

C. S. LOCKE.
Machine for Packing Meat.

No. 223,522.

Patented Jan. 13, 1880.

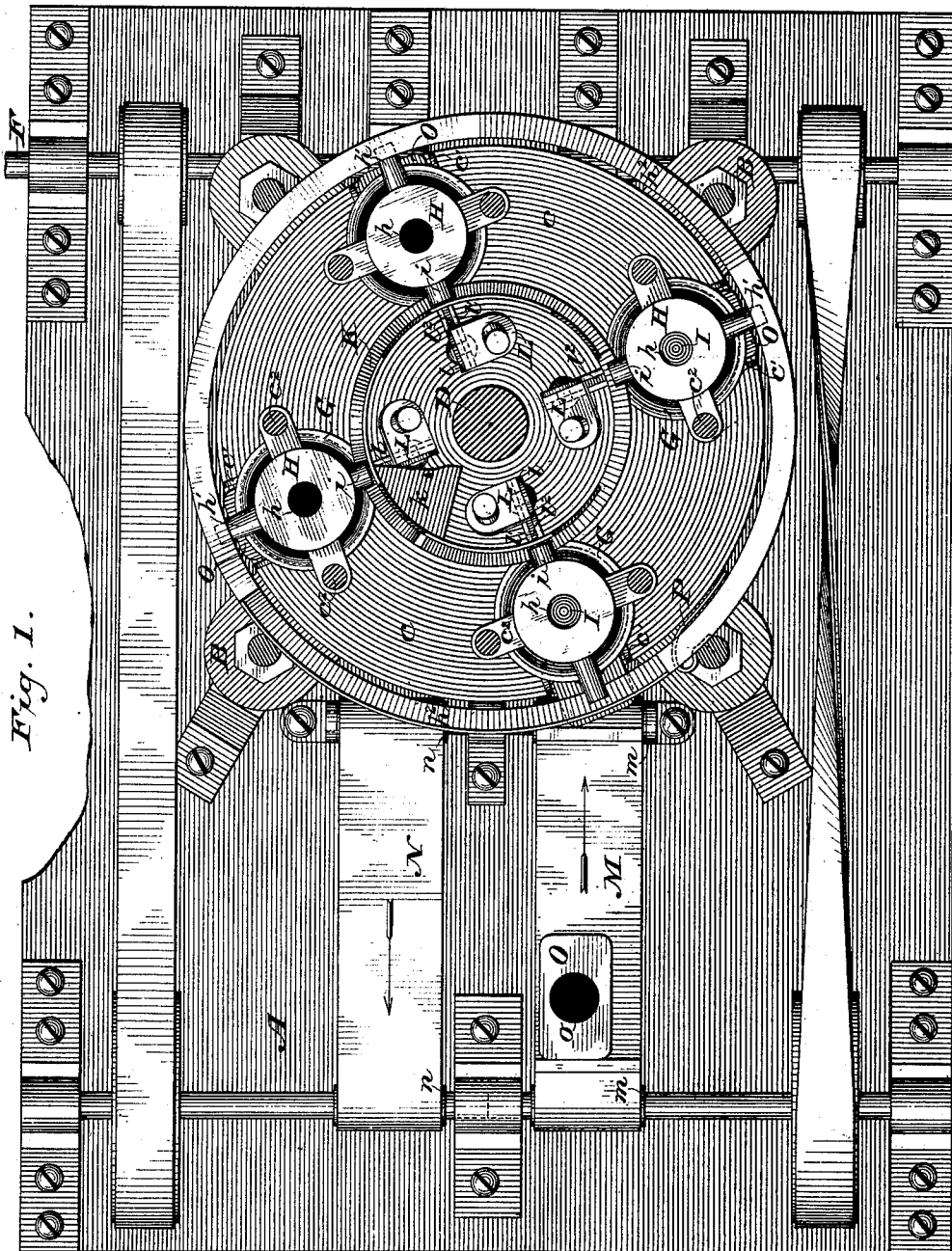


Fig. 1.

WITNESSES

Wm. A. Shinkley
Wm. T. Kilgroe

INVENTOR

Charles S. Locke,

By his Attorneys

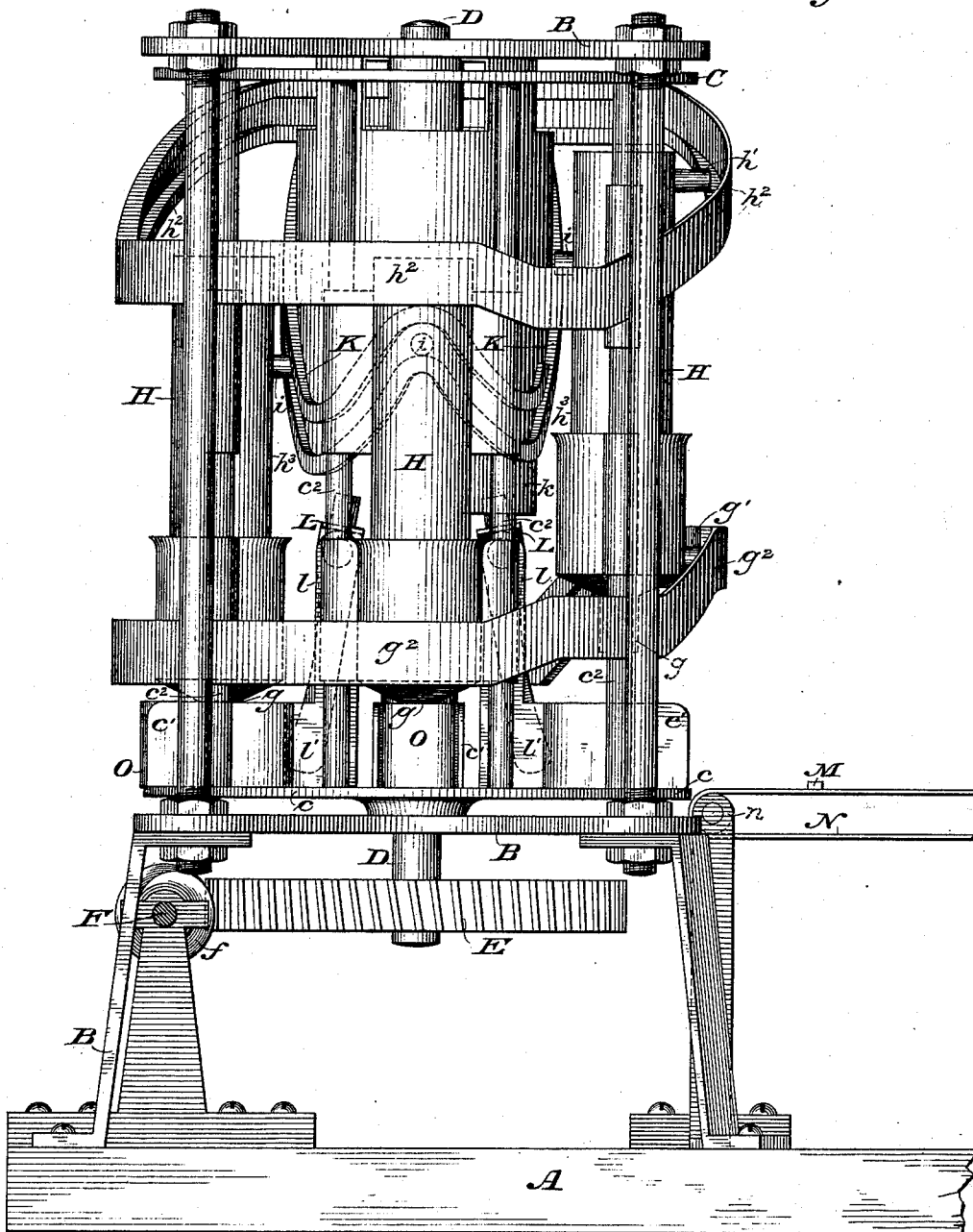
Galdwin, Hopkins & Taylor.

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Fig. 2.



WITNESSES

Wm. A. Shinkle
Wm. J. Kilgore

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Fig. 6.

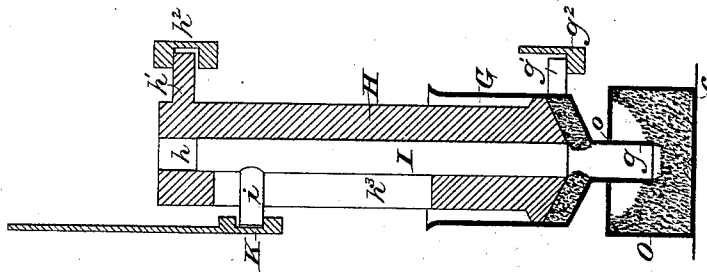


Fig. 5.

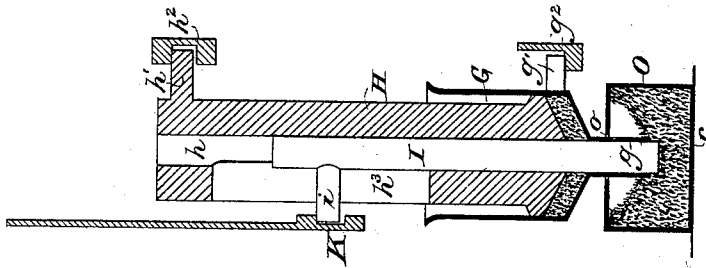


Fig. 4.

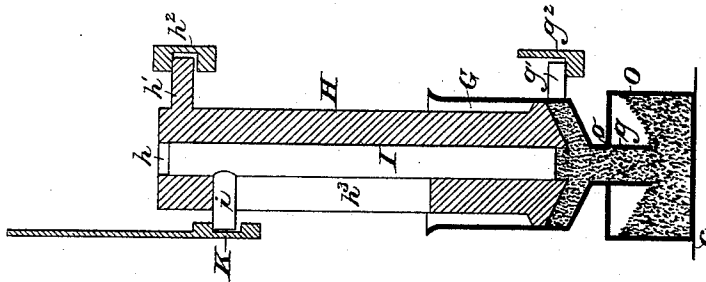
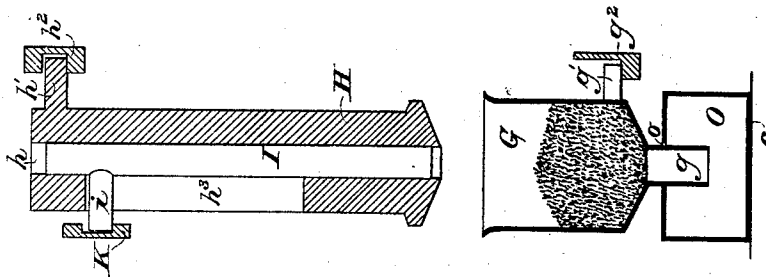


Fig. 3.



WITNESSES

Wm A. Skunk
Wm T. Kilgore

INVENTOR

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Fig. 12.

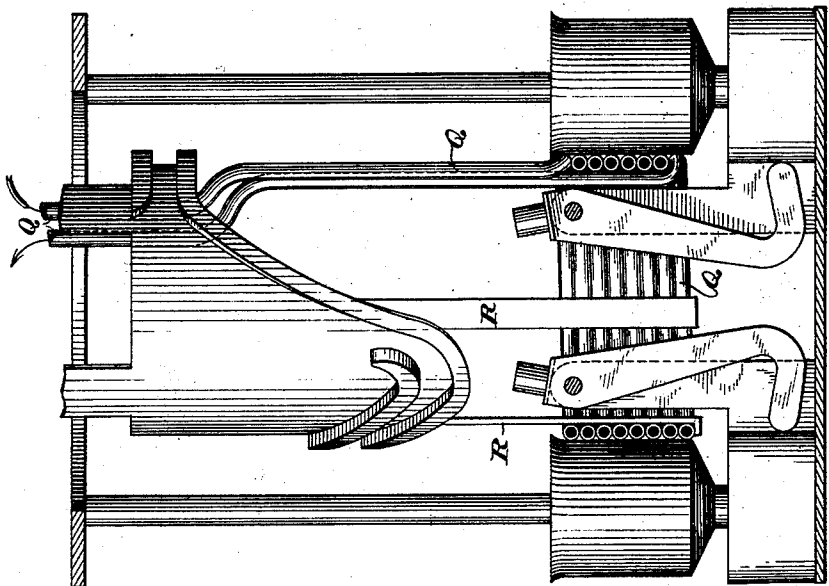
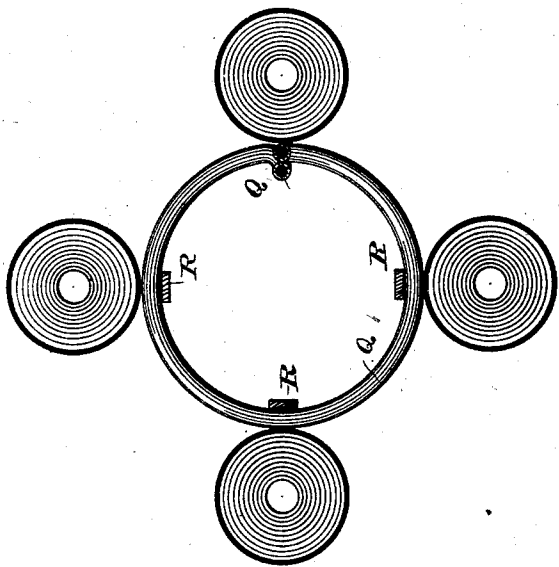


Fig. 11.



WITNESSES

Wm A. Skinkle.
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INVENTOR

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UNITED STATES PATENT OFFICE.

CHARLES S. LOCKE, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM SNYDER
AND ORLANDO P. BRIGGS, OF SAME PLACE, ONE-THIRD TO EACH.

MACHINE FOR PACKING MEAT.

SPECIFICATION forming part of Letters Patent No. 223,522, dated January 13, 1880.

Application filed December 19, 1879.

To all whom it may concern :

Be it known that I, CHARLES S. LOCKE, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Machine for Packing Meat in Cans, of which the following is a specification.

Heretofore, so far as I am aware, machines for this purpose have been liable to the objection that the air, having no certain means of escape from the can, would frequently rupture it, or should the can not break, the air would remain in it, forming a bulge, and the meat would be liable to spoil.

Another objection to these machines is, that the outsides of the cans become covered with the juices of the meat and small particles of meat, causing waste and necessitating the cleaning of the cans after they have been sealed. The amount of work done within a given time by these machines has also been small in comparison with that done by my improved machine, and they required a greater number of attendants.

The general object of my invention is to overcome the objections above mentioned.

The object of the first part of my invention is to insure the escape of the air from the can and to prevent the meat and its juices from collecting on the outside of the can; to which end my invention consists in packing the meat in the can from the bottom, about its middle, upward.

The object of the next part of my invention is to compress and pack the meat into the can; to which end my invention consists in combining a can-holder, a meat-receptacle, plunger and plunger-rod, and their actuating-cams.

The object of the next part of my invention is to insure all the meat in the receptacle being forced into the can; to which end my invention consists in combining a meat-receptacle having a concave bottom on the inside and a downwardly-projecting nozzle with a plunger having a convex bottom on the outside and a plunger-rod.

The object of the next part of my invention is to hold the can firmly while the nozzle of the meat-receptacle enters the can-opening; to which end my invention consists in providing a holding-plate upon the main frame, which

securely holds the can until the nozzle has entered its opening.

The object of the next part of my invention is to eject the cans, when filled, from the machine; to which end my invention consists in combining a can-holder, a meat-receptacle, plunger and plunger-rod, and their cams, and a can-ejecting lever and its cam.

The object of the next part of my invention is to introduce the cans into the machine and to convey them away when filled; to which end my invention consists in combining a can-feeding belt, a can-holder, a plate for holding the can in the holder, a meat-receptacle, plunger, plunger-rod, and ejecting-lever, and their cams, and a belt for carrying away the filled cans.

The object of the next part of my invention is to arrange a series of can-packers so that they will only require one attendant to feed them; to which end my invention consists in combining a stationary frame, a revolving frame, a series of can-holders, and a series of meat-receptacles, plungers, and plunger-rods, and their actuating-cams.

The object of the next part of my invention is to so construct the machine as to have the revolving frame carrying a series of can-packers move smoothly without jerks or jars, and at a moderate rate of speed, so as to compress the meat progressively in contradistinction to a sudden impact, and thus allow the air to escape; to which end my invention consists in combining a stationary frame, a frame secured upon and revolving with a spindle having its bearings in the stationary frame, a series of can-holders, meat-receptacles, plungers, and plunger-rods mounted upon the revolving frame, and their cams, a gear upon the end of the spindle, and a worm for driving it.

The object of the next part of my invention is to prevent the meat in the receptacle from chilling, which would have a tendency to cause it to cake and clog the machine; to which end my invention consists in combining a stationary frame, a revolving frame, a series of meat-receptacles, and a coiled steam-pipe, which keeps the receptacle warm.

In the accompanying drawings, which illustrate my invention embodied in a machine in

the form now best known to me, Figure 1 is a plan or top view. Fig. 2 is a side elevation. Figs. 3, 4, 5, 6, 7, 8, 9, and 10 are detail views, showing the meat-receptacle, plunger, and plunger-rod in the different positions during the operation of filling a can; and Figs. 11 and 12 are detail views, showing the steam-pipe for keeping the meat-receptacle warm.

Upon the bed-plate A of the machine is bolted an upright circular skeleton-frame, B. Another skeleton-frame, C, having a circular base, *c*, revolves within the frame B, being secured upon an upright shaft or spindle, D, having its bearings in the top and bottom of the frame B. A gear-wheel, E, is secured upon the lower end of this spindle beneath the frame B, and is driven by a worm, *f*, on a horizontal shaft, F, which is driven in any well-known way.

It will thus be seen that the frame C revolves within and independently of the frame B.

A can-holder, *c'*, is secured upon the circular base *c* of the frame C, between the uprights *c²* of the frame. Immediately above this holder, and working loosely on the uprights *c²*, is a tubular meat-receptacle, G, the general shape of the bottom of which is concave. At the bottom of this receptacle is a downwardly-projecting tube or nozzle, *g*, which communicates with its interior, and upon its outer side is a pin, *g'*, which works in a circular cam-rail, *g²*, on the frame B. This cam gives the required movement to the meat-receptacle, hereinafter fully to be described, and may be secured to the frame B by set-screws, so as to be capable of adjustment, if desired.

Immediately above the meat-receptacle, and also working loosely on the uprights of the frame C, is a hollow tubular plunger, H, the bottom of which is convex upon its exterior, and is provided with a central circular aperture, *h*. The movements of this plunger are controlled similarly to the meat-receptacle by a pin, *h'*, working in a circular cam-rail, *h²*, also secured to the frame B. This hollow plunger has on its inner side a vertical slot, *h³*. From this slot projects a pin, *i*, upon a plunger-rod, I, which works loosely vertically in the hollow plunger. The end of the plunger-rod *i* accurately fits and works in the circular aperture *h* and in the tube or nozzle of the meat-receptacle. The movements of this plunger are controlled by a cam, K, secured upon the top cross-bars of the frame B and projecting downwardly within the frame C around the upright spindle D. A down-hanging cam, *k*, projects from the cam K at a proper point, and accomplishes the ejection of the filled cans, as will hereinafter be set forth, by means of a swinging lever, L, pivoted upon an upright, *l*, in rear of the can-holder, and working in guides *l'* upon each side of the vertical slot *l²* in the can-holder.

The empty cans are carried into the can-holder by means of an endless belt, M, working over pulleys *m m*, and receiving motion

through a crossed belt from the worm-shaft on the opposite side of the machine, and the ejected filled cans are conveyed from the machine by another belt, N, working over pulleys *n n*, and also receiving its motion from the worm-shaft, but by means of a band, in an opposite direction from that of the belt N.

The circular openings *o* in the cans O are made a little larger in diameter than the nozzle on the end of the meat-receptacle.

In order to keep the meat-receptacle warm, so as to prevent the meat from chilling, which would have a tendency to clog the machine, any suitable apparatus may be used. I prefer, however, to employ a steam-pipe, Q, coiled, as shown, against or in close proximity to the receptacle, and supported upon bars R, depending from the interior of the cam K.

By using a steam-pipe in this manner the temperature can readily be controlled by means of an ordinary steam-cock.

The operation of the machine is as follows: A can is carried by the feeding-apron into the holder as the interior frame revolves. A plate, P, secured upon one of the uprights of the frame B, forces the can into its place in the holder and holds it in place while the meat-receptacle descends, its nozzle entering for some distance the opening in the can. The attendant now deposits a given weight of meat into the receptacle. As the frame continues to revolve, the tubular plunger and its contained plunger-rod descend together at a uniform speed into the meat-receptacle and force some of the meat through the nozzle into the can. The operation just here, and subsequently until the can is filled, is this: The meat is deposited first on the bottom of the can, about the center, and spreads around and upward, thus filling the can from the bottom upward, while the air is free to escape through the opening between the can and nozzle. As the frame continues its revolution the tubular plunger ceases to descend and remains for a time at the same level, while the plunger-rod descends through the meat-receptacle and through and beyond the nozzle, forcing more of the meat into the can and compressing it. The plunger-rod now rises until it is about flush with the bottom of the tubular plunger, the plunger and meat-receptacle remaining at the same levels. The meat-receptacle now rises, not sufficiently, however, to lift the nozzle out of the can, and at the same moment the tubular plunger and its contained plunger-rod descend, thus forcing the remainder of the meat in the receptacle into the nozzle. The meat-receptacle and tubular plunger now remain at the same levels, while the plunger-rod descends into the can, forcing the last of the meat into it. The receptacle, tubular plunger, and plunger-rod all now rise, and the can is ejected from the holder by the pivoted lever on to the apron, which carries it away. As soon as the meat in the can is relieved from the final pressure of the plunger-rod it

expands about flush with the can-opening, so that no air will remain in the can when sealed. The exact degree of pressure necessary to accomplish this result can be regulated by the cam which works the plunger-rod.

I have described and shown but four packing apparatus; but in practice as many as ten or more are used in one machine, all the parts being worked by one set of cams.

By thus causing the machine to revolve it is only necessary to employ one attendant, who can readily feed the meat to ten or more receptacles as they come round.

Instead of having the frame carrying the packers revolve, it might remain stationary and the frame carrying the cams be made to revolve; or the packers might be arranged in a straight line and the cam-bars be made to reciprocate above them. These as well as other modifications will present themselves to persons skilled in the art without departing from the spirit of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The hereinbefore-described improvement in the art of packing meat and other substances in cans, which consists in introducing the material into the can from a point below its opening and causing it to spread outward and upward, whereby the air is allowed freely to escape.

2. The combination, substantially as hereinbefore set forth, of the can-holder, the meat-receptacle, its nozzle and cam, and the plunger and plunger-rod and their cams.

3. The combination, substantially as hereinbefore set forth, of the meat-receptacle, having its bottom concave on the inside, its nozzle, the plunger fitting into the meat-receptacle and having its bottom convex on the outside, and the plunger-rod.

4. The combination, substantially as hereinbefore set forth, of the can-holder, the plate for holding the can in the holder, the meat-receptacle, its nozzle and cam, and the plunger and plunger-rod and their cams.

5. The combination, substantially as hereinbefore set forth, of the can-holder, the meat-receptacle, its nozzle and cam, the plunger and plunger-rod and their cams, and the can-ejecting lever and its cam.

6. The combination, substantially as hereinbefore set forth, of the can-feeding belt, the can-holder, the plate for holding the can in the holder, the meat-receptacle, its nozzle and cam, the plunger and plunger-rod and their cams, the can-ejecting lever and its cam, and the belt for carrying away the filled cans.

7. The combination, substantially as hereinbefore set forth, of a stationary frame, a revolving frame, a series of can-holders, and a series of meat-receptacles, plungers and plunger-rods, and their actuating-cams.

8. The combination, substantially as hereinbefore set forth, of a stationary frame, a frame secured upon a spindle having its bearings in the stationary frame and revolving within said frame, a series of can-holders, meat-receptacles, plungers, and plunger-rods mounted upon the revolving frame, their cams, a gear upon the end of the spindle, and a worm for driving it.

9. The combination, substantially as hereinbefore set forth, of a stationary frame, a revolving frame, a series of meat-receptacles on the revolving frame, and a coiled steam-pipe, against which or in close proximity thereto the meat-receptacles move.

In testimony whereof I have hereunto subscribed my name.

CHARLES S. LOCKE.

Witnesses:

MAX EBERHARDT,
AUGUST WEIHE.