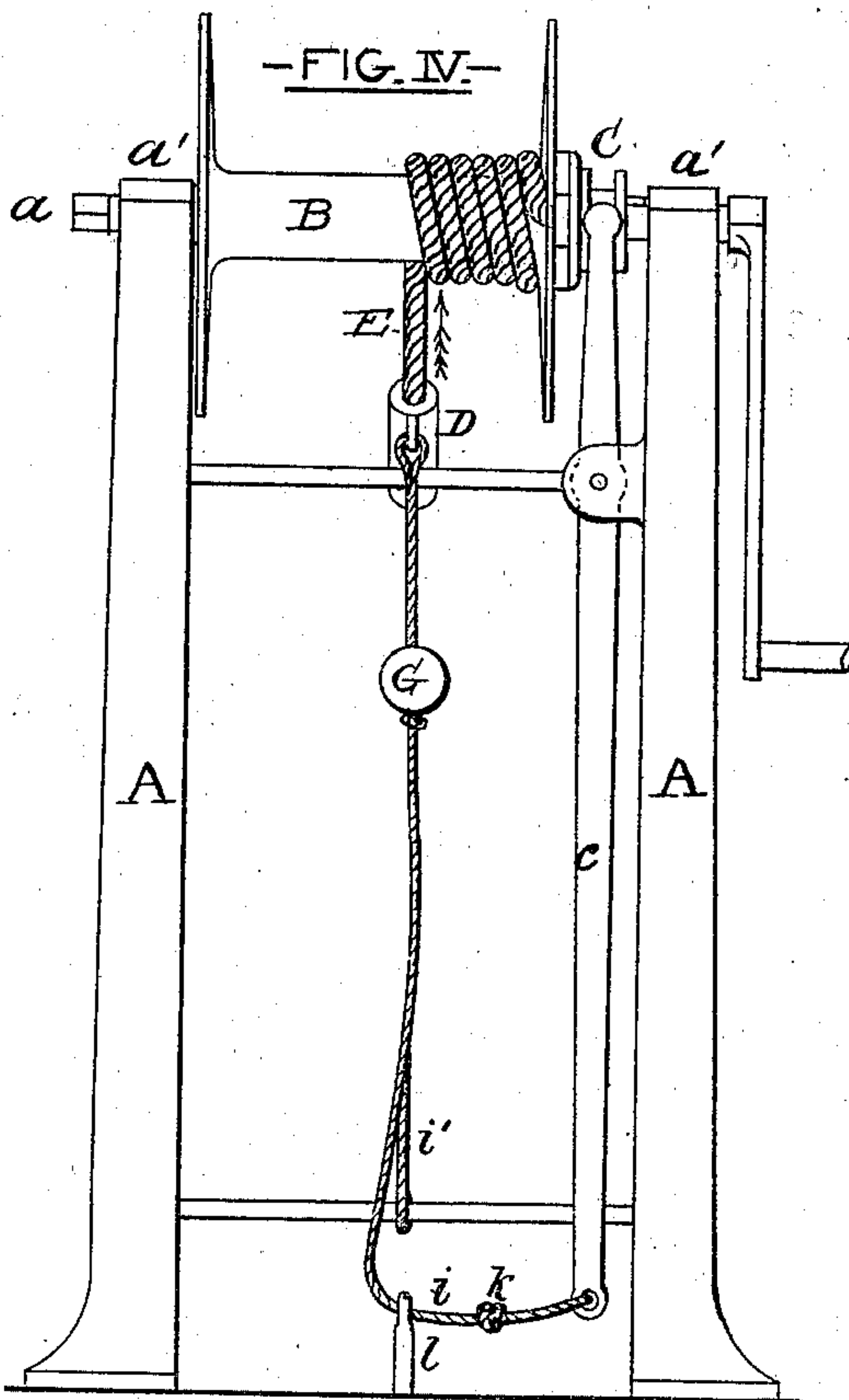
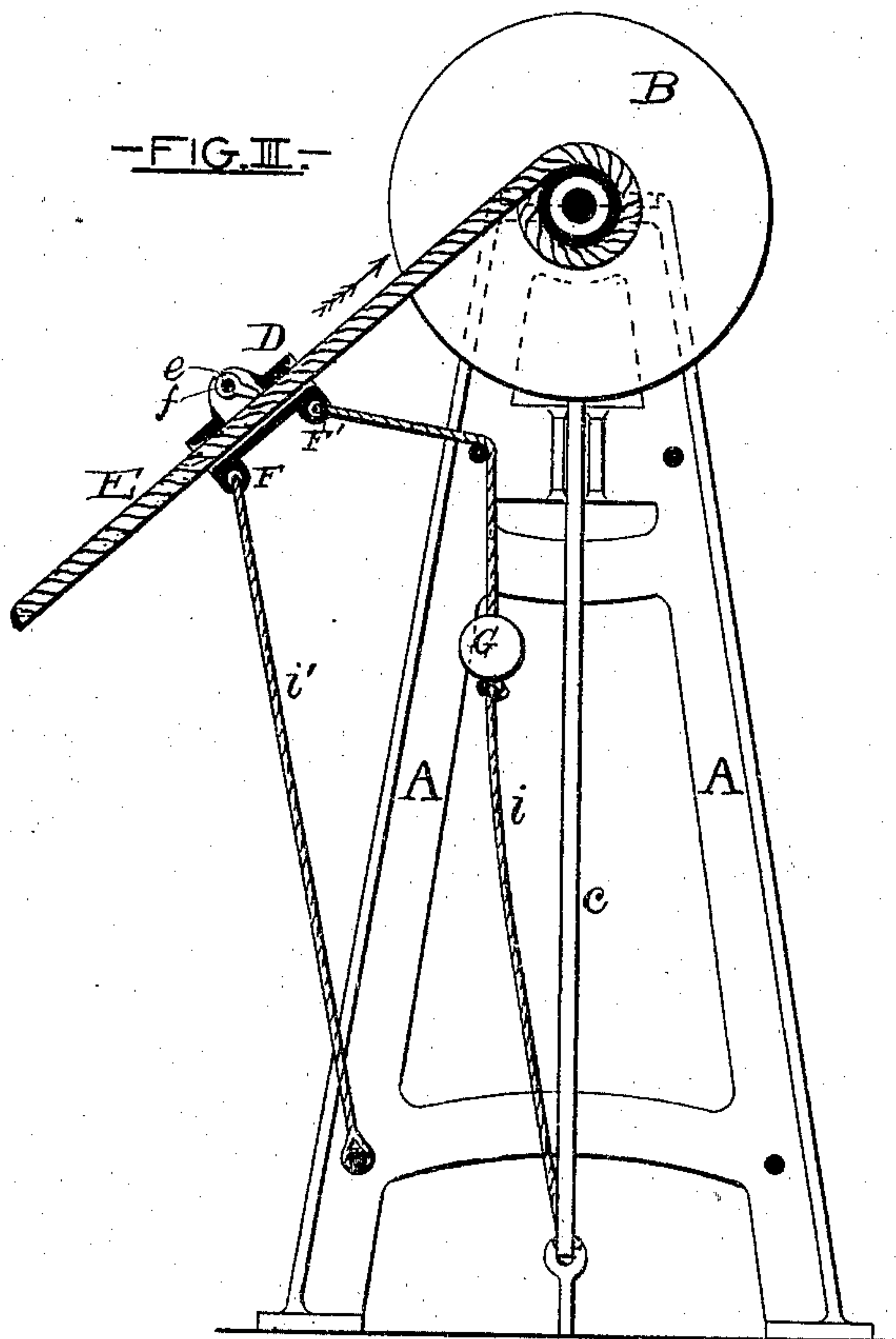
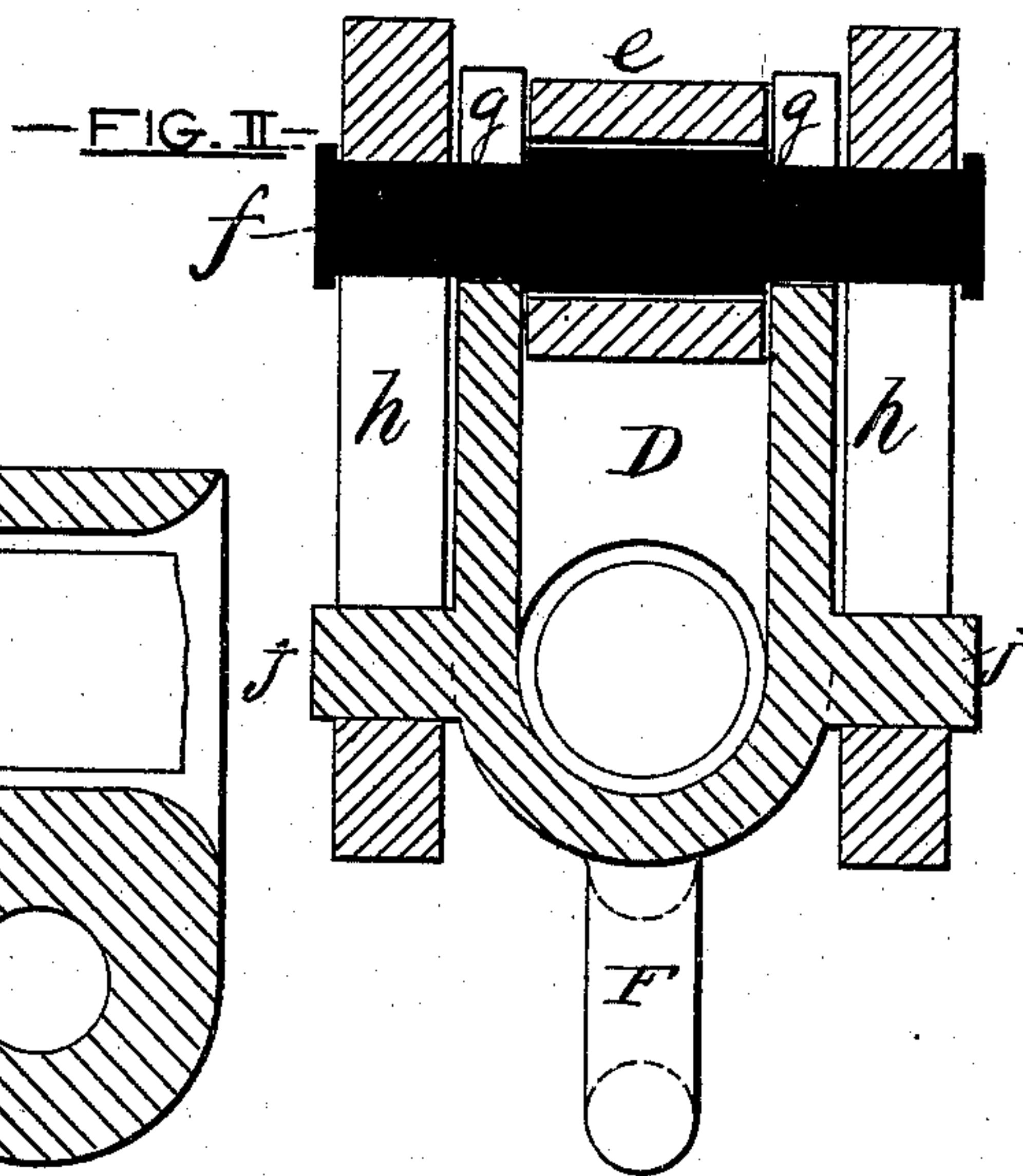
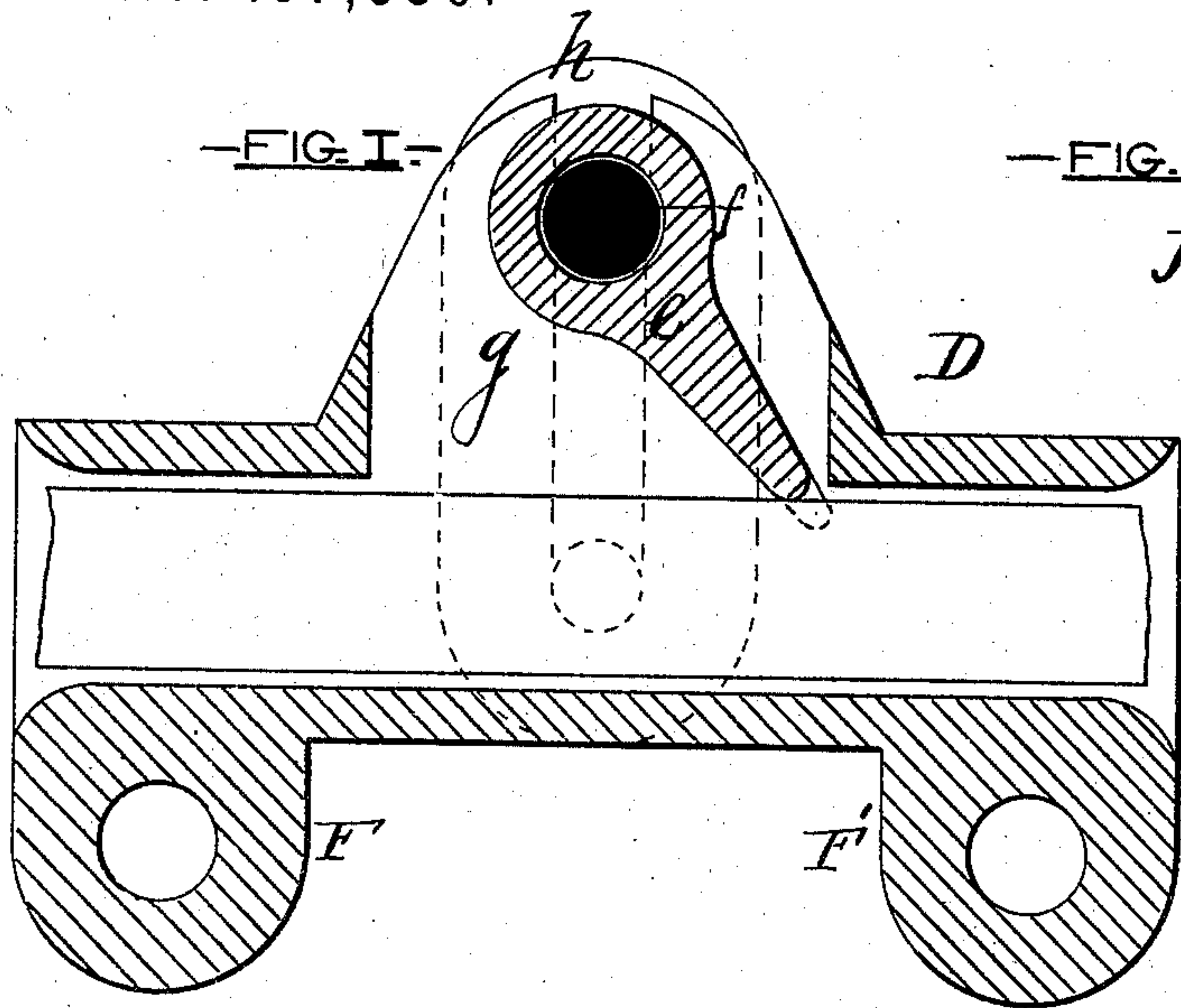


W. T. HOWARD.
Machines for Raising Oyster Dredges.
 No. 137,550. Patented April 8, 1873.



-WITNESSES:

Wm. H. Howard.
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UNITED STATES PATENT OFFICE.

WILLIAM T. HOWARD, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN MACHINES FOR RAISING OYSTER-DREDGES.

Specification forming part of Letters Patent No. 137,550, dated April 8, 1873; application filed March 1, 1873.

To all whom it may concern:

Be it known that I, WILLIAM THOMPSON HOWARD, of the city of Baltimore and State of Maryland, have invented certain Improvements in Machinery for Winding or Raising Oyster-Dredges, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to certain improvements in machinery to be applied to vessels for the purpose above named, with a view to the detaching of the cranks of the winder for the protection of the hands operating them in cases where, by the fouling of the dredge, a dangerous reverse movement is given to the cranks. My invention consists, first, in a combination of devices and parts, of which the dredge-rope is chief, which shall cause the aforesaid reverse movement of the rope to be transmitted to the disengaging mechanism of the cranks and winding-drum; secondly, in a binder placed upon the dredge-rope, having within itself several parts which, with it, jointly operate to bind the rope in such a way that when the ordinary winding is performing the position of the several parts of the binder is undisturbed by the course of the rope; but when the course of the rope is reversed, or the rope drawn suddenly back by the fouling of the dredge, the position of the said binding parts of the binder is so changed that an effect is produced upon a bracing-cord extending from the binder to the windlass-frame, the said cord being slackened, and also upon a weighted rope connecting the binder with the crank-detaching lever, the said effect resulting in the immediate uncoupling of the cranks. This effect is produced by the pulling back of the binder with the dredge-rope to a distance to which it is limited by a provision hereinafter described, which distance is sufficient to allow of such a movement of the lever as is necessary to uncouple the cranks. The bracing-cord is slackened by this back movement of the binder, and the full strain transferred to the cord connected with the lever, this cord having a weight thereon, which tightens the bracing-cord and keeps the binder in position,

as well as keeping the cord connected with the lever slack when the ordinary winding is to be done. My invention consists, thirdly, in the application of the binder, connected, as aforesaid, by the bracing and weighted cords with the windlass-frame and the detaching-lever, to the dredge-rope, as the immediate operator of the whole.

In the further description of my invention which follows, due reference must be had to the accompanying drawing, in which—

Figure 1 is a longitudinal section of the binder and a portion of the dredge-rope. Fig. 2 is a cross-section of the same. Fig. 3 is a vertical section of a windlass having my invention attached thereto. Fig. 4 is a front elevation of a windlass to which my invention is attached, as in Fig. 3.

Similar letters of reference indicate similar parts of the invention in all the views.

A A are the frames of the windlass, which is of a common construction. B is the winding-drum, and *a* its shaft, which is supported in bearings *a'*. C is a clutch, engaging with a similar one on the face of the drum. The windlass to which my invention is herein shown applied has a drum, loose upon its shaft, and adapted to revolve with the shaft only when locked with the clutch C, which has a lateral movement only independently of the shaft *a*. The clutch-lever, by means of which the clutch is made to move laterally, is represented by *c*, and is of the ordinary character. D is the binder, formed of a pipe or sleeve, slightly larger in its interior diameter than the diameter of the dredge-rope E. The pipe has a top opening, through which a pawl, *e*, projects, resting upon the dredge-rope E, the point of the pawl being rounded out to give it a better bearing upon the rope. The upper part of the pawl is perforated, and is suspended upon the pin *f* supported within the slotted bearings *g*. India-rubber springs are represented by *h*, passing around the projecting ends of the pins *f* and lugs *j* cast upon the pipe of the binder D. F F' are eyes cast on the same pipe, to which eyes the cords *i* *i'* are attached. The cord *i* connects the upper end of the binder with the lever, and may be guided by any means found best for reducing friction. The cord *i'* connects the lower

end of the binder with the frame of the windlass, the deck of the vessel, or some other fixed point. G is a weight acting as a counter-balance to the binder, causing it to have no appreciable weight resting on the dredge-rope. The manner in which the effect is produced which allows the winding-drum to revolve on the reverse movement without carrying the cranks with it is as follows: The dredge-rope E, moving in the direction indicated by the arrows, meets with no resistance from the binder D, or any of its parts, other than that caused by the friction incident to their actual weight, which only serves to keep the cord *i'* at a moderate tension, and that part of the cord *i* below the weight G loose or slack. This condition of parts continues until from some cause a greater strain is exerted upon the rope E than can be overcome by the power applied to the cranks, when the retrograde movement of the said rope which ensues carries the binder with it, for the rope cannot pass through the binder, owing to the position of the pawl *e*. The result of this back movement is the disengagement of the clutch locking the cranks with the winding-drum, the cord *i*, with its weight G being drawn up until the knot *k* strikes the eyebolt *l*, by which its movement is limited, and the requisite movement imparted to the lever *c*. When the cord *i* is thus checked the strain is placed upon the pawl; and if the strain is greater in force than the resistance offered by the springs *h*, they are distended, allowing the pawl to reverse its position, when all further check to the retrograde movement of the dredge-rope ceases. The said rope is now free to unwind, the binder resuming its original place by the action of the weight G. The slack part of the cord *i* below the weight, it will be seen, offers no resistance to the readjustment of the locking devices necessary in recommencing the winding operation. When the winding of the dredge-rope has been resumed, its progress is again impeded by the pawl *e*, and as the strain increases, the pawl again reverses its position, assuming its original place, in which it is ready

to uncouple the winding-drum and cranks upon the reversion of the course of the dredge-rope, as hereinbefore described.

Although, as herein shown, the connection between the binder and the detaching-lever is accomplished by a cord, the same result may be obtained by the use of rods or levers. I, however, prefer the arrangement as herein shown, as provision is made thereby for the lateral movement of the dredge-rope which must ensue as it is wound upon the drum, which movement must be followed by the binder.

This invention may be applied with equal facility to any of the different winders in use, the one herein shown being only one of a number similar in their results, but of varied construction.

I claim as my invention—

1. In combination with the dredge-rope, the described or equivalent device and transmitting mechanism for releasing the winding-drum, as and for the purpose specified.

2. The hollow binder D through which the dredge-rope is passed, having means of attachment for the bracing and lever-operating cords, and having also a pawl capable of a vibratory and a perpendicular movement, and controlled by springs, the said movements being imparted to the pawl by the passage of the dredge-rope through the binder, substantially as and for the purpose herein specified.

3. The binder D, connected by the bracing-cord *i'* and weighted cord *i* to the windlass-frame, and detaching-lever to the dredge-rope, as the immediate operator of the whole, substantially as herein specified, for the purpose set forth.

In testimony whereof I have hereto subscribed my name in the city of Baltimore this 28th of February, in the year of our Lord 1873.

WILLIAM THOMPSON HOWARD.

Witnesses:

THOMAS MURDOCH,
EDW. HAYES.