L. SVOBODA.

ENTRAIL CLEANING MACHINE.

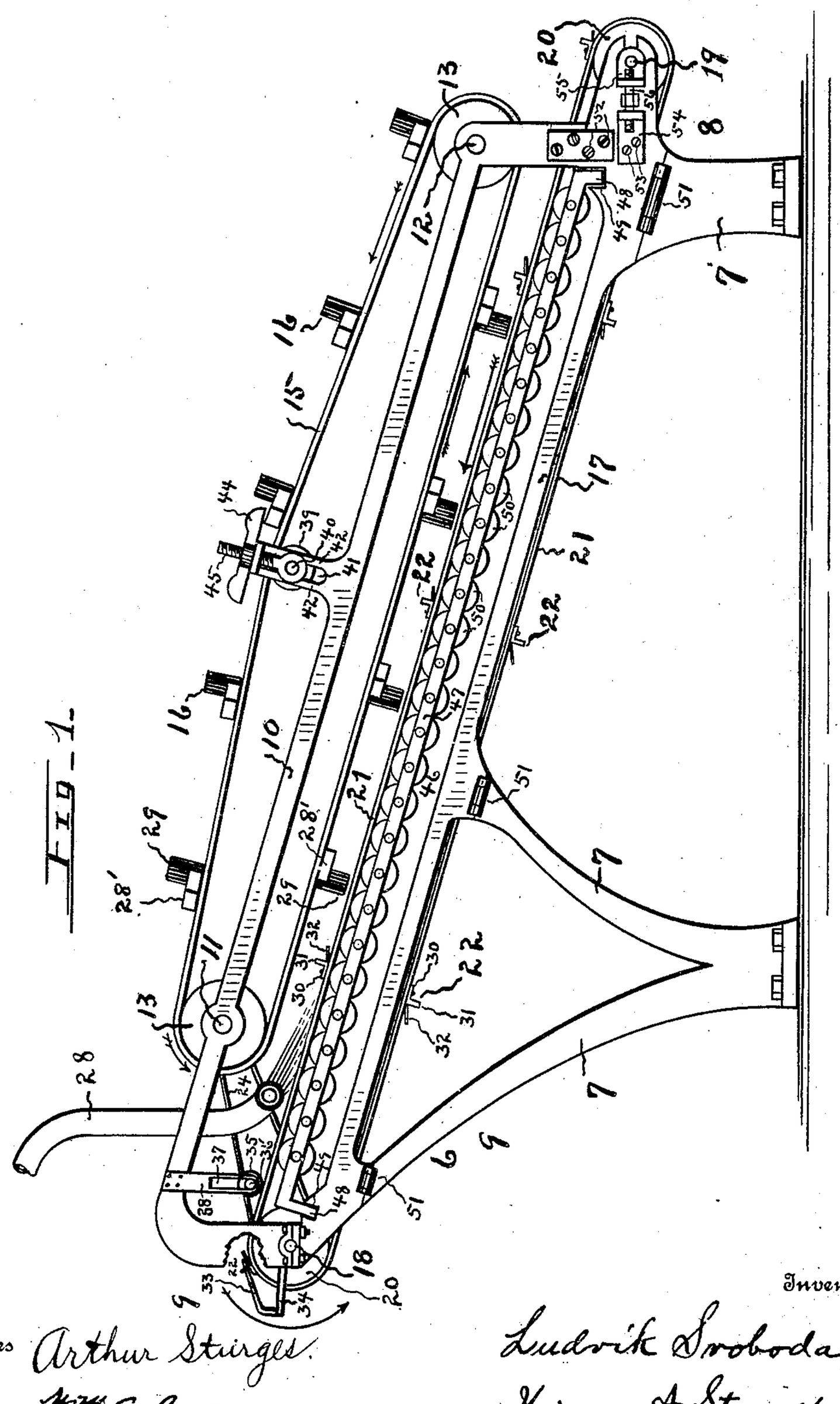
APPLICATION FILED FEB. 10, 1909.

925,527.

Patented June 22, 1909.

2 SHEETS—SHEET 1.

FIG. 1.



Witnesses Arthur Sturges.

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2 SHEETS—SHEET 2.

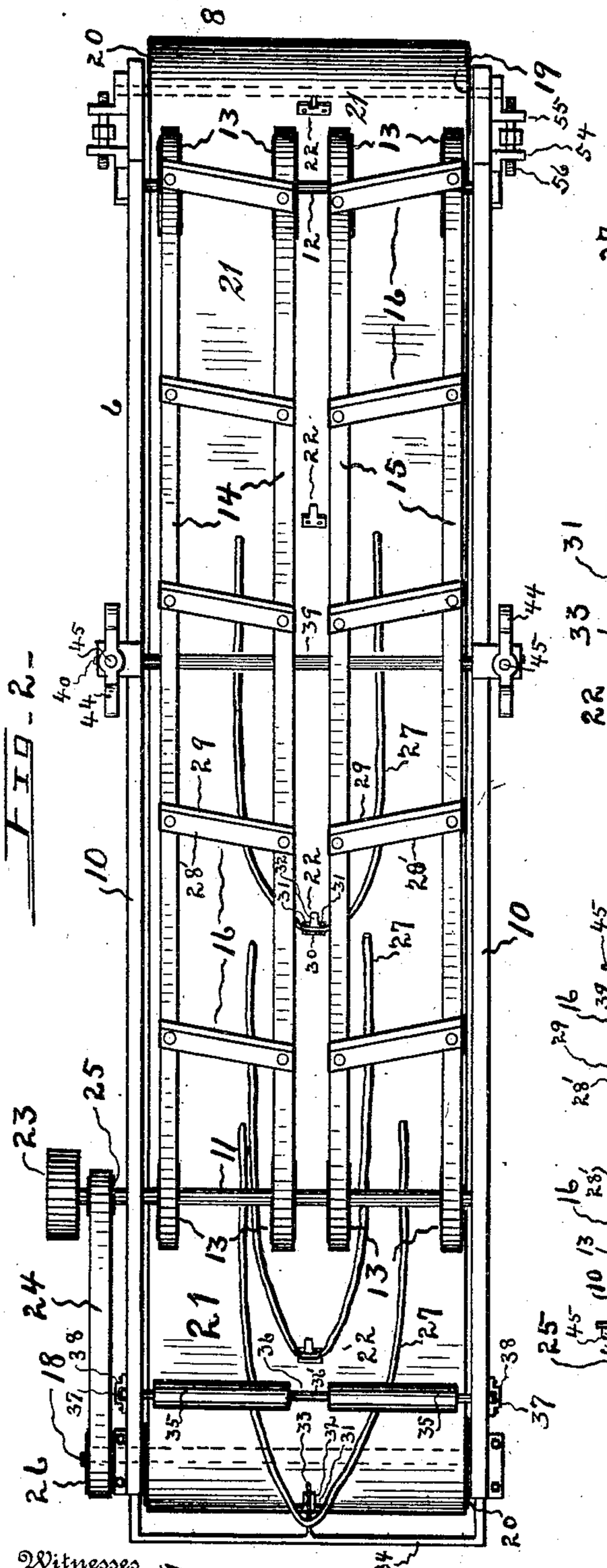

FIG. 2.

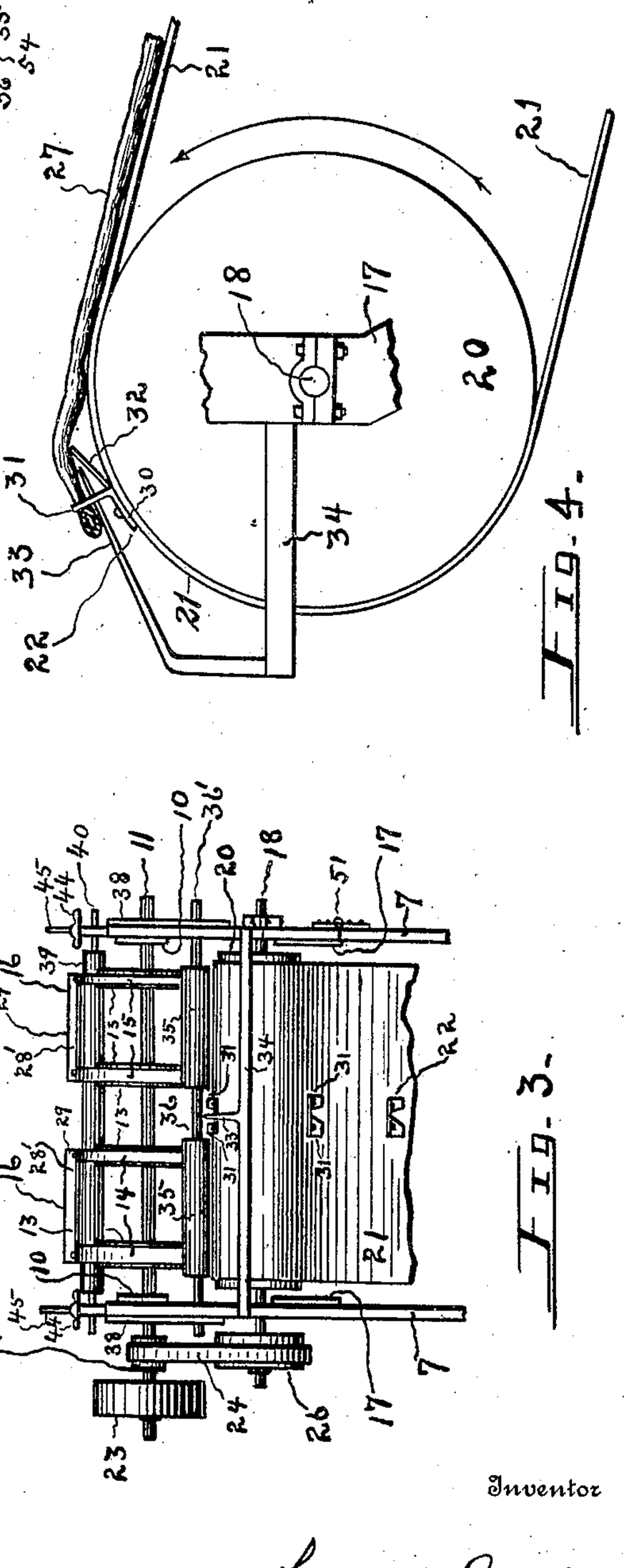

FIG. 4.

FIG. 3.

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UNITED STATES PATENT OFFICE.

LUDVIK SVOBODA, OF SOUTH OMAHA, NEBRASKA.

ENTRAIL-CLEANING MACHINE.

No. 925,527. Specification of Letters Patent. Patented June 22, 1909.

Application filed February 10, 1909. Serial No. 477,229.

To all whom it may concern:

Be it known that I, LUDVIK SVOBODA, a citizen of the United States, residing at South Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Entrail-Cleaning Machines, of which the following is a specification.

This invention relates to entrail cleaning machines for use in packing houses, and has for its principal object the provision of means for effectively removing the contents of the entrails of swine or other slaughtered animals, as a labor saving device.

The small intestines of slaughtered animals, especially of swine are utilized for the casings of sausages. The entrails undergo a series of treatments in cleaning and preparation, the first work being to remove the offal, and heretofore this has been accomplished by manual handling, which is expensive and injurious to the hands of the workman.

The object of the invention is the provision of a machine for supplanting the manual work referred to.

The invention consists of the novel combination and arrangement of parts as described herein, pointed out by the appended claims, and as illustrated in the accompanying drawing, wherein,—

Figure 1 is a partly broken away, vertical, side view of the machine. Fig. 2 is a plan view thereof. Fig. 3 is a view, partly broken away of the rear end of the machine. Fig. 4 is a detail for clearly showing entrail-disengaging-means.

Referring now to the drawing for a more particular description, numeral 6 indicates a frame having a support upon legs 7, the front end 8 thereof having a less elevation than the rear end 9.

I provide a support for the bands or scraper carriers, comprising the longitudinal, parallel rails 10 suitably supported upon and extended with an upward inclination from the front to the rear of the machine, and mount thereon near its ends, the shafts 11 and 12, and upon these shafts are mounted pulleys 13, and upon these pulleys are adjacently mounted the pairs 14 and 15 of endless bands, carriers or flexible members which have scrapers 16 secured thereon, at suitable intervals.

I provide a support for an endless belt or entrail-conveyer, this support being the longitudinal, parallel rails 17, suitably sustained by the frame, and extending with an upward inclination from the front to the rear of the machine, and thereon and near the ends of these rails I mount shafts 18 and 19; and upon these shafts are mounted rollers 20 upon which may be seated the carrier or endless belt 21, preferably of canvas, and at the middle, upon the outer side of the belt, and at longitudinal intervals thereon, are secured entrail-engaging members 22, said members to be more particularly described hereinafter. Rails 10 and 17 and the above mentioned shafts are respectively parallel. Power from any suitable source may actuate pulley 23, and shaft 18 may be rotated by band 24 for the purpose of moving belt 21 in the direction indicated by the arrow in Fig. 1. Band 24 is mounted upon pulleys 25 and 26 of the respective shafts 11 and 18.

In operation, entrails 27 to be cleaned are manually placed upon belt 21 at the front or lower end of the machine. The entrails are generally of irregular lengths. An entrail is looped midway of its ends, the looped portion being placed upon one of hooks 22, and since belt 21 moves upward upon an incline, the entrails held by the hooks will pass upwardly while supported upon the upper surface of the belt, and while moving, the entrails will be engaged by scrapers 16, disposed outwardly upon members 14 and 15. Pulley 25 has a less diameter than pulley 26, whereby members 14 and 15 move at a greater speed than belt 21; the entrails move up the incline, therefore, at a comparatively slow rate of speed, and before they reach the upper or rear end of the machine they will be repeatedly engaged by the scrapers.

In order that belt 21 may be kept as clean as possible, and in order that the slime and offal may be removed from the entrails, water may be thrown from pipe 28 at the rear of the machine, as shown. The offal removed from the entrails is temporarily lodged upon belt 21, as will be understood, by operation of scrapers 16.

The series of scrapers upon bands 14 are disposed substantially parallel with reference to each other, as are the scrapers upon bands 15, but the inner ends of all of the scrapers are disposed somewhat in advance of the outer ends. Scraper-members 16 comprise elongated bases 28′ secured to bands 14 and 15 and the outwardly extending

blades 29 said blades being rectangular and corresponding in length to bases 28′ and preferably constructed of rubber. The terminal of each blade or that part making contact with the entrail is flattened, as shown, so that injury to the entrail may be avoided; also it is formed with a straight edge so that the entire length of the blade may normally bear upon or be disposed closely adjacent to the carrier-belt. Each engaging-member 22 comprises a base 30 secured to belt 21 and having adjacent, outwardly projecting contact-hooks 31, and a trailer or releasing-bar 32 extending from a point intermediate hooks 31 to a point rearwardly therefrom.

From the description it will be seen that the construction provides for two adjacent, uniformly inclined, endless carriers which move in directions opposed to each other, upon the lower one being conveyed the entrails to be cleaned, the other or upper one having scrapers thereon for cleaning the entrails. Hooks 31, upon which the entrails are placed, are disposed along the middle of belt 21, and therefore do not obstruct the movement of the scrapers.

The operator when handling the entrails, after placing the loop upon hooks 31 of one of the engaging-members 22, moves the free ends of the entrail outwardly toward the edges of belt 21 so that blades 29 will make contact with and will engage the entrail. The entrail thereupon will be conveyed to the rear of the machine and at that point will be disengaged from hooks 31 by means of the carrier-bar or index 33.

I provide the supporting-arm 34 secured upon and extending to the front of the machine; index 33 is secured upon the supporting-arm and is disposed stationary and inclined to overhang the front roller 20 in alinement with members 22.

In Fig. 4 an entrail is shown, bisected at its loop, and it will be seen by an inspection of the drawing that when roller 20 revolves in the direction indicated by the arrow, the entrail supported upon belt 21 will be carried forward by hooks 31 until index 33 traverses between these hooks. As the roller continues to revolve, index 33 will make contact with trailer or plate 32, as is apparent, the effect being that the loop will be moved upwardly and released from the hooks.

Roller 35, near index 33, is seated transversely upon band 21, its weight resting thereon. The entrail passes under this roller at the time it is carried forwardly by the hooks, and, after the entrail has been released from the hooks by operation of the stationary index just described, said roller 35 presses downward upon the entrail, and operates to keep it in engagement with the moving belt, until said entrail passes from the machine. The machine therefore provides automatic means for detaching the entrails from the hooks. Roller 35 is formed with the annular recess or groove 36 at its middle so that the roller will not be obtrusive to the passage thereunder of members 22.

The ends of shaft 36′ of roller 35 are seated in vertical slots or guides 37 formed in standards or plates 38, and this roller is of heavy material so that the entrails will be reliably engaged and caused to move forwardly, until, by operation of the stationary index, they are detached from the hooks; at the time they are thus detached, roller 35 engages the entrails and continues in engagement until, as stated above, by operation of the moving belt, the entrails pass from the machine.

It is an advantage to provide means for adjusting the tension of bands 14 and 15, and therefore transverse roller 39 is provided, having its shaft 40 seated in slots 41 between arms 42 which project upward from rails 10. By means of thumb-pieces 44 upon the threaded ends of screw-eyes 45, the tension may be regulated.

In operation, that part of belt 21 which is adjacent blades 29 should be prevented from sagging, and in order to sustain the same so that the scraper blades may make effective contact with the entrails, I provide the roller-bed 46. This bed comprises the longitudinal rails 47 having angular ends 48 adapted to have seatings in slots 49, formed in and near the ends of rail 17. Rails 47 are preferably of metal; they are disposed substantially parallel with rails 17 and 10 and are provided with transverse rollers 50 disposed closely adjacent each other, and operating to effectively sustain the upper half of belt 21 for the purposes described.

It is desirable to remove belt 21 occasionally, so that it may be cleaned, and therefore hinges 51 are provided between the frame and one of rails 17; and after unfastening bolts 52 and 53 rail 17 may be swung downward, and when shafts 18 and 19 are removed from their bearings, belt 21 may be removed, and a similar or clean belt substituted.

Canvas is a preferred material for use in constructing belts 21, and as a means for adjusting the tension of this belt, brackets 54 and 55 are secured adjacently upon the front ends of rails 17, shaft 19 having bearings in brackets 55, and by use of spreading-bolts 56 between and connected with these brackets, the mounting of shaft 19 may be extended outwardly or may be withdrawn, to regulate the tension of said belt 21.

By use of the herein described machine, entrails of slaughtered animals may be expeditiously and economically cleaned, and they are not injured or defaced during the operation. Having explained the several

parts of the machine while describing its operation, no further description is necessary.

While I have mentioned bands 14, 15 and 24 and have shown pulleys, it is understood, of course, that sprocket chains and sprocket wheels may be used in lieu thereof, and the invention is not limited in its scope to specific details, such limitation being determined by the claims alone.

What I claim as my invention and desire to secure by Letters Patent is,—

1. In combination with an inclined supporting roller-frame, a hook-bearing belt seated and longitudinally movable thereon; a pair of movable carriers disposed parallel with and above said belt, and provided with rectangular scraper-blades; said pair of carriers being movable in a reverse direction to the movement of said belt to normally present a longitudinal edge of each of its rectangular scraper-blades uniformly adjacent to the surface thereof, the hooks upon said belt being disposed intermediate said scraper-blades.

2. In combination with a frame, an endless belt supported by the frame, a series of scraper-blades supported by the frame and disposed transversely of and adjacent to said belt, a series of engaging-members secured in alinement upon said belt, each of said engaging-members comprising a supporting-base with outwardly projecting contact-hooks and a rearwardly extending releasing-bar intermediate said contact-hooks; a carrier-bar mounted upon the frame to overhang said belt, the belt being longitudinally movable to cause said contact-hooks to pass at opposite sides of the carrier bar, said releasing-bar making engagement with said carrier-bar.

3. In combination with a frame, an endless belt supported by the frame, a series of scraper blades supported by the frame and disposed transversely of and adjacent to said belt; a roller having its ends slidably mounted upon the frame and disposed transversely of and supported by said belt, said roller being formed with an annular groove; a series of engaging-members secured in alinement upon said belt, each comprising a supporting-base with outwardly-projecting hooks and a rearwardly extending releasing-bar; a carrier bar mounted upon the frame; said belt being longitudinally movable to cause said contact-hooks to traverse the annular groove of said roller and to pass at opposite sides of the carrier-bar, said releasing-bar making engagement with said carrier-bar.

In testimony whereof I have affixed my signature in presence of two witnesses.

LUDVIK SVOBODA.

Witnesses:
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