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HOG HOIST.

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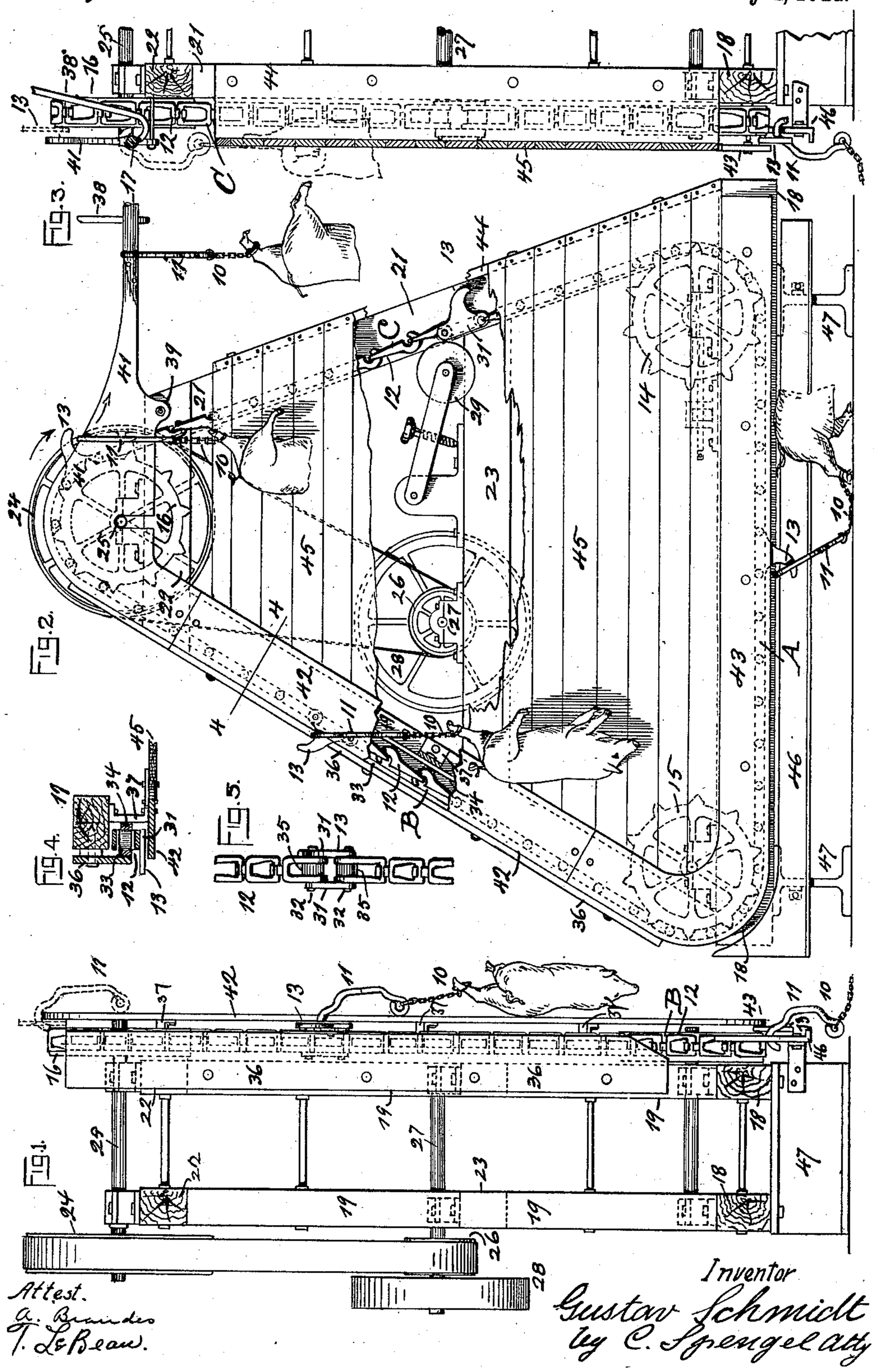
Patented July 4, 1911.



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HOG-HOIST.

996,799. Specification of Letters Patent. Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, GUSTAV SCHMIDT, a citizen of the United States, and residing at Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Hog-Hoists; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawing, with the reference characters marked thereon, which form also a part of this specification.

This invention concerns so-called hog-hoists which are devices whereby in slaughter-houses live hogs are handled for the purpose of placing them in proper position for killing and for subsequent bleeding.

The invention relates to new and useful improvements whereby the construction of such devices as well as their manipulation and manner of their use become greatly simplified.

In the following specification and particularly pointed out in the claims at the end thereof, will be found a full description of my invention, together with its manner of use, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, is a side-elevation of the hoist. Fig. 2, is a front-view of it with parts broken out and shows it in operation. Fig. 3, is part of an elevation of the side opposite to the side shown in Fig. 1, it being the right side of the apparatus with reference to Fig. 2. Fig. 4, is a sectional detail-view taken on line 4—4 of Fig. 2. Fig. 5, is a detail view of a portion of the carrier-chain.

The hogs to be killed are taken to the hoist one by one by means of a shackle-chain 10, one end of which is attached to one of their legs. The outer end of this chain is provided with a hook 11, whereby temporary connection is made to the hoist, after which this latter lifts the hog and delivers it onto the so-called bleeding-rail.

In most of the present forms of hoists, hook 11, is attached to an intermediate pendent member, or chain which forms a part of the elevating-means of the hoist. In my present form I do away with such an intermediate member and hang hook 11, directly onto the carrier-chain 12, which latter for such purpose is provided with a hook 13, which is rigidly connected to or forms a part of one of the links of this chain. A number of these hooks 13, may be provided, which number depends upon the length of the chain. This chain is an endless one, supported in a suitable manner by guide-pulleys.

In the simplest form, two pulleys are sufficient, a lower one and an upper one, thereby providing for an ascending and for a descending chain-branch. A more convenient arrangement, permitting also a compact construction, is shown in Fig. 2, where two lower guide-pulleys 14 and 15, and an upper one 16, are provided, around which the carrier-chain passes, and by which arrangement this latter presents always a horizontal branch A, an ascending branch B, and a descending branch C. In either form of arrangement, the ascending branch hoists the animal and delivers it directly onto the bleeding-rail 17, as shown in Fig. 2, the transition taking place by hook 11, which at the proper time leaves hook 13, on the chain and slides onto the rail. A suitable frame-work is provided to support the guide-pulleys and to suit their particular arrangement. When three are used as shown, a sill 18, is provided and two inclined members 19 and 21, connected at their upper ends by a horizontal member 22, and by an intermediate member 23. This frame is duplicated as shown in Fig. 1, to provide for support of the boxes which carry the shafts upon which the pulleys are mounted. Power to move the chain is by preference applied to the upper guide-pulley 16, a belt-pulley 24, being mounted on its shaft 25. This shaft may be driven by directly applied power or by an intermediate pulley 26, on a shaft 27, the bearings of which are supported on intermediate frame-members 23. Shaft 27, is driven in any suitable way, a pulley 28, being shown on it. Suitable means to keep the chain at proper tension are also provided which may be applied at any part of it, except its ascending branch.

A tightening pulley 29, is shown in Fig. 2, mounted on intermediate frame-member 23. The boxes which support the shaft of one of the guide-pulleys may also be used for the purpose by being arranged to be shiftable upon the frame-member upon

which they are supported. If this method is used the boxes of pulley 14, would be preferably so used.

A preferable way to provide hooks 13, is by inserting special links 31, one of which is enlarged edgewise and shaped accordingly to form the upwardly projecting hooks. See Figs. 4, 5, and 2, (descending chain-branch). These special links, by means of pins 32, are connected to the adjoining regular chain-links. Any tendency of the ascending chain-branch to tilt while loaded is counteracted by providing two guides 33 and 34, one above and one below the chain. This latter, while traveling from the lower guide-pulley 15, to the upper guide-pulley 16, passes flat-wise through the space between these guides. To reduce the friction, rollers 35, are provided upon which the chain travels while passing through these guides. Pins 32, may be used to support these rollers. Of the guides the upper one 33, is carried on a flange 36, attached to frame-member 19. The lower guide 34, is supported by brackets 37, attached to the front-side of said frame-member as best shown in Fig. 4. Hooks 13, travel outside of these guides. See Fig. 4.

The bleeding-rail 17, is supported in any suitable manner as for instance by brackets 38, and near its receiving end it may also be attached to the general frame of the hoist as shown at 39. This receiving portion forms by preference and for convenience in construction, a separate piece 41, which is shaped to extend sufficiently into the path of hooks 11, while moved by hooks 13, of the traveling-chain, so as to meet them about at the highest part of their travel. The shape of this piece is further such, that from this point it declines until it meets rail 17, proper, the object of this decline being to cause hooks 11, to promptly leave hooks 13, as soon as these latter have moved over the turn at the highest part of their travel. This hooks 11 do, by sliding here ahead of hooks 13, thereby clearing these latter at once, receiving also an impetus at the start of their movement which sends them quickly ahead onto the bleeding-rail. (See Fig. 2, upper portion). A manner of construction which adds considerable strength to the structure is by continuing the bleeding-rail all the way down alongside and in front of and slightly spaced from the edge of the ascending chain-branch B, thereby forming a track 42, on which the shackle-hooks slide while being pushed up by hooks 13, on the chain. These latter hooks travel here in the space between this track-rail 42, and guide 33, and project beyond both as best shown in Figs. 1, 2, and 4. Brackets 37, which support guide 34, may also serve to support this track-rail.

A valuable feature connected with the hoist is the uninterrupted continuity of the track with the bleeding-rail, whereby the loaded shackle-hooks pass smoothly from one onto the other and are deposited upon the bleeding-rail without a jerk or jar which leads frequently to accidents and causes damages of various kinds, bruises, dislocation of joints and breaking of bones which impair the appearance of the meat. A miss of the bleeding-rail by the shackle is of course an obvious impossibility. Track 42, may also be continued around below and in front of the horizontal chain-branch A, as shown at 43, where, while it has no particular operative function, this continuous part serves in conjunction with track 42, and a timber 44, to support a wall 45, which is provided to close the front of the apparatus.

Where the supporting means for the carrier-chain are arranged to produce such a horizontal chain-branch A, as shown, I provide means which permit engagement of hooks 11, with hooks 13 on the chain while this latter travels through this stretch. These means consist of a member which I call a hooking-on rail, shown at 46. It is provided below this horizontal chain-branch, being attached in a suitable manner to the general frame or, as shown, to legs 47, which support sills 18, of the hoist. It relieves the operator from watching closely the hooks traveling with the passing chain for the purpose of enabling him to hang one of the shackle-hooks 11, onto one of these hooks. Instead he merely hangs the shackle-hook onto this rail 46, which is so located as to cause this hook to hang into the path of hooks 13, so that it is readily taken up by the first one of them which passes. See Figs. 1, 2, and 3, lower part. This rail is continued around the lower end of the ascending chain-branch and follows the same sufficiently until hooks 11, are fully engaged by hooks 13, so that these latter may carry them forward unaided.

The particular shape of the projections on the chain and the complementary shape of the attaching-member of the shackling-devices which is received by it, are to be considered merely as approximate types and may be varied to suit circumstances. The shape of the attaching-member should always be such that it permits of attachment to the carrier-chain and also meets the receiving-end of the bleeding-rail. I consider therefore any variation of the parts and structures shown, whereby a shackling device by direct attachment to a hoisting chain, is delivered to a bleeding-rail, without the intervention of any intermediate means, as the equivalent to my invention.

Having described my invention, I claim as new:

1. In a hog-hoist, the combination of an endless carrier-chain supported in a manner

to present a horizontal, as well as an ascending branch and provided with rigidly attached hooks which permit temporary connection of the attaching hook of shackling-devices, a bleeding-rail at the upper end of the ascending branch, a hooking-on rail parallel to and below the horizontal chain-branch and arranged to permit the hooks of the shackling-devices to be hung onto the same in which position they depend into the path of the hooks moving with the carrier chain and means to move this latter continuously in one direction only whereby the hooks hanging on the rail are taken up by the hooks on the chain and thereby elevated to the bleeding-rail and deposited therein.

2. A hog-hoist comprising an endless carrier-chain, supporting and guiding means which provide an ascending and a descending direction of movement for said chain, carrier-hooks provided on said chain from which they project upwardly at an inclination in the direction of movement of said chain while ascending and downwardly while descending, a bleeding-rail extending laterally from said chain-supporting and guiding means and in line therewith at approximately the highest point to which the hooks on the chain ascend and a shackling-device comprising a carcass-suspension hook adapted to be engaged by and supported upon said carrier-hooks and to be elevated by them to said bleeding rail, said rail being mounted and located between the planes of movement of said carrier-hooks and of the body of said suspension hooks and below the highest point of said supporting and guiding means to receive said suspension-hooks in the plane of their movement as they travel with the carrier-hooks and when the inclination of these hooks assumes a downward direction at the beginning of the descending movement of the chain.

3. In a hog-hoist, the combination of an endless hoisting chain traveling in one direction and provided with spaced, rigidly attached projections, an upwardly inclined rail supported parallel to this chain and extending continuously and in line therewith at the highest part thereof to form a bleeding-rail and a flexible carcass-suspending device having at one end means permitting attachment to it of an animal and at its other end a hook adapted to engage the rail and chain-projections between the body and the free hooked end of said hook for the purpose described and to move along over the same.

4. In a hog-hoist an endless carrier-chain composed of flat links, means to move it, guide-pulleys on which it is supported in a manner to provide an inclined, ascending branch, a guide below the inside of this chain-branch, another guide opposite this guide and on the outside of this chain-branch which latter moves flatwise between both guides, a bleeding-rail extending laterally from approximately the highest point to which the chain travels and carrier-hooks provided on one of the narrow edges of the chain so as to travel outside of the guides when the chain moves through between them and to project outside and beyond the outer one of these guides, said carrier-hooks adapted to engage shackling-devices and to elevate them to the bleeding-rail.

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

GUSTAV SCHMIDT.

Witnesses:

C. SPENGEL,

T. LE BEAU.