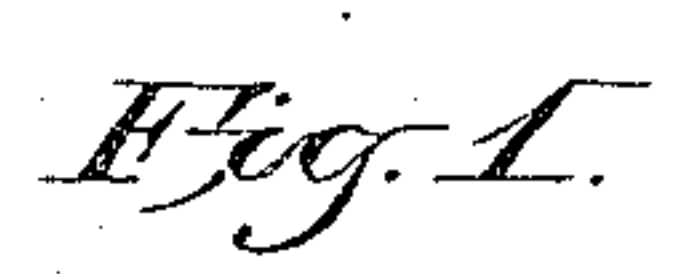


2 Sheets—Sheet 1.

DISCHARGE APPARATUS FOR COAL AND ORE BINS.

Patented Jan. 27, 1885.



Inventor:
N. G. H. Reed
Street & Lindenwood
By
Attorneys.

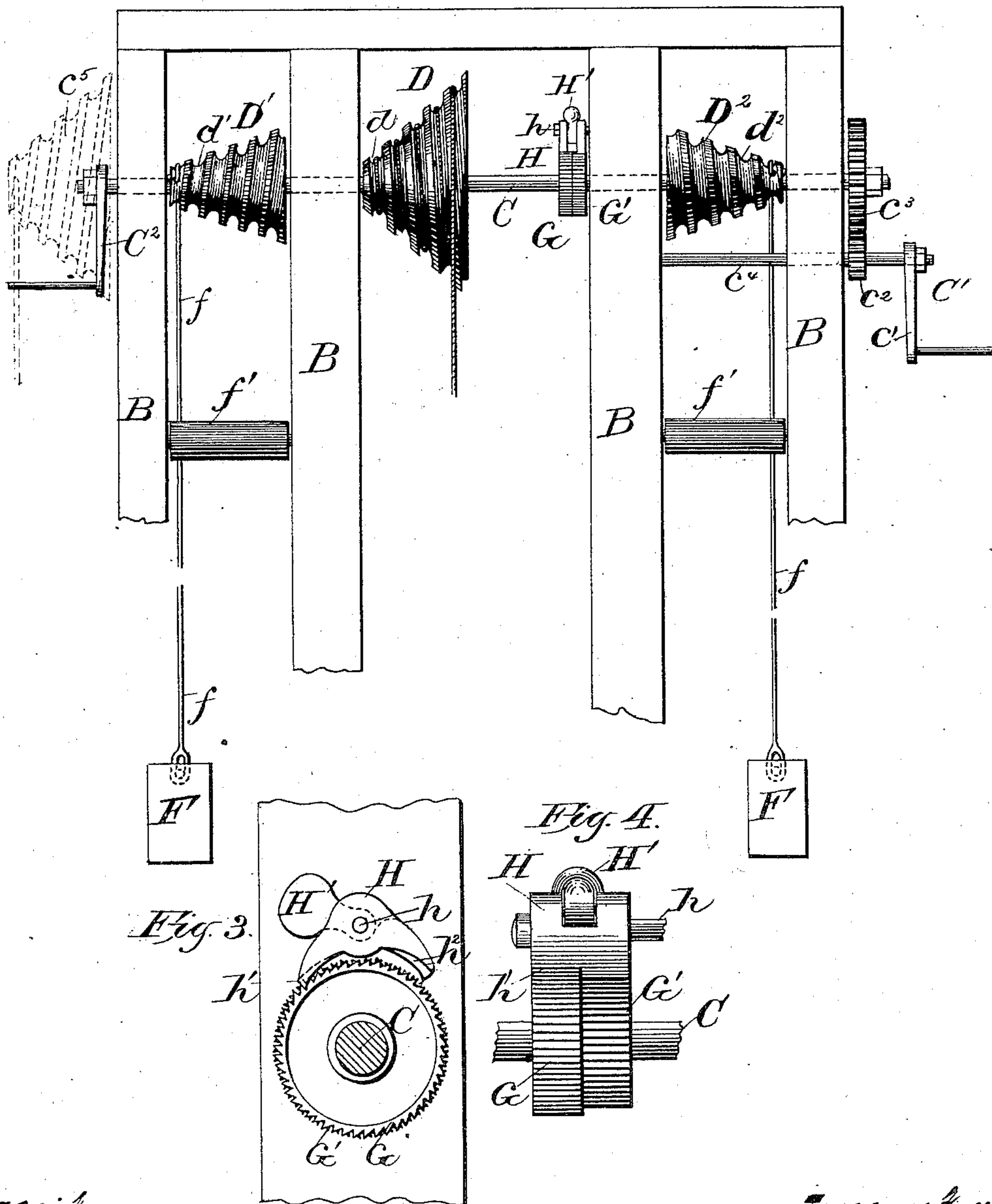
2 Sheets—Sheet 2.

DISCHARGE APPARATUS FOR COAL AND ORE BINS.

No. 311,365.

Patented Jan. 27, 1885.

Fig. 2.



Witnesses:

E. Johnson

R. Platz

Inventor.

Wm. H. Reed

Stent Funderwood

By Attorneys

UNITED STATES PATENT OFFICE.

HORATIO G. H. REED, OF MILWAUKEE, WISCONSIN.

DISCHARGE APPARATUS FOR COAL AND ORE BINS.

SPECIFICATION forming part of Letters Patent No. 311,365, dated January 27, 1885.

Application filed December 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, HORATIO G. H. REED, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Discharge Apparatus for Coal and Ore Bins; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to improvements in counterbalancing devices for ore or grain dock spouts; and it consists in peculiarities of construction, as will be fully described hereinafter.

In the drawings, Figure 1 represents a dock-section fitted with my improved device. Fig. 2 is a broken front elevation of the hoisting-frame, and Figs. 3 and 4 are details.

The object of my invention is to facilitate the raising and lowering of the pivoted spouts in use on ore or grain docks by means of counterbalancing-weights and variable speed blocks, so proportioned that the greatest point of resistance in the ascent of the spout may be overcome by the mean power required for the whole lift.

A is the dock. A' indicates the chute, and B the hoisting-frame, in the top of which the crank-shaft C is mounted in suitable bearings. Fastened onto this shaft is the cone-block D, in the periphery of which a spiral groove, *d*, is cut, as shown in Fig. 2.

E represents the spout, that is pivoted in any suitable manner at the lower end of the chute A', as at *a*, in line with the cone D, and is provided at its outer end with a hook, *e*'.

e is the rope or chain that connects the hooking end of the spout with the said cone. Its upper end is made fast to the apex of the cone, and is adapted to be wound around and lie in the groove *d* of the latter when the spout is brought up in the position indicated by the dotted lines at E'.

Secured to the crank-shaft C on each side of the central cone, D, are the smaller cone-blocks D' D'', which have also each a groove, *d'* *d''*, cut in their periphery, and at the small end of each of the said cones is attached a rope or chain, *f*, that is adapted to lie in the groove as the cord *d* is unwound from the central cone, D, when the spout is being lowered down. A counterbalancing-weight, F, is at-

tached to the lower end of each of the ropes or chains *f*, and these weights are made to run in the open spaces of the frame B by means of the idlers *f'*.

G G' represent a double ratchet-wheel that is fastened onto the shaft C, and H is a double pawl that is pivoted in the frame B on the pin-bolt *h*, and this pawl is adapted to take in either one of the inversely-toothed rims of the double ratchet-wheels G G', according to the direction in which the shaft C is being turned. A weighted lever, H', is pivoted on the fastening-bolt of the pawl into the slotted head of this latter, and serves to engage either of the stopping-points *h'* *h''* with the ratchet-wheel.

In Fig. 3 the lever is represented in position to set the point *h'* against the rim G. As the lever is swung in the opposite position the point *h''* takes into the rim G' of the double ratchet-wheel. According to circumstances, I may provide the shaft C on either or both ends with a hand-crank, as at C', or with a single or double multiplying-gear, as at C'', (which shows crank *c'*, shaft *c''*, and gears *c'''* and *c''''*;) or I may dispense with the cranks and fasten at either end or both ends of the said shaft a grooved cone-block, as shown in dotted line at *c'''*, the same to be operated by a rope or chain.

Although I have shown my device in connection with dock-spouts, it will be understood that I do not limit its use to such or any particular kind of spouts, as I may use it wherever coal, grain, ore, or other bulky material is to be emptied from any bin, elevator, or other place of storage.

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

1. In a hoisting apparatus for pivoted ore or grain spouts, a counterbalancing device adapted to reduce the heaviest strain at the point of the greatest resistance, so as to be overcome by the mean power required to lift or support the weight at all points, substantially as set forth.

2. In a hoisting apparatus for pivoted spouts, the combination of the frame B, crank-shaft C, having central cone-block, B, spirally grooved at *d*, spout E, rope or chain *e*, and counterbalancing-weights F F, connected by

ropes f to the spirally-grooved cone-blocks D' D^2 , substantially as shown and described, and for the purpose set forth.

5 3. In a hoisting apparatus, the combination of the frame B, provided with crank-shaft C, having cone-blocks D D' D^2 and double ratchet-wheel G G' , pawl H, having weighted lever H' , and taking ends or points h' h^2 , substantially as set forth.

In testimony that I claim the foregoing I 10 have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

H. G. H. REED.

Witnesses:

S. S. STOUT,

H. G. UNDERWOOD.