

No. 754,775.

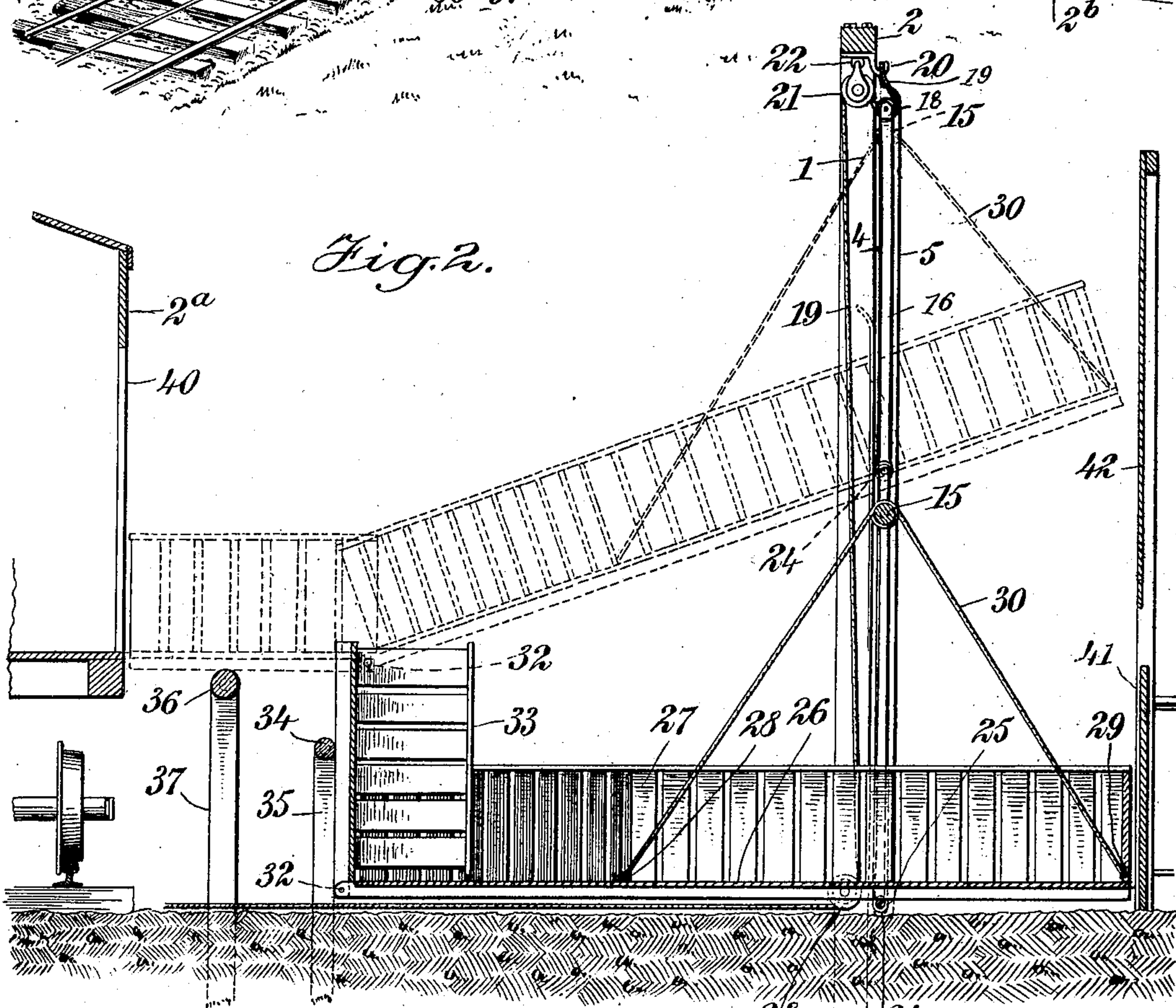
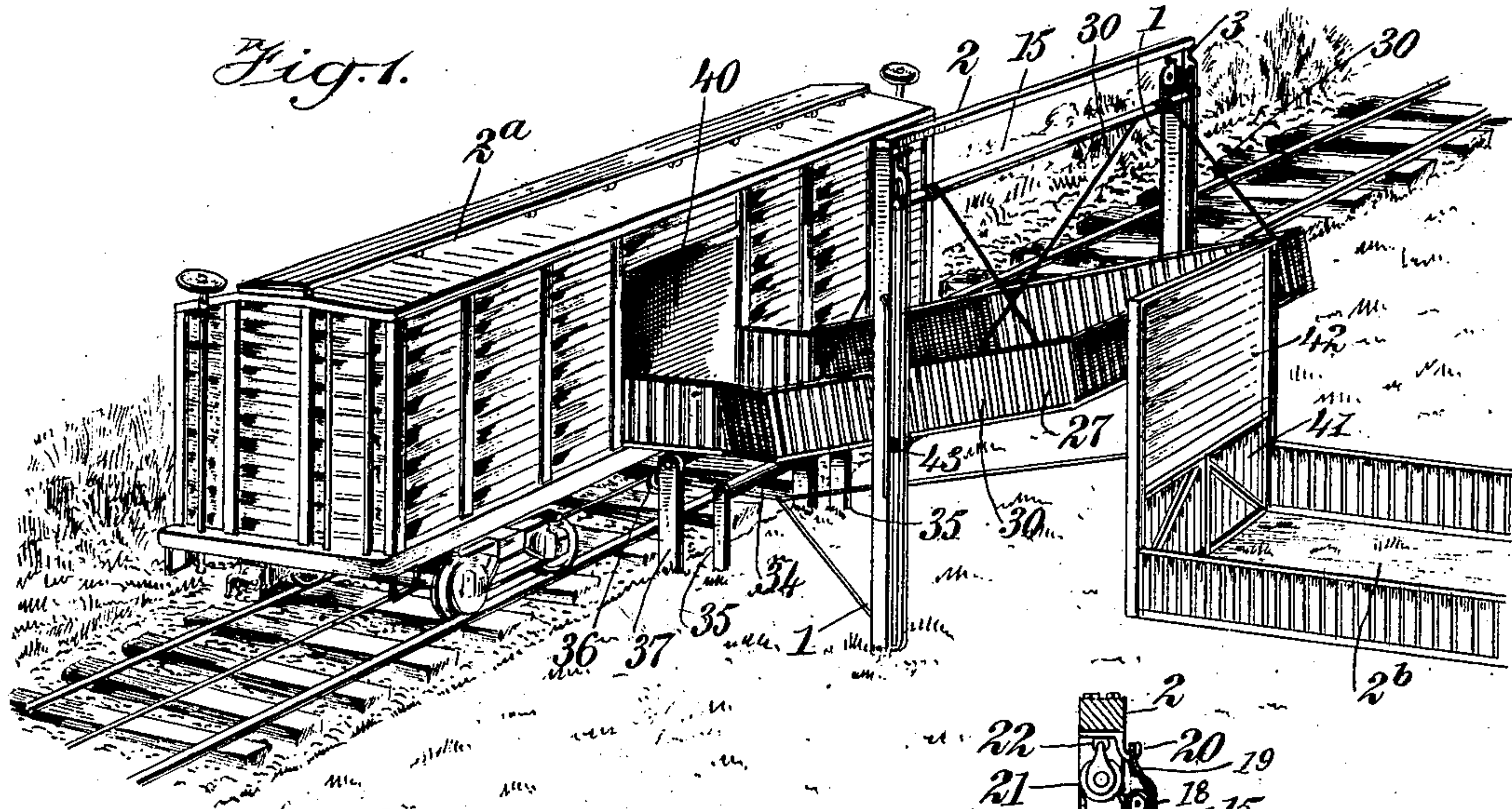
PATENTED MAR. 15, 1904.

L. W. JOHNSON.
HOISTING DEVICE FOR LIVE STOCK.

APPLICATION FILED JULY 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

Geo. Maylor
E. Ellis

INVENTOR

Lafayette W. Johnson

BY

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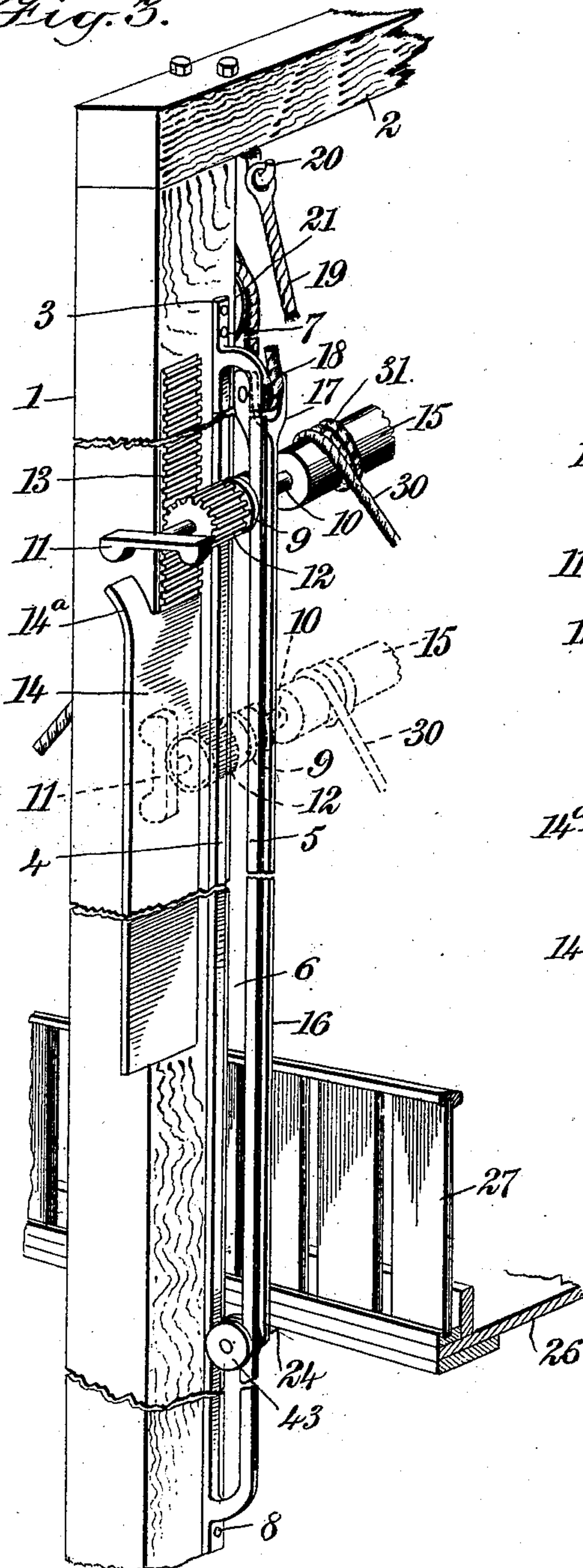
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2 SHEETS—SHEET 2.

Fig. 3.



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Fig. 4.

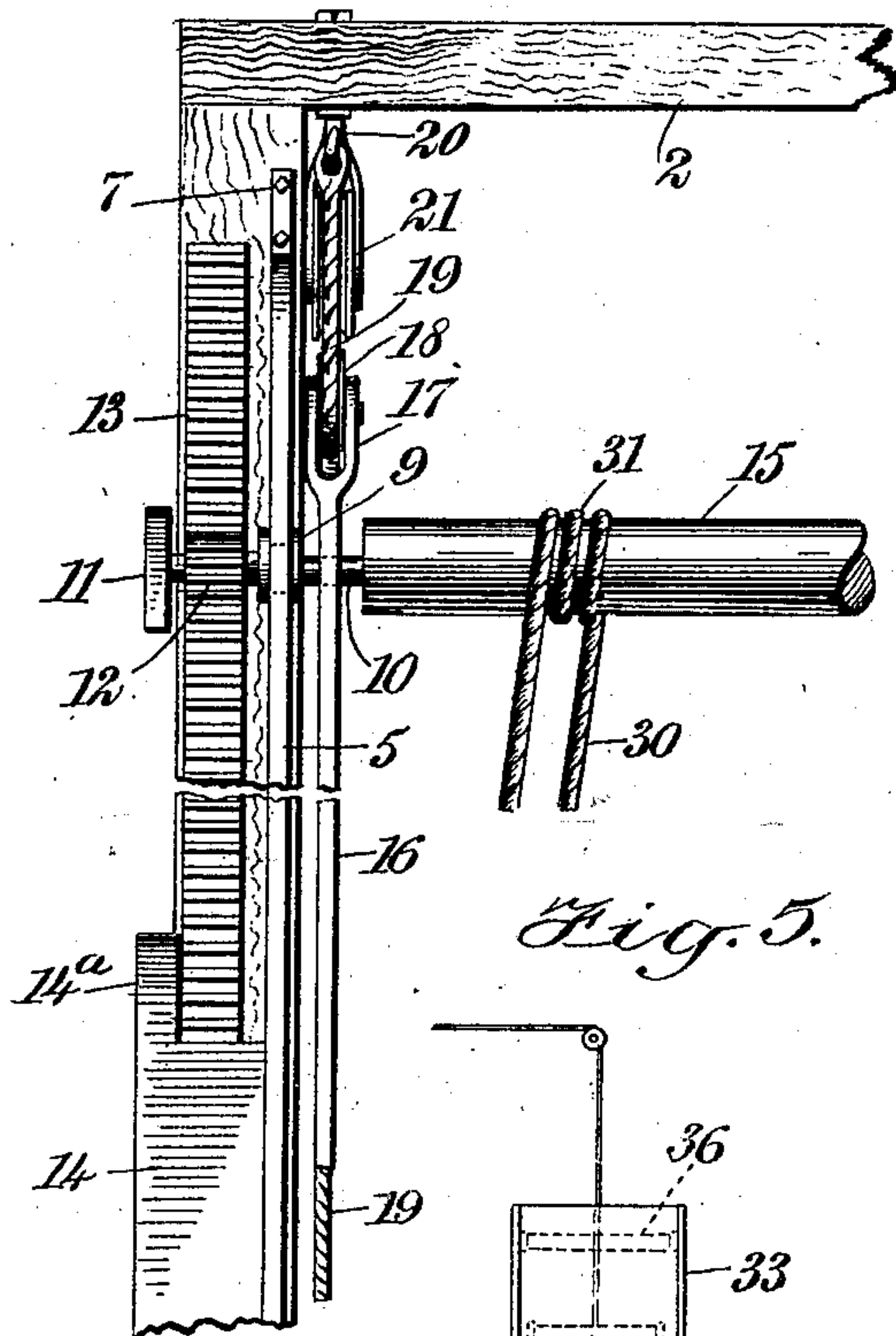
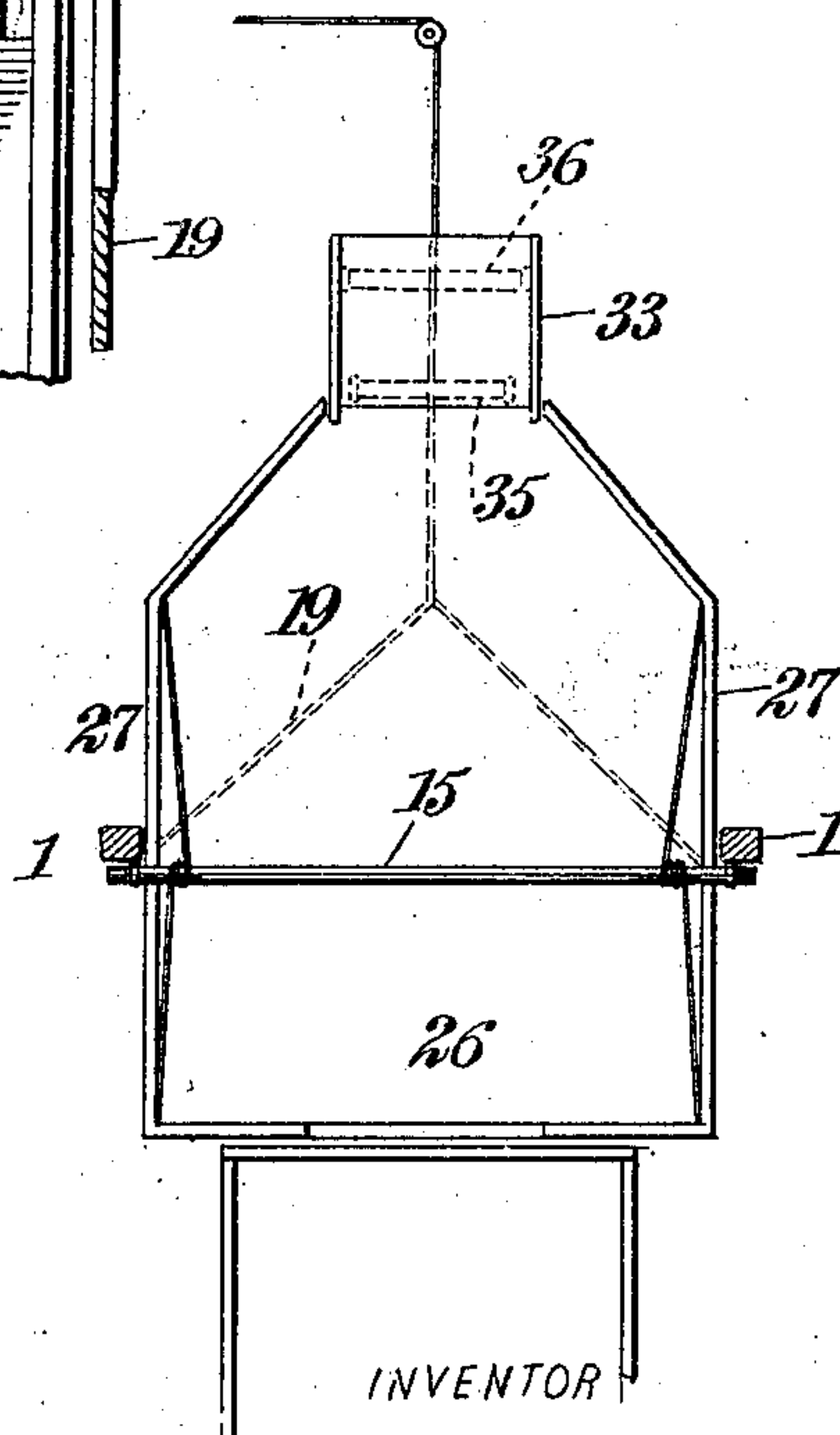


Fig. 5.



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LAFAYETTE W. JOHNSON, OF JEROME JUNCTION, ARIZONA TERRITORY.

HOISTING DEVICE FOR LIVE STOCK.

SPECIFICATION forming part of Letters Patent No. 754,775, dated March 15, 1904.

Application filed July 29, 1903. Serial No. 167,430. (No model.)

To all whom it may concern:

Be it known that I, LAFAYETTE W. JOHNSON, a citizen of the United States, and a resident of Jerome Junction, in the county of Yavapai and Territory of Arizona, have invented a new and Improved Hoisting Device for Live Stock, of which the following is a full, clear, and exact description.

This invention relates to hoisting devices or mechanism; and it consists, substantially, in the construction, organization, and combinations of parts hereinafter particularly described, and pointed out in the claims.

Though applicable to other purposes in the arts, my improvements are intended more especially for use in loading cars with livestock; and one of the principal objects of my invention is to provide means for overcoming numerous disadvantages and objections found to exist with other devices hitherto devised for similar purposes, and also to provide devices of this kind which are simple in construction as well as strong and durable and comparatively inexpensive to construct or manufacture.

A further object of the invention is to provide devices of the character referred to which are effective and reliable in use or operation as well as easy to manipulate and control and possessing the capacity for long and repeated service.

The above and additional objects are attained by means substantially such as are illustrated in 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 perspective showing the manner in which my improvements are employed for loading live stock onto cars or the like. Fig. 2 is a longitudinal sectional view illustrating the operation of my improvements. Fig. 3 is an enlarged view in perspective showing more clearly the construction and organization of my improved hoisting devices. Fig. 4 is a front elevation of some of the parts shown in the preceding figure, and Fig. 5 is a plan view in detail.

Before proceeding with a more detailed description it may be stated that in the form of

my improvements herein shown I employ a movable gangway or platform of special construction which for the purpose of enabling the live stock to pass thereonto may rest on the ground or other surface of the pen from which such stock may be taken, and in connection with said gangway I employ hoisting devices, also of special construction, for elevating the gangway, together with a load of stock, to a convenient height to enable the latter to pass into the car or other conveyance to receive them.

The organization and operation of the elements or parts are such that after the gangway (together with its load) has been raised to a predetermined height the same is given a downward inclination in the direction of the entrance for the stock to the car, thus impelling the stock to move toward and through such entrance. The devices are easily manipulated and controlled, and the same possess many advantages, as will presently appear, and while I have herein represented my improvements in a certain preferred embodiment it will be understood, of course, that I am not limited to the precise details thereof in practice, since immaterial changes therein may be resorted to coming within the scope of my invention.

Reference being had to the drawings by the designating characters marked thereon, 1 1 represents substantially duplicate parallel standards or uprights of suitable height, connected together at the top by means of a cross beam or strip 2, which structure is preferably located in convenient proximity to a railway traveled over by the car 2^a, intended for receiving the live stock, the latter being kept in a suitable pen 2^b therefor, if desired, pending their transfer to the car. Secured to one of the faces of each of said standards or uprights 1, and preferably nearest the inner edge thereof, is a frame 3, comprising parallel vertical rails 4 and 5, the former of which rests against the upright, while the latter stands outwardly a suitable distance, as shown, by which to provide a space 6 between the rails, the said frames being each held in place in any suitable way, as by means of bolts or screws 7 and 8. Working between each pair of said rails 4 and 5 and

guided thereby is a vertically-traveling pulley or sheave 9, which is rigid with a horizontal shaft 10, extending across the uprights, as shown, said shaft also carrying at each end a rigid shoe 11, while at a suitable distance from each of said shoes the shaft is provided with a rigid pinion 12, adapted for engagement with the teeth of a rack-plate 13, secured to the face of the corresponding upright. (See Figs. 3 and 4.) Each of said rack-plates is smooth or minus any teeth for a part of its height, as indicated at 14, and for this said part the plate is also of greater width than the upright, the upper edge of the wider portion of the plate being bent or turned to form a strip 14^a for releasing the corresponding shoe in the manner and for the purpose hereinafter explained. Rigid with said shaft 10 is a drum 15, and also hung upon the shaft at a suitable point thereof of intermediate an end of the drum and each of the pulleys or sheaves 9 is the upper part of a vertically-disposed link-rod 16, supported in the upper bifurcated end 17 of which is a pulley or sheave 18, beneath which passes a cable or rope 19, having one of its ends attached to a hook 20, secured in the cross-beam 2, said cables each also passing over a swinging pulley or sheave 21, hung at 22 from a suitable bracket secured to the underside of said cross-beam. (See Fig. 2.) After leaving said pulleys or sheaves 21 the cables 19 are carried downwardly substantially parallel with the uprights 1, and each of them is passed beneath a stationary pulley or sheave 23, thence over toward the tracks of the railway or to any other point where attachment or connection of the same may be effected with a locomotive-engine or other power mechanism for operating the devices in the manner about to be described. Each of the said link-rods 16 is connected near the lower end thereof with a vertically-movable horizontal rod 24, extending substantially parallel with cross-beam 2, said latter rod having mounted thereon at 25 the floor 26 of a gangway having suitable side guards or rails 27 to prevent live stock from either falling or jumping therefrom.

The gangway has fastened to the points 28 and 29 thereof at either side the ends of a cable or rope 30, which is coiled about the drum 15 several times, as indicated at 31, Figs. 3 and 4, and hinged to the forward end of said gangway at 32 is a supplementary gangway-section 33, which when the main section is in the position indicated in Fig. 2 (or previous to the elevation or lifting thereof) occupies substantially a vertical position, as shown, thereby serving the function of a gate for closing the forward end of said main section and preventing escape of the live stock as the latter are placed in position preparatory to being loaded on the car. The said supplementary gangway-section is maintained in the vertical position shown by means of a

roller 34, supported at the upper ends of posts 35, another roller 36 being similarly supported by other but taller posts 37, disposed a suitable distance in advance of the posts first named.

The parts being constructed and organized as explained and the main and supplementary sections of the gangway being substantially at the ground-level, as indicated in Figs. 3 and 4, let it be assumed that a load of live stock has been placed upon the floor of said main section, it being understood that at this time the shaft 10 and its described auxiliaries (including the shoes 11) are in the positions indicated in dotted lines in said Fig. 3. Now by applying sufficient power to the cables 19 the shaft and its auxiliaries will be caused to move upwardly against the sides of the uprights, said shaft (and auxiliaries) being prevented from rotation by the shoes 19, which move upon the smooth surface portions of said rack-plates 13. As soon, however, as the upper portions of the shoes reach the trips 14^a the said shaft (and auxiliaries) is caused to be rotated by reason of the engagement which now takes place between the teeth of pinions 12 and the teeth of said rack-plates, and due to the movement thus given to the drum 15 the cables 30 are wound thereon to an extent sufficient to impart to the main section of the gangway a downward inclination in the direction of the entrance 40 in the side of the car. During the upward movement of the parts and prior to the described engagement between the teeth of the pinions and rack-plates the supplementary section of the gangway is gradually lifted and tilted forwardly in such manner as to ride the surfaces of the rollers 34 and 35 until by the time the predetermined height or elevation of the main section of gangway has been reached the said auxiliary section will have assumed a horizontal position (see Fig. 2) substantially on a level with the floor of the car. The parts may be again restored to their first position by allowing the main gangway-section to be lowered by its own weight, as is apparent.

It will be observed that the pen is provided above the gate 41 thereof with a guard 42 of height sufficient to prevent the stock from falling out at the adjacent end of the gangway should the latter happen to be open at such end, it being added also that the rod 24 is guided on rails 5 and 6 by a pulley 43 at each end thereof.

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

1. In hoisting mechanism for live stock, a gangway comprising a main section and an auxiliary section movably connected thereto, and normally forming a vertical gate for the main section, means for hoisting said gangway, and means for permitting the auxiliary section thereof when hoisted to assume a horizontal position to open the gangway for the

exit of stock, and to form an extension for the floor of the gangway.

2. In hoisting mechanism for live stock, a gangway comprising a main section, and an auxiliary section movably connected thereto, the one section normally occupying a substantially horizontal position, and the other a vertical position, means for hoisting said gangway, means whereby the auxiliary section thereof is caused to gradually assume a substantially horizontal position, and means for imparting an inclination to said main section on the said gangway attaining a predetermined height.

3. In hoisting mechanism for live stock, a gangway comprising a main section, and an auxiliary section movably connected thereto, the one section normally occupying a substantially horizontal position, and the other a vertical position, means for hoisting said gangway, means whereby the auxiliary section thereof is caused to gradually assume a substantially horizontal position, and rollers for imparting an inclination to the main section on the said gangway attaining a predetermined height, one of said rollers being mounted in advance of the other, and at a greater elevation.

4. In hoisting mechanism for live stock, a gangway, means for hoisting the same substantially horizontally, and means for imparting an inclination thereto on the said gangway reaching a predetermined height, said means comprising suspensory cables, an ascending drum, and devices for rotating the drum to wind said cables thereon from one side while paying them out from the other.

5. In hoisting mechanism for live stock, a gangway, means for hoisting the same substantially horizontally, and means for imparting an inclination thereto on the said gangway reaching a predetermined height, said means comprising suspensory cables, an ascending drum, guides for the drum, and devices for rotating the drum to wind the cables thereon from one side while paying them out from the other.

6. In hoisting mechanism for live stock, a gangway, means for hoisting the same substantially horizontally, and means for imparting an inclination thereto on the said gangway reaching a predetermined height, said means comprising suspensory cables, an ascending drum, pulleys and rails for guiding the drum, and devices for rotating the drum to wind the cables thereon from one side while paying them out from the other.

7. In hoisting mechanism for live stock, a gangway, means for hoisting the same substantially horizontally, and means for imparting an inclination thereto on the said gangway reaching a predetermined height, said means comprising suspensory cables, an ascending horizontal drum having a rigid shaft, link-rods pendent from said shaft, and connecting with the gangway, and devices for rotating the

shaft to wind the cables on the drum from one side while paying them out from the other.

8. In hoisting mechanism for live stock, a gangway, an ascending drum having a rigid shaft, suspensory cables from the drum to the gangway, link-rods from the shaft to the gangway, hoisting-cables, means for preventing rotation of the shaft until the drum has reached a predetermined height, and means for then rotating the shaft.

9. In hoisting mechanism for live stock, a gangway, an ascending drum having a rigid shaft, suspensory cables from the drum to the gangway, link-rods from the shaft to the gangway, hoisting-cables, means for preventing rotation of the shaft until the drum has reached a predetermined height, and a rack and pinion for then rotating the shaft.

10. In hoisting mechanism for live stock, a gangway, an ascending drum having a rigid shaft, suspensory cables from the drum to the gangway, link-rods from the shaft also to the gangway, a horizontal rod connecting said link-rods beneath the gangway, hoisting-cables, means for preventing rotation of the shaft until the drum has reached a predetermined height, and means for then rotating said shaft.

11. In hoisting mechanism for live stock, a gangway, an ascending drum having a rigid shaft, suspensory cables from the drum to the gangway, link-rods from the shaft also to the gangway, a horizontal rod connecting said link-rods beneath the gangway, hoisting-cables, means for preventing rotation of the shaft until the drum has reached a predetermined height, and a rack and pinion for then rotating said shaft.

12. In hoisting mechanism for live stock, a gangway, means for hoisting the same substantially horizontally, and means for imparting an inclination thereto on the said gangway reaching a predetermined height, said means comprising duplicate uprights, an ascending drum having a shaft provided with shoes moving upon said uprights, and trip devices for said shoes.

13. In hoisting mechanism for live stock, a gangway, means for hoisting the same substantially horizontally, and means for imparting an inclination thereto on the said gangway reaching a predetermined height, said means comprising duplicate standards having plates secured thereto, and said plates each being bent at a suitable part of its height, to form a trip, and also provided with a series of teeth, and an ascending drum having a shaft provided with shoes adapted to pass over said trips, and also provided with pinions for engaging said teeth.

14. In hoisting mechanism for live stock, the combination with duplicate standards, and a connecting cross-beam therefor, of a gangway, an ascending drum having a shaft, suspensory cables from the drum to the gang-

way, link-rods hung upon the shaft, and supporting guide-pulleys at the upper ends thereof, said link-rods being connected together beneath the gangway, hoisting-cables attached
5 at one end to the cross-beam, and passing beneath said guide-pulleys, thence over other guide-pulleys suspended from said beam, means for preventing rotation of the shaft until the drum has reached a predetermined

height, and means for then rotating said shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LAFAYETTE W. JOHNSON.

Witnesses:

CHARLY DEVOTO,

EDWARD R. HUKER.