

No. 725,405.

PATENTED APR. 14, 1903.

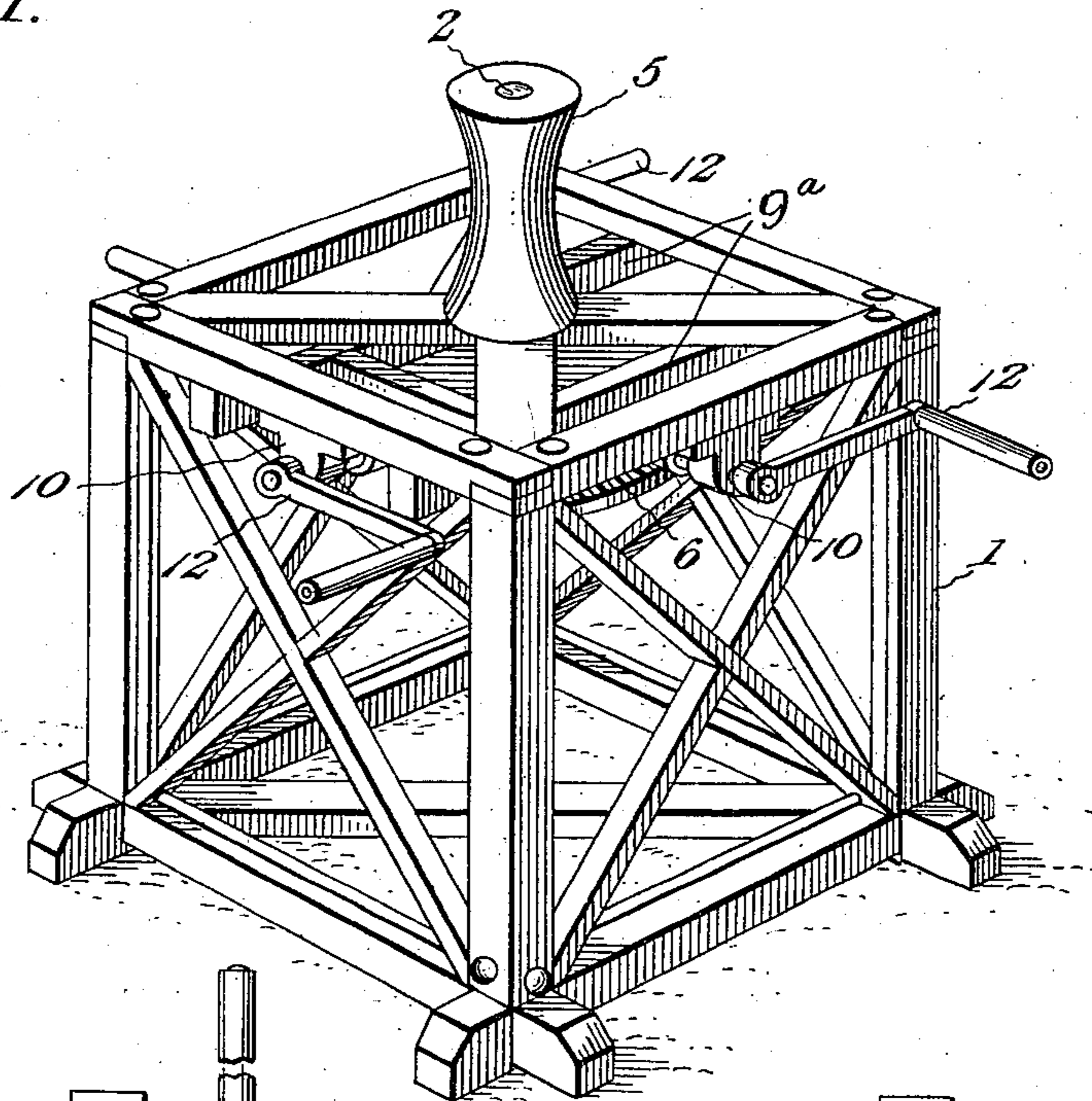
M. F. CAHILL.  
WINDLASS.

APPLICATION FILED DEC. 4, 1902.

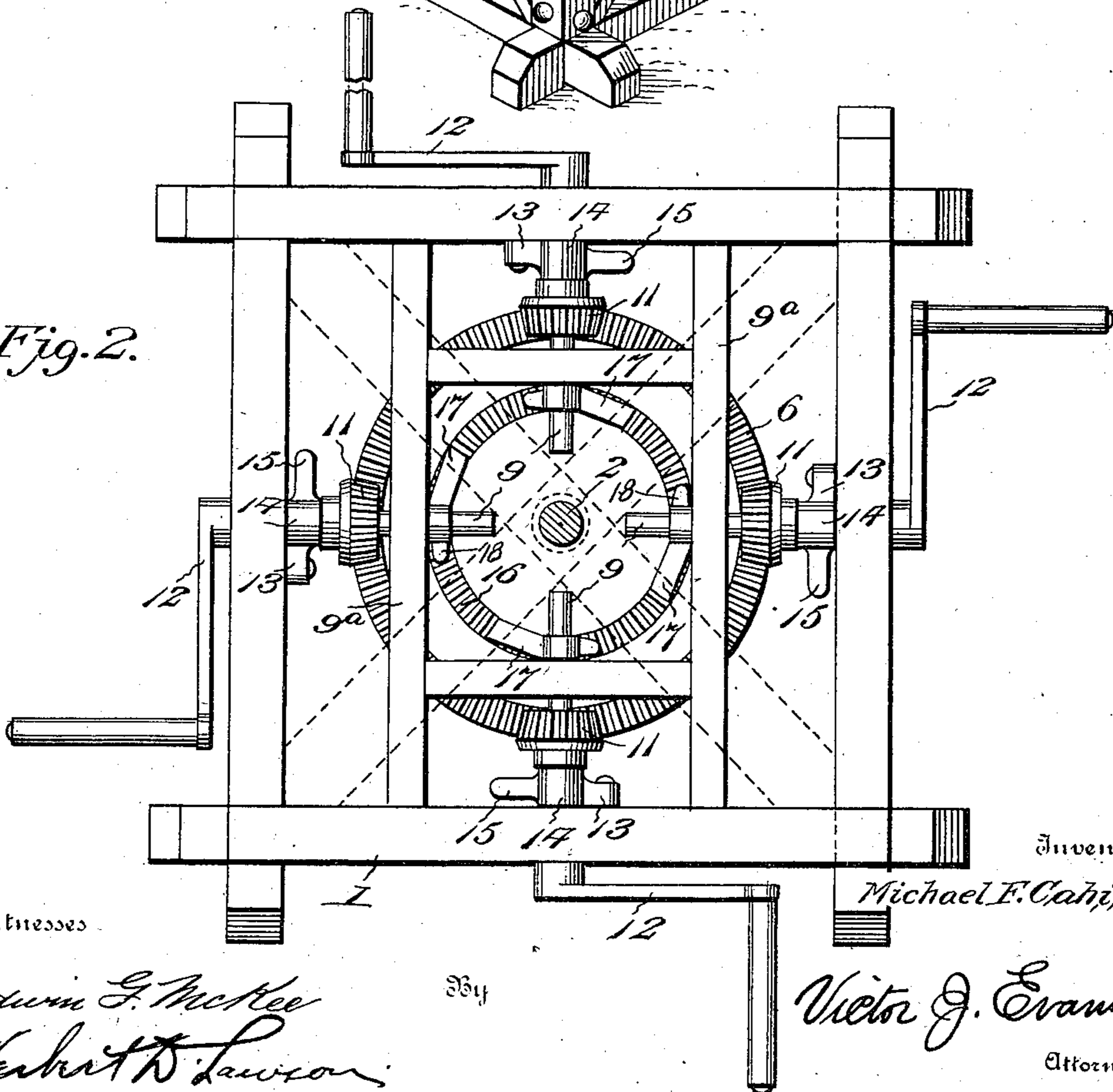
NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Witnesses

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Inventor

*Michael F. Cahill*

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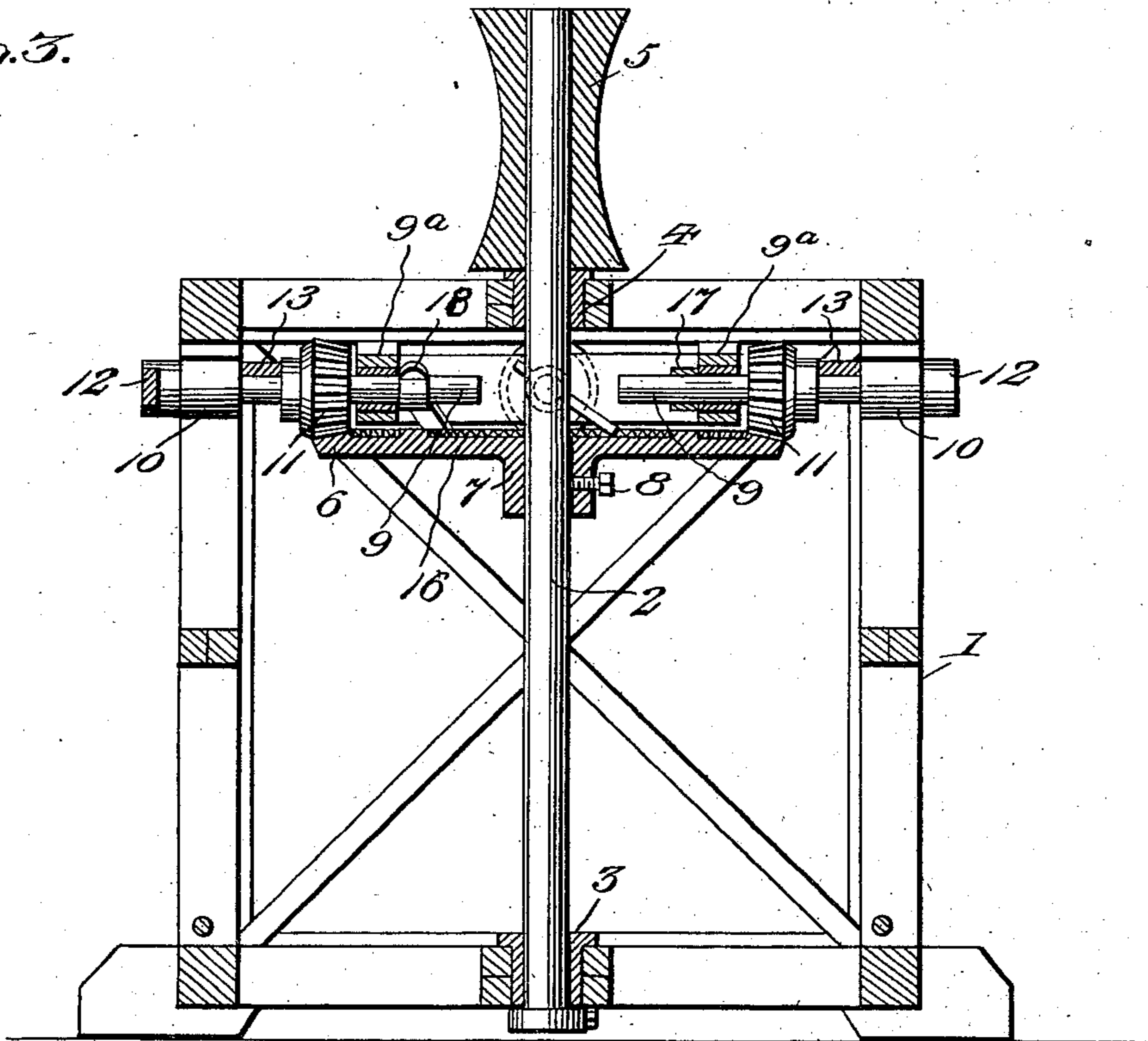
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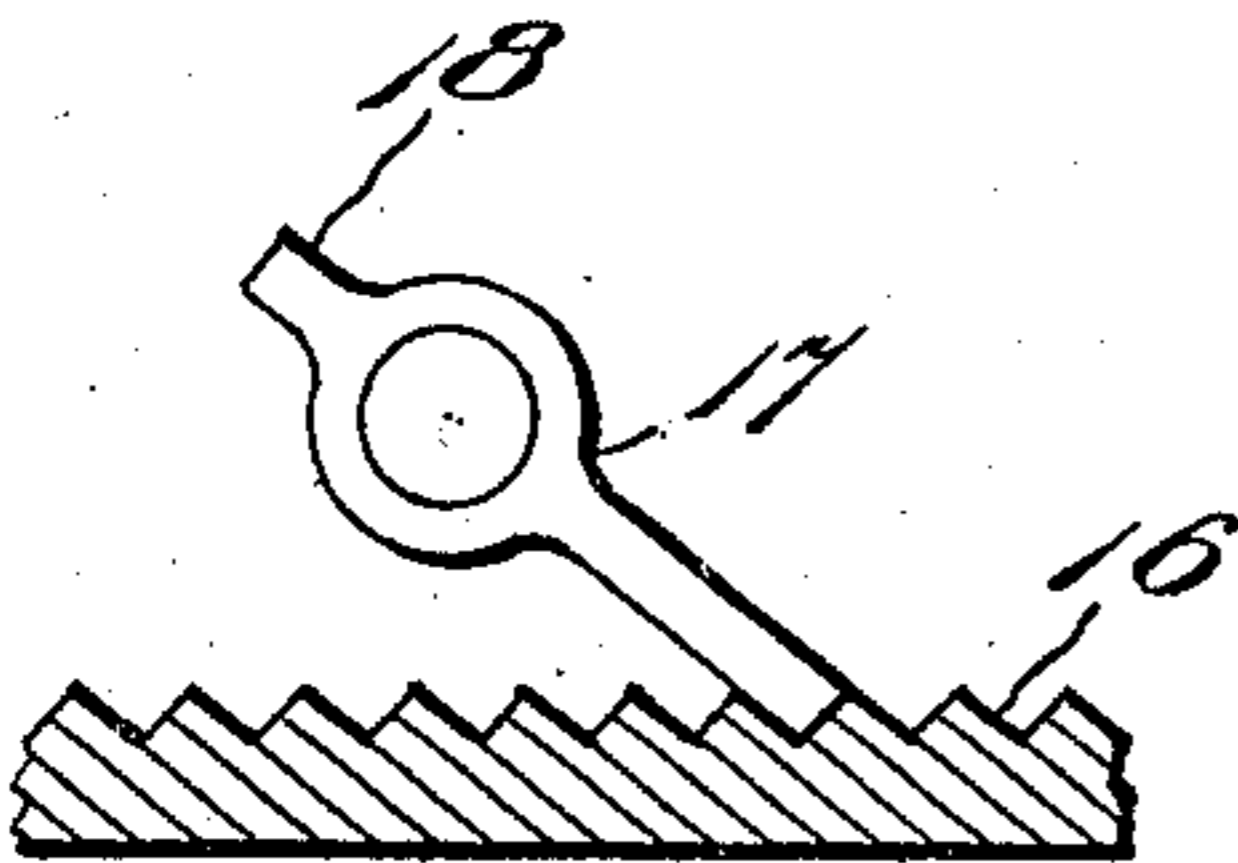
NO MODEL.

2 SHEETS—SHEET 2.

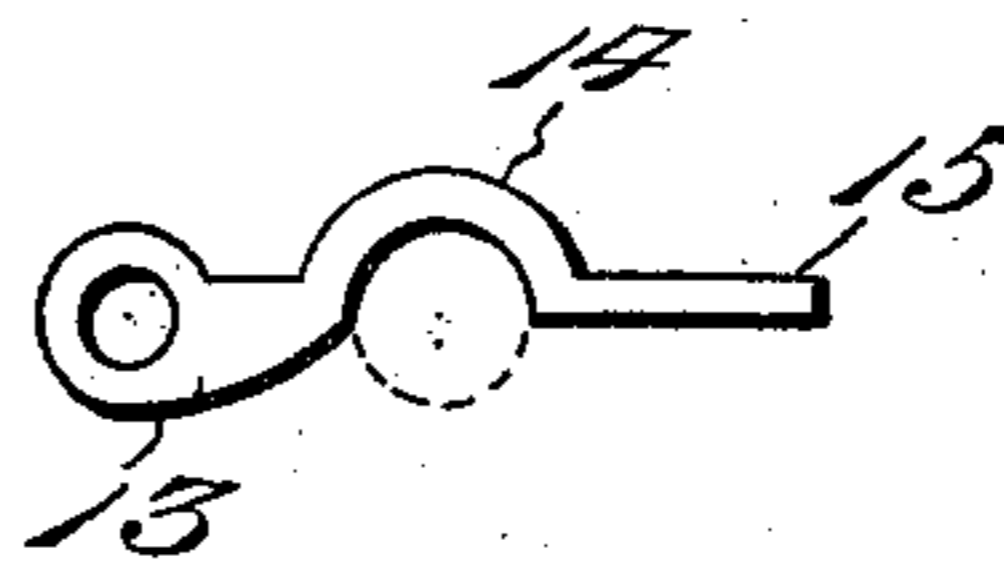
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

MICHAEL F. CAHILL, OF LYNCHBURG, VIRGINIA.

## WINDLASS.

SPECIFICATION forming part of Letters Patent No. 725,405, dated April 14, 1903.

Application filed December 4, 1902. Serial No. 133,901. (No model.)

*To all whom it may concern:*

Be it known that I, MICHAEL F. CAHILL, a citizen of United States, residing at Lynchburg, in the county of Campbell and State of Virginia, have invented new and useful Improvements in Windlasses, of which the following is a specification.

My invention relates to new and useful improvements in windlasses or capstans; and its object is to produce a powerful device of this character adapted to be operated by one or more persons. Heretofore in the use of an ordinary windlass having a horizontal drum it has usually been found necessary to turn the device with the face of the drum toward the object to be hoisted, thereby necessitating the frequent moving of the hoisting apparatus. It has also been necessary to unwind the drum when it is desired to remove the cable from the drum, thereby wasting considerable time after each hoisting operation.

One of the objects of my invention is to obviate these disadvantages by employing a vertical drum having a free upper end from which the coils of the cable can be readily slipped, if desired. These features render this device especially desirable for use in the construction of buildings, &c., requiring means for hoisting stone, iron, &c.

With these and other objects in view the invention consists in the novel construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of the device. Fig. 2 is a plan view thereof having the drum and the diagonal brace-beams removed. Fig. 3 is a central vertical section through the apparatus. Fig. 4 is a detail view showing a pawl in engagement with the ratchet, and Fig. 5 is a similar view of a latch employed in connection with this windlass.

Referring to the figures by numerals of reference, 1 is a frame of any desired form suitably braced and having a vertical shaft 2, journaled in the center thereof in a bearing 3, located, preferably, in the bottom of said frame. This shaft extends upward through a bearing 4 at the center of the top of frame 1 and is keyed or otherwise secured to a ver-

tical drum 5. A beveled gear 6 incloses the shaft 2 at a point within the frame, and the boss 7, at the center thereof, is preferably provided with a set-screw 8 or other means for locking said gear to the shaft. A horizontal shaft 9 is journaled in each side of the frame 1 in suitable brackets 10, secured thereto, and in beams 9<sup>a</sup>, arranged transversely of the frame adjacent to the top thereof. Each of these shafts is provided with a small beveled gear 11, extending over and meshing with gear 6. A crank 12 is arranged at the outer end of each of these shafts, and the gears 11 are held in mesh with the larger gear 6 by means of a latch 13, which is pivoted to the inner side of frame 1 and is provided with a recessed face 14, adapted to rest upon that portion of the shaft which lies between the gear 11 and the inner face of frame 1. An arm 15 extends from this latch, and by means thereof the same can be readily lifted out of engagement with the shaft, as when it is desired to throw said shaft out of operative relation with the gear 6.

Ratchet-teeth 16 are arranged upon the upper face of the gear 6 inside of and concentric with the beveled teeth upon said gear, and this ratchet is normally engaged by a series of pawls 17, loosely mounted upon the shafts 9 at points adjacent to the inner ends thereof and having arms 18, whereby the pawls may be readily raised out of engagement with the ratchet 16. These pawls are not provided with means for securing them in position upon the shafts 9, as the pressure of the ratchet-teeth thereagainst is in a line at such an angle to said shaft as to tend to force the pawl outward from the inner end thereof.

With the construction of the apparatus shown in the accompanying drawings the frame 1 is substantially rectangular in form, and one shaft 9 is mounted in each of the four sides thereof. I can, however, by increasing the number of sides of the frame also increase the number of shafts 9, or, if desired, additional shafts could be interposed between those shown in the accompanying drawings without changing the form of frame employed. When the shafts 9 are revolved by means of the cranks 12, it will be seen that the small gears 11 transmit power to the horizontal gear 6, which in turn revolves the shaft 2

and its drum 5. As the pawls 17 are loosely mounted on these shafts, they will not turn therewith, but will fall automatically into engagement with the teeth of the ratchet and serve to prevent the drum and its shaft from unwinding when power is removed therefrom. If it is desired for any reason to throw one of the gears 11 out of mesh with the gear 6, it is merely necessary to swing its latch 13 upward out of engagement therewith. The shaft can then be drawn outward until the gear thereon contacts with the side of the frame. The shaft is of such length, however, as to permit longitudinal movement of the shaft without causing its removal from the ratchet 16. While the drum 5 is being revolved the cable can be wound thereon from any direction horizontally without necessitating the moving of the frame of the device. After a sufficient amount of cable has been wound upon the drum it can be quickly removed therefrom, if desired, by forcing the coils upward over the end of said drum, thereby rendering it unnecessary to disengage the several pawls 17 from engagement with the ratchet 16.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. In a windlass, the combination with a frame having a shaft journaled therein, and a drum upon the end of said shaft; of a gear upon and secured to said shaft, a series of

ratchet-teeth arranged upon said gear and concentric with the edge thereof, a second shaft journaled within the frame, a gear thereon meshing with the gear of the shaft of the drum, and a ratchet loosely mounted upon said second shaft and normally engaging the ratchet-teeth.

2. In a windlass, the combination with a frame having a shaft journaled therein, and a drum upon the end of said shaft; of a gear upon and secured to the shaft, a series of ratchet-teeth arranged upon said gear concentric to the periphery thereof, a second shaft journaled within the frame and adapted to move longitudinally therein, a gear upon said shaft meshing with the gear on the shaft of the drum, a pawl loosely mounted upon the shaft and normally engaging the ratchet-teeth, and means for preventing longitudinal movement of said second shaft.

3. In a windlass, the combination with a frame having a shaft therein, and a drum upon the end of said shaft; of a gear secured upon the shaft, a series of ratchet-teeth upon the face of said gear and concentric with the periphery thereof, a second shaft journaled within the frame, a gear thereon adapted to mesh with the gear on the shaft of the drum, and a pawl loosely mounted upon and arranged at an angle to said second shaft and normally engaging the ratchet-teeth, the pressure upon said pawl serving to retain it upon the shaft.

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

MICHAEL F. CAHILL.

Witnesses:

JNO. L. LEE,

WM. F. JORDAN.