

J. H. ANDERSON.  
Hay-Wagons.

No. 156,115.

Patented Oct. 20, 1874.

Fig. 1.

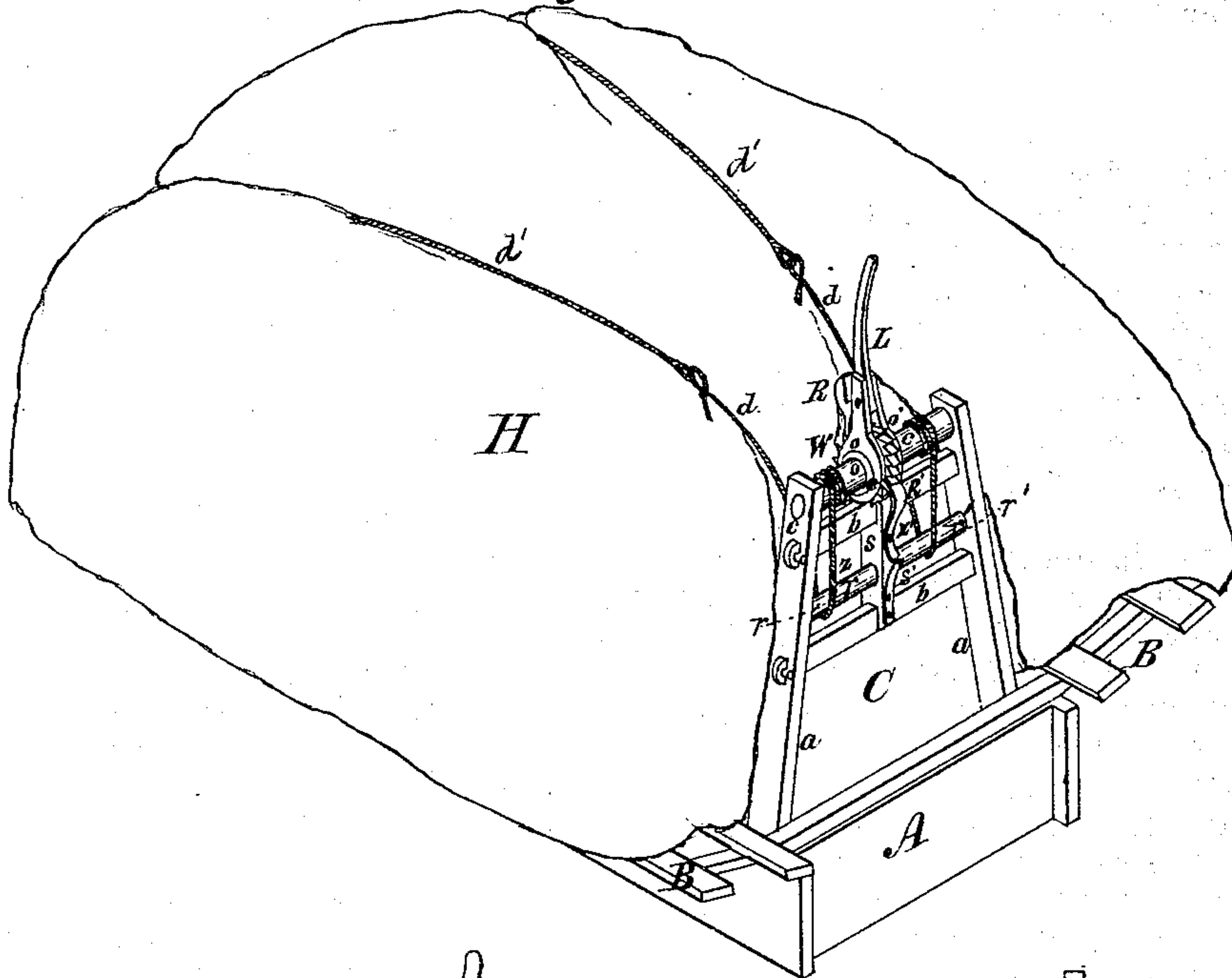


Fig 4

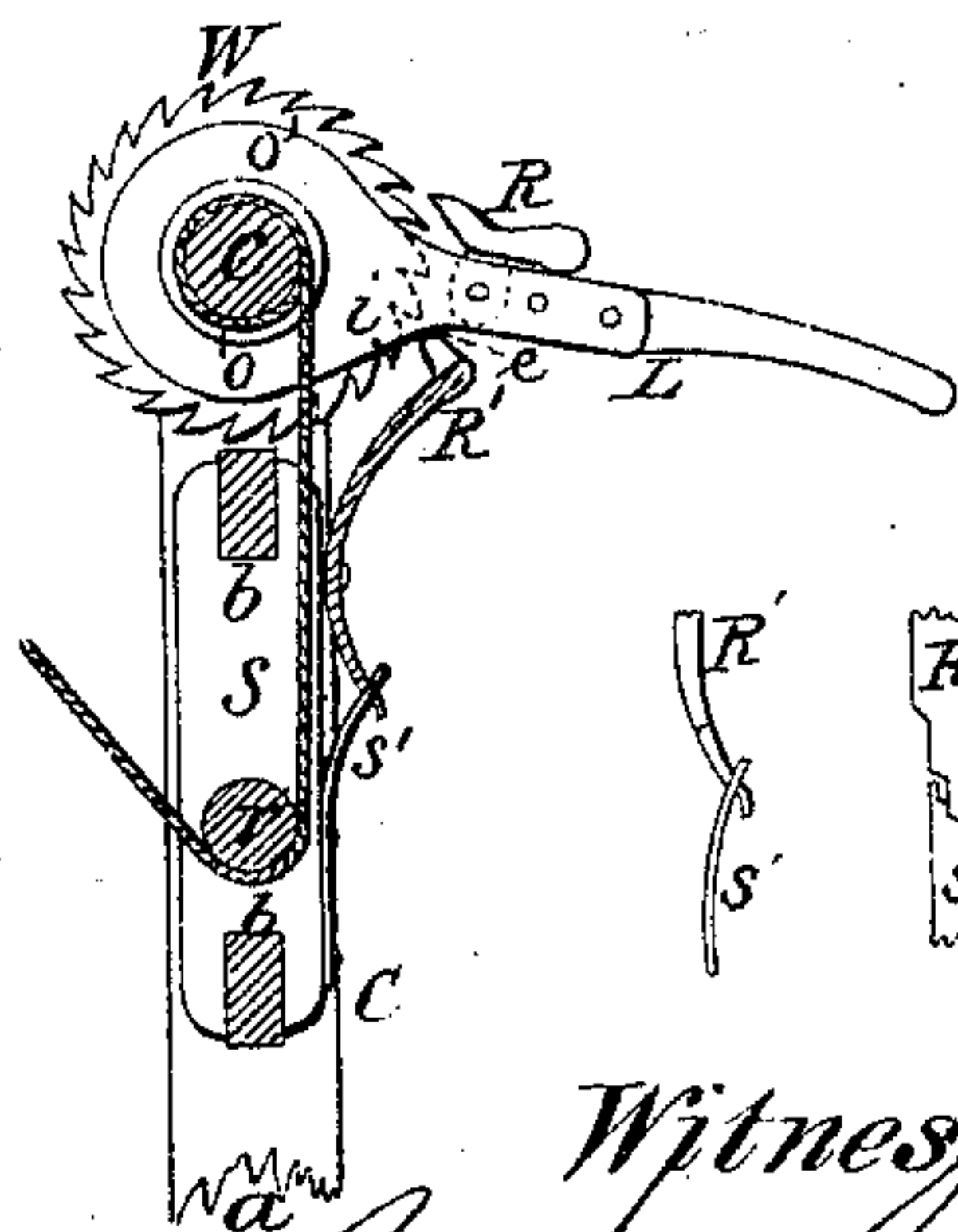


Fig 2

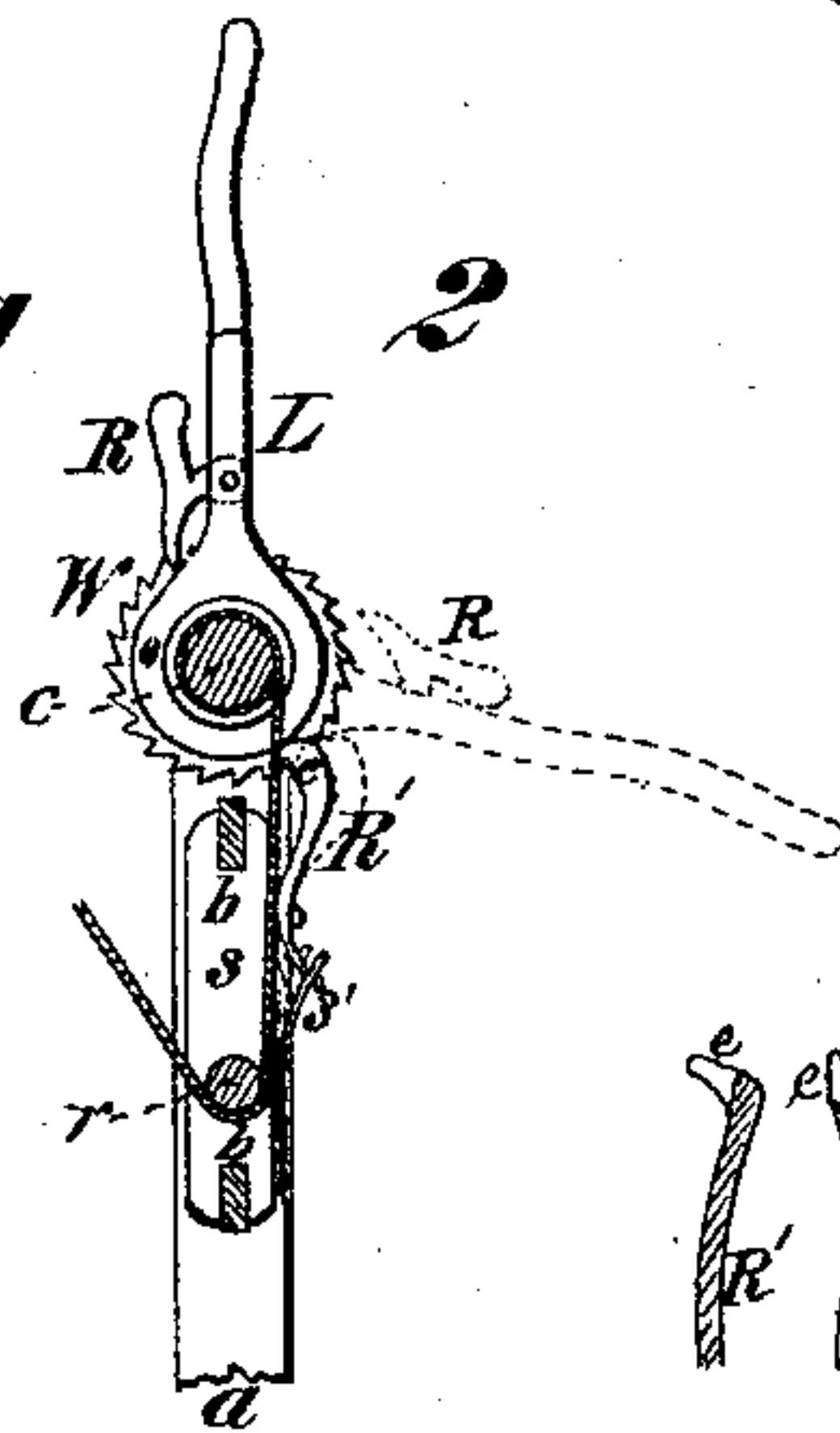
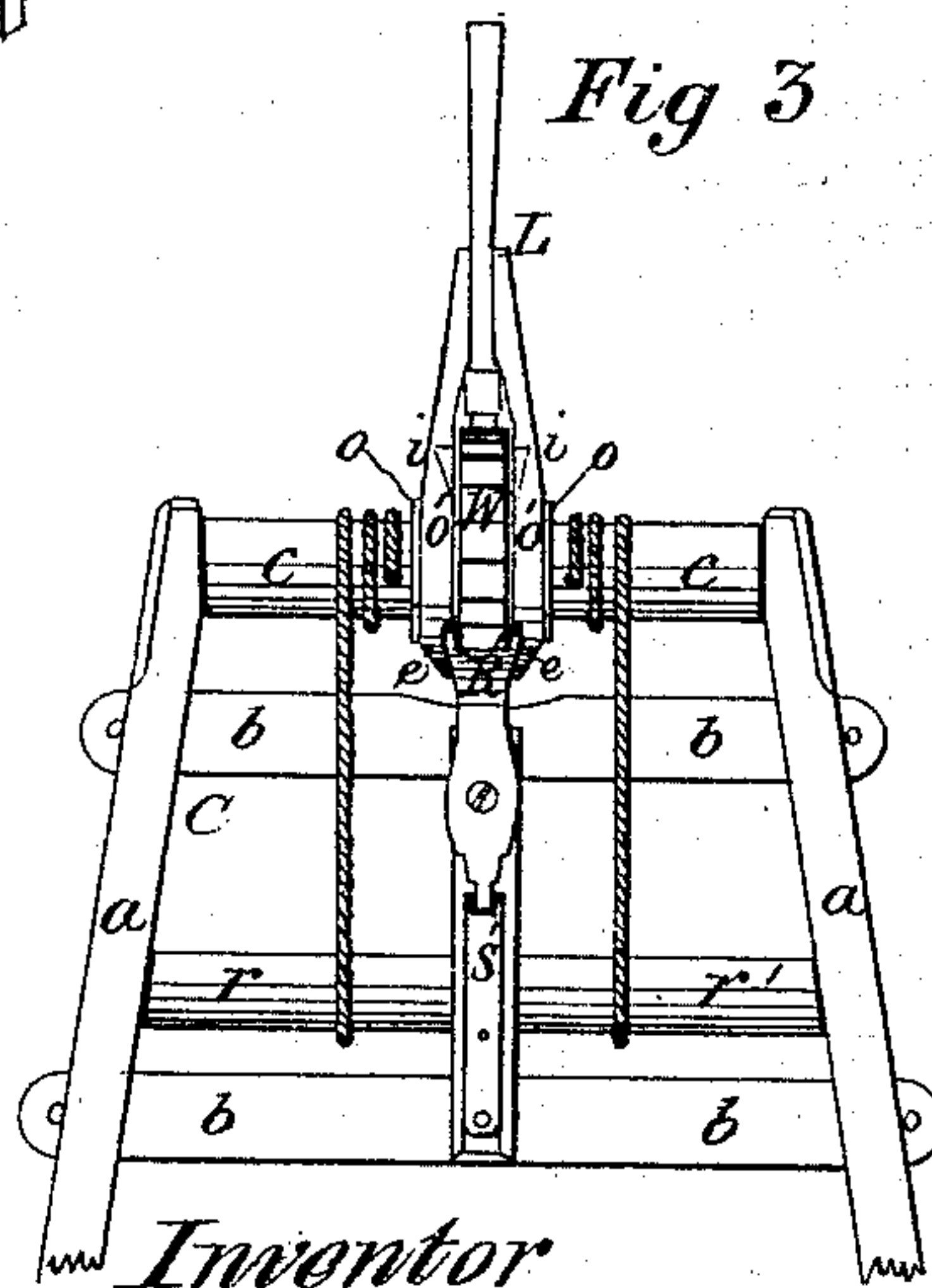


Fig 3



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES H. ANDERSON, OF ONONDAGA, NEW YORK.

## IMPROVEMENT IN HAY-WAGONS.

Specification forming part of Letters Patent No. **156,115**, dated October 20, 1874; application filed February 25, 1874.

*To all whom it may concern:*

Be it known that I, JAMES H. ANDERSON, of the town of Onondaga, in the county of Onondaga and State of New York, have invented a new and Improved Hay-Binder; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, which form a part of this specification, and in which—

Figure 1 represents a perspective view, showing the binder combined with the wagon-ladder for joint action in binding the load; Fig. 2, the lever and ratchets detached; Fig. 3, an enlarged front elevation of the ladder and binder; and Fig. 4, an enlarged section thereof, with the winding-lever thrown back, and both ratchets disengaged, leaving the cords free to be unwound from the binder-roller.

My invention relates to the combination, with the ladder of a hay-rack, of a lever and ratchet winding device for the binding-ropes, mounted upon, and secured between, the standards of said ladder; the object whereof being to utilize the ladder, which supports the front of the load, as the means for carrying the binding devices within reach of the driver upon the load, so that he can at any time tighten the binding-ropes without stopping the team or leaving his position upon the load. By this combination the binding devices are carried at the front, entirely out of the way; and, forming a part of the ladder, can be folded or turned down with it in the bottom of the wagon when not in use. The ladder serves as the medium, through co-operating devices, to bind the top and the rear of the load; and, with its binder, may be removed from the wagon when not required. The position of the binder has every convenience, and the facility for maintaining the load well bound made easy and very advantageous to the driver while riding. My invention also consists in the combination, with the winding-lever, provided with cams on its under side, of a weighted pawl carried thereby, and a spring-ratchet, secured to the ladder and acted upon by said cams to disengage it from the ratchet-wheel when the lever is thrown back, as shown in Fig. 4, whereby both of these ratchets are automatically put out of

gear, when the lever is thrown down, to leave the rope free to be unwound, and to be automatically engaged with the ratchet-wheel, to wind up the rope when the lever is operated in a vertical position back and forth; also, in the combination, with the wagon-ladder, of the binding and winding devices and the holding-ropes, as will be hereinafter described.

A shows an ordinary wagon-body, upon which is secured the wagon-rack B. C is a wagon-ladder, consisting of upright standards *a a*, into which are mortised and keyed the cross-pieces *b b*. The ladder C is provided with three rollers—two, *r* and *r'*, and one above, *c*. The inner ends of the rollers *r* and *r'* turn in the supporting-piece *s*, which is firmly secured to the cross-pieces *b b*, and located about midway between the two standards *a a*. The upper roller, *c*, is provided with a ratchet-wheel, W, which is made with collars, *o o*, on each side, through which the wheel W is bolted to the roller *c*. L is a forked lever, made to turn easily upon the collars *o o* by means of the end collars *o' o'*, substantially as shown in the drawings, and with a ratchet, R, made to operate between the forks of the lever L, and engage in the teeth of the ratchet-wheel W. The upper end of the ratchet R should be weighted or made heavier than the toothed end, so that, when the lever is thrown back, the weight of the upper end alone will disengage the tooth of the ratchet R from the teeth of the ratchet-wheel W. In order to preserve the power gained by the lever and ratchet, above described, I provide the spring-ratchet R', secured to the supporting-piece *s*, substantially as shown in the drawings, the spring *s'* operating upon the lever end of this ratchet and pressing its toothed end into the teeth of the ratchet-wheel W. On each side of the tooth of the spring-ratchet R' is an ear, *e e*, which bears against the outer rim of the end collars *o o'*, said collars being enlarged to form cams *i*, Fig. 4, near the handle of the lever L, so that, when the lever L is thrown back, the cams, operating upon the spring-ratchet ears R', completely disengages it at the same time when the weighted ratchet R is disengaged, and the roller *c* will run loosely in its bearings. Ropes, *d d*, are attached to the roller *c*, and are made to pass over it in



the opposite direction from that in which the ratchet-wheel W operates, and under the rollers *r r*, and thence up to a convenient point upon the load H, where they meet the ropes *d' d'*, attached to the rack at or near the rear corner thereof. The ladder C is held at the bottom, and turns upon a rod which passes through the wagon-body A at the proper point for that purpose.

The operation of the device is as follows: When the load H is placed upon the rack B the ropes *d d* and *d' d'* are brought together and fastened in the usual way. The lever L being thrown back, both ratchets are disengaged. The operator, standing upon the load, brings up the lever L, and as soon as the ears *e e* of the ratchet R' pass the cams *i* the spring-ratchet R' engages the teeth of the ratchet-wheel W, and, by the time the lever L has reached nearly a perpendicular position, the tooth of the ratchet R, relieved of the weight of the upper end, also engages the teeth of the wheel W. The operator then rapidly moves the lever backward and forward, until he has bound the load as tightly as desired, the spring-ratchet holding it at any point gained. To relieve the load of the binding, all that is necessary is to throw back the lever L far enough to disengage the ratchets, as above described. In case the driver while moving finds the load too loose, he can readily bind it tighter without stopping by operating the lever, as above indicated. In

case the operator wishes to bind the load in the middle he will use only one rope at the rear end, fastened near the middle of the rack; but I consider two much better, because they enable me to effectually bind the rear corners, which are most affected by the jolting.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a hay-binder, the combination, with the ladder C of a hay-rack, of the winding-lever L, rope-rollers *c r*, and ratchet devices mounted upon and secured between the standards of said ladder, substantially as and for the purpose described.

2. The combination, with the winding-lever L, provided with cams *e* and supported upon ladder C, of a weighted pawl, R, carried by said lever, and a spring-pawl, R', secured to said ladder, to receive the action of the lever-cams, and to operate in the manner and for the purpose set forth.

3. The combination, in a hay-binder, of the wagon-ladder C, ratchet-wheel W, rope-rollers *c r*, lever L, with its cam-bearings *i*, and the weighted and spring pawls R R', all combined for operation with the holding ropes *d d'*, as described.

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Witnesses:

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