

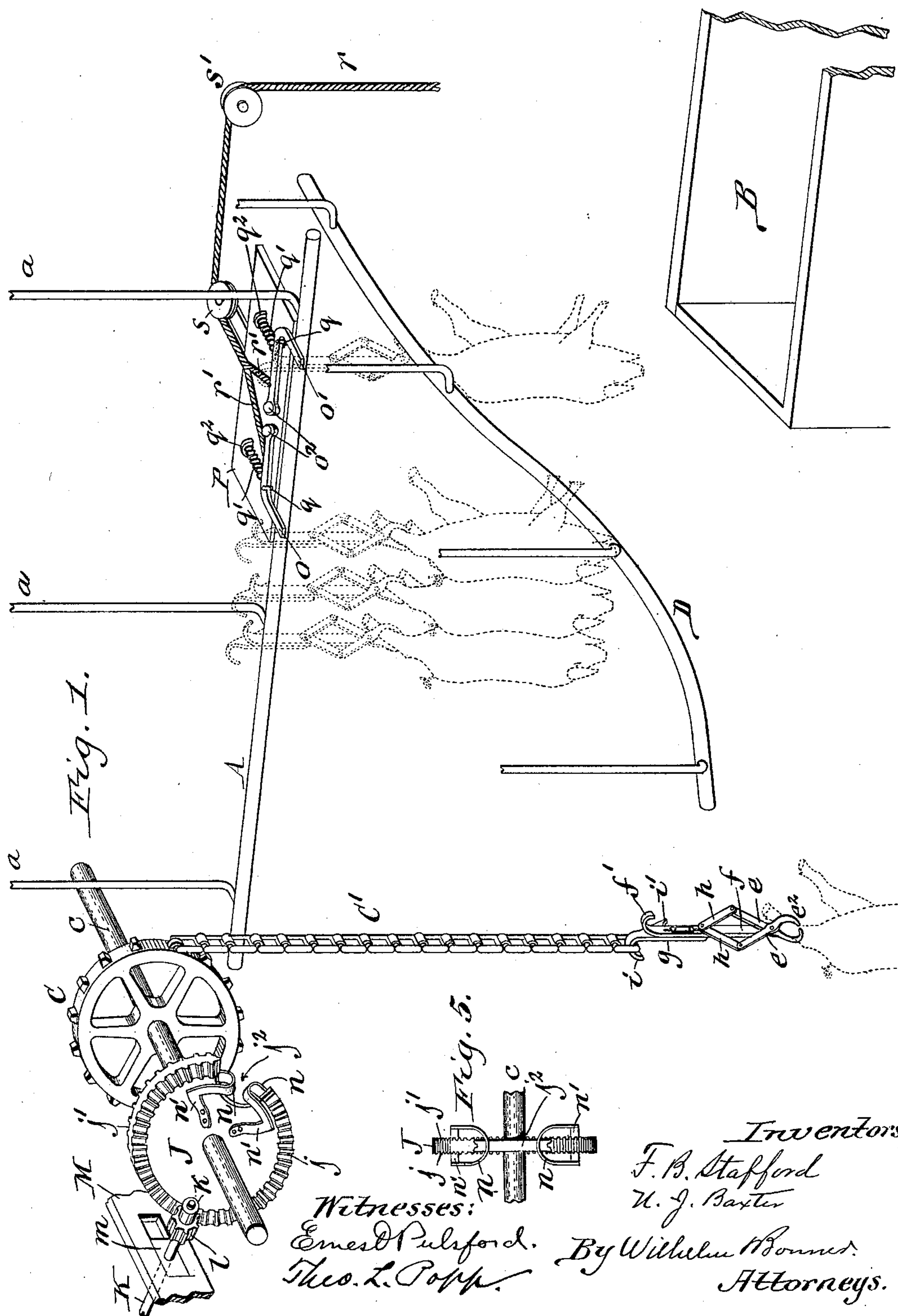
(No Model.)

2 Sheets—Sheet 1.

F. B. STAFFORD & N. J. BAXTER.
HOG ELEVATING AND SUSPENDING APPARATUS.

No. 584,903.

Patented June 22, 1897.



Witnesses:
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(No Model.)

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Fig. 4.

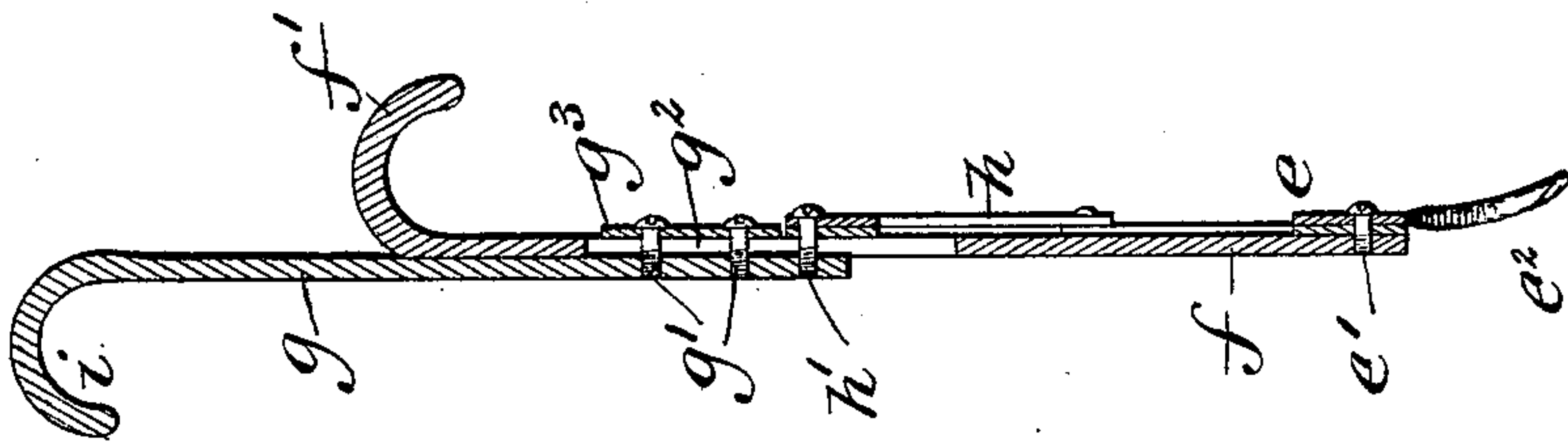


Fig. 3.

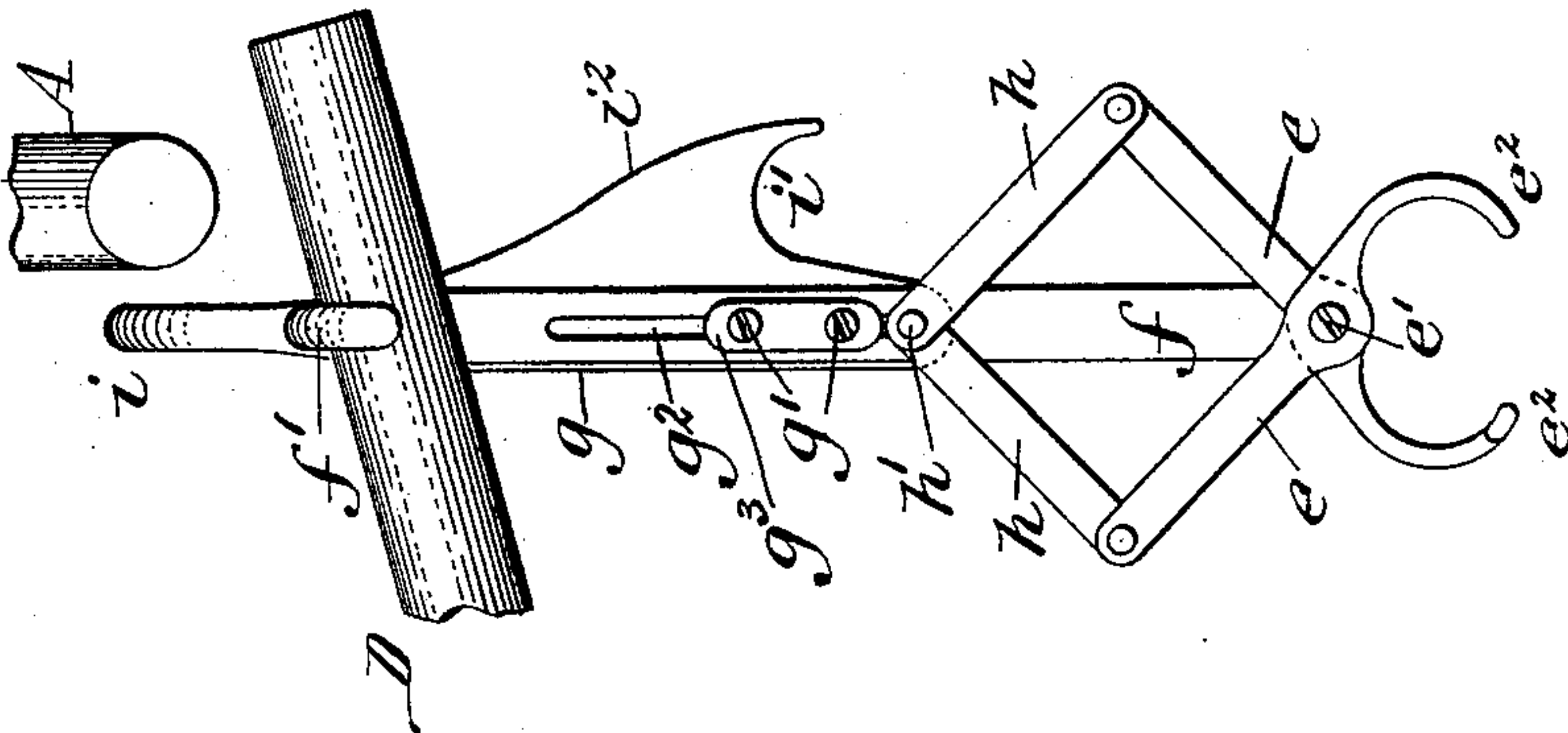
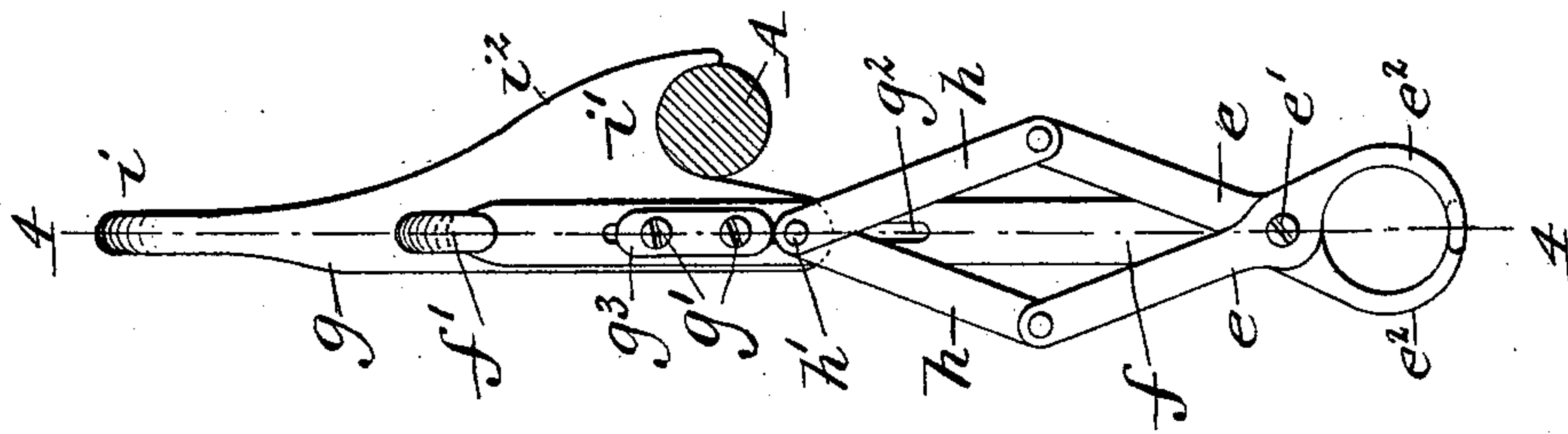


Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANK B. STAFFORD AND NEWTON J. BAXTER, OF BUFFALO, NEW YORK.

HOG ELEVATING AND SUSPENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 584,903, dated June 22, 1897.

Application filed September 1, 1896. Serial No. 604,513. (No model.)

To all whom it may concern:

Be it known that we, FRANK B. STAFFORD and NEWTON J. BAXTER, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Hog Elevating and Conveying Apparatus, of which the following is a specification.

This invention relates to an elevating and conveying apparatus designed more particularly for use in slaughtering hogs, the invention having more especial reference to apparatus of this kind comprising an inclined delivering-track for conveying the hogs from the penstock to the scalding-trough, hoisting mechanism for elevating the hogs to said trough, and a reversely-inclined return-track for conveying the grapples back to the attendant in the penstock after the hogs have been released and dropped into the scalding-trough.

Among other devices a reversing-gear has been employed in connection with the hoisting apparatus for reversing the motion of the hoisting-drum when the hog-gripping device reaches the proper height for transferring the hog to the elevated delivery-track, and this reversing-gear was operated by hand by an attendant who was stationed at the head of said track and who also transferred the hog-gripping device from the hoisting rope or chain to the track.

One of the objects of our invention is to transfer the hogs from the hoisting-drum to the elevated delivery-track by automatic mechanism of compact construction, so as to reduce the operating cost of the apparatus.

Another object of the invention is to provide the apparatus with a grapple whereby the hog is not only transferred automatically from the hoisting apparatus to the delivery-track, but is also transferred automatically to the return-track and at the same time released from the grapple for dropping it into the scalding-trough.

This invention has the further object to provide simple means whereby the attendant at the scalding-trough may control the delivery of the hogs into the trough.

In the accompanying drawings, consisting of two sheets, Figure 1 is a perspective view

of our improved apparatus. Fig. 2 is a front view of the grapple, showing the same suspended from the delivery-track by means of its transfer-hook. Fig. 3 is a similar view showing the grapple suspended from the return-track by means of its releasing or opening hook. Fig. 4 is a vertical longitudinal section of the grapple in line 4 4, Fig. 2. Fig. 5 is an edge view of the mutilated reversing-wheel.

Like letters of reference refer to like parts in the several figures.

A is the elevated delivery-track, suspended in an inclined position by hangers *a* and leading from the penstock to the scalding-trough B; C, the hoisting drum or wheel arranged at the head of said track; C', the hoisting chain or rope attached to the drum C and carrying the hog-grapple at its free end, and D the inclined return-track leading from a point opposite the delivery end of the delivery-track to the penstock.

The grapple which seizes the hog and which is detachably connected with the elevating-chain C' consists of a pair of crossed levers *e e*, pivoted at *e'* to a vertical supporting-bar *f*, which is stationary relatively to said levers, and which is provided at its upper end with a forwardly-extending hook or hanger *f'*, adapted to engage over the return-track D, as shown in Fig. 3. The lower arms *e²* of the crossed levers *e* are curved, as shown, to form jaws, which grasp one of the hind legs of the hog.

g is a vertically-movable shifting or jaw-operating bar guided on the rear side of the supporting-bar *f* by horizontal pins or screws *g'*, which pass through a longitudinal slot *g²*, formed in the supporting-bar, and through a washer or cap-plate *g³*, bearing against the front side of said bar, as shown in Fig. 4.

h represents links which connect the upper ends of the crossed levers *e* with the lower end of the jaw-operating bar *g*, the latter being provided at its lower end with a pin or screw *h'*, which extends forwardly through the slot of the supporting-bar and to which the upper ends of the links *h* are pivoted, as clearly shown in Fig. 4. The jaw-operating bar is provided at its upper end with a hook or hanger *i*, which is preferably turned rear-

wardly, as shown, and which is adapted to engage with the hoisting-chain C'. This bar is also provided with an auxiliary hook or hanger i' , preferably arranged at right angles to and below its other hook i and adapted to engage over the delivery-track A, as shown in Fig. 2. For distinction the upper hook i of the shifting bar g will hereinafter be referred to as the "elevating-hook," the lower hook i' of the shifting bar as the "transfer-hook," and the hook f' of the supporting-bar f as the "releasing-hook."

The jaws of the grapple are opened by sliding the shifting bar g downwardly and the supporting-bar f upwardly, each on the other, which causes the connecting-links to spread the levers e farther apart and open the jaws e^2 , as shown in Fig. 3, in which position the jaws are passed over one of the hind legs of a hog. The jaws are closed by shifting the bars g and f in the reverse direction, and upon suspending the grapple from the hoisting-chain by means of its elevating-hook i the weight of the hog tends to close the jaws and keep the same tightly closed in an obvious manner.

The transfer-hook i' of the grapple is arranged on the side thereof facing the delivery-track, and the hoisting-chain is arranged so closely to this track that when the grapple is elevated sufficiently to bring the transfer-hook above the delivery-track said hook will overhang the track, so that upon reversing the movement of the drum and lowering the grapple the transfer-hook will engage the delivery-track, as shown in Fig. 2. The grapple and the hog carried thereby are now suspended from the track and the unwinding hoisting-chain disengages itself by its own weight from the elevating-hook of the grapple. The nose of the transfer-hook is provided with a beveled or inclined face i^2 , as shown in Figs. 2 and 3, so that in elevating a hog this face rides freely over the side of the track.

The movement of the hoisting-drum is automatically reversed for lowering the chain by any suitable mechanism. The preferred reversing-gear employed for this purpose is shown in the drawings and consists of a mutilated gear-wheel J, secured to the drum-shaft c and provided on opposite faces thereof with gear-rims j, j' and a continuous rotating driving-shaft K, arranged at right angles to the drum-shaft and carrying a spur-pinion l , which meshes alternately with opposite gear-rims of the mutilated wheel J, so as to turn the same alternately in opposite directions for winding and unwinding the hoisting-chain. The driving-shaft is mounted in a laterally-sliding bearing m , guided in a slotted bar or support M, and the mutilated wheel J is provided with a comparatively deep peripheral aperture or recess j^2 , through which the laterally-movable pinion of the shaft K passes from one side of the gear-wheel to the other. The gear-teeth of the mutilated wheel extend over the edges of the recess j^2 , as well as around

the remaining solid portion of the wheel on both sides thereof.

n represents U-shaped guards or guides which extend around the opposing edges of the recess of the mutilated wheel and whereby the pinion l is automatically guided from one side of the wheel to the other and held in engagement therewith. To reduce friction, the shaft K is provided at its free end with a roller k , which runs in contact with the guards n . These guards are arranged throughout their length at a sufficient distance from the opposing faces of the wheel J to permit the passage of the pinion l between said faces and the guards. For this purpose each guard is supported at its ends by inwardly-extending lips or brackets n' , secured to the opposite faces of the mutilated wheel, as shown in Figs. 1 and 5. By the use of this reversing-gear the continuous rotary motion of the laterally-movable driving-shaft K causes the mutilated wheel J to be turned alternately in opposite directions, thus winding the chain C' upon the drum until the hog is properly elevated and then allowing the chain to unwind for permitting the transfer-hook of the elevated grapple to engage over the delivery-track and the chain to become detached from the lifting-hook of the grapple, as hereinbefore described. The movement of the reversing-gear is so timed that the hoisting-drum is reversed as soon as the transfer-hook arrives above the delivery-track. By the use of such automatic reversing-gear the attendant which has heretofore been required for this purpose is dispensed with and a material saving in the cost of operating the apparatus is effected.

As soon as the grapple is transferred from the hoisting-chain to the delivery-track it slides toward the discharge end of the latter, and upon leaving this track the grapple drops into engagement with the head of the return-track by means of the forwardly-extending releasing-hook f' , which now forms the hanger or suspension means of the grapple. The weight of the hog is now removed from both hooks i, i' of the shifting bar and transferred to the hook f' of the supporting-bar f of the grapple, and the levers of the grapple-jaws being now released the weight of the hog opens the jaws, releasing the hog and allowing it to drop into the scalding-water below. The empty grapple now slides down the inclined return-track back to the penstock ready to be used for hoisting another hog.

It will thus be observed that by the use of our improved grapple in connection with the automatic reversing-gear of the hoisting mechanism the hog is transferred automatically from the hoisting-chain to the delivery-track and is also transferred automatically from the delivery-track to the return-track, and that the release of the hog from the grapple is effected automatically as the grapple passes from the delivery to the return track,

thus rendering the apparatus very convenient in use and dispensing with the two attendants heretofore required at the receiving and discharge ends of the delivery-track.

5 In order to prevent a too rapid discharge of the hogs into the scalding-trough and enable a single hog to be delivered at a time, if desired, the apparatus is provided with a stop or detent device which is constructed as follows:

10 o o' represent a pair of retractable stops adapted to extend across the delivery-track and into the path of the hog-grapples running upon said track. These stops are arranged one in rear of the other, and each of the same consists, preferably, of a horizontally-swinging L-shaped arm or lever pivoted at its inner end to a support P by a vertical pin o^2 , the outer transverse or angular portion of the lever extending across the track, as shown in Fig. 1. The forward movement of each of these stop-levers is arrested by a stop-pin q , secured to the support P , and against which the front side of the lever strikes.

20 q' represents springs which are arranged between the rear sides of the stop-levers and lugs q^2 of the support and which tend constantly to swing the stop-levers into the projected position shown in Fig. 1.

30 r represents a retracting-cord which is connected with the two stop-levers by branch cords r' r' and which passes rearwardly from said cords around a guide-pulleys and thence laterally and downwardly over a second guide-pulley s' to within convenient reach of the attendant at the scalding-trough. When the stop-levers are in the projected position shown in Fig. 1, the grapples and the hogs 40 suspended therefrom are arrested by the front stop-lever o . When the attendant at the scalding-trough desires to drop a hog into the trough, he retracts the stop-levers out of the way of the grapples by giving the cord r a quick pull and then promptly releasing it. By this movement one of the grapples is allowed to pass the front stop-lever, but is arrested by the rear one before it reached the end of the track. The attendant now again 50 quickly pulls and releases the cord, whereby the single hog in front of the rear stop-lever is allowed to run off the delivery-track and upon the return-track and be discharged into the scalding-trough, and another hog is at the same time allowed to pass beyond the front stop-lever preparatory to being released from the rear stop upon the next pull of the operating-cord. The attendant thus has complete control of the delivery of the hogs 60 into the scalding-trough, and the same cannot, therefore, drop into the trough any faster than he can handle them.

We claim as our invention—

1. The combination with a delivery-track, 65 of a hoisting-drum arranged at the receiving end of said track, a hoisting chain or cable

attached to said drum and adapted to carry a detachable hog-grapple, a main driving-shaft for operating said hoisting-drum, and an automatic reversing-gear interposed between said driving-shaft and the shaft of said hoisting-drum, whereby the movement of the drum is reversed when the hog-grapple is elevated to the proper height, substantially as set forth. 70 75

2. The combination with a delivery and a return track arranged opposite to the discharge end thereof, of a hoisting device arranged adjacent to the receiving end of said delivery-track and a grapple provided with 80 a lifting hook or hanger adapted to be connected with said hoisting device, a transfer hook or hanger adapted to engage with said delivery-track and a releasing hook or hanger adapted to engage with said return-track, 85 substantially as set forth.

3. In a hog hoisting and conveying apparatus, the combination with a delivery-track and a return-track arranged at the discharge end thereof, of hoisting mechanism arranged 90 at the receiving end of said delivery-track, an automatic reversing-gear controlling said hoisting mechanism and a grapple provided with a lifting hook or hanger adapted to engage with said hoisting mechanism, a transfer hook or hanger arranged to engage automatically with said delivery-track, and a releasing hook or hanger arranged to engage automatically with said return-track when the grapple reaches the discharge end of the delivery-track, substantially as set forth. 95 100

4. In a hog hoisting and conveying apparatus having a delivery-track and a return-track, a grapple comprising a supporting-bar having a releasing hook or hanger arranged 105 to engage with said return-track, a pair of jaw-levers pivoted to said supporting-bar, and a jaw-operating bar sliding on said supporting-bar, connected with said jaw-levers and having a lifting hook or hanger adapted 110 to engage with the hoisting mechanism and a transfer hook or hanger arranged to engage with said delivery-track, substantially as set forth.

5. In a hog hoisting and conveying apparatus having a delivery-track and a return-track, a grapple comprising a supporting-bar having a releasing hook or hanger arranged 115 to engage with said return-track, a pair of jaw-levers pivoted to said supporting-bar and a jaw-operating bar sliding on said supporting-bar, connected with said jaw-levers and having a lifting hook or hanger adapted to engage with the hoisting member and a transfer hook or hanger arranged to engage with said delivery-track and provided with a beveled nose adapted to ride over the delivery-track, substantially as set forth. 120 125

6. In a hog hoisting and conveying apparatus, the combination with a delivery-track 130 and hoisting mechanism for elevating the hogs to said track, of a pair of retractable stops ar-

ranged to extend normally across said track, one in advance of the other, and operating means connected with both of said stops, whereby the same are retracted simultaneously, substantially as set forth.

7. In a hog hoisting and conveying apparatus, the combination with a delivery-track and hoisting mechanism for elevating the hogs to said track, of a pair of horizontally-swinging stop-levers extending normally across said track and arranged one in advance of

the other, springs for projecting said levers, and a retracting-cord passing over a suitable guide wheel or wheels and connected with both of said levers, substantially as set forth. 15

Witness our hands this 20th day of August, 1896.

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