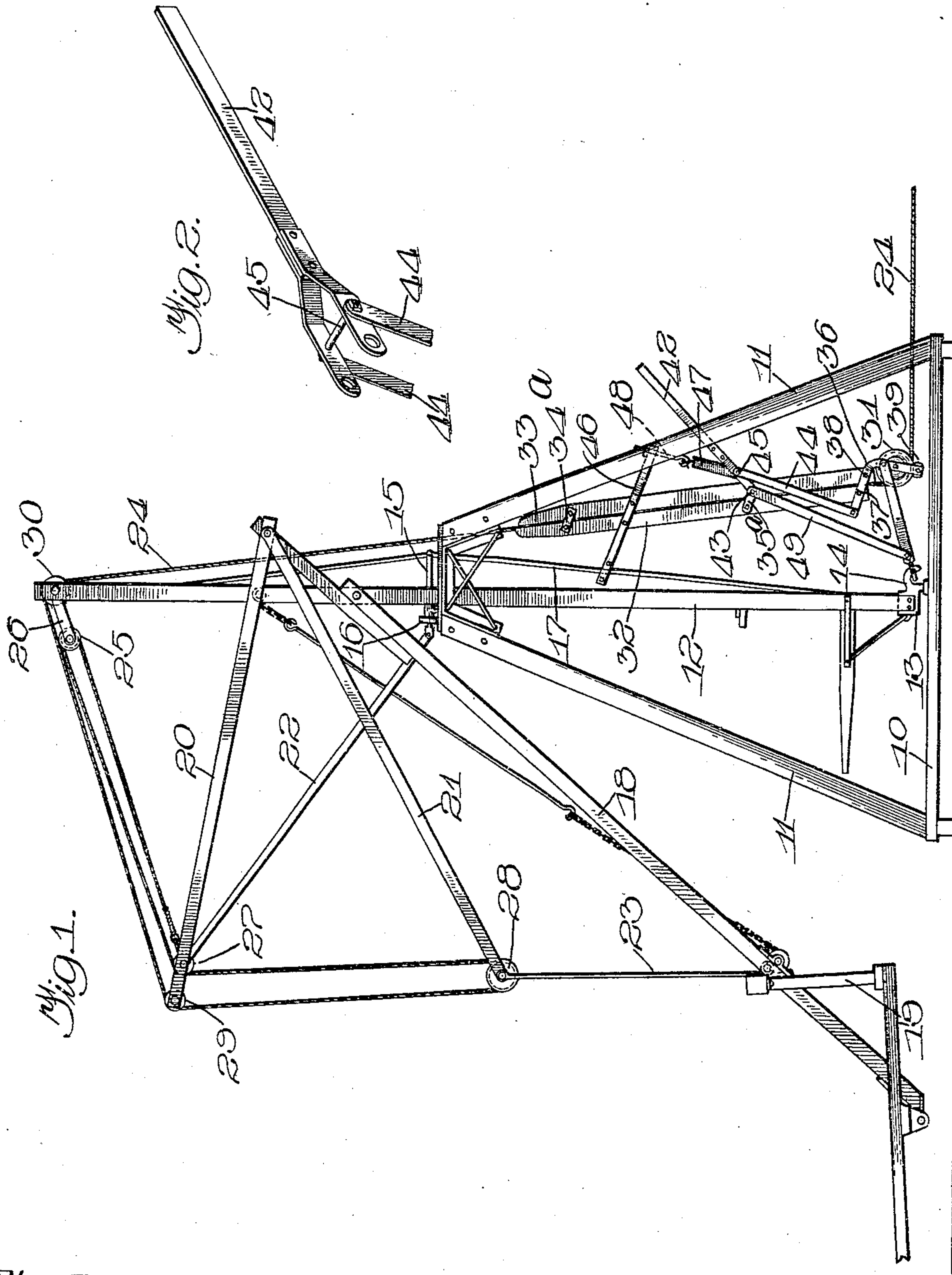


J. DAIN.
HAY STACKER.
APPLICATION FILED SEPT. 2, 1908.

935,298.

Patented Sept. 28, 1909.
3 SHEETS—SHEET 1.



Witnesses:
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Joseph Dain.
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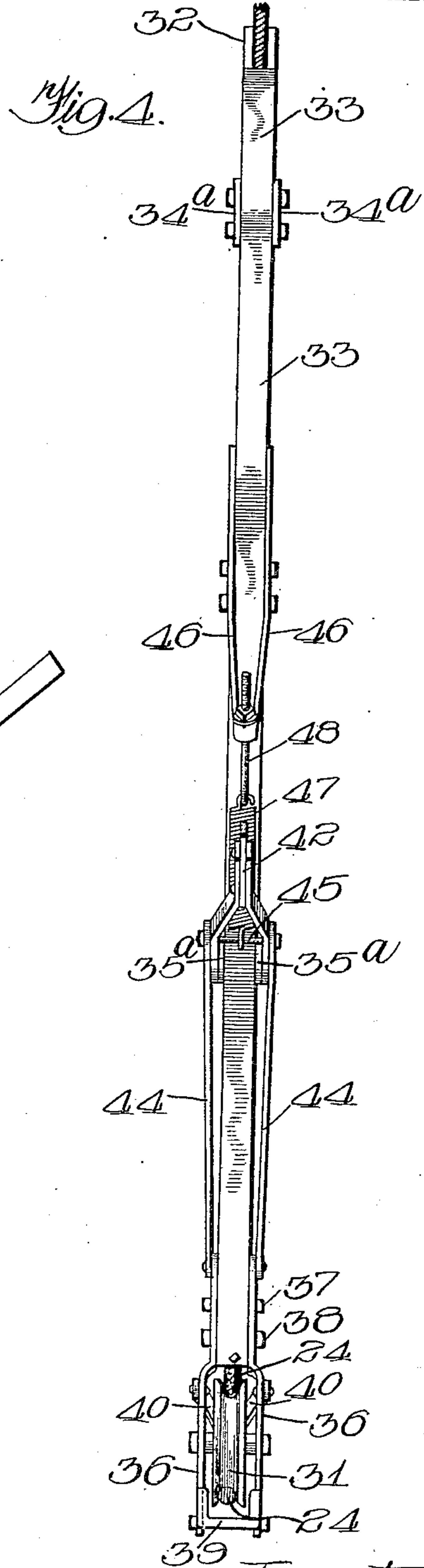
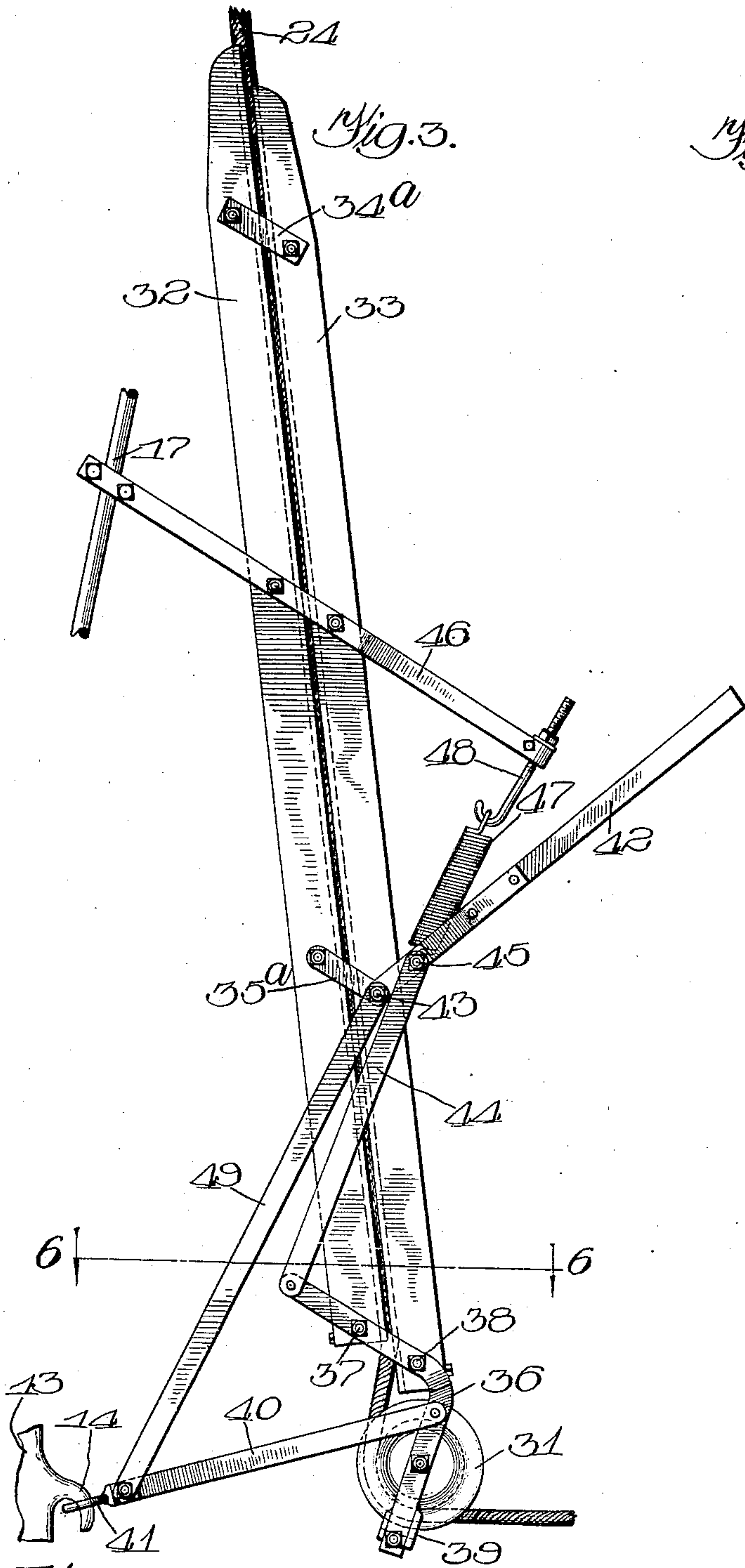
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3 SHEETS—SHEET 2.



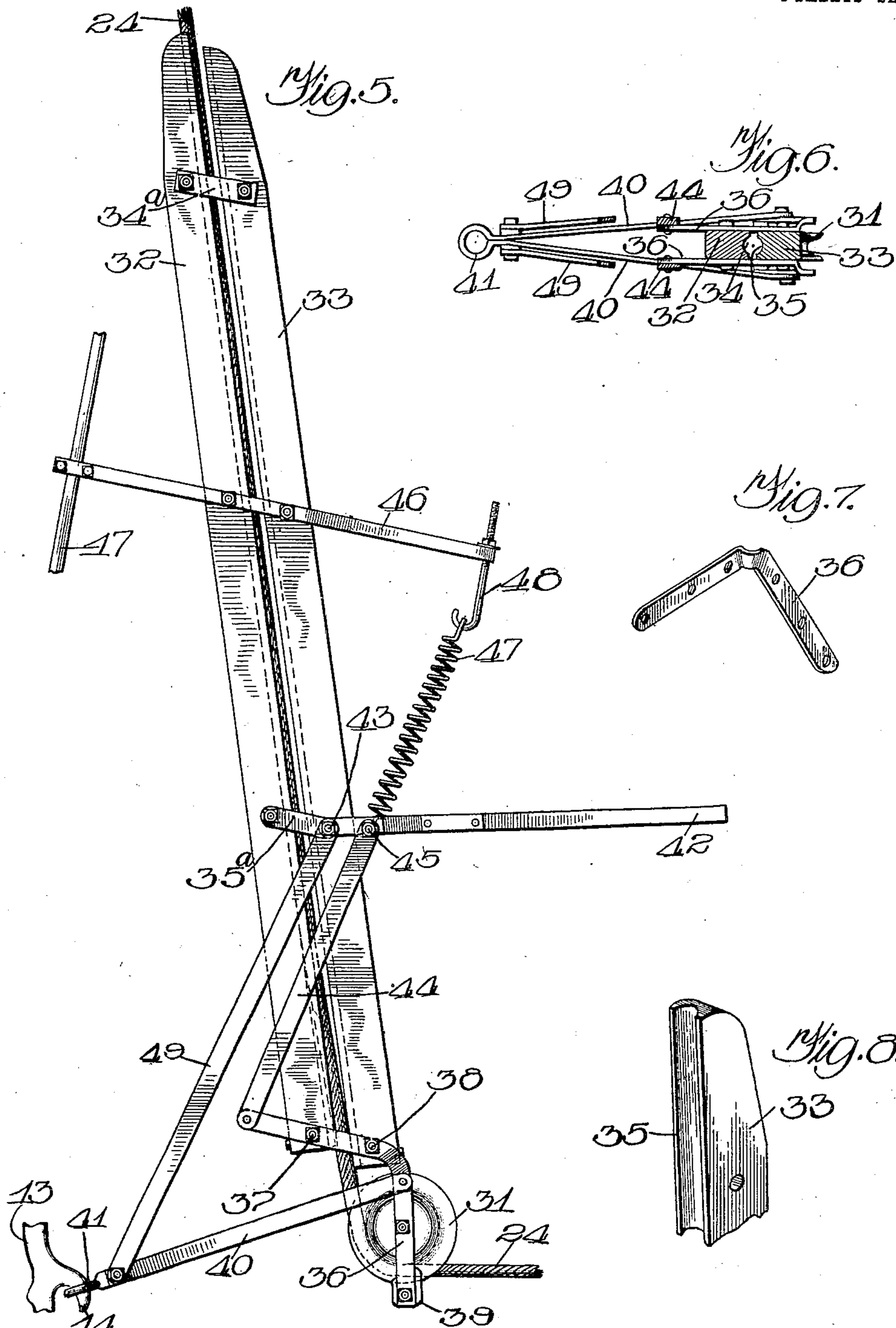
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J. DAIN.
HAY STACKER.
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JOSEPH DAIN, OF OTTUMWA, IOWA.

HAY-STACKER.

935,298.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed September 2, 1908. Serial No. 451,376.

To all whom it may concern:

Be it known that I, JOSEPH DAIN, a citizen of the United States, residing at Ottumwa, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Hay-Stackers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to hay-stackers, and particularly to devices to be connected to a stacker for the purpose of clamping the hoisting-rope through which the head that carries the hay to be stacked is raised and lowered.

The leading object of the invention is to provide an improved clamping device that will automatically open when power is applied to the rope for hoisting purposes, so that such rope may run perfectly freely but that will, also automatically, clamp the rope when the pulling power on the rope has ceased, whereby a braking effect on the rope may be had during the entire movement of the load-carrying head from discharging to receiving position, thereby, during such entire movement, taking off the strain from the animal hitched to the rope.

A further object of the invention is to provide hand-controlled means for regulating the degree of pressure with which the clamping device shall bear upon the rope.

These objects I accomplish as illustrated in the drawings and hereinafter specifically described.

In the drawings,—Figure 1 is a side elevation of a well known type of hay-stackers with my improved rope-clamping device connected therewith, such clamping device being shown as engaging the rope. Fig. 2 is a detail of the hand-lever and the upper ends of the two links that are connected therewith, through which the clamp can be spread to ease up the pressure on the hoisting-rope. Fig. 3 is a side elevation of the clamp and some of the parts connected therewith, the clamp being in a closed position to act as a brake upon the hoisting-rope. Fig. 4 is an edge view of the clamp and some of the parts connected therewith, some of the connected parts being in section. Fig. 5 is a view similar to Fig. 3, but with the clamp opened so as to permit the hoisting-rope to run freely. Fig. 6 is a cross-section at line 6—6, of Fig. 3. Fig. 7 is a detail, being a perspective view of one of the bell-crank

levers pivotally connected to the lower ends of the clamp members, in the depending portion of which is journaled a guide pulley for the hoisting-rope, and Fig. 8 is a detail, being a perspective view of a portion of one of the members of the clamp.

I have shown my improvements applied to a hay-stacker of well-known type, the construction and operation of which are fully explained in detail in Letters Patent No. 901,156, dated October 13, 1908, granted upon my application. It is to be understood, however, that my improvements are applicable to stackers of other constructions than that shown, and I shall therefore but briefly describe the stacker proper. As shown, 10 indicates the base of the stacker, and 11, posts secured to the base, said posts converging at their upper ends and said upper ends being suitably secured together and supporting a turn-table. 12 indicates the mast, the lower end of which is secured in a pivoted bracket 13, said bracket carrying a laterally-projecting hook 14. 15 indicates a shaft suitably secured to the mast and provided with a roller 16. 17 indicates a truss-rod connected at its ends to the mast and bearing at an intermediate portion against one end of the shaft 15. 18 indicates a boom to the outer end of which is suitably connected the head 19 that carries the hay to be stacked. 20 and 21 indicate upper and lower arms or jibs respectively, and 22 indicates an arm extending between the shaft 15 and the said upper arm or jib. 23 indicates a connection between the lower arm or jib 21 and the load-carrying head 19. 24 indicates the hoisting-rope which as shown is secured at one end to the upper jib 20 and thence is carried around a pulley on a short arm 26 projecting from the upper end of the mast, around a pulley 27 supported in the upper jib 20, down around a pulley 28 at the outer end of the lower jib 21, up around a pulley 29 supported in the outer end of the upper jib 20, around a pulley 30 at the upper end of the mast 12 and thence down to near the base of the machine whence it passes around a pulley 31 and off in front of the machine. This brief description of the hay-stacker will be sufficient, inasmuch as the stacker construction forms no part of my present invention, and all of the parts so far described will be found more particularly described as to construction, ar-

rangement, and operation in my said Letters Patent.

Referring now to the clamping mechanism which is adapted to act as a brake on the hoisting rope at all times when power is not being applied to pull the rope forward—that is in a direction to elevate the head 19—32 and 33 indicate two beams, preferably of wood, placed edge to edge and provided in their meeting edges with longitudinal grooves 34 and 35 respectively, as clearly shown in Fig. 6, and as indicated by dotted lines in Figs. 3 and 5. These grooves extend throughout the length of the beams, and are adapted to receive the hoisting rope 24, the grooves being shallow enough, of course, so that the rope itself when in place will hold the two beams slightly separated from each other when they are pressed toward each other for clamping purposes. These two beams that form the opposing members of the rope-clamp are connected together, through two pairs of short links 34^a and 35^a, at opposite sides (see Fig. 4) of the beams, each of the links being pivotally connected to one of the beams. The links are long enough so that when brought to a substantially horizontal position they will force the beams 32—33 apart, as shown in Fig. 5. The two beams, are further pivotally connected by certain other devices. One of such other devices is in the form of a pair of bell-crank levers 36 located at the lower end of the clamp members and at opposite sides thereof, to which members one arm of each of the bell-crank levers is pivoted, the pivot securing the bell-crank levers to the beam 32 being indicated by 37 and the pivot securing them to the beam 33 being indicated by 38. Between the lower or depending arms of this pair of bell-crank levers is journaled the pulley 31 hereinbefore referred to. At their lower ends the bell-crank levers are preferably connected by a short cross-piece as 39, (see Fig. 4).

40—40 indicate a pair of links provided with an eye 41 at one end adapted to be engaged by the hook 14 and having its other ends diverging and pivotally connected to the depending arms of the pair of bell-crank levers.

42 indicates a hand lever having its inner end bifurcated and such bifurcated end pivoted at 43 to the clamp member 33 which it embraces.

44 indicates a pair of links, each pivotally connected at its lower end to the upper end of one of the bell-crank levers and at its other end pivoted to a bolt 45 that passes through the bifurcated end of the hand lever 42 (see Fig. 4).

46 indicates a pair of bars pivotally connected at about their central portions to the clamp members or beams 32—33. These bars 46 may advantageously be formed from a

single piece of material bent upon itself at its central portion as indicated in Fig. 4. The rear ends of these bars are connected loosely to the stacker, the connection in the form of construction shown being to the truss-rod 17.

47 indicates a coiled spring, the lower end of which is connected to the hand-lever 42 by being secured to the bolt 45 that passes through the bifurcated end of such lever.

48 indicates a tension-regulating device of ordinary construction attached to the upper end of the coiled spring and adjustably secured to the outer end of the bars 46.

49 indicates a pair of braces pivotally attached at their lower ends to the links 40, and at their upper ends attached to the pivot 43 that the hand lever 42 turns on.

The improved brake for the rope can be readily attached in position on a stacker by simply removing from the stacker the pulley that is ordinarily attached to the hook 14. After the removal of such pulley, the clamping devices and the various parts carried thereby are to be set up in relation to the stacker as shown in the drawings, all that is necessary to be done to connect up with the stacker being to insert the hook 14, from which the old pulley has been removed, into the eye 41, and connect the rear ends of the bars loosely to a part such as the truss rod 17. This simple connection enables the entire clamping means to freely turn in any required direction, so that the rope is as free to accommodate itself to any movement as it was when passing around the pulley that otherwise would be swiveled to the said hook 14.

In operation, with the parts in position as shown and with the hoisting-rope running between the two members 32—33, a pull on the outer end of the rope will cause the bell-crank levers 36—36 to turn on their pivots 37 and 38, thus tending to force downward the beam or clamp member 32 and as will be readily understood will, on account of the distance between such pivots, force said clamp member 32 away from the other member. The bars 46 being loosely connected to the truss-rod 17 will not interfere with such slight movement as is necessary to separate the clamp members. The other parts that connect the clamp members together,—viz., the links 34^a and 35^a and bars 46,—being parallel with that part of the bell-crank levers that is pivoted to the two beams will turn so as to keep parallel and thus the two beams will be held apart uniformly and their parallelism preserved. This separation of the two beams or clamp members occurs instantly upon the application of power to pull the rope to cause a raising of the load-carrying head 19 and the rope will be at all times free from the braking effect of the clamp members while the power continues

to be so applied. Immediately upon the release of the lifting power, however, from the rope, the clamping members 32—33 will act to again grip the rope, this being accomplished through the coiled spring 47 which causes a turning of the bell-crank levers, which, as before explained, are pivotally connected with the hand-lever through the pair of links 44. The braking effect of the members 32—33 on the rope can be eased to any required extent by the operator bearing down on the said hand-lever 42.

By my invention I provide a strong, simple and efficient brake for the hoisting-rope and one which does not cause excessive wear on the rope.

One great advantage derived from the use of this invention is that it does not necessitate any short turns or kinks to be given to the rope, but on the contrary permits the rope to run as straight and even as it would were no braking mechanism whatever applied to it.

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

1. The combination with a pair of opposing relatively-movable clamping members adapted to receive and clamp a rope between them and means pivotally connecting said members and holding them in parallelism, said means comprising a bell-crank lever, of a guiding device for the rope carried by said bell-crank lever, and means for normally holding said clamping members in gripping position.

2. The combination with a pair of opposing relatively-movable clamping members adapted to receive and clamp a rope between them and means pivotally connecting said members and holding them in parallelism, said means comprising a bell-crank lever, of a pulley mounted on said bell-crank lever, and means for normally holding said clamping members in gripping position.

3. The combination with a pair of opposing relatively-movable beams adapted to receive and clamp a rope between them and means for holding said beams in gripping position, of a bell-crank lever pivotally connected to said beams and adapted to aid in keeping said beams in parallelism, a rope-guide carried by said bell-crank lever, and other means for aiding in preserving the parallelism of the beams when moved out of gripping position.

4. The combination with a pair of opposing relatively-movable beams adapted to receive and clamp a rope between them, and means for holding said beams in gripping position, of a bell-crank lever pivotally connected to said beams near their ends and adapted to aid in keeping said beams in parallelism, a rope-guide connected with said bell-crank lever and located opposite the ends of said beams, and other means for aid-

ing in preserving the parallelism of the beams when moved out of gripping position.

5. The combination with a pair of opposing relatively-movable clamping members adapted to receive and clamp a rope between them, of means for holding said members in gripping position, and a bell-crank lever pivotally connected to each of said members and adapted to separate them when the said rope is pulled in one direction.

6. The combination with a pair of opposing relatively movable clamping members adapted to receive and clamp a rope between them, of means for holding said members in gripping position, and a bell-crank lever having one of its arms pivotally connected to both of said members and adapted to separate them when the said rope is pulled in one direction.

7. The combination with a pair of relatively-movable clamping members adapted to receive and clamp a rope between them, means for maintaining said members in parallelism, and means for normally holding said members in gripping position, of a rope-guiding device around which the rope passes after leaving said clamping members, and means connected with said guiding device for forcing said clamping members apart when the rope is pulled in one direction.

8. The combination with a pair of relatively-movable clamping members adapted to receive and clamp a rope between them, and means for maintaining said members in parallelism, of a bell-crank lever pivotally attached to said clamping members, a pulley carried by said bell-crank lever around which the rope passes as it leaves the said clamping members, a hand lever pivotally attached to one of said clamping members, and a device connecting said hand lever and said bell-crank lever.

9. The combination with a pair of relatively-movable clamping members adapted to receive and clamp a rope between them, and means for maintaining said members in parallelism, of a bell-crank lever pivotally attached to said clamping members, a pulley carried by said bell-crank lever around which the rope passes as it leaves the said clamping members, a hand lever pivotally attached to one of said clamping members, a device connecting said hand-lever and said bell-crank lever, and a spring for normally holding said clamping members in gripping position.

10. The combination with a hay-stacker of a rope-clamping device,—said device comprising two relatively-movable beams adapted to receive and clamp a rope between them, pivoted means for holding said beams in parallelism, a bell-crank lever pivoted to said beams, and a rope-guide carried by said bell-crank lever around which the rope

passes as it leaves the said clamp-members,—and means for connecting said clamping device to the hay-stacker.

11. The combination with a hay-stacker
5 of a rope-clamping device,—said device comprising two relatively-movable beams adapted to receive and clamp a rope between them, pivoted means for holding said beams in parallelism, a bell-crank lever pivoted to said
10 beams, and a rope guide carried by said bell-crank lever around which the rope passes as it leaves the said clamp-members,—and means for connecting said clamping device to the hay-stacker, said connecting means
15 comprising a plurality of links or bars extending between said clamping device and the hay-stacker, one of said connections being secured to said bell-crank lever.

12. The combination with a hay-stacker

of a rope-clamping device,—said device comprising two relatively-movable beams adapted to receive and clamp a rope between them, pivoted means for holding said beams in parallelism, a bell-crank lever pivoted to said beams, and a rope guide carried by said
25 bell-crank lever around which the rope passes as it leaves the said clamp-members,—and means for connecting said clamping device to the hay-stacker, said connecting means comprising a plurality of links or
30 bars extending between said clamping device and the hay-stacker, both of said connections being loosely attached to the hay-stacker.

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Witnesses:

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