

(No Model.)

2 Sheets—Sheet 1.

G. W. ZEIGLER & G. W. GRAVES.

WINDLASS.

No. 297,050.

Patented Apr. 15, 1884.

Fig. 1.

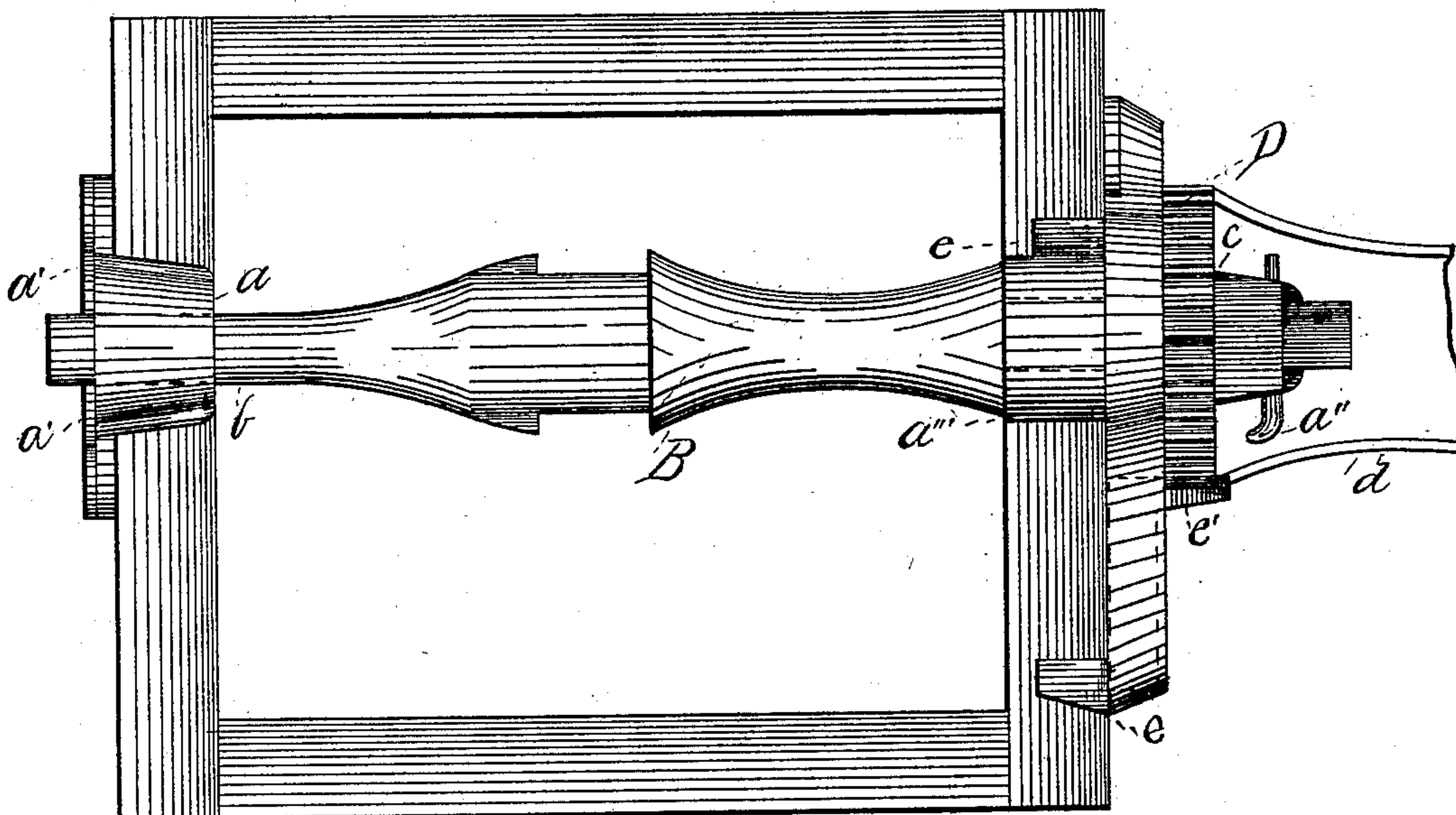


Fig. 2.

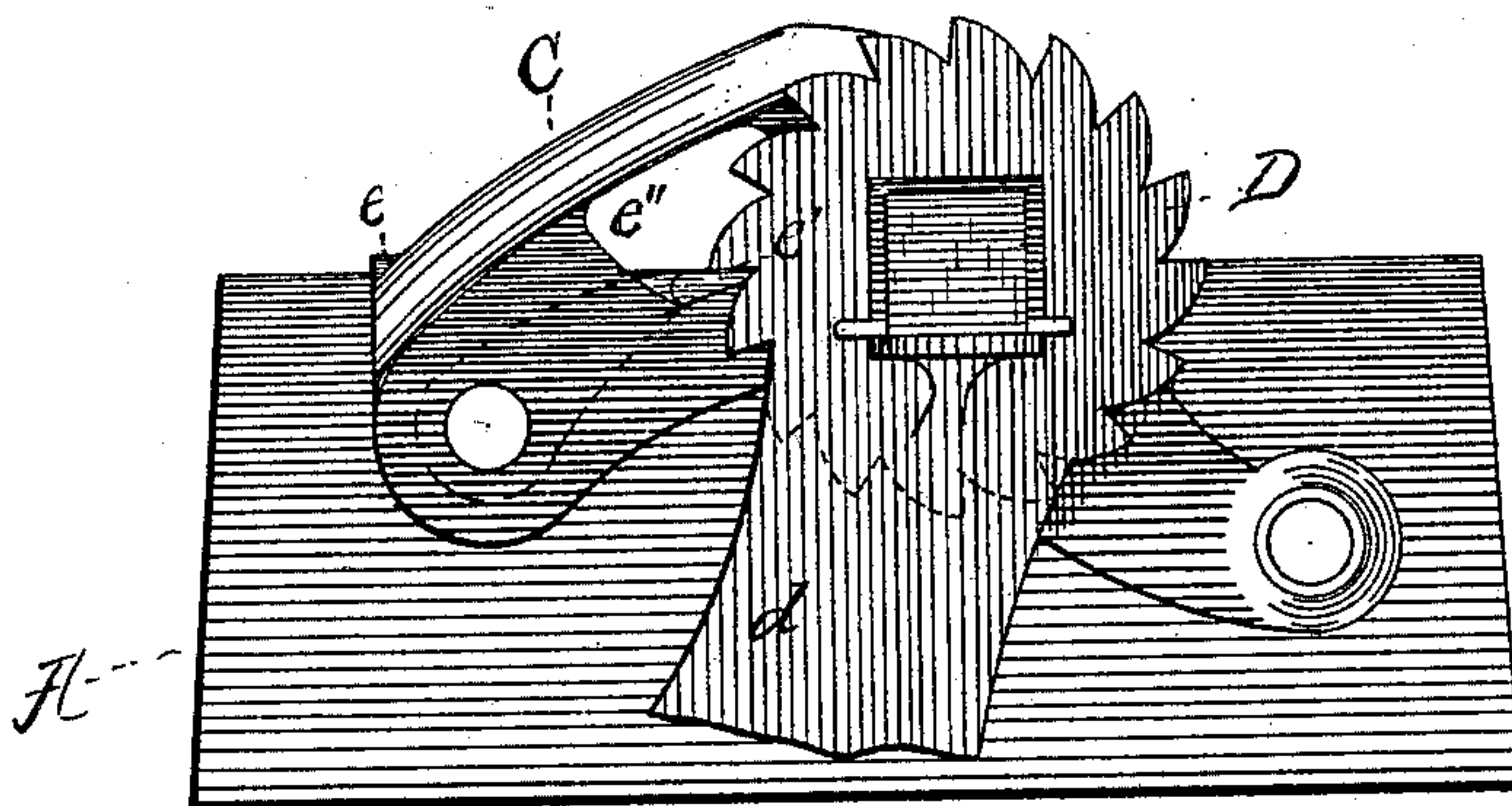
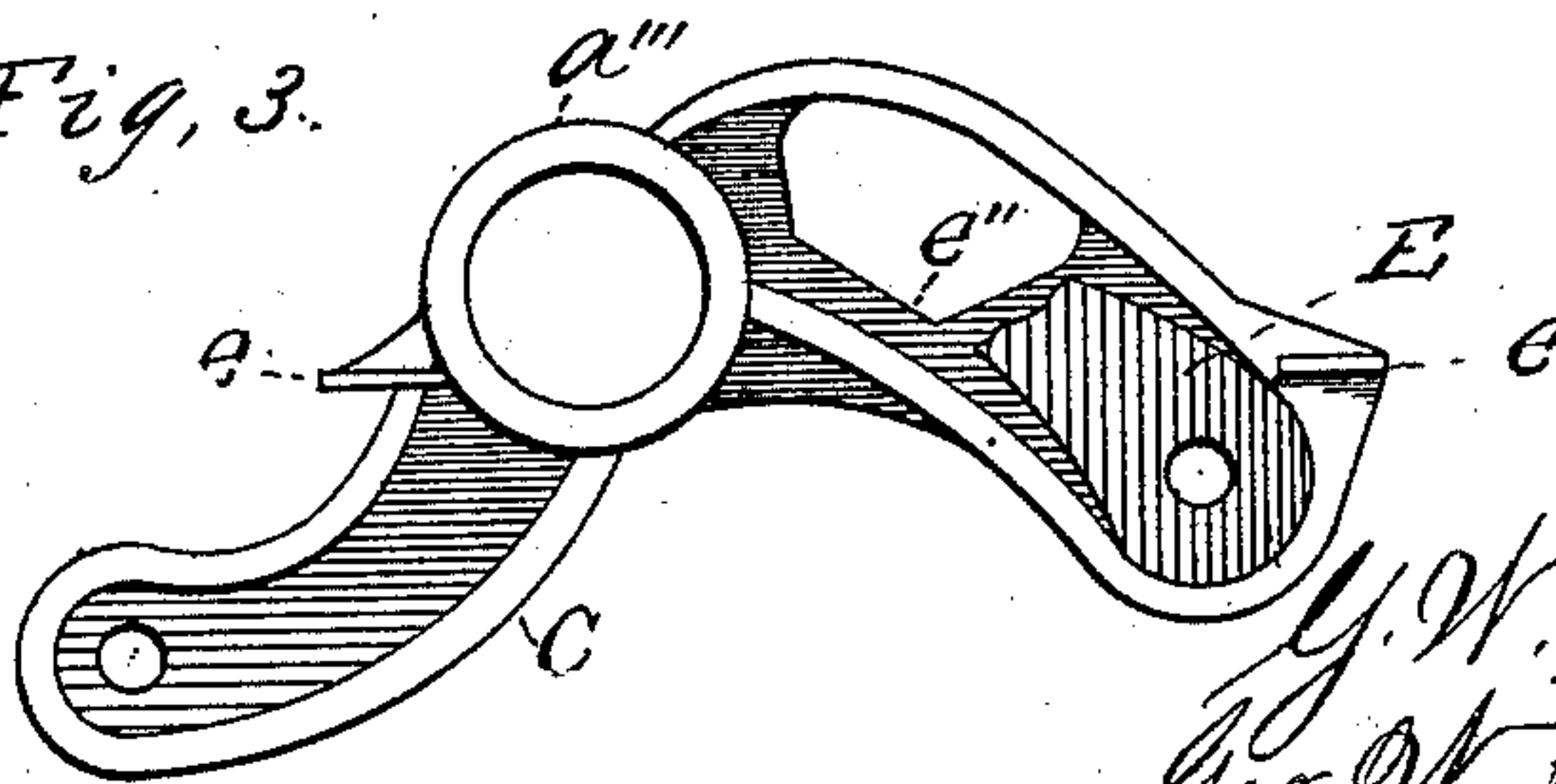


Fig. 3.



WITNESSES

Geo. H. Harvey
Edward C. Ellis

INVENTOR
G. W. Graves
Geo. W. Zeigler
per *O. E. Duff* atty.

(No Model.)

2 Sheets—Sheet 2.

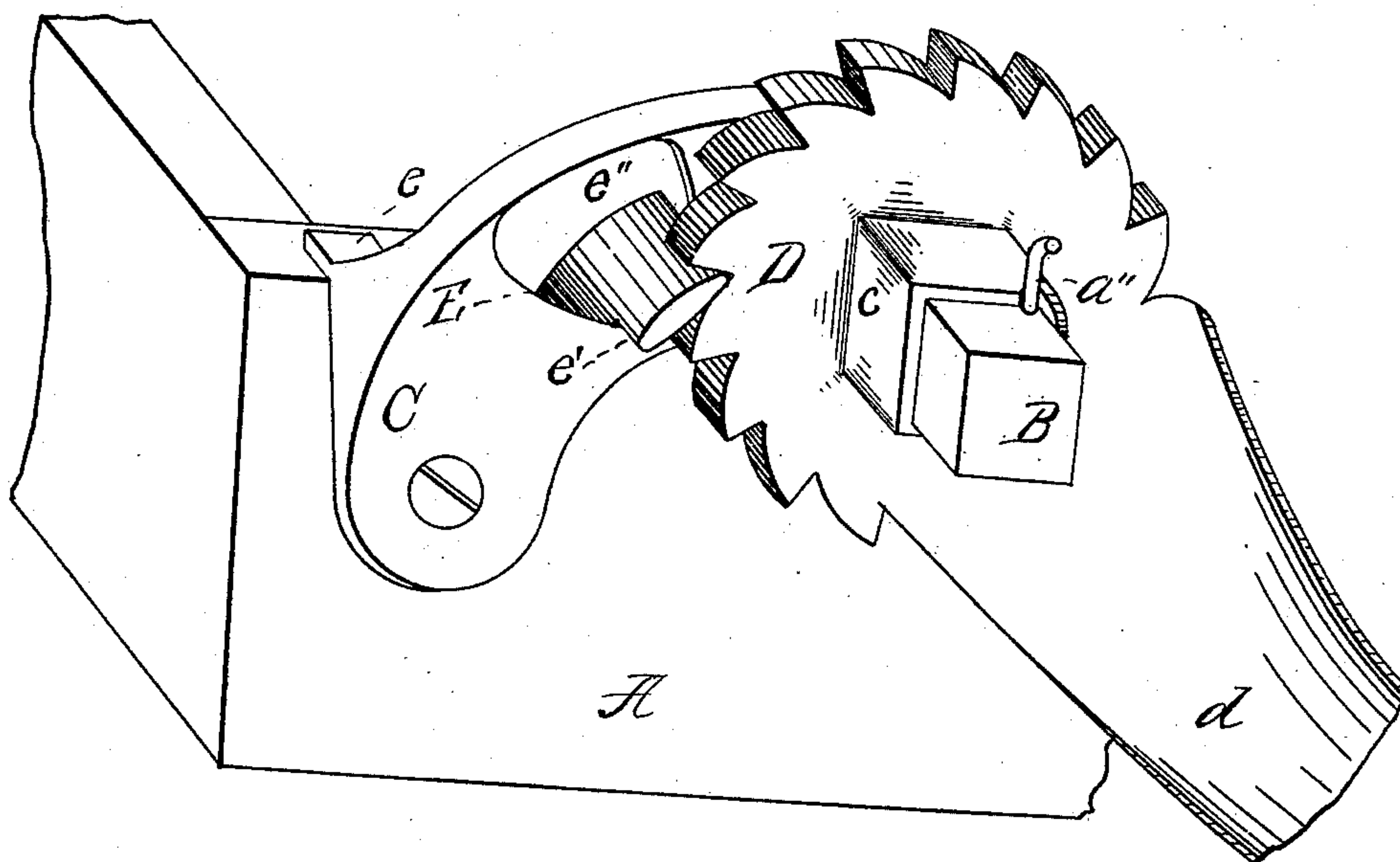
G. W. ZEIGLER & G. W. GRAVES.

WINDLASS.

No. 297,050.

Patented Apr. 15, 1884.

Fig. 4.



WITNESSES

Geo. H. Harvey
Edward C. Ellis

INVENTOR

G. W. Graves
Geo. W. Zeigler
per O. C. Duffy

UNITED STATES PATENT OFFICE.

GEORGE W. ZEIGLER AND GEORGE W. GRAVES, OF NORWALK, OHIO, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO SAID GRAVES AND WILLIAM B. LYKE, OF SAME PLACE.

WINDLASS.

SPECIFICATION forming part of Letters Patent No. 297,050, dated April 15, 1884.

Application filed October 19, 1883. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. ZEIGLER and GEORGE W. GRAVES, of Norwalk, in the county of Huron and State of Ohio, have invented certain new and useful Improvements in Windlasses; and we do hereby declare that the following is a full, clear, and exact description of the invention, which 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 the letters of reference marked thereon, which form part of this specification.

Our invention relates to hoisting devices for winding up a rope or chain, by which the weight to be hoisted is sustained; and it has for its object to provide a durable structure for that purpose.

In devices of this kind, as heretofore constructed, so far as we are aware, the pawl for holding the shaft against turning in a reverse manner is pivoted separately to some part of the curb or frame, and the whole strain imposed upon the pawl has to be borne by the pin upon which it is pivoted. Further, the handle for turning the shaft has been secured to said shaft by a nut screwed on the outer end, or by a pin passing through a centrally-bored hole in the same.

Our invention consists in a bearing for the shaft, which is adapted to hold the pawl in such a manner as to bring the strain, usually brought upon the pivot of said pawl, on a part of the bearing or gudgeon itself; also, of a shaft made at one end with a collar for securing it in place against longitudinal movement, and in such other details as will be hereinafter distinctly pointed out.

In the drawings, Figure 1 represents a top plan view of our invention. Fig. 2 is a side view thereof, representing the ratchet-wheel as engaged by the pawl, and the manner in which the said pawl is borne against a part of the bearing or gudgeon itself, instead of upon the pin on which it (the pawl) is pivoted. Fig. 3 represents a view of the inner side of the gudgeon-plate or bearing, showing the pawl broken off at near the end which projects through an opening in said gudgeon. Fig. 4

is a view in perspective of the several parts as they co-operate in carrying out the invention.

Reference being had to the several parts by the letters marked thereon, A represents the curbing or frame-work usually employed around the top of a well or other excavation, over which the windlass may be located. Secured to one side of this curbing is a collar or bearing, *a*, for the end of the journal B, having the smallest diameter, and which collar rests in a concavity formed in the upper edge of the side of frame A, while it is secured to said side by screws which pass through arms formed with said collar.

B represents the shaft, which is cast or otherwise formed, it being made at one end, for a part of its length, of a small diameter, *b*, which is sustained in the collar *a*, and into which collar it may be inserted the desired distance. The opposite end of the shaft, which rests in the gudgeon C, is formed round at its bearing surface or portion, and square in cross-section at the extreme outer end; for fitting thereon the ratchet-wheel D, and to one side thereof it is formed with a concavity into which a pin, *a''*, is placed, for holding the ratchet-wheel on the shaft.

D is a ratchet-wheel, which is fitted on the square end of the shaft B, it having cast therewith the arm *d*, (shown broken off,) for a crank for manipulation in turning the shaft. The said wheel is also formed with a projecting flange, *c*, around its bore on the outer face, two opposite sides of which flange are recessed, and when the wheel is placed on the shaft these recesses are made to register or communicate with the concavity in the side of the journal; and when the pin *a''* has been placed through, the above described construction prevents it from falling out, thereby holding the wheel on and dispensing with nuts for that purpose. The shaft, when in its bearings, is prevented from longitudinal movement in consequence of being enlarged at a point within and beyond the bearing portion which rests in collar *a'''* of the gudgeon.

C is a gudgeon, which is secured to the frame or support A by screws, as shown. The said

"gudgeon" is cast integral with collar a''' , and has also formed with it lugs or shoulders $e e$, which rest on the top edge of A. The inner face of C is hollowed out, (see Fig. 3,) to admit of the play of a pawl, E, which is located therein, and pivoted on one of the screws by which C is secured to A. This pawl has a right-angle bend, e' , which projects through an opening, e'' , in the gudgeon, and acts to engage the ratchets in wheel D. The portion e' of the pawl rests upon the bottom edge of the opening e'' , when engaged with the ratchets, and thus is the gudgeon made to sustain all strain imposed upon the pawl. It will be obvious that the frame or support A will help to counteract excess of strain that may be imposed upon the gudgeon itself, by virtue of the lugs e of the gudgeon resting upon said frame. The collar a''' of C rests in a corresponding concavity made in the upper edge of the side of A opposite to that in which rests the collar a .

Upon reference to Fig. 3, it will be noticed that the end of the pawl at which it is pivoted in the hollow face of the gudgeon is rounded, and any strain exerted on the pawl is relieved by the correspondingly-rounded side of the space within which it turns, instead of having to be sustained by the pin on which said pawl is pivoted.

The operation will be apparent. As the shaft is turned, the ratchet-wheel turns with it. The pawl, being held loosely on its pivot, rises as the ratchets strike it, and immediately falls after each ratchet as it passes, so that on letting go it securely holds a purchase against any weight that may be suspended to the shaft. In holding the wheel against turning in the opposite direction, all the strain that may be brought to bear is borne by the gudgeon or bearing itself, and thus it will be seen that a much heavier weight and strain can be sustained without breakage of parts. When it is desired to release the pawl, it can be easily lifted up with the finger, and the weight attached to the chain or rope will descend.

Having described our invention, what we claim is—

1. In hoisting devices, the combination, with the shaft and winding mechanism and pawl for

holding the same against return movement, of a gudgeon or bearing adapted to bear the strain imposed upon the pawl, substantially as described.

2. In hoisting devices, the combination, with the shaft, constructed as described, of the collars $a a'''$, said collar a''' formed integral to the gudgeon, and said gudgeon formed substantially as and for the purpose set forth.

3. The shaft formed of different diameters, for the purpose described, in combination with the gudgeon, ratchet-wheel, and pawl, said pawl formed with the branch e' , which projects through an opening in the gudgeon, substantially as and for the purposes set forth.

4. The combination, with the shaft having its larger outer end provided with the concavity, of the ratchet-wheel having flanges around its bore on the outer face, recessed as described, and pin a'' , said wheel having cast with it the crank-arm d , for the attachment thereto of a crank, substantially as set forth.

5. The combination, with the shaft and ratchet-wheel, of the gudgeon and pawl, said gudgeon being formed with the lugs $e e$ and opening e'' , and said pawl operating with the gudgeon, substantially as described.

6. The combination, with the gudgeon formed and secured to frame A, as described, of the pawl located and pivoted in the hollow face of said gudgeon, the ratchet-wheel, and shaft, all operating substantially in the manner described.

7. The combination, with the shaft and ratchet-wheel, of the gudgeon and pawl, said gudgeon having the hollowed face, and forming at the end a bearing for the pawl, said pawl pivoted therein and adapted to bear against the sides and bottom thereof, to relieve its pivotal point from strain.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

GEORGE W. ZEIGLER.
GEORGE W. GRAVES.

Witnesses:

A. B. GRIFFIN,
JOHN E. CLINE.