

No. 735,617.

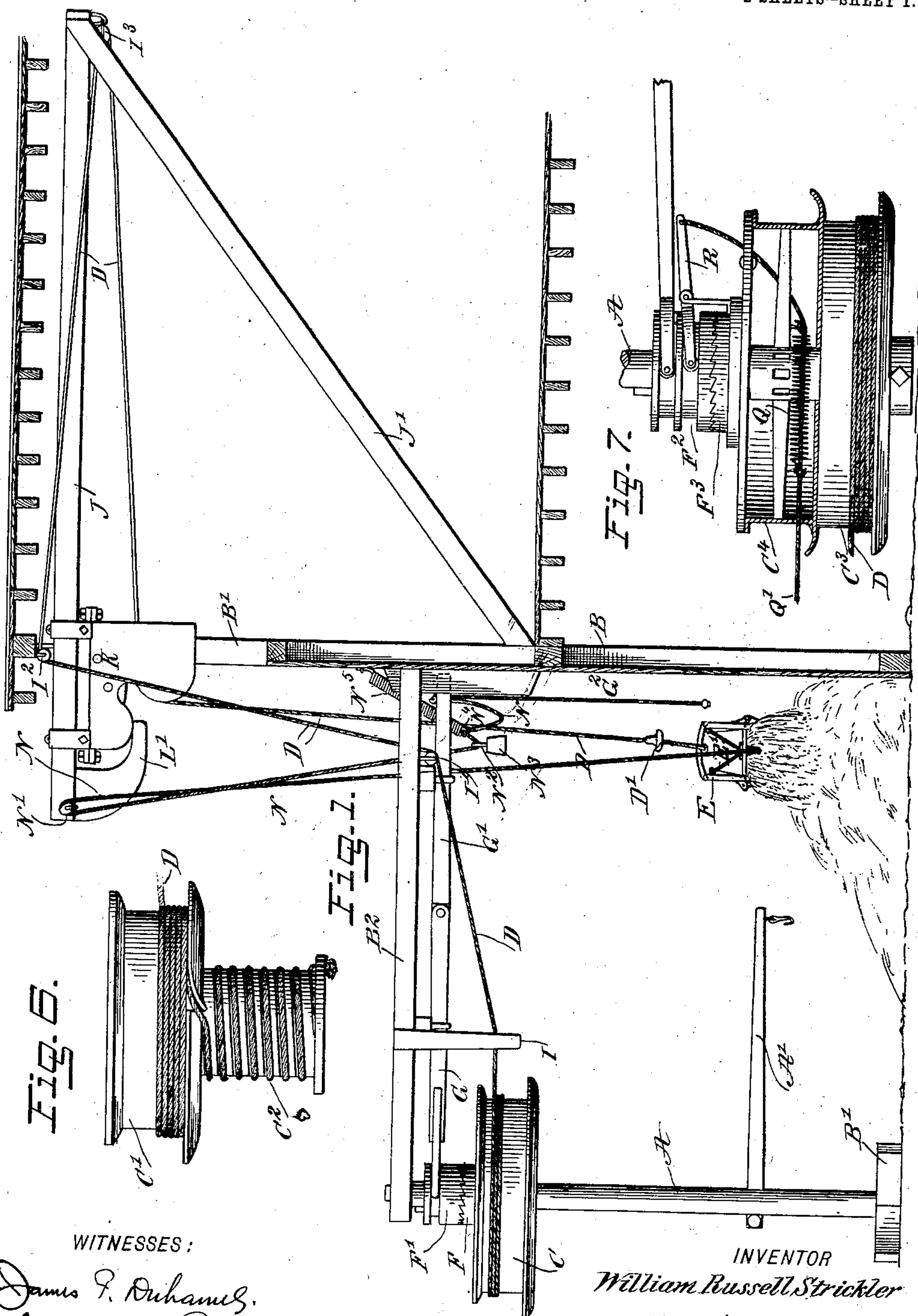
PATENTED AUG. 4, 1903.

W. R. STRICKLER.
HOIST, RAISED TRACK, AND DUMPING DEVICE.

APPLICATION FILED JUNE 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

James P. Duhamel.
Thos. G. Foster.

INVENTOR
William Russell Strickler
BY *Wm. Russell Strickler*
ATTORNEYS

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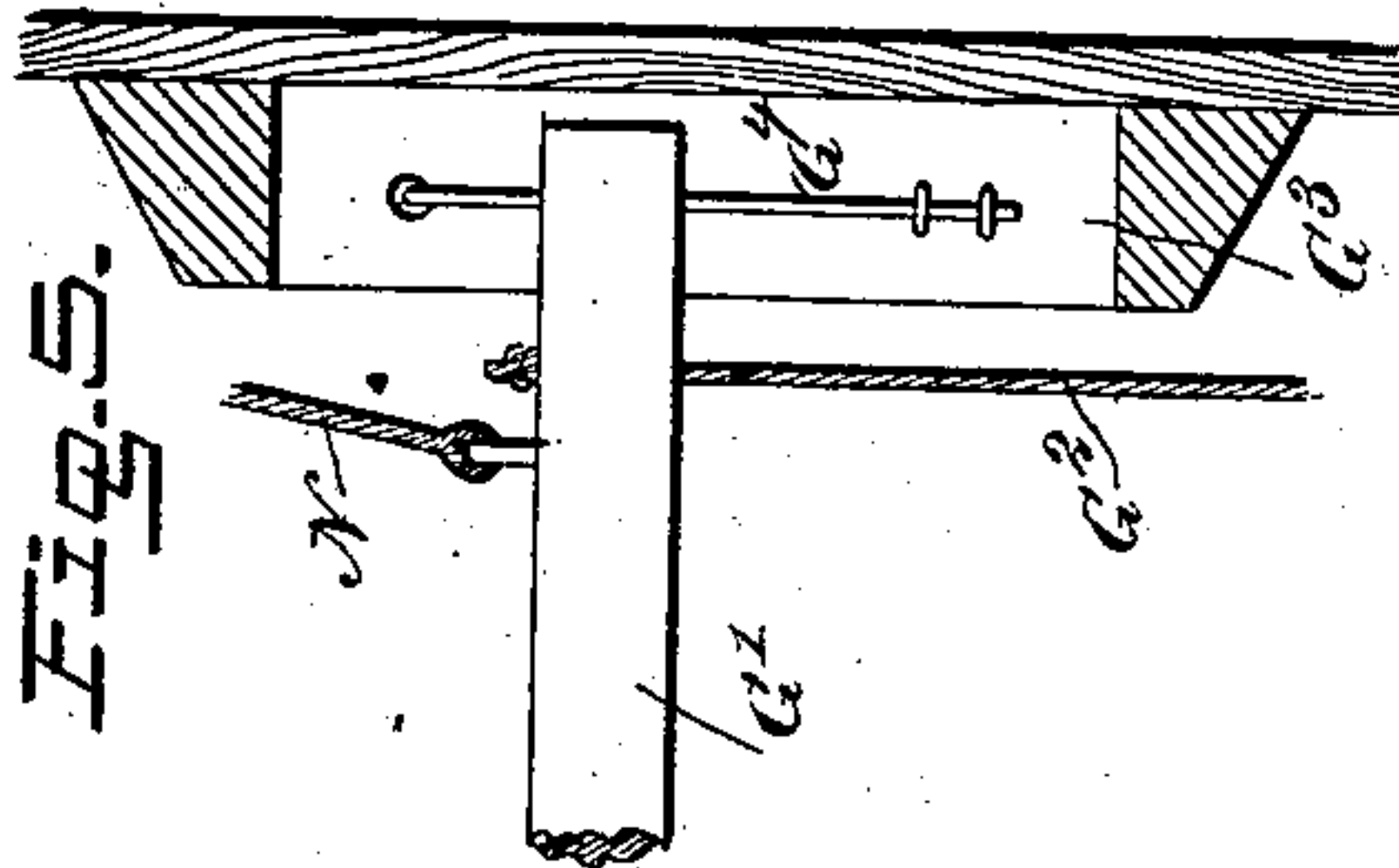
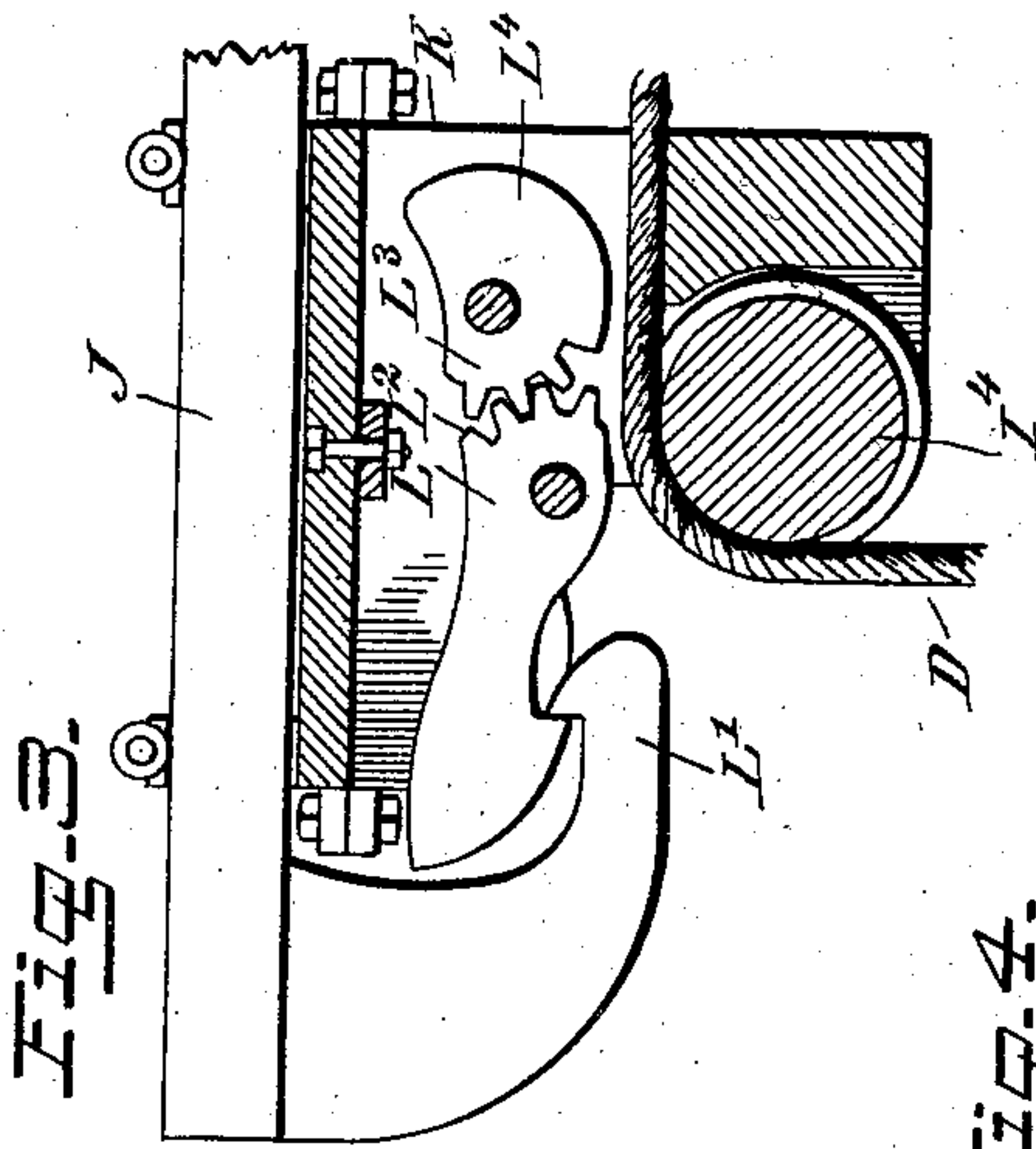
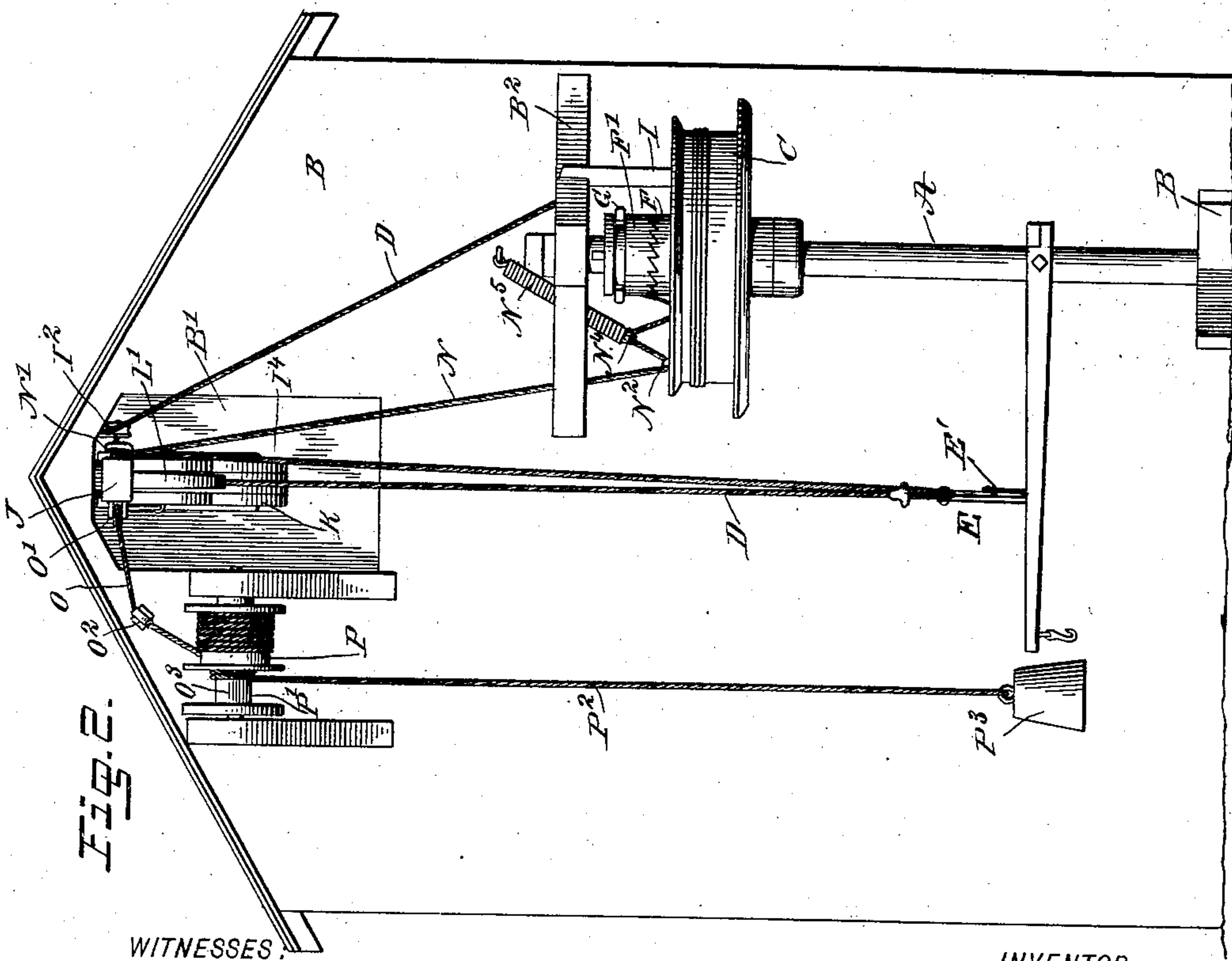
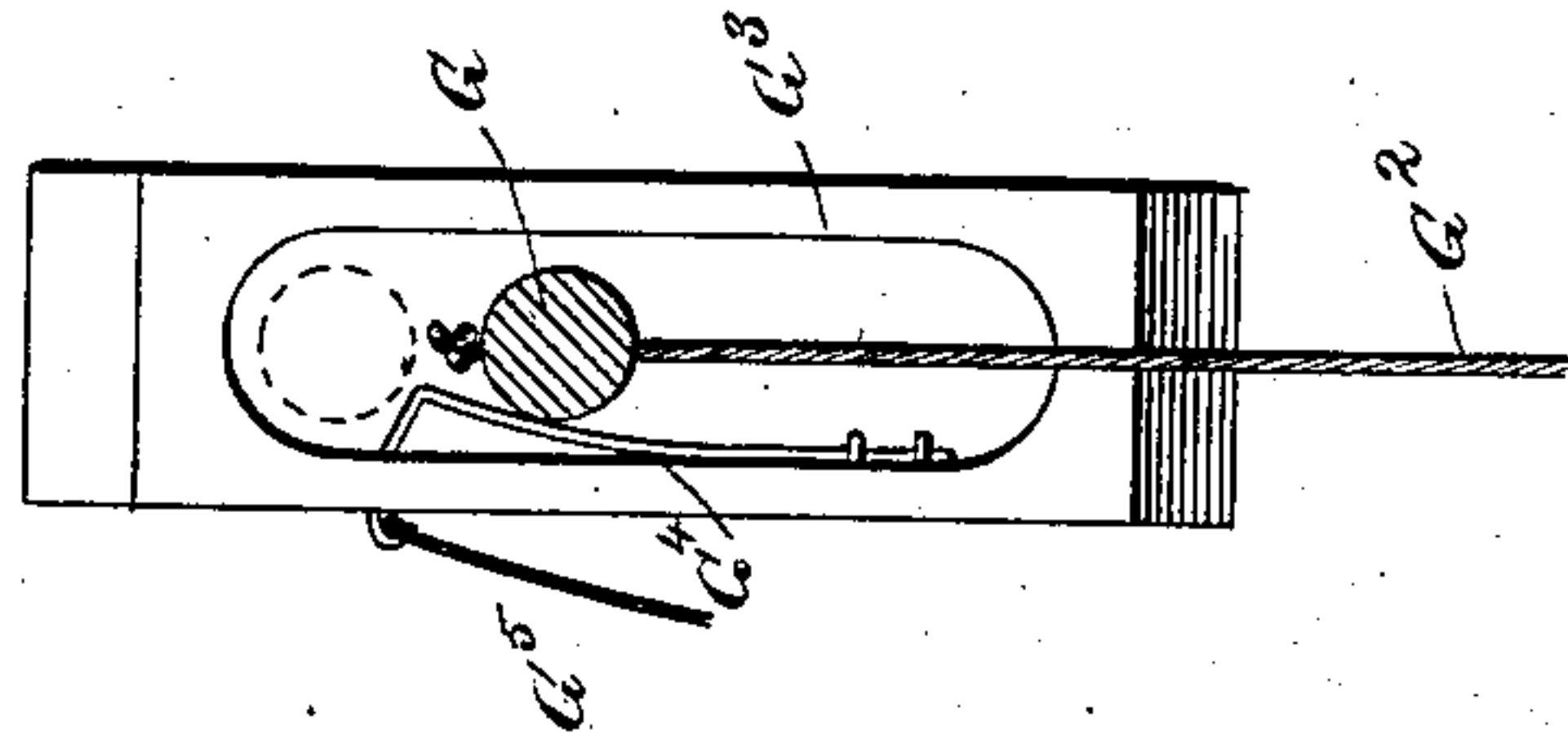


Fig. 4.



WITNESSES.

James F. Duhamel.
Rev. G. Hooper.

INVENTOR
William Russell Strickler
BY
Munn
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM RUSSELL STRICKLER, OF JEWELL, KANSAS.

HOIST, RAISED TRACK, AND DUMPING DEVICE.

SPECIFICATION forming part of Letters Patent No. 735,617, dated August 4, 1903.

Application filed June 2, 1902. Serial No. 109,893. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RUSSELL STRICKLER, a citizen of the United States, and a resident of Jewell, in the county of Jewell and State of Kansas, have invented a new and Improved Hoist, Raised Track, and Dumping Device, of which the following is a full, clear, and exact description.

The invention relates to devices for loading hay, grain, and other materials into barns or other buildings and places; and its object is to provide a new and improved horse-power hoisting device which is simple and durable in construction, very effective and automatic in operation, and arranged to utilize the power applied to the fullest advantage, and to automatically trip off a load and cause return of the load-carrier to the starting position.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement as applied for loading hay into a barn, the latter being shown in section. Fig. 2 is a front elevation of the same. Fig. 3 is an enlarged sectional side elevation of the carriage and the locking device for the same. Fig. 4 is an enlarged cross-section of part of the tripping device. Fig. 5 is a sectional side elevation of the same. Fig. 6 is a side elevation of a modified form of the hoisting-drum; and Fig. 7 is a side elevation of another modified form of the hoisting-drum combined with the tripping device, parts being shown in section.

The vertically-disposed shaft A is journaled in a suitable step B' and in a bearing carried by the overhead framework B², projecting from the outside of the building B, into which the hay or other material is to be transferred or loaded.

On the lower end of the shaft A is arranged the usual sweeper A' for attaching a horse or team to turn the shaft A, and on the upper portion of the latter is mounted to rotate

loosely the hoisting-drum C, on which winds and unwinds one end of the hoisting-rope D, supporting at its other end the load-carrier E in the shape of a fork or like device for carrying the load. The drum C is caused to rotate with the shaft A when the rope D is to be wound up on the drum C for carrying the load from the outside of a building to the inside thereof, as hereinafter more fully described, and for the purpose mentioned the drum C is provided with a clutch member F, adapted to be engaged by a clutch member F', mounted to turn with and to slide on the shaft A, the said member F' being engaged by a shifting-lever G, forming part of the tripping device and fulcrumed on the overhead framework B². When the load is discharging from the load-carrier E within the building B, then the shifting-lever G is actuated, as hereinafter more fully described, to move the clutch member F' out of mesh with the clutch member F to allow the drum C to rotate freely on the shaft A for the rope D to unwind, so that the load-carrier E returns to its starting position for receiving a fresh load.

The rope D passes from the drum C and through a guide I toward the building and under a pulley I', both held on the overhead framework B², the rope then extending upwardly to pass over a pulley I², held in the upper portion of the building B, and then the rope passes through the opening B' in the building to the inside thereof and over a pulley I³, held on the inner end of a guideway J, as plainly indicated in Fig. 1. The rope then returns from the pulley I³ in an outward direction and passes over a pulley I⁴, journaled in a carriage K, mounted to travel on the guideway J, above mentioned. The rope extends from the pulley I⁴ downward to carry at its lower end the load-carrier E.

The carriage K is normally locked in an outermost position by a locking device consisting, essentially, of a pivoted hook L, (see Fig. 3,) engaging a fixed hook L', attached to the guideway J. The heel of the pivoted hook L is formed with a segmental gear-wheel L² in mesh with a segmental gear-wheel L³, formed on the heel of a cam L⁴, mounted to turn in the carriage K and adapted to engage and clamp the rope D in the said carriage ad-

jacent to the pulley I⁴, as will be readily understood by reference to Fig. 3. When the carriage K is in a locked position, as shown in said Fig. 3, then the cam L⁴ is out of engagement with the hoisting-rope D, so that the latter freely passes over the pulley I⁴; but when the drum C winds up the hoisting-rope and the load is carried upward by the load-carrier E on the outside of the building and the latter is within a short distance of the pulley I⁴, then a button D' on the rope D moves in contact with the pivoted hook L and swings the same upward out of engagement with the fixed hook L' to unlock the carriage. As soon as the carriage is released it begins to travel on the track, and as the weight of the load will cause the button D' on rope D to move slightly away from the pivoted hook L the said hook will drop by gravity and in so doing turn the cam L⁴, so that the latter clamps the rope D in position on the carriage K, with the load suspended immediately under the pulley I⁴ by the carrier E. A further winding up of the hoisting-rope D on the drum C now causes the carriage K to continue to travel with the load inward along the guideway J until the load-carrier is tripped and releases its load within the building B, so that the load falls to the desired place. At the time this takes place the shifting-lever G is actuated to move the clutch member F' out of engagement with the clutch member F for the drum C to rotate loosely on the shaft A to allow unwinding of the rope for the return movement of the parts.

The tripping device referred to is arranged as follows: One end of the tripping-rope N is secured to the trip E' of the load-carrier E, and the said rope extends over a pulley N', held on the outer end of the guideway J, and the said rope extends through an eye N² in a weight N³ and is secured to an eye N⁴ at one end of a spring N⁵, secured to the building B. The end of the rope extending from the eye N⁴ is secured to the tripping-lever G', fulcrumed on the overhead framework B² and pivotally connected with the shifting-lever G. The inner end of the tripping-lever G' carries a rope G², extending downward to be within convenient reach of the operator for pulling the tripping-lever G' so as to impart a swinging motion to the shifting-lever G whenever it is desired to move the clutch member F' back into engagement with the clutch member F.

The extreme inner end of the tripping-lever G' extends into a guideway G³, (see Figs. 4 and 5,) attached to the building B, and the said inner end of the tripping-lever is adapted to engage a spring-catch G⁴ for holding the inner end of the lever in an uppermost position when pulled into this position by the action of the rope N at the time the carriage K moves into an innermost position on the guideway J. It is understood that when the carriage K moves inward on the guideway J, as

above explained, the rope N is carried along by the trip of the load-carrier, and it finally draws up the weight N² and stretches the spring N⁵, and when the carriage K reaches about an innermost position the rope N exerts a pull on the inner end of the tripping-lever G' to cause the shifting-lever G to swing the member F' out of engagement with the member F, for the purpose previously described. By the swinging motion of the inner end of the tripping-lever G' the latter is locked in place by the spring-catch G⁴ and remains in this position until pulled downward by the operator pulling on the rope G².

The spring-catch G⁴ is preferably provided with a rope G⁵, also under the control of the operator, to draw the spring-catch G⁴ out of the path of the tripping-lever G' previous to pulling the rope G².

When the carriage K is moved back from its innermost position to an outermost position, then the rope N is drawn taut by the weight N³. In order to draw the carriage K back into an outermost position, I provide a counterbalancing device consisting, essentially, of a rope O, connected with the carriage K and extending through an eye O' on the outer end of the guideway J, the rope then extending around a pulley O², secured to the outside of the building B, the rope finally winding on a drum P, journaled in suitable bearings on the outside of the building, as plainly indicated in Fig. 2.

The drum P is provided with a similar drum P', on which winds a rope P², extending downward and carrying a weight P³. When the carriage K moves inward, the rope O causes rotation of the drums P and P', so that the rope P² is wound up, and when the load is dropped off the load-carrier then the weight P³ and rope P² cause a turning of the drums P' and P in an opposite direction to wind up the rope O, and thus draw the carriage K back into an outward position. When the carriage moves into an outermost position, the pivoted hook L can engage the fixed hook L', and in doing so imparts movement to the cam L⁴, so that the latter releases the hoisting-rope D, and the weight of the load-carrier now causes the latter to move downward to the starting position, thus drawing the rope D taut.

The drum C may be made as illustrated in Fig. 6 and formed of two sections C' and C² of different diameters for the hoisting-rope to first wind on the small section C² and then on the larger drum C', as will be readily understood by reference to said Fig. 6. By this arrangement the load is hauled up slowly from the ground to the carriage K, and then the latter is moved quickly inward over the guideway J, as the rope then winds up on the larger section C'.

In the modified form (shown in Fig. 7) the hoisting-drum C³ winds up the hoisting-rope D the same as above described in reference to Figs. 1 and 2; but in addition this hoisting-

drum is provided with a tripping device as follows: On the top of the drum C³ is arranged a drum C⁴, in which is secured a spring Q, connected by a small clamp or knot to the tripping-rope Q', which extends through the spring Q and is connected to the shifting-lever R, engaging the clutch member F², mounted to slide on and to turn with the shaft A, the said clutch member being adapted to engage the clutch member F³, secured to the top of the drum C⁴. Now when the hoisting-rope D winds upon the drum C³ the rope Q' unwinds from the drum C⁴, and when the carriage K finally reaches an innermost position on the guideway J then the rope Q' is completely unwound from the drum C⁴ and now pulls on the spring Q⁴, so as to trip the fork first and then actuate the shifting-lever R to move the member F² out of mesh with the clutch member F³ to allow the drums C³ and C⁴ to rotate freely on the shaft A for the hoisting-rope D to unwind, for the purpose previously explained.

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

1. A hoisting device, comprising a hoisting-rope, a carriage having a guide for the said rope, a locking device for holding the carriage against movement, means on the hoisting-rope for actuating the locking device, to unlock the carriage, means controlled by the locking device to clamp the hoisting-rope to the carriage, to move the latter by the hoisting-rope in one direction, a power-shaft, a hoisting-drum mounted to turn loosely thereon, a clutch mechanism for locking the hoisting-drum to the said shaft, and a tripping device actuated from the load-carrier and controlling the said clutch mechanism to move the latter out of engagement with the said hoisting-drum, as set forth.

2. A hoisting device, comprising a hoisting-rope, a carriage having a guide for the said rope, a locking device for holding the carriage against movement, means on the hoisting-rope for actuating the locking device, to unlock the carriage, means controlled by the locking device to clamp the hoisting-rope to the carriage, to move the latter by the hoisting-rope in one direction, a power-shaft, a hoisting-drum mounted to turn loosely thereon, a clutch mechanism for locking the hoisting-drum to the said shaft, a tripping device actuated from the load-carrier and controlling the said clutch mechanism, to move the latter out of engagement with the said hoisting-drum, and a counterbalancing device connected with the said carriage, for imparting return movement thereto, after the tripping device is actuated, as set forth.

3. A hoisting device, comprising a hoisting-rope, a carriage having a guide for the said rope, a locking device for holding the carriage against movement, means on the hoisting-rope for actuating the locking device, to unlock the carriage, means controlled by the

locking device to clamp the hoisting-rope to the carriage, to move the latter by the hoisting-rope in one direction, a power-shaft, a hoisting-drum mounted to turn loosely thereon, a clutch mechanism for locking the hoisting-drum to the said shaft, and a tripping device actuated from the said carriage and controlling the said clutch mechanism, to move the latter out of engagement with the said hoisting-drum, the said tripping device comprising a rope connected with the load-carrier, a tripping-lever connected with the rope, and a clutch-shifting lever engaged by the tripping-lever and engaging the clutch mechanism, as set forth.

4. A hoisting device, comprising a hoisting-rope, a carriage having a guide for the said rope, a locking device for holding the carriage against movement, means on the hoisting-rope for actuating the locking device, to unlock the carriage, means controlled by the locking device to clamp the hoisting-rope to the carriage, to move the latter by the hoisting-rope in one direction, a power-shaft, a hoisting-drum mounted to turn loosely thereon, a clutch mechanism for locking the hoisting-drum to the said shaft, a tripping device actuated from the said load-carrier and controlling the said clutch mechanism, to move the latter out of engagement with the said hoisting-drum, the said tripping device comprising a rope connected with the carriage, a tripping-lever connected with the rope, and a clutch-shifting lever engaged by the tripping-lever and engaging the clutch mechanism, and a spring-catch for holding the said tripping-lever in a tripped position, as set forth.

5. A hoisting device, comprising a hoisting-rope, a carriage having a guide for the said rope, a locking device for holding the carriage against movement, means on the hoisting-rope for actuating the locking device, to unlock the carriage, means controlled by the locking device to clamp the hoisting-rope to the carriage, to move the latter by the hoisting-rope in one direction, a power-shaft, a hoisting-drum mounted to turn loosely thereon, a clutch mechanism for locking the hoisting-drum to the said shaft, a tripping device actuated from the said load-carrier and controlling the said clutch mechanism, to move the latter out of engagement with the said hoisting-drum, the said tripping device comprising a rope connected with the carriage, a tripping-lever connected with the rope, a clutch-shifting lever engaged by the tripping-lever and engaging the clutch mechanism, a spring-catch for holding the said tripping-lever in a tripped position, and means under the control of the operator for moving the tripping-lever out of a tripped position, as set forth.

6. A hoisting device, provided with a guideway, a carriage mounted to travel thereon, a guide-pulley journaled in the carriage, and over which passes the hoisting-rope, a hook

pivoted on the carriage, a hook fixed in the guideway and adapted to be engaged by the said pivoted hook, and a cam geared with the said pivoted hook to be operated thereby, to clamp the hoisting-rope to the carriage, as set forth.

7. A hoisting device, provided with a guideway, a carriage mounted to travel thereon, a guide-pulley journaled in the carriage, and over which passes the hoisting-rope, a hook pivoted on the carriage, a hook fixed in the guideway and adapted to be engaged by the said pivoted hook, and a cam controlled by the said pivoted hook, to clamp the hoisting-rope to the carriage, the said pivoted hook and the said cam having segmental gear-wheels in mesh with each other, as set forth.

8. A hoisting device, provided with a guideway, a carriage mounted to travel thereon, a guide-pulley journaled in the carriage, and over which passes the hoisting-rope, a hook pivoted on the carriage, a hook fixed in the guideway and adapted to be engaged by the said pivoted hook, a cam geared with the said pivoted hook to be operated thereby, to clamp the hoisting-rope to the carriage, and means on the hoisting-rope for engaging the pivoted hook, to swing the latter out of engagement with the fixed hook, as set forth.

9. A hoisting device, provided with a guideway, a carriage mounted to travel thereon, a guide-pulley journaled in the carriage, and over which passes the hoisting-rope, a hook pivoted on the carriage, a hook fixed in the guideway and adapted to be engaged by the said pivoted hook, a cam geared with the said pivoted hook to be operated thereby, to clamp the hoisting-rope to the carriage, and means on the hoisting-rope for engaging the pivoted hook, to first engage the latter to swing it out of engagement with the fixed hook, and then to be disengaged therefrom to cause it to operate the cam to clamp the hoisting-rope to the said carriage, as set forth.

10. In a hoisting device, the combination of a power-shaft, a hoisting-drum loose thereon, a locking device for locking the drum to the shaft, means for releasing the locking device, a load-carrier provided with a trip, and a connection between the trip of the load-carrier and the releasing means, as set forth.

11. In a hoisting device, the combination of a power-shaft, a hoisting-drum loose on the

power-shaft, a clutch for locking the drum to said shaft, a shifting-lever for the clutch, a load-carrier provided with a trip, and a connection between the trip of the load-carrier and the shifting-lever, as set forth.

12. In a hoisting device, the combination of a power-shaft, a hoisting-drum loose on the shaft, a clutch for locking the drum to the shaft, a shifting-lever for operating the clutch, a load-carrier provided with a trip, a tripping-lever connected with the shifting-lever, and a flexible connection between the tripping-lever and the trip of the load-carrier, as set forth.

13. In a hoisting device, the combination of a power-shaft, a hoisting-drum loose on the shaft, a clutch for locking the drum to the shaft, a shifting-lever for the clutch, a load-carrier provided with a trip, a tripping-lever pivoted to the shifting-lever, a spring having one end secured to a fixed support, a cord or rope having one end secured to the trip of the load-carrier and its other end connected with the spring and secured to the tripping-lever, and a weight on said cord or rope, as set forth.

14. In a hoisting device, the combination of a power-shaft, a hoisting-drum loose thereon, a clutch for locking the drum to the shaft, a shifting-lever for the clutch, a tripping-lever pivoted to the shifting-lever, a load-carrier provided with a trip, a flexible connection between the trip of the load-carrier and the tripping-lever, and a locking device under the control of the operator for the tripping-lever, as set forth.

15. In a hoisting device, the combination of a power-shaft, a hoisting-drum loose thereon, a clutch for locking the drum to the shaft, a shifting-lever for the clutch, a tripping-lever pivotally connected at one end with the shifting-lever and having its other end working in a guide, a spring-catch for locking the tripping-lever in position, a load-carrier provided with a trip, and a flexible connection between the trip of said carrier and the tripping-lever, as set forth.

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

WILLIAM RUSSELL STRICKLER.

Witnesses:

EDWARD L. GRAY,
AMMON KIMS.