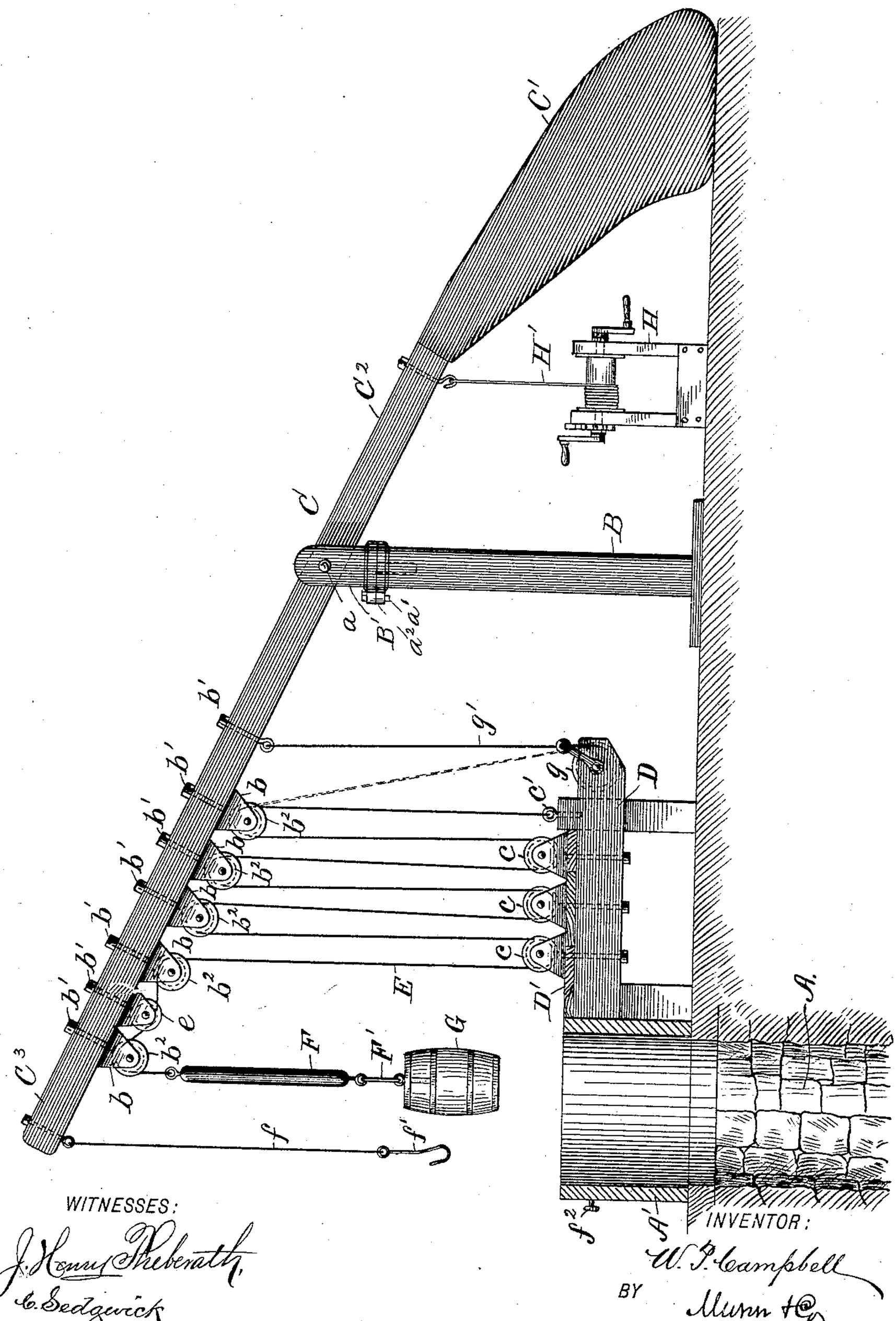
(No Model.)

W. P. CAMPBELL.

HOISTING DEVICE.

No. 437,088. Patented Sept. 23, 1890.



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WILLIAM P. CAMPBELL, OF ROME, ALABAMA.

HOISTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 437,088, dated September 23, 1890.

Application filed November 5, 1889. Serial No. 329,285. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. CAMPBELL, of Rome, in the county of Covington and State of Alabama, have invented a new and useful Improvement in Hoisting Devices, of which the following is a full, clear, and exact description.

My invention relates to an improvement belonging to a class of hoisting mechanism in which a weighted sweep-pole is utilized, the most common application of such apparatus being to elevate water from open wells.

The objects of my invention are to provide an improved hoisting device of the type indicated, which can be employed to raise water in a bucket from an open well, or may be adapted to hoist brick and other material for building purposes or applied to other analogous uses.

With these ends in view my invention consists in certain features of construction and combinations of parts, which will be hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawing, forming a part of this specification, and to the letters of reference marked thereon.

In the partly-sectional side elevation of the device which constitutes the illustration thereof the hoisting mechanism is shown in connection with an open well, and is adapted to hoist water from the same, this being the preferred use of the apparatus.

A represents a vertical section of an upper portion of well walled with stone, on the top of which the crib or protecting structure A′ is erected which surrounds the well in the usual manner.

At a suitable distance from the well-crib A′ a vertical post B is planted firmly, which post is slotted on the upper end downwardly through its center, thus affording parallel flanges, which embrace loosely the body of a sweep-beam C, which is pivoted therein at *a*. The post B is preferably constructed having a swivel-head B′, which may be prevented from revolving upon the main body of the post by a bolt *a*′, which is inserted in aligning holes in the projecting ears a^2. The beam C is proportioned in length to the height it is to raise material, and has a weight C′ affixed to its short limb C^2, which projects away from the well-crib A′. Extending from the pivotal support *a* toward the well the main portion C^3 of the sweep-beam C is normally held with its terminal end above and nearly aligning with the outer edge of the well-crib A′ by the weight C′.

A suitable timber frame D is erected adjacent to the side of the well-crib A′ between it and the vertical post B, in alignment with the latter. This frame D is provided with a horizontal table D′, of proper height, on which is located other parts of the apparatus, which will be described.

On the portion C^3 of the sweep-beam C a series of similar bracket-frames *b* are affixed by bolts *b*′, which are inserted through the beam and secured thereto by nuts or other means. These bracket-frames are spaced apart a proper distance, and afford revoluble support to grooved pulleys b^2, which are pivoted thereto, the pulleys being preferably made of equal diameter. Upon the table D′ similarly-supported grooved pulleys *c* are secured at points which will align them with the pulleys b^2 above and adapt them to coact therewith.

A rope E, of any suitable material, either fibrous or metallic, is provided of sufficient length. One end of this rope is attached at *c*′ to the frame D by an eyebolt or similar means. From the point of attachment *c*′ the rope E is extended upwardly and passed over the pulley on the beam C, which has its edge aligned with said point, and thence downwardly to engage in a similar manner the nearest pulley *c* on the table D′, and thence upwardly to be strung over the next upper pulley b^2. The rope E is rigged, as explained, so that it will be roven upon all the upper and lower pulleys of the mating series mentioned, its opposite end, after engaging the last upper pulley of the series on the beam C, being attached to a billet of wood F at one end of the same, the opposite end of said billet having loose connection with the bail F′ of the well-bucket G. It is necessary for the proper operation of the device that the pendent bucket G should be held in such relative position above the crib A′ that it will readily enter the same when it is lowered.

Between the outer upper pulley b^2 and the next one of the series an idler-pulley *e* may

be introduced, as shown. This pulley may be used or not, as circumstances dictate. If a considerable distance is to be spanned by the rope in passing from the second pulley b^2 to the outer one, then by passing the rope below the idler-pulley *e* there will be a smoother movement of the rope and less liability of its being fouled when the beam is moved rapidly to lower the bucket.

Upon the outer end of the beam C a lanyard *f* is attached by one of its ends, the lower extremity thereof being provided with a hook *f'*, which when the beam is drawn down by pulling the lanyard may be hooked upon the stud or pin f^2, and thus hold the beam end depressed.

At the rear end of the frame D its horizontal timbers are extended to afford support for a winch-drum *g*, which is connected by a rope or chain *g'* to the beam C, this provision being made to afford means for the depression of the portion C^3, if it should be preferred, to the lanyard *f*.

When the device is employed to raise water from an open well, the weighted end of the beam should be made to slightly overbalance the weight of the bucket G when it is filled with water, so that a release of draft upon the lanyard *f* will elevate the bucket and its contents to the edge of the crib, the beam being proportioned so that the heavy end of the same will come to rest on the ground or other support when the bucket is elevated a proper height.

In operation the weight of the empty bucket will retain the rope E stretched taut, so that the depression of the portion C^3 of the beam will permit said rope to glide freely through the brackets upon the pulleys b^2 and *c*, thus causing it to lengthen at the end engaged by the bucket and lower the latter named into the well. When the bucket G strikes the surface of the water, its upper edge will be tipped by the billet F and caused to fill, this being the function of the billet, as ordinarily there is difficulty in causing a well-bucket to fill with water.

In case the well is deep and the water low in it, as sometimes occurs during a season of drought, the bucket-rope E may be adjusted to lower the bucket G into the water by attachment of its end, which is engaged by the eyebolt *c'*, to the winch *g*, the rope or chain *g'* having been removed. This connection of parts (shown in dotted lines) will, if additional length of rope is supplied and wound upon the winch-drum, enable the operator to lower the bucket and raise it until the beam may be effectively operated and finish the elevation of the filled bucket.

When the device is employed for the hoisting of shingles, timber, bricks, and mortar upon a building in course of erection, this may be done by mounting the post B on an elevated scaffold when the progress of construction demands such an elevation of the device. The operation in the hoisting of loads which the weighted end of the beam C will overbalance is the same as that of drawing water from a well, it being understood that the bucket is dispensed with, the material that is to be hoisted being removably connected to the rope end which is nearest the bucket.

If very heavy material is to be lifted, which the weighted end of the beam will not raise, a windlass-crab H is located securely near this weighted end, and by its power applied through a flexible connection H', the heavy end of the beam may receive supplementary aid to overbalance the load and elevate it.

When the device is used as a water-elevator, the beam is held in position so it will vibrate above the well by the locking-bolt *a'*. Said bolt may be removed and permit the beam to swing laterally a limited distance, if this is necessary, to transfer material to a point out of vertical line with the place said load was lifted from, the grooved pulleys retaining the rope connected therewith.

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

1. In a hoisting device, the combination, with a vertical post and a beam C, pivoted to swing vertically thereon, of a longitudinally-aligned series of pulleys b^2 on the longer arm C^3 of the beam, the shorter arm being provided with a weight, a frame D below the long arm C^3 and separate and independent of the post, a longitudinally-aligned series of pulleys *c c c* on said frame in the same vertical plane with the pulleys b^2, and a rope E, secured at one end and rove up and down through the pulleys b^2 *c*, its free end depending from the outer upper pulley b^2, substantially as set forth.

2. In a hoisting device, the combination, with a beam pivoted upon a post nearer one end of the beam which is weighted and a series of grooved pulleys which are revolubly secured upon and depend from the lower surface of the longer end portion of the beam, of a mating series of grooved pulleys held to revolve upon a stably-supported table below the beam, a supporting-table for the lower series of pulleys, and a hoisting-rope rove upon the double series of pulleys, substantially as set forth.

3. In a hoisting device, the combination, with a beam pivoted nearer one end of the same, an upright post on which the beam is pivoted, a weight secured to the shorter end of the beam, a series of grooved pulleys secured to revolve on the lower surface of the longer end of the beam, another mating series of grooved pulleys supported to rotate upon a fixed table, and a stably-secured table, of a hoisting-rope having one end attached to the table and rove upon all of the pulleys and a well-bucket secured to depend from the other end of the rope, substantially as set forth.

4. In a hoisting device, the combination, with a beam pivoted near one of its ends that

is weighted, an upright post on which the beam vibrates, a series of grooved pulleys on the longer end of the beam, a series of mating pulleys on a frame below the beam, a supporting frame or table, and a hoisting-rope rove upon the double series of grooved pulleys, of a well-bucket fastened to one end of the hoisting-rope, a billet on the rope above the bucket, and a lanyard to depress the beam and lower the bucket, substantially as set forth.

5. In a hoisting device, the combination, with a beam pivoted near one of its ends that is weighted, an upright post on which the beam vibrates, a series of grooved pulleys on the longer end of the beam, a series of mating pulleys on a frame below the beam, and a hoisting-rope rove upon the two series of pulleys, of a well-bucket affixed to the hoisting-rope, a lanyard to depress the beam by draft force applied through it, and a winch-drum that may be used to depress the beam or reciprocate the bucket, substantially as set forth.

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