

966,304.

J. L. BOWMAN.  
HAY STACKER.

APPLICATION FILED FEB. 25, 1910.

Patented Aug. 2, 1910.

3 SHEETS--SHEET 1.

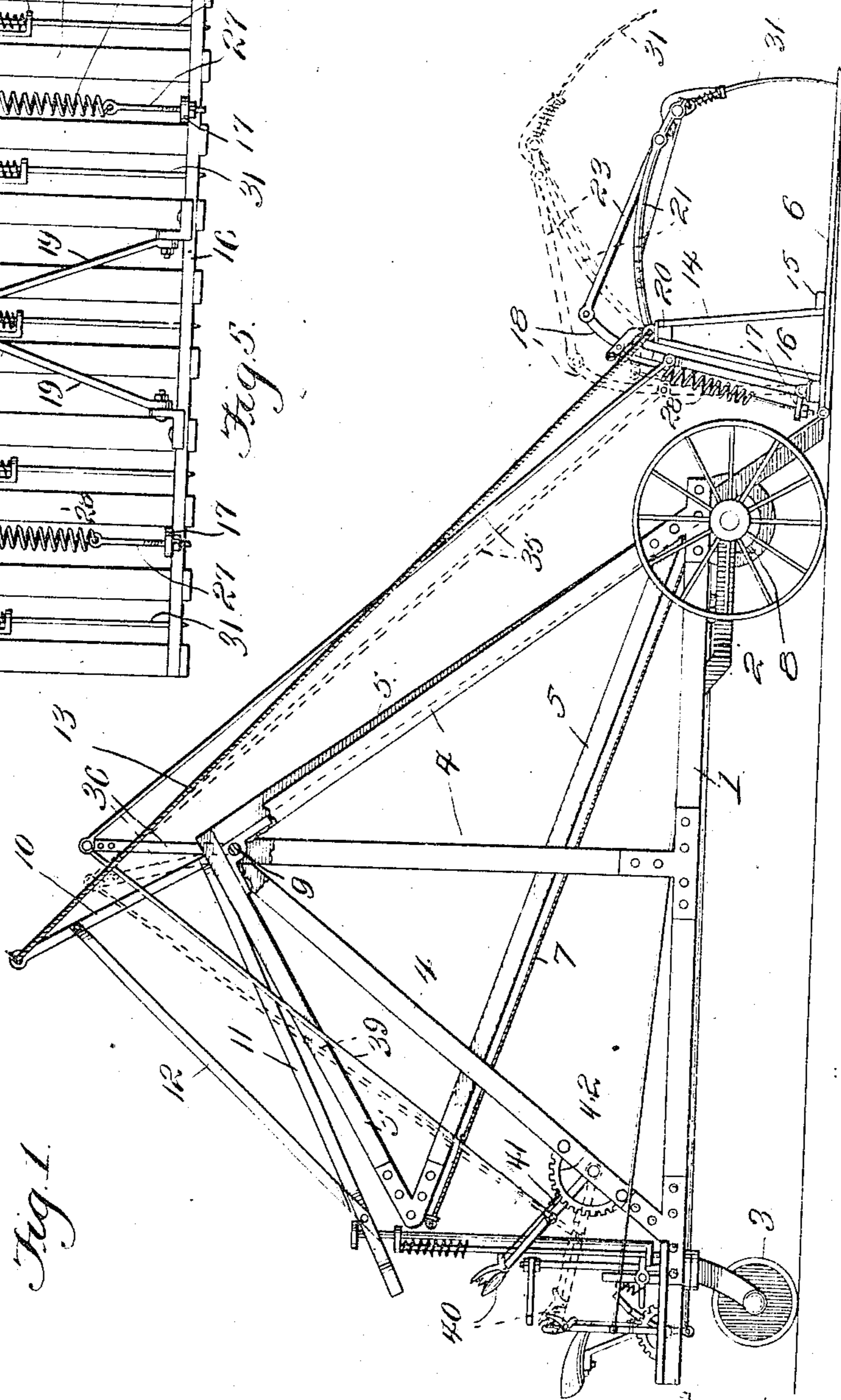
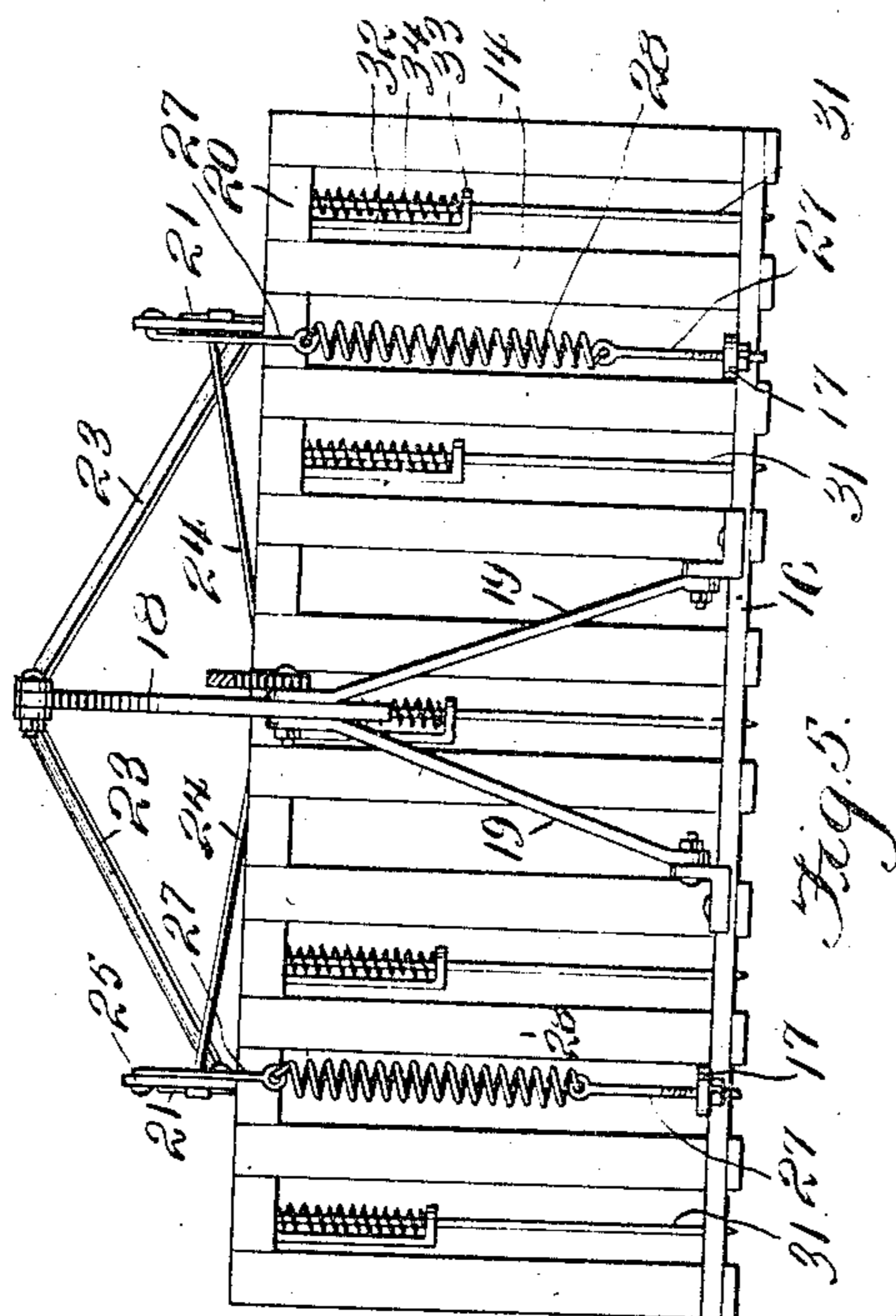


Fig. 1.

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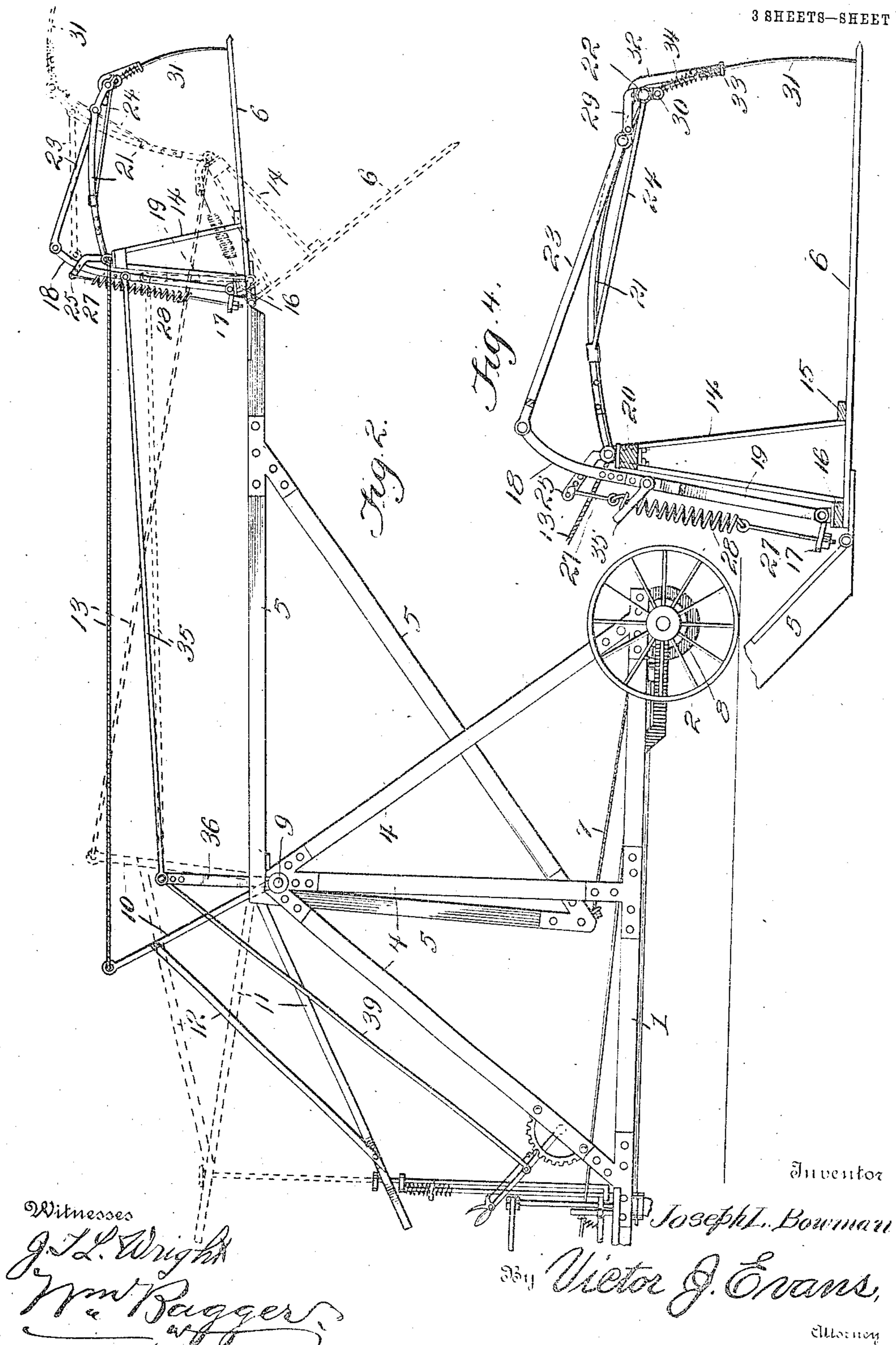
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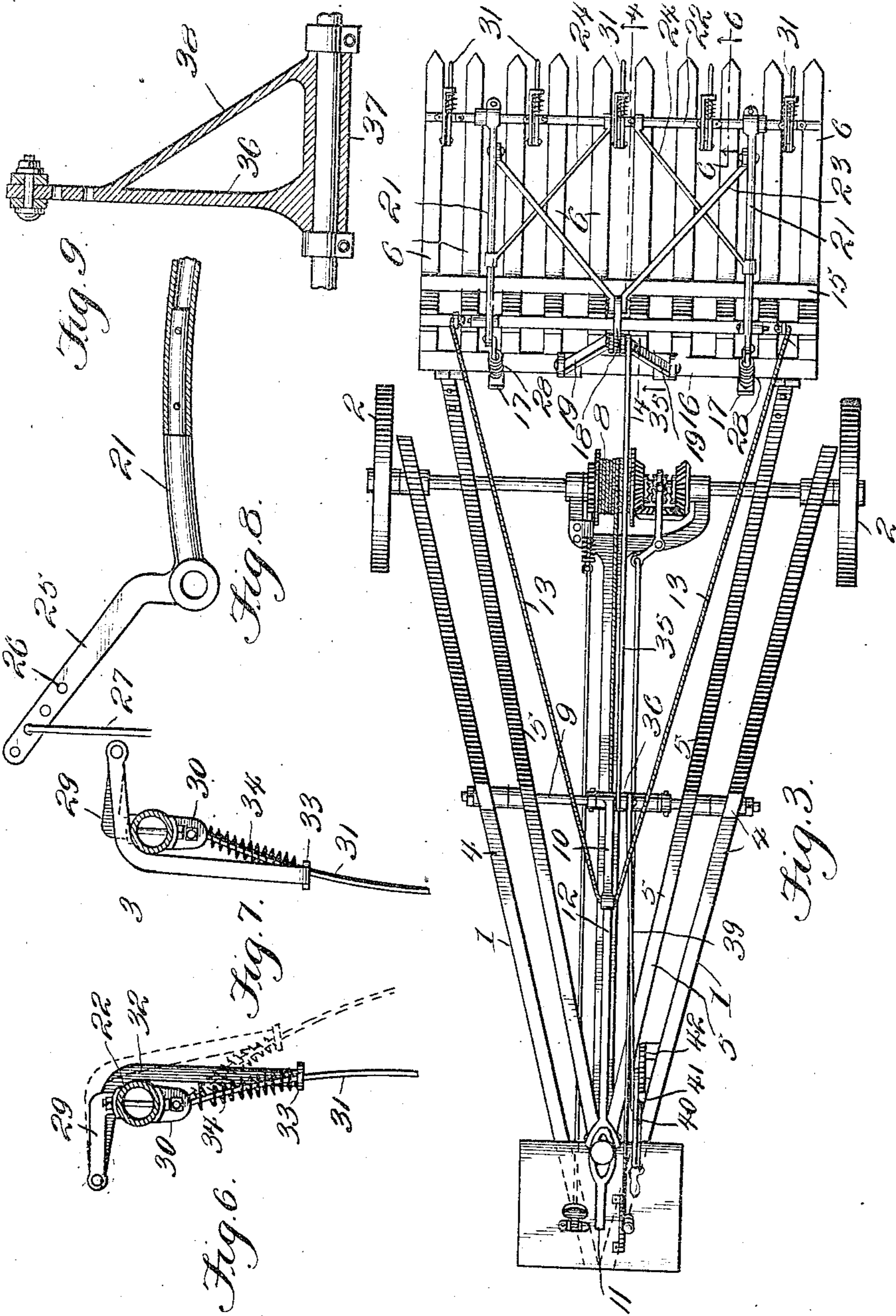
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# UNITED STATES PATENT OFFICE.

JOSEPH L. BOWMAN, OF QUINTER, KANSAS.

HAY-STACKER.

966,304.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed February 25, 1910. Serial No. 545,974.

*To all whom it may concern:*

Be it known that I, JOSEPH L. BOWMAN, a citizen of the United States of America, residing at Quinter, in the county of Gove and State of Kansas, have invented new and useful Improvements in Hay-Stackers, of which the following is a specification.

This invention relates to hay stackers, and it has particular reference to that class of stackers which are also used for gathering hay in the field and in which a suitable frame structure mounted upon wheels for transportation is equipped with a pivotally supported frame constituting a lever with which the stacker fork is connected, hoisting means being provided including a flexible hoisting element which connects the lever frame with a drum actuated by the progress of the machine so that as the machine progresses after a load has been placed upon the fork, the lever will be tilted, and the fork will be elevated to a suitable position for dumping, in which position it is retained by temporarily disengaging the hoisting mechanism and holding the lever stationary by suitable clutch mechanism while the load is being transported where it is to be dumped.

The invention consists in certain improvements in the stacker fork, the same being provided with means whereby the load will be securely retained thereupon while in transit, one of the principal objects of the invention being to provide simple and reliable load-retaining means.

A further object of the invention is to provide a simple and improved means whereby the load-retaining device at any time may be raised or lifted to a non-obstructing position, this being of essential importance at the time when the load is being placed upon the fork by means of an ordinary bull rake or other well known means.

Further objects of the invention are to simplify and improve the general construction and operation of a device of the character outlined above.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of

the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings,—Figure 1 is a side elevation of a hay stacker equipped with the improvement, the stacker fork being shown in load-receiving position and the retaining device being shown in dotted lines raised to a non-obstructing position. Fig. 2 is side elevation, showing the stacker fork elevated and with dotted lines indicating the dumping position. Fig. 3 is a top plan view. Fig. 4 is a view in side elevation enlarged of the stacker fork equipped with the retaining device. Fig. 5 is a rear elevation of the same. Figs. 6 and 7 are views taken from opposite sides, illustrating the manner of connecting the retaining prongs with the transverse shaft of the retaining device, said shaft being shown in section. Fig. 8 is a detail view, partly in section, showing a portion of one of the tubular connecting arms and the means for mounting the same upon the rear wall of the stacker fork. Fig. 9 is a sectional detail view of the pivotally supported arm, whereby the position of the retaining device is regulated.

Corresponding parts in the several figures are denoted by like characters of reference.

In Figs. 1, 2 and 3 of the drawings has been shown a hay stacker of conventional and well known construction, the same including a base frame 1 of approximately triangular form, being supported for transportation upon carrying wheels 2 and a guide wheel 3. A suitably constructed upright frame 4 supports the triangular lever frame 5 with which the floor or platform 6 of the fork is hingedly connected, the rear corner of said frame being connected by a flexible hoisting element 7 with a drum 8 upon which it may be wound for the purpose of tilting the fork-carrying frame to elevate the load. An auxiliary frame, which is pivotally supported upon the fulcrum bar 9 carrying the lever frame, includes an arm 10, a hand lever 11 and a connecting rod or brace 12, said arm 10 being connected by a rope or link member 13 with the upper end of the back wall 14 of the fork. Suitable latch means are employed to keep the auxiliary frame tilted to the position shown in full lines in Fig. 1 for the purpose of placing the connecting

member 13 under tension to support the back wall of the stacker fork in an upright position; said latch means being capable of being released to permit the auxiliary frame to swing to the position indicated in dotted lines in Fig. 2, for the purpose of tilting the stacker fork to the load-discharging position indicated in dotted lines in Fig. 2 of the drawings. The stacker as thus far outlined, is of well known construction, and several structural details have been omitted, it being deemed unnecessary to describe the same in detail, as they are well known and constitute no part of the present invention.

The stacker fork includes the floor 6, which is usually formed of a plurality of suitably spaced teeth, the same being connected and spaced apart by means of cross bars 15 and 16, the rear cross bar being provided with rearwardly extending arms 17. 18 is a lever, the lower end of which is bifurcated to form arms 19, the lower extremities of which are pivotally supported adjacent to the rear cross bar 16 of the stacker fork. The lever 18 extends upwardly above the rear wall 14 of the stacker fork, said rear wall being composed of a plurality of flats or uprights connected at their upper ends with a cross bar 20. Pivotally supported upon said cross bar are forwardly extending arms 21 which, if desired, may be of tubular construction, said arms supporting at their forward ends a cross piece 22 which is securely fixed with reference to said arms. Braces 23 connect the forward ends of the arms 21 with the upper end of the lever 18, and additional braces 24 connect the arms 21 with the cross bar 22 to reinforce the construction. The arms 21, which are pivotally supported upon the rear wall of the stacker fork, are provided with rearward extensions constituting brackets 25, each having a plurality of apertures 26 for the adjustable attachment of one end of the connecting member, whereby each bracket 25 is connected with one of the brackets 17 extending rearwardly from the cross piece 16 of the floor of the fork, each of the connecting members being composed of rods or links 27 and a spring 28, the tension of which is exerted to swing the arms 21 in an upward direction to counteract the weight of said arms and of the parts connected therewith.

The cross piece 22 is provided with a plurality of rearwardly extending arms 29 and downwardly extending lugs 30, see Figs. 6 and 7, the load-retaining prongs 31 being pivotally connected with the lugs 30. Angular bars 32 are provided, the same formed with eyes 33 at their lower ends, said eyes encircling the pivotally supported prongs 31 upon which springs 34 are coiled intermediate the eyes 33 and the supporting lugs 30. The upper ends of the angular arms 32

are extended rearwardly across the bar 22 and are pivotally connected with the arms 29 that extend rearwardly from said bar. It follows that while the prongs 31 are normally held in load-obstructing position by the action of the springs against the eyes of the angular arms 32, the said prongs will yield to pressure in an outward direction when the load is dumped or discharged, thereby preventing breakage of parts.

It will be readily seen that under the construction herein described, when strain in a rearward direction is exerted upon the lever 18, the latter will swing upon its fulcrum upon or adjacent to the cross bar 16, and the link rods or braces 23 connecting said lever with the arms 21 will tend to swing the latter in an upward direction, as indicated in dotted lines in Fig. 2. For the purpose of thus actuating the lever 18, the same is connected by a connecting element 35 with an arm 36 extending from a sleeve 37 which is pivotally supported upon the fulcrum bar 9 of the stacker frame, said arm being reinforced by a brace 38, as best seen in Fig. 9. The arm 36 is also connected by a connecting element 39 with a hand lever 40 fulcrumed upon the stacker frame and having a stop member 41 adapted to engage a segment rack 42 suitably secured upon said frame for the purpose of retaining said lever and the parts connected therewith at various adjustments.

The operation of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed by those skilled in the art to which it appertains. When the stacker fork is lowered to the load-receiving position indicated in Fig. 1, the hand lever 40 is manipulated to swing the lever 18 and the parts of the retaining device connected therewith and actuated thereby to the position shown in dotted lines in Fig. 1. The load may now be placed upon the platform of the fork, after which the lever 40 is again manipulated to restore the retaining device to a load-obstructing position. The stacker is now set in motion to wind the element 7 upon the drum 8, thereby swinging the fork-carrying lever or frame in an upward direction. When a suitable elevation has been attained, substantially as indicated in full lines in Fig. 2 of the drawings, the load may be carried to the dumping place, after which by releasing the trip mechanism, whereby the frame, including the arm 10 and the lever 11, is held in a tilted position, said frame will be permitted to swing to the position indicated in dotted lines in Fig. 2, thus permitting the fork to swing to the dumping or load-discharging position indicated in dotted lines in Fig. 2. By the same operation, it is obvious that strain will be exercised by the lever 18 in an upward direc-

tion upon the arms 21 of the load-retaining device, swinging the latter and especially the prongs out of the way of the load so as to permit the latter to drop without obstruction. The platform of the fork may now be restored to an approximately horizontal position by manipulating the lever 11, after which the fork-carrying frame may be released by unwinding the hoisting rope from the drum, thus permitting the fork to be lowered to the ground for a repetition of the operation.

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

15 1. A stacker fork including a platform and a rear wall, a lever supported pivotally adjacent to the lower end of the rear wall, forwardly extending arms supported pivotally upon the upper edge of the rear wall, 20 links connecting the lever with the arms, a cross bar supported by the arms, spring-actuated teeth connected pivotally with the cross bar, and means for tilting the lever to elevate the arms supporting the prong-carrying bar.

25 2. A stacker fork including a platform and a rear wall, a lever fulcrumed adjacent to the lower end of the rear wall, pivotally supported arms extending forwardly from 30 the upper end of the rear wall and having rearwardly extending brackets, connecting members including tension springs connecting said brackets with brackets extending rearwardly from the base of the rear wall, 35 links connecting the upper end of the lever with the forwardly extending arms, a cross

bar supported by said arms, and spring-actuated load-retaining prongs connected pivotally with the cross bar.

3. A stacker fork, forwardly extending 40 arms hingedly connected with the back wall of the fork, a cross bar carried by said arms, spring-actuated load-retaining prongs pivotally connected with the cross bar, a lever fulcrumed upon the fork, links connecting 45 the lever with the forwardly extending arms, spring means to counteract the weight of the forwardly extending arms, and means engaging the lever to retain said lever in relatively stationary position when the fork 50 is tilted to discharge a load.

4. In a device of the character described, a fork having a load-retaining device including pivotally supported arms and a cross bar carried thereby, arms extending rearwardly 55 from the cross bar, lugs upon the cross bar, load-retaining prongs connected pivotally with the lugs, angular arms straddling the cross bar and connected pivotally at their rear ends with the rearwardly extending 60 arms, said angular arms being provided at their lower ends with eyes encircling the load-retaining prongs, and springs coiled upon the latter between said eyes and the supporting lugs of the prongs. 65

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

JOSEPH L. BOWMAN.

Witnesses:

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H. P. IKENBERRY.