand-wheel B are upon separate shafts connected by gearing. The lever *e* is hung upon the shaft of the hand-wheel. The operation is the same.

In Fig. 3 the gearing is arranged for lifting the heaviest loads. In that case the hand-rope wheel B is upon a cross-shaft, *i*, upon which is a worm that engages a cog-rim of the grooved pulley C or a worm-wheel on the same shaft.

In some cases it will be desirable to insure the rotation of the friction-pulley *f* by gearing it to the pulley C, instead of depending upon the frictional contact. Such arrangement is shown in Fig. 1, in which *k* is a pinion on the fulcrum-arbor of the lever *e*, engaging a gear-wheel upon the shaft *d* of the pulley. *l* is a loose intermediate pinion engaging a similar pinion upon the side of the friction-pulley *f*. By these connections the friction-pulley will be rotated in unison with the pulley C, and any slipping or slackening of the hoisting-rope which might occur by stoppage of the friction-pulley will be prevented.

If desired, the grooved pulley C may be hung on a lever and the friction-pulley placed on the frame, the operation being then substantially the same—that is to say, the weight of load acting on the lever to press the rope into the groove.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In hoisting-gear, the combination of a friction-pulley carried by a lever, from which the hoisting-rope is suspended, with the grooved pulley of the hoisting-rope in such manner

that the free end of the rope is pressed by the friction-pulley into the groove of the main pulley, substantially as shown and described.

2. In hoisting-gear, the combination of the 5 grooved pulley C, the lever *e*, the friction-pulley *f*, and hoisting-rope *a*, one end of the hoisting-rope being connected with the lever and its free end passing between the main pulley C and the friction-pulley *f*, substantially as 10 shown and described, and for the purpose set forth.

3. In hoisting-gear, the combination, with the main pulley C and friction-pulley *f*, of the

intermediate gear, substantially as shown, for insuring rotation of the friction-pulley, as 15 specified.

4. In hoisting-gear, the combination of a friction-pulley with the grooved pulley of the hoisting-rope, when arranged to press the rope into the groove of the pulley by a lever acted upon 20 by the weight of the load, substantially as described.

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Witnesses:

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