A. HANNAFORD.

HOG HOISTING MACHINE.

APPLICATION FILED AUG. 5, 1907

972,186.

Patented Oct. 11, 1910.

3 SHEETS—SHEET 1.

Fig. 3.

Fig. 2.

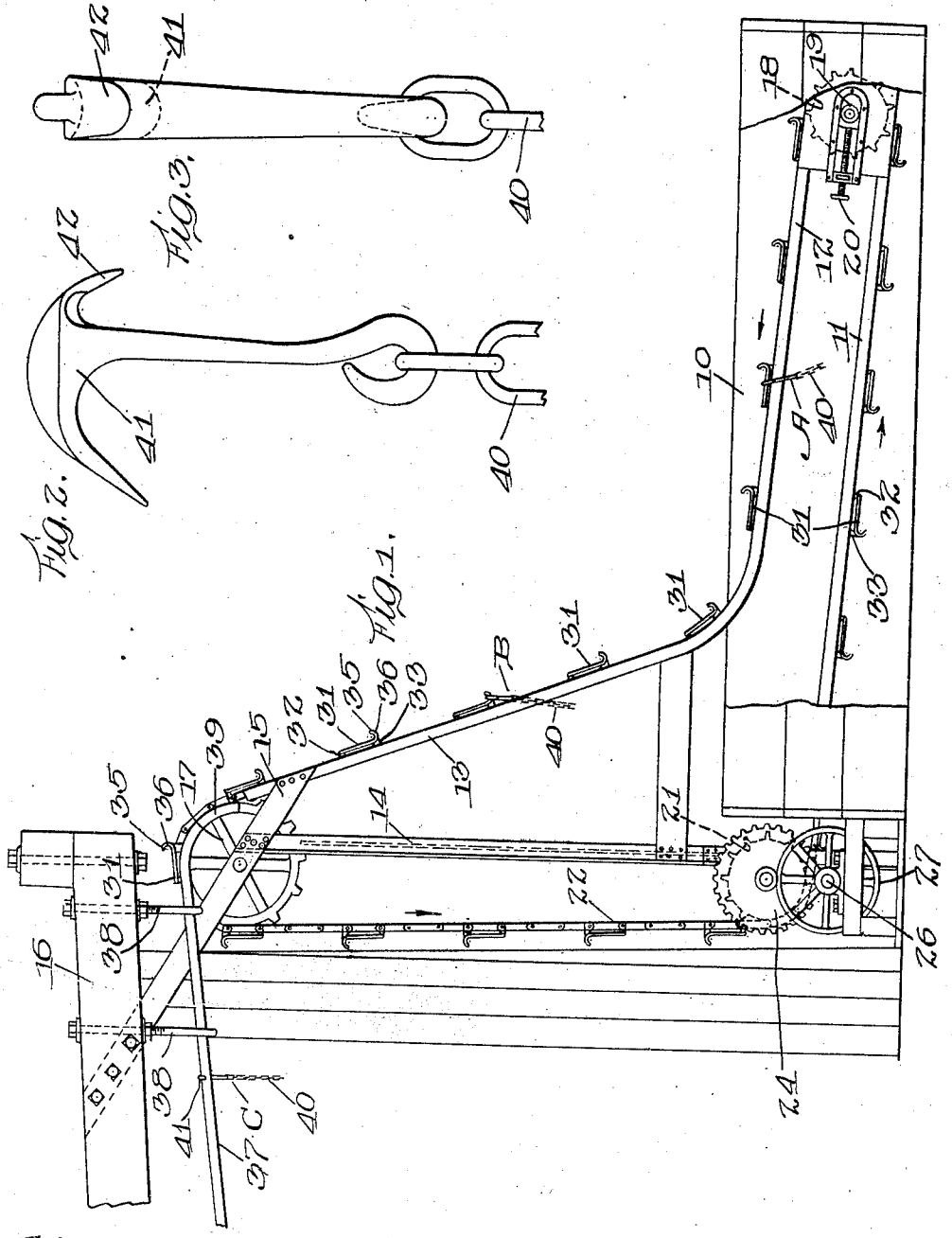

Fig. 1.

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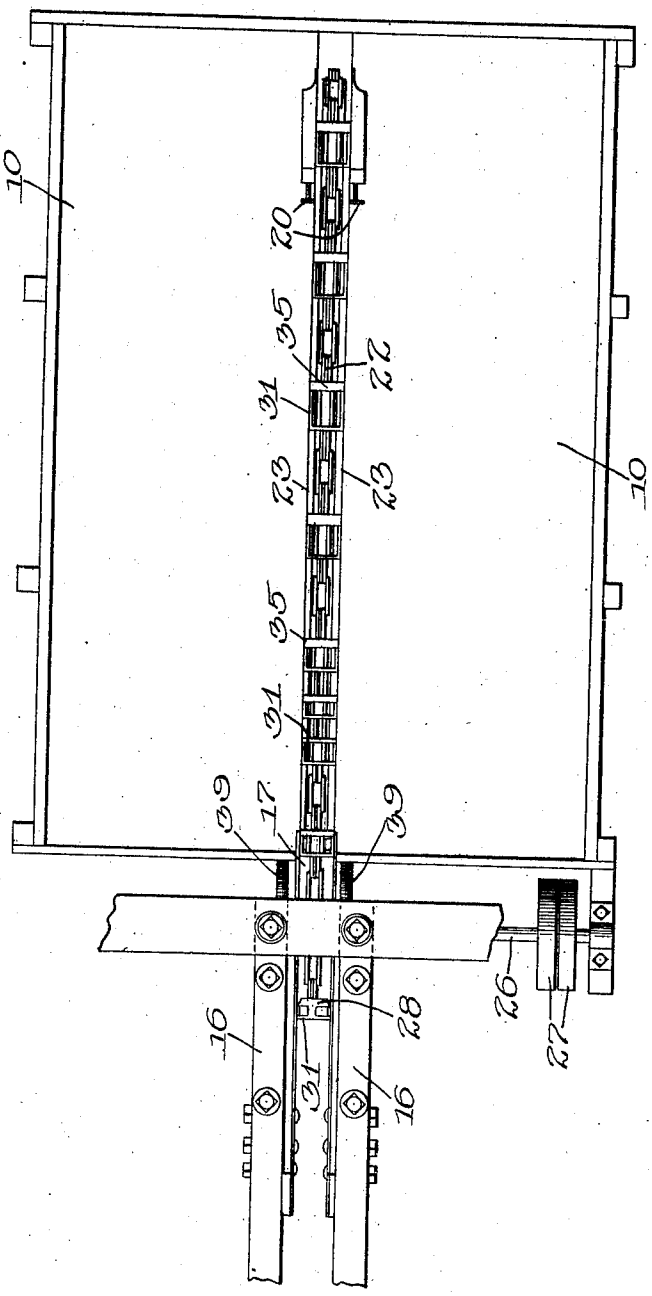
3 SHEETS—SHEET 2.

FIG. 4.



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3 SHEETS—SHEET 3.

FIG. 8.

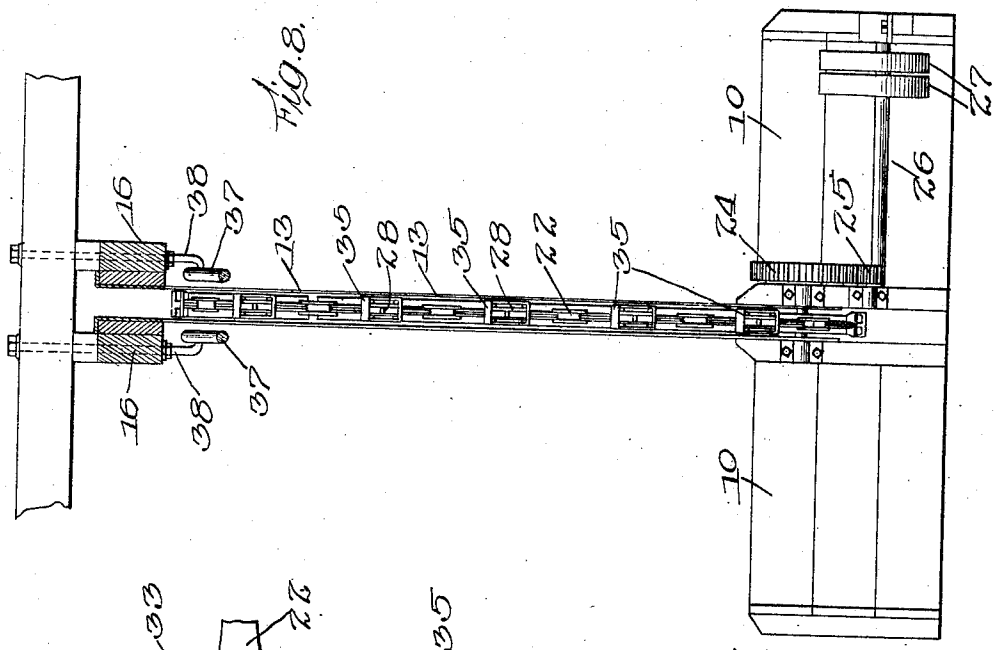


FIG. 5.

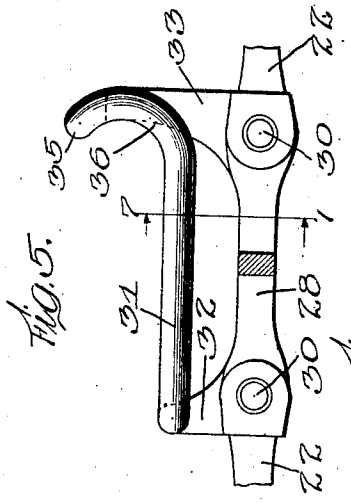


FIG. 6.

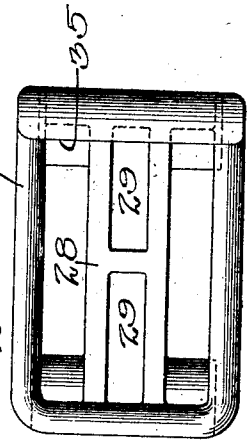


FIG. 7.

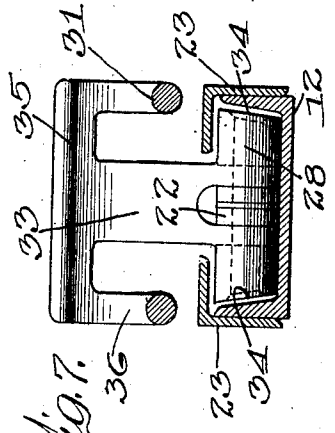
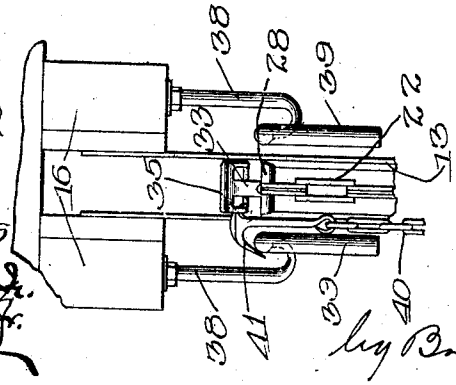


FIG. 9.



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UNITED STATES PATENT OFFICE.

ALFRED HANNAFORD, OF CHICAGO, ILLINOIS.

HOG-HOISTING MACHINE.

972,186. Specification of Letters Patent. **Patented Oct. 11, 1910.**

Application filed August 5, 1907. Serial No. 387,112.

To all whom it may concern:

Be it known that I, ALFRED HANNAFORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hog-Hoisting Machines, of which the following is a specification.

This invention relates to improvements in hog hoisting machines, and the primary object of the same is to provide improved means for removing shackled hogs from the pens, hoisting them and automatically delivering them onto an overhead track or rail at a point which is not directly over the operator, thereby avoiding all danger of the hog falling upon the operator.

A further object is to provide an improved device of this character which is adapted to be located between two or more pens so that the hogs may be removed from either one or all of the pens at the same time.

A further object is to provide an improved device of this character which extends substantially the entire length of the pen, whereby the hog may be drawn from any part of the pen.

A further object is to provide an improved form of link for the carrier or hoisting chain.

A further object is to provide an improved device of this character which will be simple, durable and cheap in construction, and effective and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed, and shown in the accompanying drawings illustrating an exemplification of the invention, and in which—

Figure 1 is a side elevation of an improved device of this character, constructed in accordance with the principles of this invention. Fig. 2 is a side elevation of the shackle hook by means of which the shackle is attached to the conveyer. Fig. 3 is an end elevation of Fig. 2. Fig. 4 is a top plan view, partly broken away, of Fig. 1. Fig. 5 is a side elevation, partly in section, of the improved form of link. Fig. 6 is a top plan view of the improved link. Fig. 7 is a detail sectional view on line 7—7 of Fig. 5, also showing a portion of the track or guide-way. Fig. 8 is a rear end elevation of Fig. 1. Fig. 9 is an enlarged detail view showing means for delivering the shackled hog to the overhead track.

Referring more particularly to the drawings, and in this exemplification of the invention, the numeral 10 designates two pens between which this improved carrier is located. Arranged between the pens are tracks or guide-ways 11, 12, which are arranged preferably in the same vertical plane and extend substantially the entire length of the pens. These tracks or guide-ways are preferably of a channel formation, the track or guide-way 11 being located preferably adjacent the floor of the pen and in such a position that the open side thereof will be directed downwardly while the track or guide-way 12 is located above and spaced from the track or guide-way 11, and is arranged so that the open portion thereof will extend upwardly or in a direction opposed to the direction of the track or guide-way 11. These tracks or guide-ways 11, 12, are preferably inclined as shown, and the extremity of the track or guide-way 12 is inclined upwardly as at 13, and extends for some distance above the top of the pens, as shown more clearly in Fig. 1 of the drawings. The upper end of the inclined portion 13 may be held in position in any desired or suitable manner, preferably by means of a support 14 and a brace 15, one end of which is secured to the track or guide-way 13, and the other end to a suitable overhead beam 16. A pulley or sprocket wheel 17 is journaled adjacent the end of the track or guide-way 13, and located between the ends of the tracks or guide-ways 11 and 12 in the pens is a suitable sprocket or pulley wheel 18, which latter is mounted in adjustable bearings 19, controlled by means of a suitable adjusting screw 20. A similar sprocket wheel 21 is journaled in a suitable support adjacent the end of the pens remote from the pulley or sprocket wheel 18, and at a point substantially below the pulley or sprocket wheel 17. Passing around the sprockets or pulley wheels 17, 18 and 21 is an endless chain or belt, designated generally by the reference number 22, and said

chain or belt is adapted to rest and move within the tracks or guide-ways 11 and 12, the track or guide-way 11 extending substantially the entire length of the pen and terminating short of the sprocket wheel 21 so that the portion of the chain within the pen will be housed and protected by the tracks or guide-ways.

Suitable L shaped members 23, shown more clearly in Fig. 7 of the drawings are secured to the tracks or guide-ways 11 and 12, and extend over the top edges thereof to hold the chain or belt 22 in the tracks or guide-ways and against displacement by any strain which may be exerted thereon by the hog when the shackle is attached to the chain 22.

Motion may be imparted to the chain or belt 22 in any desired or suitable manner, preferably by means of a gear wheel 24, which is secured to the sprocket wheel 21, which in turn receives motion from a suitable pinion 25 on the power shaft 26, which latter is rotated by means of the pulley 27 in the ordinary and well known manner. The chain or belt 22 is adapted to move in the direction indicated by the arrows in Fig. 1 of the drawings, and the tracks or guide-ways 11 and 12 and the extremity 13 of the track or guide-way 12 are so arranged that the run of the chain or belt between the sprockets or pulley wheels 17, 21, will be the only portion exposed and unprotected, and is the portion of the chain which has passed out of operative position, as will be described.

The chain 22 is provided with specially constructed links shown more clearly in Figs. 5 and 7 of the drawings, and said links are arranged throughout the entire length of the chain and suitably spaced from each other. These links comprise a body portion 28, which is provided with apertures or recesses 29 adapted to receive the extremities of the adjacent links of the chain, said extremities being secured to the links by means of suitable pivots 30 which pass through the body portion 28 and the adjacent extremities of the links. A suitable frame-work 31 is secured to the body portion 28 by means of projections 32, 33, and is spaced from the top of the link, as shown more clearly in Figs. 5 and 7 of the drawings, and the projections 32, 33, are of such a length that when the body portion 28 of the link moves within the tracks or guide-ways, the frame-work 31 will project above the top thereof, the projections 32, 33 being of such a width as to pass between the extremities of the L shaped members 23 when the body portion is in the guide-way, as shown more clearly in Fig. 7 of the drawings. If desired, the body portion 28 of the link may be provided with inclined or beveled sides 34, as shown more clearly in Fig. 7 of the drawings, in order to conform to the inclined face of the sides of the tracks or guide-ways. The frame-work 31 is preferably of a length substantially equal to the length of the body portion 28, and is of a hook shaped formation, the nose 35 of the hook extending for some distance above the body portion of the frame-work 31, with the throat 36 thereof opening in or toward the direction of movement of the conveyer chain. Any number of these links may be provided and suitably spaced throughout the entire length of the conveyer or hoisting chain, and the frame-work 31 thereof is spaced a sufficient distance above the body portion 28 to permit the teeth of the sprocket wheel to engage the link so as not to interfere with the movement of the chain when the special link is adjacent any of the sprocket wheels.

The numeral 37 designates overhead supporting tracks commonly known as the sticking track, by means of which the hog is conveyed into the sticking room. These tracks 37 may be supported in any desired or suitable manner, preferably by means of adjustable hangers 38 engaging the tracks and the beam 16. The forward ends of these tracks are located adjacent the sprocket wheel 17 and are preferably provided with a downwardly curved extremity 39, which preferably conforms to the contour of the sprocket or pulley wheel 17, and terminates adjacent the upper extremity of the inclined portion 13 of the track or guide-way 12, as shown more clearly in Figs. 1 and 9 of the drawings.

Secured to one extremity of the shackle chain 40 is a hook 41 which is provided with a smaller hook 42 projecting from the opposite edge thereof, as shown more clearly in Fig. 2 of the drawings.

In operation, a hog is shackled in the ordinary manner around one of its hind legs by means of the shackle chain 40. After the hog is shackled, the hook is carried to the conveyer or hoisting chain 22, which latter is continuously moving, and the shackler engages the frame-work 31 of the link 28 with the small hook 42 within the pen holding the hook in engagement with the frame-work a sufficient length of time to cause the two to be securely connected, or until the conveyer or hoisting chain has advanced a sufficient distance to place a tension on the shackle chain and draw the hog in the pen toward the upwardly inclined portion 13 of the track or guide-way 12. When the shackler first places the hook 42 in engagement with the frame-work 31 of the link 28, it will assume the position as shown at A in Fig. 1 of the drawings, and as the hog is drawn forward by the advancement of the conveyer or hoisting chain, the hook 42 will ride on the side of the frame-

work 31 toward the throat 36 of the hook-shaped portion and the connecting portion on the front end of the frame-work which forms the nose 35 thereof will prevent the hook 42 from disengaging from the frame-work 31. As the hog is elevated by means of the chain or belt 22, the shackle will assume the position as shown at B in Fig. 1 of the drawings; the hook 42 resting in the throat 36 of the frame-work, which will prevent the shackle from becoming disengaged from the frame-work 31 by any jarring action caused by the motions of the hog. The hog, being thus attached to the conveying and hoisting mechanism, will be raised upwardly in the direction of or toward the tracks 37, and as the body portion 28 of the link to which the shackle is attached emerges from the extremity of the inclined portion 13 of the track or guide-way 12, the hook 41 will pass over the downwardly curved extremities 39 of the respective tracks 37, and as the shackle is further raised to the highest point of the conveyer or hoisting chain 22, the hook 41 will move into engagement with or along the tracks 37, and as the link 28 starts to descend, the frame-work 31 will pass out of engagement with the hook 42 and allow the hook 41 to remain hanging upon the track 37, after which the shackle with its supported hog may be moved along the track to any desired point, as shown at C in Fig. 1 of the drawings. This operation is continued until the pen is emptied, and by arranging the conveyer and hoisting chain between two or more pens, the hogs may be supplied to the conveyer or hoisting mechanism from both pens, thereby more rapidly supplying or conveying the hogs to the sticking room.

If desired, the tension of the conveyer and hoisting chain 22 may be varied by means of the adjusting screws 20.

With this improved construction it will be noted that the hogs are shackled and conveyed along the pen to a point remote from the shackler before being elevated, and that they will be elevated and deposited upon an overhead track also at a point remote from the operator, thereby obviating or avoiding the danger of the hog falling upon the operator. The only portion of the conveyer or hoisting chain which is exposed is a portion of the return run after it has deposited the shackle upon the overhead track. It will also be noted that by extending a portion of the conveyer or hoisting chain for some distance within the pen, the shackler will have sufficient time to securely engage the link with the hook before the hog is raised or elevated from the floor of the pen, thereby also obviating the danger of the hog disengaging the hook from the link or falling back into the pen.

In order that the invention might be fully understood by those skilled in the art, the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new and desire to secure by Letters Patent, is:—

1. In a hog hoisting machine, the combination with a carrier comprising a single series of connected links and a plurality of hooks connected with said links by relatively narrow projections, and a guide-way extending around said connected links from one side of the projections to the other.

2. In a hog hoisting machine, the combination of a shackling chain provided with a hook-shaped extremity, a receiving rail, an endless carrier embodying a shackling run, a portion of which is arranged to travel in a substantially horizontal plane, and another portion being arranged to travel in a vertically inclined path, and a hook-shaped member supported by and spaced from the carrier, said member being slotted longitudinally.

3. In a hog hoisting machine, the combination of a shackling chain provided with a hook-shaped extremity, a receiving rail, an endless carrier embodying a shackling run, a portion of which is arranged to travel in a substantially horizontal plane, and another portion being arranged to travel in a vertically inclined path, and a hook-shaped member supported by and spaced from the carrier, the body of said member being slotted longitudinally whereby said member when on the substantially horizontal moving portion, is adapted to be engaged laterally by the hook on the shackling chain and whereby when on the vertically inclined portion, it is adapted to be engaged in the ends of said slot.

4. In a hog hoisting machine, the combination of a shackling chain provided with a hook-shaped extremity, an endless carrier, a portion of which is arranged to travel in a substantially horizontal plane, and another portion arranged to travel in a vertically inclined path, and a hook-shaped frame supported by the carrier, said frame being provided with longitudinal slots extending around the hook of the frame.

5. In a hog hoisting machine, an endless chain carrier supported along its inner face and provided with shackle-engaging means spaced from its outer face, said carrier having a portion traveling approximately horizontally with said means projecting upwardly.

6. In a hog hoisting machine, the combination with an endless chain supported along its inner face, and comprising a plurality of links, each of said links having a broad flat hook offset therefrom and provided with longitudinal slots, of a shackling chain adapted to be secured at one end to the foot of a hog and having a hook at its other end,

the slots in said slotted hook adapting said slotted hook to be engaged laterally and endwise by the hook of the shackling chain.

7. In a hog hoisting machine, the combination of a carrier embodying an upwardly extending shackling run, longitudinally slotted hook-shaped frames mounted on said carrier for attaching an animal to either side of the shackling run, and a plurality of rails arranged adjacent the upper end of the shackling run for receiving the animal at a point remote from the shackling run.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 3rd day of August A. D. 1907.

ALFRED HANNAFORD.

Witnesses:

J. H. JOCHUM, Jr.,

FRANCIS A. HOPKINS.