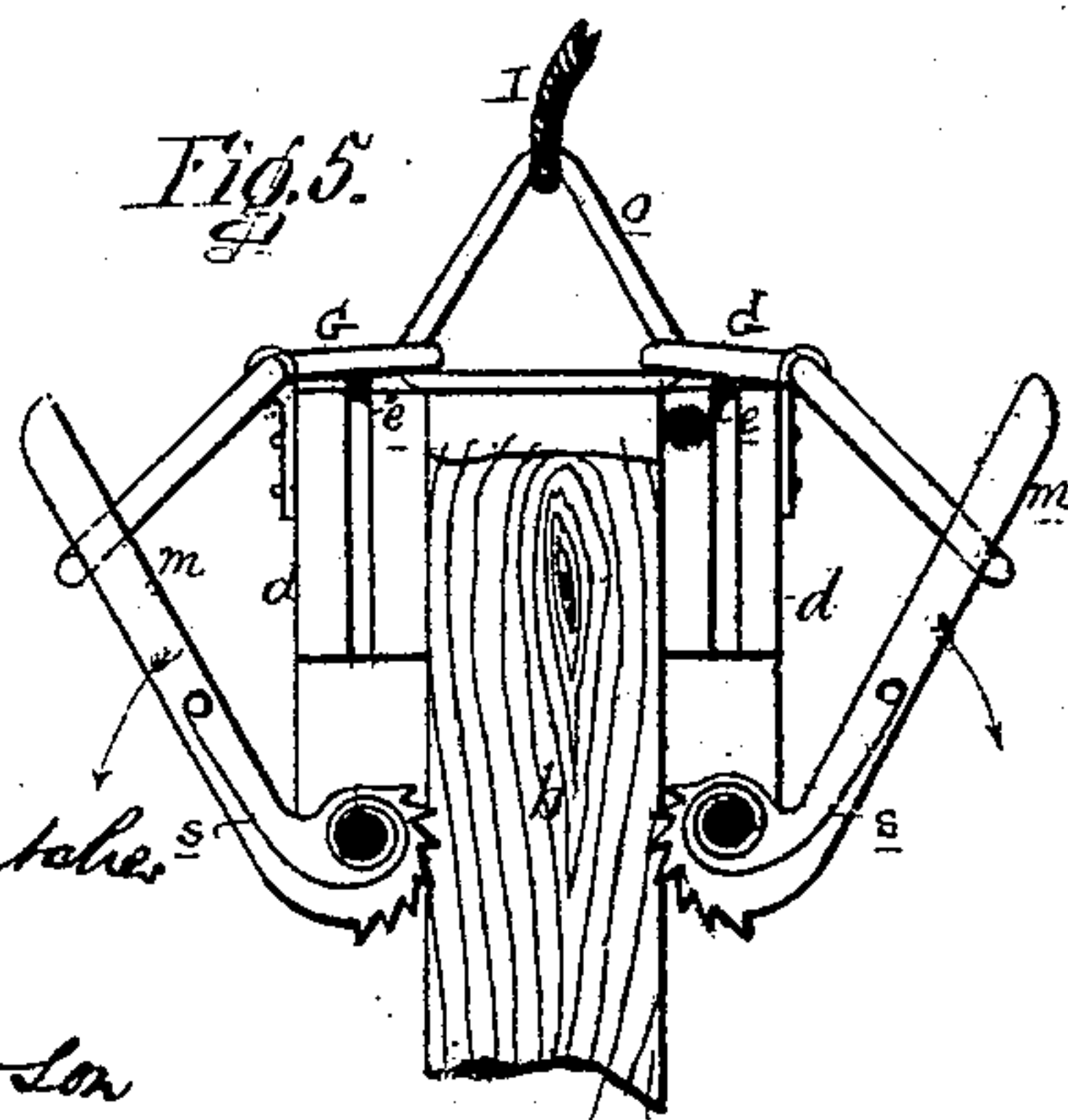
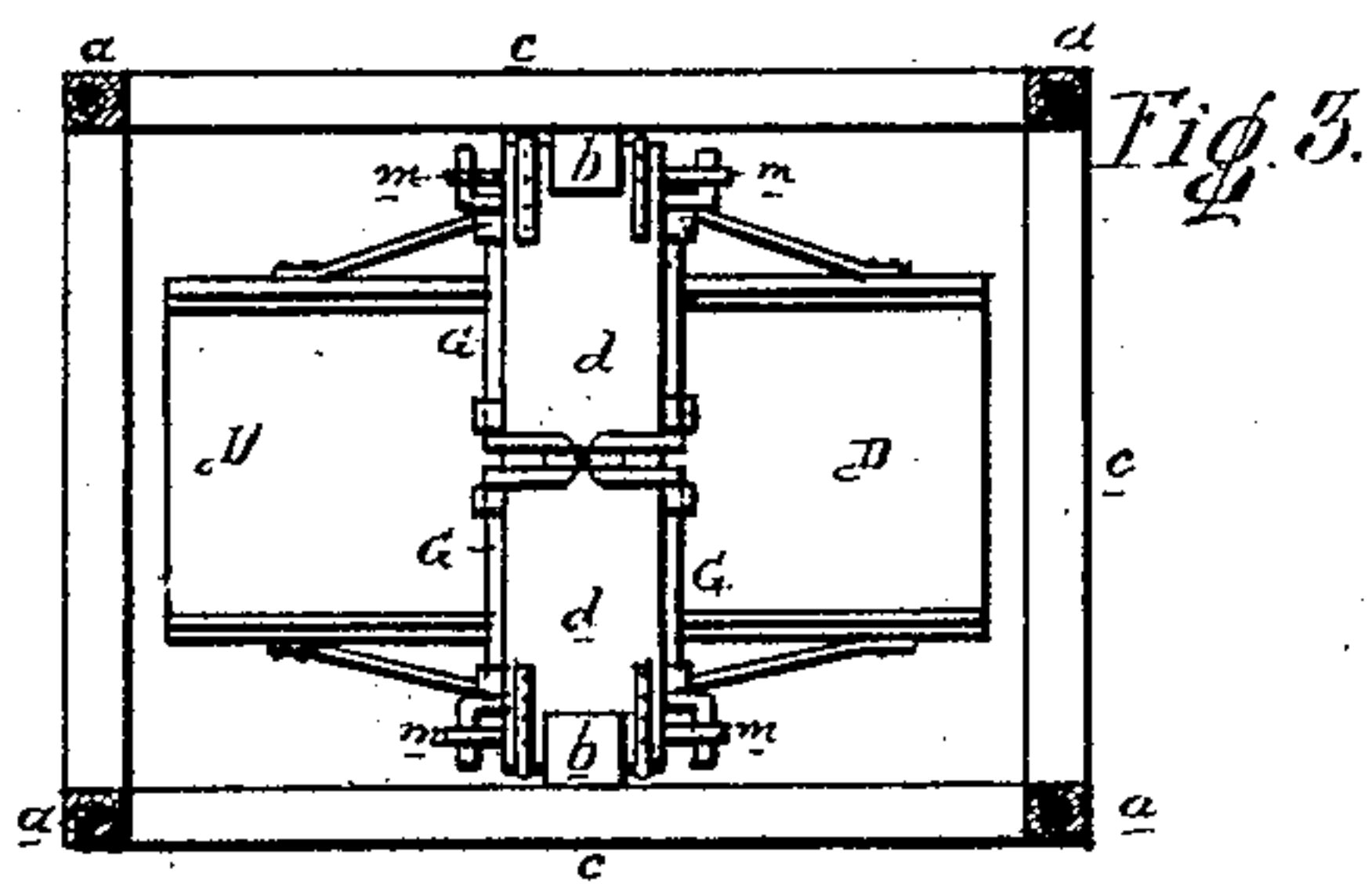
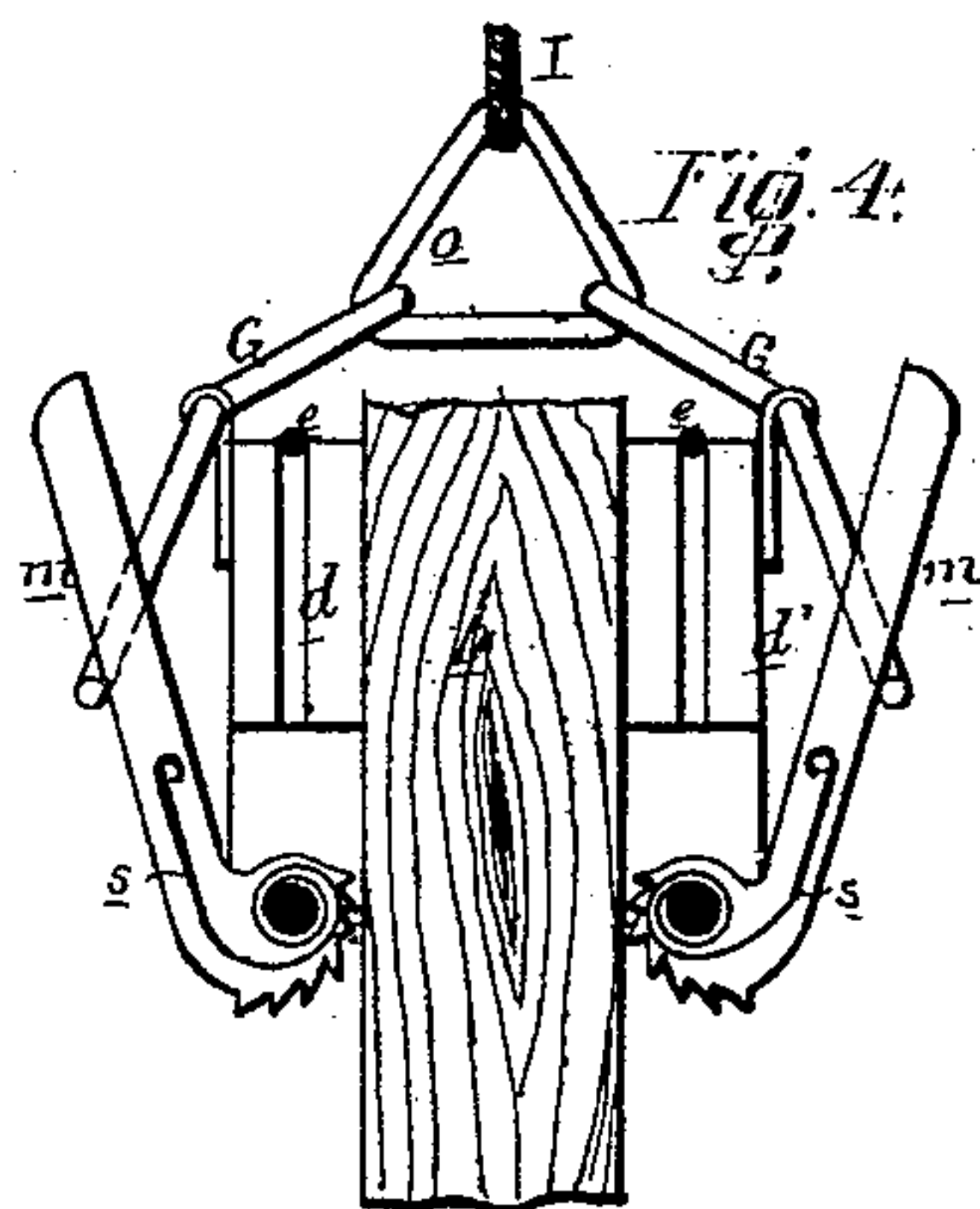
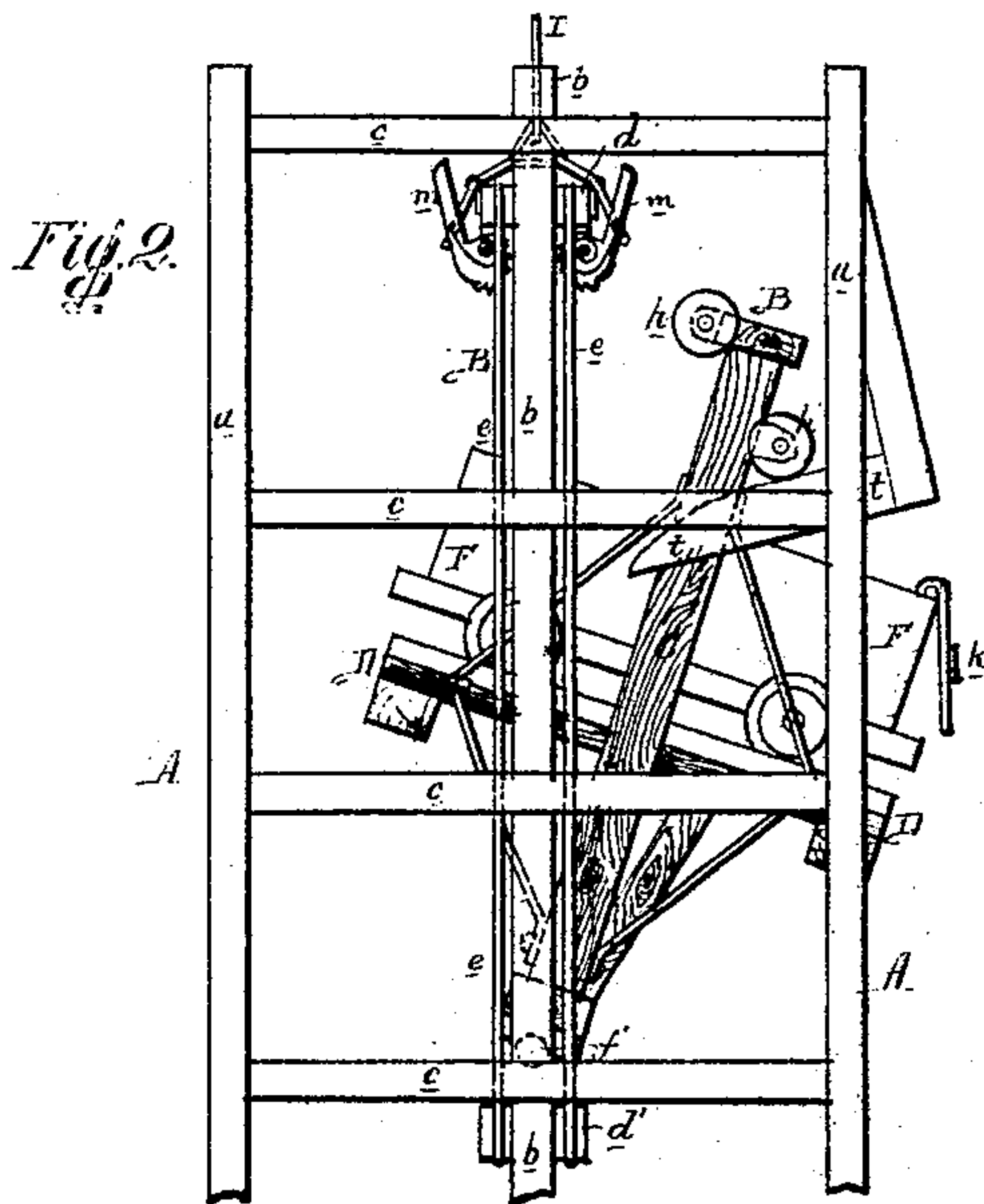
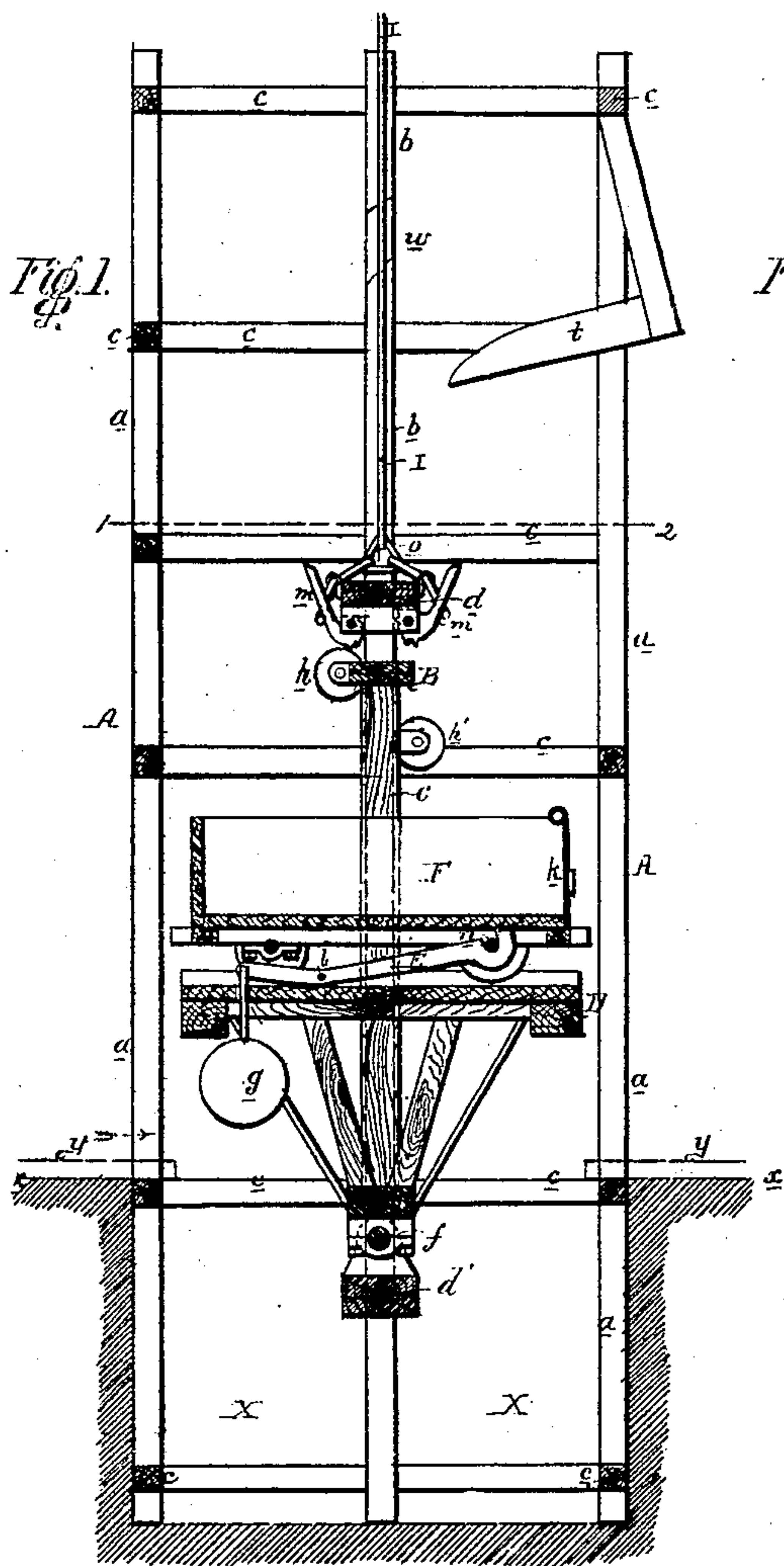


W. Z. HATCHER.
SAFETY DUMPING CAGE FOR MINES.

No. 104,848.

Patented June 28, 1870.



WITNESSES,

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by his Attor.
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United States Patent Office.

WILLIAM Z. HATCHER, OF PLYMOUTH, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND WILLIAM L. LANCE, OF SAME PLACE.

Letters Patent No. 104,848, dated June 28, 1870.

IMPROVED SAFETY DUMPING-CAGE FOR MINES.

The Schedule referred to in these Letters Patent and making part of the same

I, WILLIAM Z. HATCHER, of Plymouth, county of Luzerne, State of Pennsylvania, have invented an Improved Safety Dumping-Cage for Mines, of which the following is a specification.

Nature and Object of my Invention.

My invention consists of certain safety hoisting and dumping-apparatus, fully described hereafter, whereby a loaded car may be safely hoisted in a shaft-frame or tower to any desired height, tilted or dumped, and afterward lowered.

Description of the Accompanying Drawing.

Figure 1 is a sectional elevation of my improved elevating and dumping-apparatus;

Figure 2, a side elevation of part of the same;

Figure 3, a sectional plan on the line 1 2, fig. 1; and

Figures 4 and 5, detached views drawn to an enlarged scale.

General Description.

A is a tower, consisting of upright beams *a a*, vertical guiding-beams *b b*, and connecting cross-beams *c c*.

The lower portion of the shaft is within a pit, X, below the surface *x* of the ground or that of a platform, on which is a railway-track, *y*.

On the guides *b b* a cage, B, is arranged to slide vertically, the said cage consisting of upper transverse bars *d d*, secured to lower transverse bars *d'* by suitable straps *e e*, and the said bars being recessed at the ends, so as to embrace the guides *b b*.

Within the cage B is a frame, C, consisting of posts to which a platform, D, is secured by suitable braces or stays, the said platform having a track which, when the cage is at the limit of its downward movement, coincides with the permanent track *y*.

The frame C is connected to the cage by a pin, *f*, extending across the said cage, and near the upper part of the frame, on each side of the same, are anti-friction pulleys *h h*, arranged as shown in the drawing, and bearing on opposite sides of the guides *b b*, for a purpose described hereafter.

To a pin, *i*, between the rails on the platform D, is hung a lever, E, to the short arm of which is suspended a weight, *g*, for which, however, a suitable spring may be substituted, and in the other arm of the lever is a recess, *n*, of such a size as to receive the axle of a truck or car, F, the latter, when the cage is lowered, being run from the permanent track *y*, in the direction of the arrow, fig. 1, onto the platform, and depressing the lever E until the front axle is above the slot *n*, when the lever will rise, so as to embrace the said axle, and thus temporarily lock the car to the platform.

To the forward end of the car is hung a door, *k*, which may be secured to any suitable fastening device.

At each end of the transverse bar *d*, opposite the sides of the adjacent guide *b*, are hung two levers *m m*, having cam-shaped serrated ends, between which the guide is gripped when the jaws are turned in the direction of the arrows, to the position shown in fig. 5.

To the transverse bar *d* are hung two cranked rods or levers, G G, figs. 4 and 5, the inner arms of the two levers being connected to a link, *o*, which is secured to the lower end of the hoisting-rope I, and the outer arms of the levers being so connected, one to one lever or jaw *m*, and the other to the other lever or jaw, that, when the hoisting-rope is entire, the levers *m* will be in the position shown in fig. 4, and free from contact with the guides; but when the hoisting-rope breaks, the levers *m* will be in the position shown in fig. 2, and their cams will grip the guides, so as to prevent the further descent of the cage.

A spring, *s*, secured to each jaw or lever *m*, and to the pin on which it turns, tends to turn the jaw to the position shown in fig. 5.

At the sides of the tower A, near the upper end of the same, are two inclined rails, *t t*, and in each guide *b* is an inclined slot, *w*.

After the loaded car has been run onto the platform D, and locked by the lever E, the cage is elevated by means of the hoisting-rope, the pulleys *h* and *h'* bearing against the guides *b*, and maintaining the frame C in a vertical position until the pulleys *h* are opposite the slots *w*, when they will pass into the said slots, and the frame, owing to the upper ends of the guides *b b* being slightly inclined toward the rails *t*, will turn on the pin *f* until the wheels *h'* strike the said rails, on which they will bear as the cage continues its upward movement, and this movement is continued until the carriage has been turned to the position shown in fig. 2.

The door *k* of the car is now opened, to permit the contents to pass from the same onto a platform or suitable receptacle, or into the chute.

After the car has been emptied the cage is lowered, when the inclined rails *t* will direct the frame toward a vertical position, until the pulleys *h* enter the inclined slots *w*, which will continue the movement of the tilting frame until it is upright, in which position it will complete its descent.

When the platform D is level with the ground, the empty car F is withdrawn, (after depressing the lever E,) another loaded car pushed onto the platform, and a repetition of the above-described movements takes place.

It will be seen that these operations are all automatic, and require no further superintendence than is necessary to arrest the motion of the cage when it is raised or lowered to the proper position, and to open the door of the car.

It will also be seen that, should the hoisting-rope

by any accident be broken, or detached from its drum, the cage will be arrested in its descent.

Claims.

1. The combination of the cage B, tilting platform D, its rollers *h h'*, the guides *b b*, and the inclined guide-rails *t t* and slots *w w*, substantially as specified.
2. The combination of the cam-shaped jaws *m m* and the cranked rods G G, connected to the hoisting-rope, and operating the jaws, substantially as described.
3. A weighted or spring lever, E, or equivalent device, connected to the platform of the tilting frame,

and arranged for retaining a car thereon, substantially as described.

4. Anti-friction pulleys *h h*, or their equivalents, connected to the aforesaid tilting frame, and adapted to the guides *b b*, in combination with inclined slots *w w* in the guides and inclined rails *t t*.

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

Witnesses: WILLIAM Z. HATCHER,
JOHN WHITE,
HARRY SMITH.