

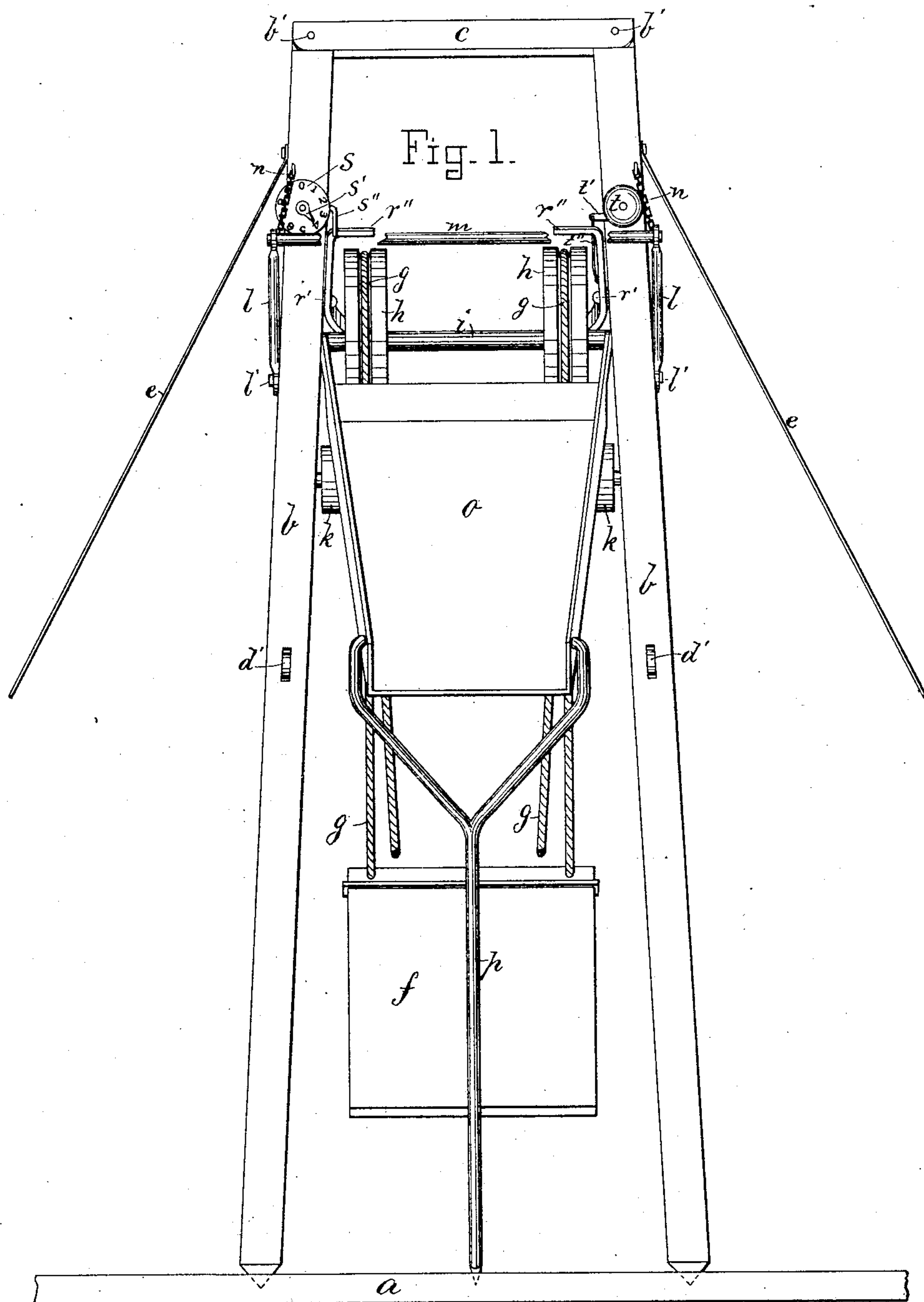
(No Model.)

3 Sheets—Sheet 1.

E. C. BENNETT.
Portable Folding Derrick.

No. 227,875.

Patented May 25, 1880.



Witnesses:

Henry Chadbourn.
J. Allen.

Inventor:

Edward C. Bennett.
by Allan Audrean
his atty.

(No Model.)

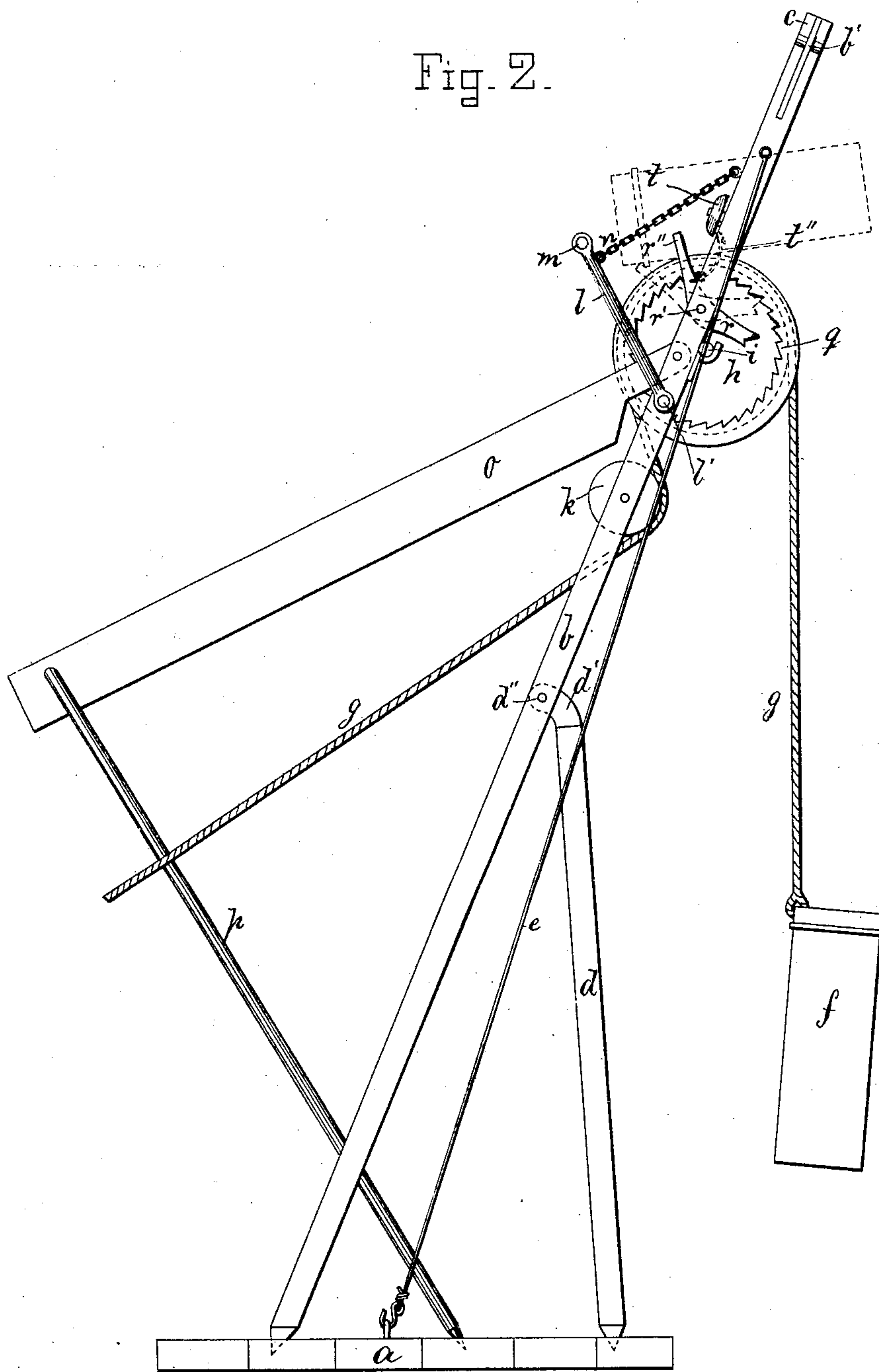
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Patented May 25, 1880.

Fig. 2.



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(No Model.)

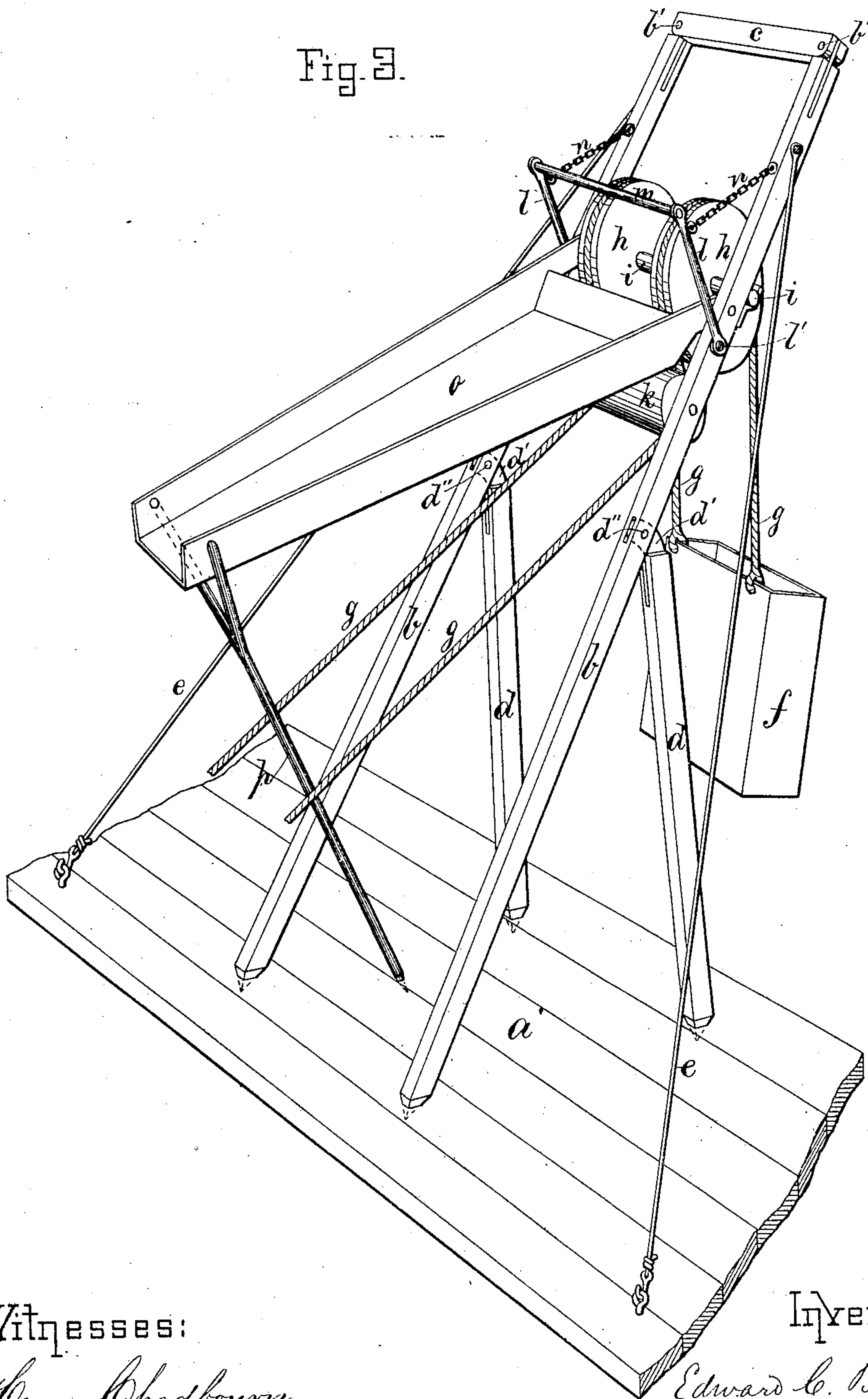
3 Sheets—Sheet 3

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Patented May 25, 1880.

Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD C. BENNETT, OF PHILADELPHIA, PA., ASSIGNOR OF ONE-HALF
OF HIS RIGHT TO JOHN R. WHITE, OF BOSTON, MASS.

PORTABLE FOLDING DERRICK.

SPECIFICATION forming part of Letters Patent No. 227,875, dated May 25, 1880.

Application filed April 9, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. BENNETT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Portable Folding Derricks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in derricks; and it consists in the combination of devices, as hereinafter will be more fully shown and described, by means of which the whole may be folded together in a comparatively small space, so as to occupy but little room on the deck of a vessel. This is of great importance, as many places where vessels have to discharge their cargoes are not provided with suitable derricks or hoisting apparatus, and it is therefore very convenient and time-saving to carry a portable and folding derrick on the deck of the vessel, such derricks being constructed in such a manner as to be easily raised on the deck of a vessel whenever required for use.

On the accompanying drawings, Figure 1 represents a front elevation of my improved derrick. Fig. 2 represents a side elevation, and Fig. 3 represents a perspective view, thereof.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

On the drawings, *a* represents the deck of a vessel. *b b* represent the uprights of my improved derrick, which are jointed in their upper ends, by means of hinge-pins *b' b'*, to the cross-bar *c*, as shown. About midway on the uprights *b b* are jointed the braces *d d*, by means of the hinge-plates *d' d'* and hinge-pins *d'' d''*, as shown. The lower ends of both uprights *b b* and braces *d d* are pointed, as shown, so as to rest in suitable notches or recesses on the deck *a*, or in shoes secured to the deck, if so desired.

e e are guys or stays extending from about the upper ends of the uprights to the deck *a* or other stationary part of the vessel, so as to more firmly hold the derrick in place. Such stays may, however, be dispensed with.

f is the bucket, to which the hoisting-ropes *g g* are attached, the latter being carried over the drums or cord-pulleys *h h*, located on the shaft *i*, that is free to run in bearings secured to the uprights *b b*.

k is a guide-roller, also located on a loosely-revolving shaft that is free to turn in bearings in the uprights *b b*, as shown, and said roller serves for the purpose of properly guiding the hoisting-ropes *g g* from their pulleys *h h* to the hoisting apparatus that is used.

l l are arms or levers, hinged at their lower ends, *l'*, to each of the uprights *b b*, as shown, their upper ends being united by means of the cross-bar *m*, and provided with supporting chains or stays *n n*, attached to the uprights *b b*. The said bar *m* serves as a rest, against which the open top of the bucket *f* strikes when it is hoisted to its highest position to automatically dump its contents, and prevented from being carried entirely over and around the pulleys *h h*, and also to allow the empty bucket to descend automatically as soon as the hoisting apparatus is reversed and the hoisting-ropes slackened.

o is the adjustable chute or stage onto which the contents of the bucket are dumped. Said chute is hinged in its upper end, *o'*, to each of the uprights *b b*, as shown, to allow for variations in the tide when the vessel is unloaded.

p is an adjustable support, jointed in its upper end to the outer end of the chute *o*, and adapted to rest in its lower end against the deck of the vessel, as shown.

The cord-pulleys *h h* and their shaft, as well as the roller *k*, with its shaft, and the chute *o*, are all to be detached from the uprights *b b* when the derrick is not required for use, so that it can be easily folded together and put away in a comparatively small space.

In Figs. 1 and 2 is shown a brake attachment for automatically stopping the pulleys *h h* from rotation when the bucket *f* is carried to its highest point to dump its contents, and this device is shown as consisting of an annu-

lar toothed ring, *g*, on the outer face of each pulley *h*, and a pawl-lever, *r*, hung to the upright *b* at *r'*, and having a bent arm, *r''*, in upper end, as shown, by which arrangement
 5 the bucket *f*, as it comes to its dumping position, as shown in dotted lines in Fig. 2, comes in contact with the arm *r''*, and thereby causes the pawl *r* to lock into the toothed ring *g*, as shown, and thus prevents the pulleys *h h* from
 10 turning until the bucket is again lowered, when the pawl-lever *r* by its own gravity comes again to the position as shown in full lines in Fig. 2.

To prevent mistakes in counting the number of buckets that have been raised and delivered in a certain time, I provide the derrick with a dial-plate, *s*, having an index, *s'*, connected to any of the usual and well-known registering apparatus, that is provided with a
 15 suitable projection, *s''*, as shown in Fig. 1, that is acted upon by the bucket *f* striking the lever *r* and the latter striking the said projection *s''* for each time the bucket is emptied, and in this manner an accurate account is ob-
 20 tained of the buckets emptied onto the chute *o*.

I do not confine myself to any particular registering apparatus, as any of the ordinary kinds used for other purposes will serve my purpose to equal advantage.

30 In addition to the self-registering dial *s*, I further provide the derricks with a gong, *t*, as usual, and connected by means of a cord or link, *t''*, or in any other well-known manner, to the pawl-lever *r r''*, so as to cause the said
 35 gong to be struck once each time the bucket *f* is emptied, which is accomplished by the bucket *f* hitting the lever *r''*, which, being

connected to the striker-lever *t'* by means of the cord or link *t''*, pulls on the latter, and thus strikes the gong. 40

In case it should be desired to weigh the contents of the bucket *f* after it is filled and before it is being emptied, a suitable pair of steelyards or similar weighing apparatus may be interposed between the hoisting-ropes *g g* 45 and the top of the bucket *f*.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The herein-described portable and folding 50 derrick-frame, consisting of the uprights *b b*, jointed in their upper ends to the cross-bar *c*, and provided with the braces *d d*, jointed to the said uprights, as and for the purpose set forth. 55

2. In combination with the uprights *b b*, cross-bar *c*, and braces *d d*, as described, the pulleys *h h*, guide-roller *k*, dumping device *l l m n n*, chute *o*, and support *p*, as and for the purpose set forth. 60

3. In a derrick, the combination of uprights *b b*, pulleys *h h*, bucket *f*, and ropes *g g*, annular toothed rings *g*, and pawl-levers *r r''*, as and for the purpose described.

4. In a derrick, the combination of pulleys 65 *h h*, ropes *g g*, bucket *f*, levers *r r''*, self-registering dial *s*, and gong *t*, as and for the purpose set forth and described.

In testimony whereof I have affixed my signature in presence of two witnesses.

EDWARD C. BENNETT.

Witnesses:

ALBAN ANDRÉN,
 HENRY CHADBURN.