

No. 748,443.

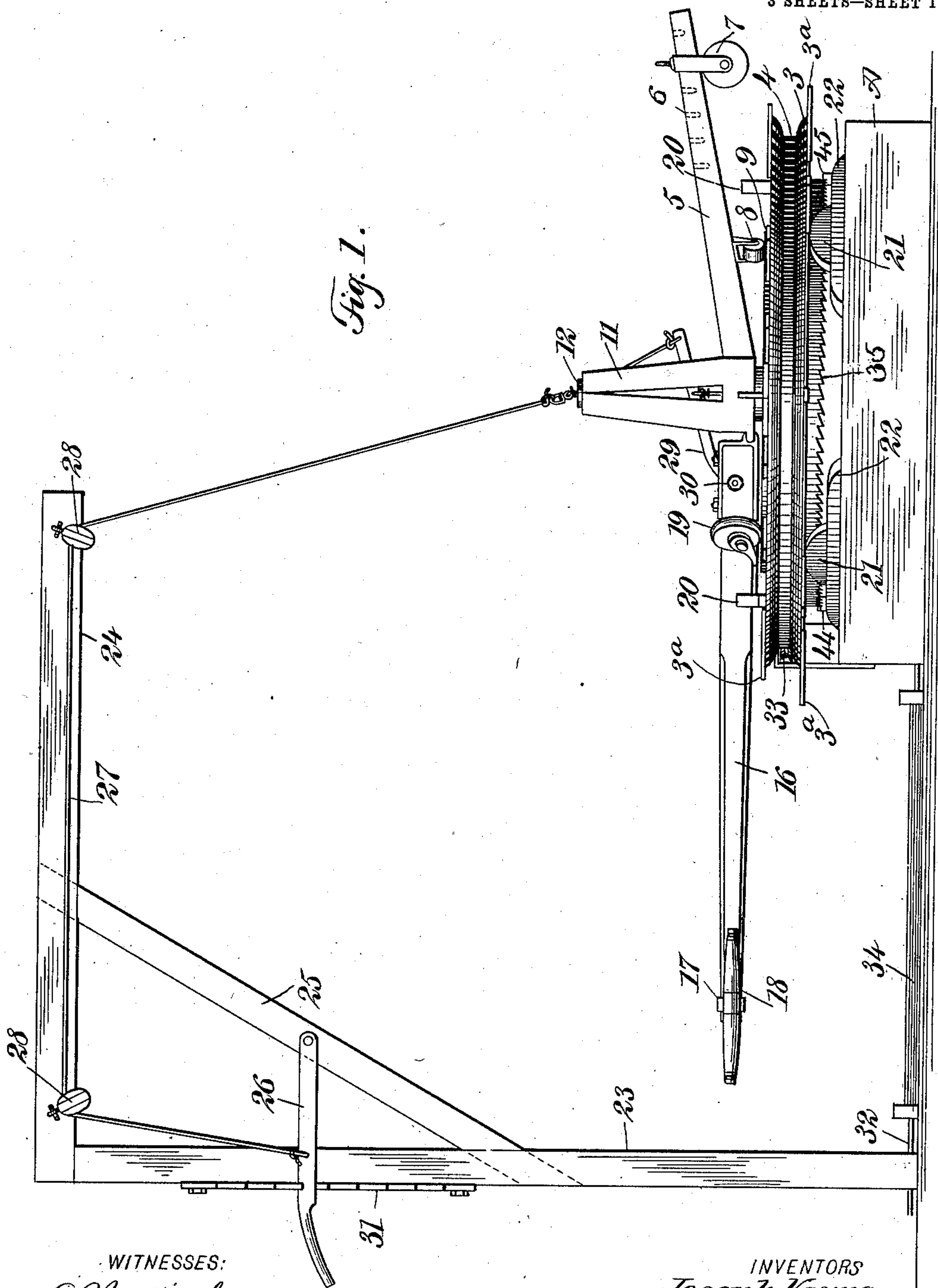
PATENTED DEC. 29, 1903.

J. & C. VAVRA.
HORSE POWER.

APPLICATION FILED APR. 25, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

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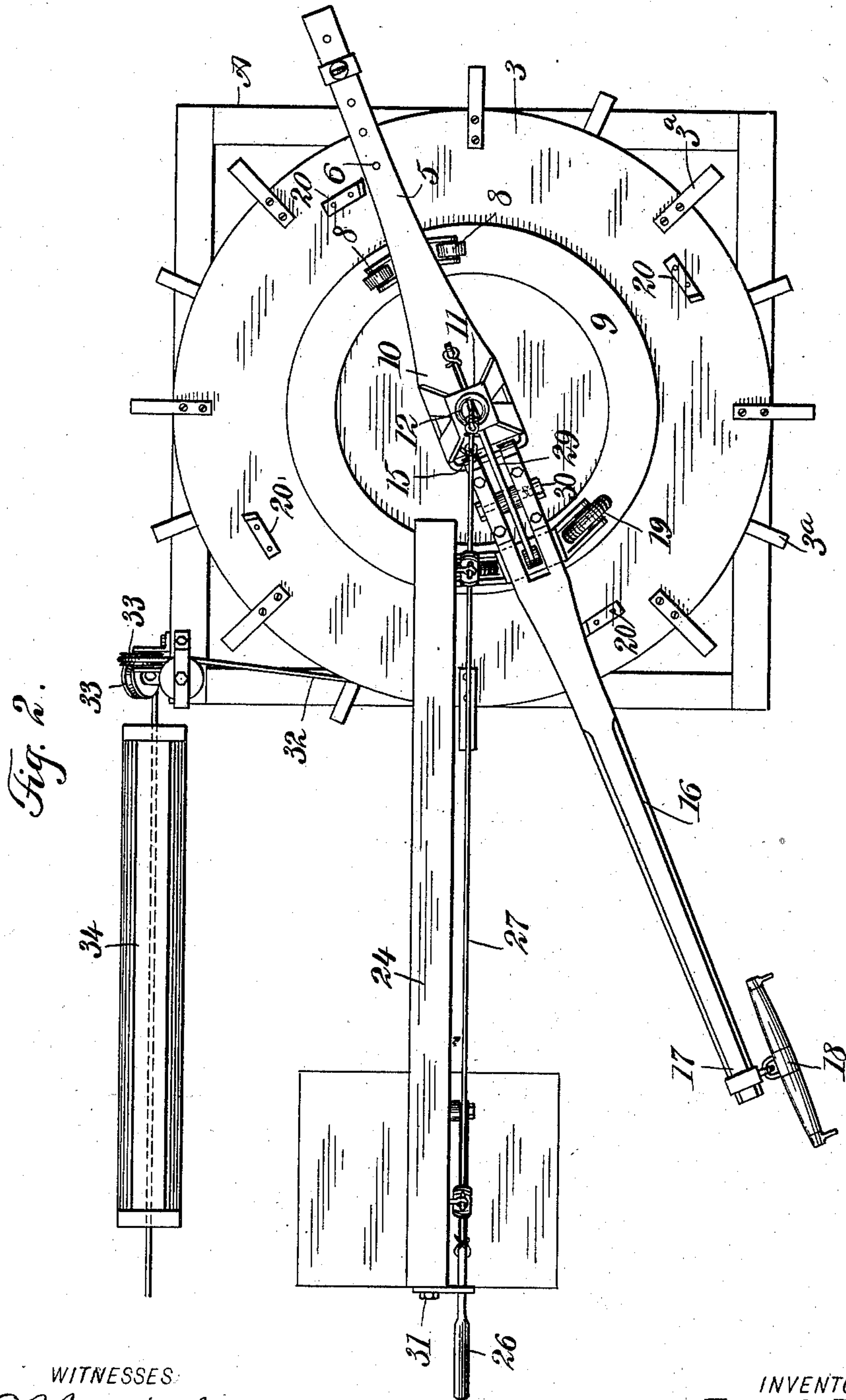
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NO MODEL.

3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

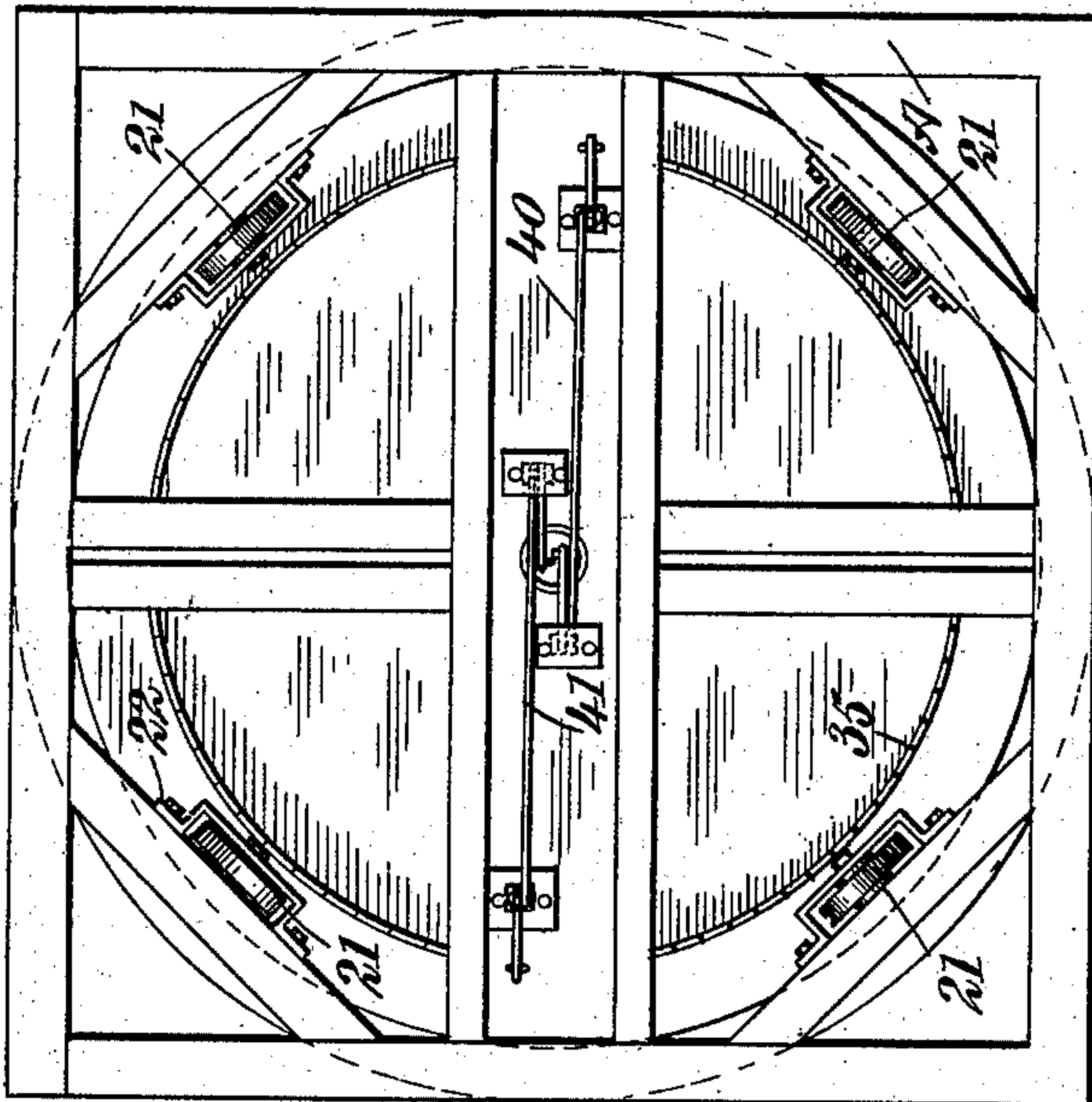


Fig. 4.

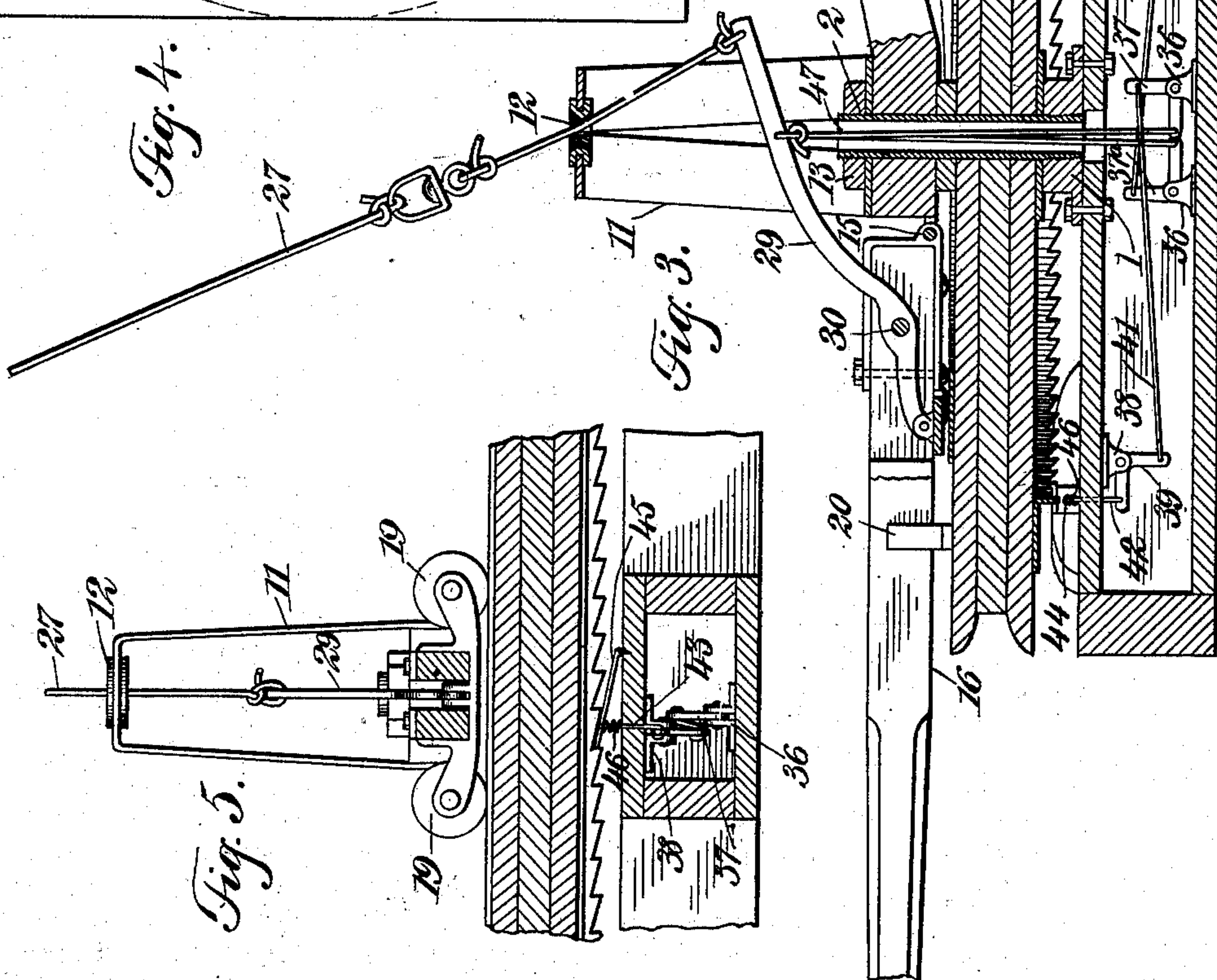


Fig. 3.

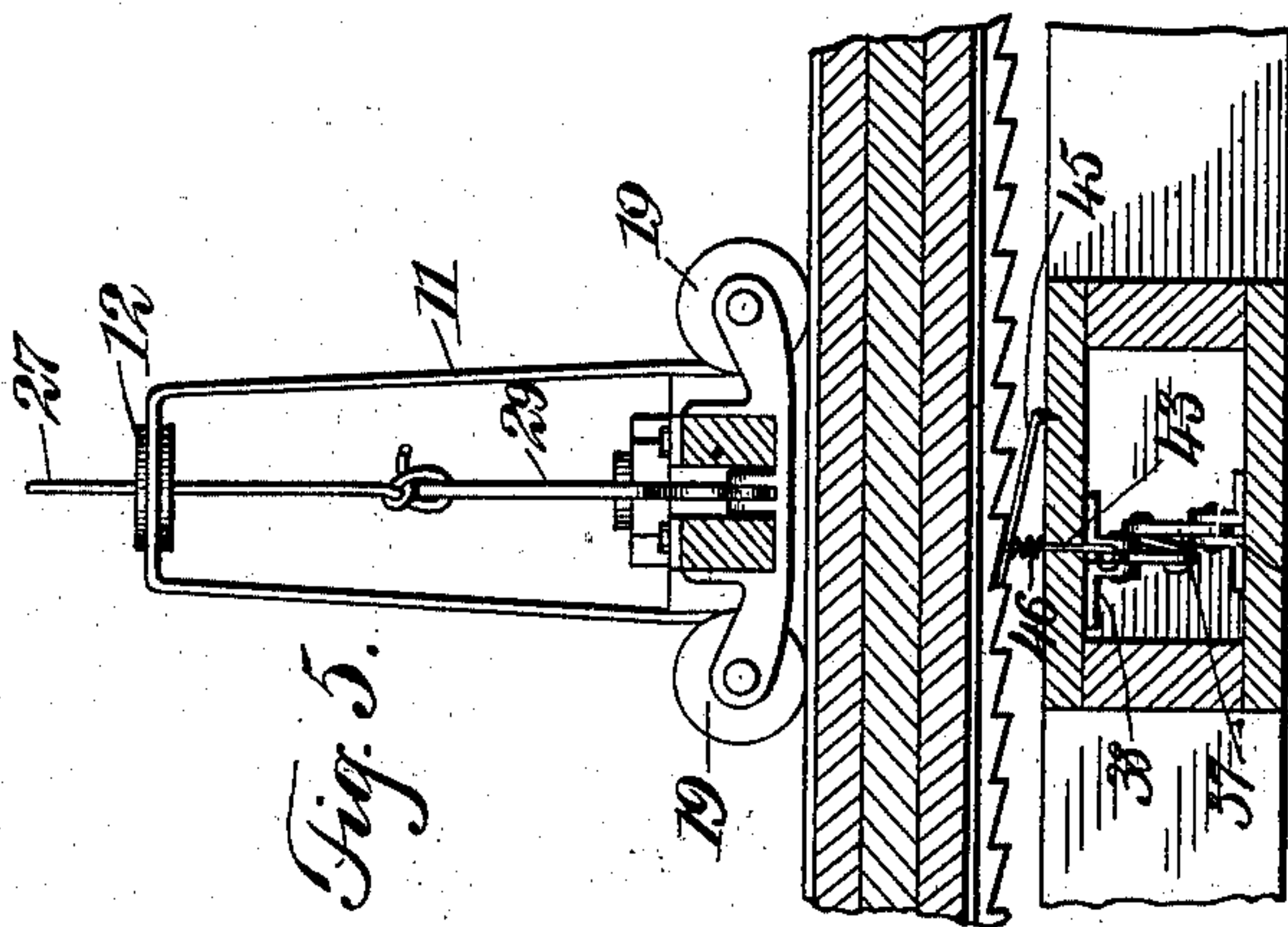


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOSEPH VAVRA AND CHARLES VAVRA, OF PARK RIVER, NORTH DAKOTA.

HORSE-POWER.

SPECIFICATION forming part of Letters Patent No. 748,443, dated December 29, 1903.

Application filed April 25, 1903. Serial No. 154,319. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH VAVRA and CHARLES VAVRA, citizens of the United States, and residents of Park River, in the county of Walsh and State of North Dakota, have invented new and useful Improvements in Horse-Powers, of which the following is a full, clear, and exact description.

This invention relates to certain novel and useful improvements in horse-power devices, and has particular application to one especially adapted for use in loading hay and elevating material from the ground to a desired point at a height above the same.

The principal object of our invention is to provide a device which will be extremely simple in its construction and operation, one which may be assembled and put into use with ease and facility and may be moved from place to place as required.

With these and other objects of a similar nature in view the invention consists in the construction, combination, and arrangement of parts as is described in this specification, delineated in the accompanying drawings, and set forth in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a view in side elevation of a mechanism embodying our improvement. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse vertical sectional view taken through the axis of the machine. Fig. 4 is a bottom plan view of the platform or frame of the machine, and Fig. 5 is an enlarged sectional detail view of a portion of the revolving wheel and pawl or rack mechanism for checking the revolution of said wheel.

Referring now to the drawings in detail, A designates the frame or base of the machine, which may be of any suitable character, but is preferably formed so that the machine may be easily carried from place to place. Upon this frame A is mounted a hub 1, adapted to assist in supporting a tubular spindle 2, upon which is adapted to be revolvably mounted the main wheel 3 of the machine, which is provided with a peripheral groove 4 of sufficient depth to permit a rope of considerable length to be wound thereon, the wheel being

provided with series of projections 3^a to prevent the rope from being displaced. Upon the upper portion of the aforesaid tubular spindle 2 is secured a pole 5, adapted to act as a counterbalance, such pole being provided at one end portion with a number of apertures 6, which permit the adjustment of a movable weight 7 on the pole. The counterbalance is further provided on its under surface with a small roller or caster 8, adapted to run upon a track formed of a flat metallic ring 9, which is secured to the upper surface of the grooved wheel 4. The part of the counterbalance-pole which is mounted upon the spindle 2 is widened, as at 10, and is adapted to have mounted thereon, so as to extend upwardly therefrom, a frame 11, having an open portion formed by a collar 12 at the top thereof, such collar being designed for a purpose hereinafter described. In order to secure the pole 5 upon the tubular spindle, a collar 13 is screwed on the end of said spindle above the widened portion of the pole, while a similar wearing-collar 14 is interposed between the under surface of the broadened portion of the pole and the top of the wheel.

Hinged to the end of the broadened part of the counterbalance-pole, as at 15, is a sweep 16, which has secured at its extreme outer end 17 a whiffletree 18 to permit a horse to be harnessed to said sweep. This sweep is also provided with a caster or roller 19, adapted to run upon the track 9, the sweep extending in a radially-opposite direction to the counterbalancing-pole. Extending upward from the top surface of the wheel are a number of catches or lugs 20, adapted to be engaged by the sweep when the horses are moving the same, the construction being such that the large wheel 3 will be revolved, said wheel bearing upon a series of small rollers or wheels 21, mounted in bearings 22 on top of the platform A.

Arranged adjacent or contiguous to the framework is a scaffold or derrick comprising a vertical standard 23 and a horizontal cross-bar 24, the aforesaid bar and the standard being connected through the medium of a brace 25. Pivoted to the brace 25 is an arm 26, having connected thereto one end of a cable or rope 27, which passes through pulleys

28 28, secured to the horizontal cross-bar 24, the other end of said rope passing down through the collar 12 in the frame 11 and being secured to one end of a lever-arm 29, pivoted at 30 to the sweep, the free end of said arm forming the support for the wheel or roller 19 of the sweep. In order to raise or lower the sweep so as to release it from engagement with the vertically-mounted lugs on the wheel or winding-drum, it is only necessary to move the arm 26 downward, which will cause the rope 27 to pull up on the lever-arm 29 and press said lever-arm down at its fulcrum-point 30 and elevate the sweep sufficiently to pass over said lugs. In order to retain the arm 26 in any position, there is secured to the vertical standard 23 a toothed rack 31, the handle portion of the arm being adapted to engage with any one of the teeth, which will prevent the handle from flying upward. To any suitable part of the revolving wheel or drum is attached one end of a rope or cable 32, which extends around pulleys 33 33, secured to the side of the frame, and from thence to any desired point. This rope 32 is adapted to be connected at its free end to a hay-fork or to the article to be raised and may be of any desired length. At a point adjacent to the frame the hoisting-rope is preferably covered by a bridge 34, so that the horse or draft-animal will not trip upon the rope when walking in a circle.

In the case of an accident to the harness or to the draft-animal it may be found desirable to stop the revolution of the wheel or drum, and thereby prevent the unwinding of the rope, and for this purpose we have secured to the under side of the wheel or drum a toothed ring or rack 35, which ring is nearly equal in circumference to the wheel itself. Mounted upon the base A, directly beneath the hollow spindle 2, are the small supports 36 36, adapted to have pivoted thereto oppositely-arranged bell-crank levers 37 37^a, while at points on the under surface of the upper portion of the frame, near the sides thereof, are secured similar supports 38 38, also having small bell-crank levers 39 39^a secured thereto and extending in opposite directions. The lever 39^a is connected at its depending arm to the vertically-extending arm of the lever 37^a through the medium of a rod 40, while the lever 39 is similarly connected to the lever 37 by a rod 41. To the horizontal arms of the levers 39 39^a are secured pins 42 and 43, which extend upward through apertures formed in the top of the frame or platform and are connected with dogs or pawls 44 45, which are in turn adapted to be brought into engagement with the teeth of the circular rack 35. To accomplish this purpose, the horizontal arms of the levers 37 37^a are connected with the lever-arm 29 through the medium of a cable, wire, or the like 47 and a swivel, (not shown,) said cable or wire passing up through the tubular spindle 2. It will be observed by this construction that when the sweep is elevated by

pulling down the lever-arm 26 the bell-crank levers 37 37^a will be actuated with the lever-arm 29 and its connection and will throw the pawls 44 45 out of engagement with the circular rack 35, small springs 46 being coiled about the arms 42 and 43, said springs tending to press the pawls upward into engagement with the teeth.

From the above description, read in connection with the drawings, the operation of our improved device will be readily apparent. The hoisting-rope 32 being connected to the article to be elevated, the draft-animal, which is harnessed at the whiffletree 18, is driven in a circle, and the wheel or winding-drum revolving the rope will be wound on the periphery of said drum. When the bale or article has been elevated the desired height, the arm 26 is pulled downward, as before described, to elevate the sweep sufficiently to release it from contact with the vertical lugs on the upper surface of the drum, and thereby permit the rope which is wound on said wheel to be paid out. The load may then be removed and the rope returned and the operation resumed. When the rope has been paid out, the arm is released from its notch, and the lever on the sweep being likewise released the latter will again drop into position of contact with the lugs on the wheel and the operation of winding the rope will be resumed. It will be observed that the arrangement of the circular toothed rack and the pawl mechanism, hereinbefore described, will prevent the rope from accidentally unwinding.

The many advantages incident to our improved sweep will be evident. Loads may be easily and speedily elevated and handled by using our improvement, and in addition to being adapted for raising hay and the like it will be found exceedingly convenient for builders and contractors for raising mortar and bricks to the upper stories of buildings.

While we have shown and herein described one particular embodiment of our invention, it is of course to be understood that we do not limit ourselves to the precise details of construction shown herein, as there may be modifications and variations in certain respects without departing from the essential features of the invention or sacrificing any of the advantages thereof.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination of a frame, a winding-drum revolubly mounted thereon, a hoisting-rope connected to said drum, a sweep for turning said drum, a lever pivoted to said sweep, a derrick, an arm pivoted to said derrick, and a rope connecting said arm with the sweep, substantially as set forth.

2. The combination of a base-frame, a winding-drum revolubly mounted thereon, lugs formed on said drum, a sweep pivoted above said drum and normally adapted to contact

with said lugs, whereby when the sweep is moved the drum will be revolved, a hoisting-rope, a derrick, a lever pivoted to said sweep, a cable connected to said lever, and means on the derrick for actuating the rope and lever to move the sweep out of engagement with the lugs of the drum, thereby permitting the unwinding of the rope, substantially as set forth.

3. The combination of a frame, a spindle journaled thereon, a winding-drum revolubly mounted on said spindle, a hoisting-rope adapted to be wound on said drum, a counterbalance-pole mounted on the spindle above said drum, a sweep hinged to said pole, a lever pivoted to said sweep and adapted to be actuated to move the sweep out of working engagement with the drum, a toothed rack on said drum, and means engaging with said rack for stopping the revolution of the drum, such means comprising bell-crank levers pivoted to the top and bottom of said frame, rods connecting said levers, spring-tensioned pawls or detents connected with the top le-

vers, and a connection between the levers at the base of the frame and the lever of the sweep, substantially as set forth.

4. The combination of a frame, a winding-drum revolubly mounted thereon, a hoisting-rope adapted to be wound on said drum, a sweep pivoted above said drum and movable into and out of working engagement therewith, a derrick, and means operated from the derrick for moving said sweep into and out of working engagement, such means comprising a lever pivoted to said sweep, an arm pivoted to said derrick, a notched strip adapted to engage and hold said arm, and a cable connecting the lever of the sweep and the arm on the derrick, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH VAVRA.

CHARLES VAVRA.

Witnesses:

JAMES LARNACH,

JOHN H. OWEN.