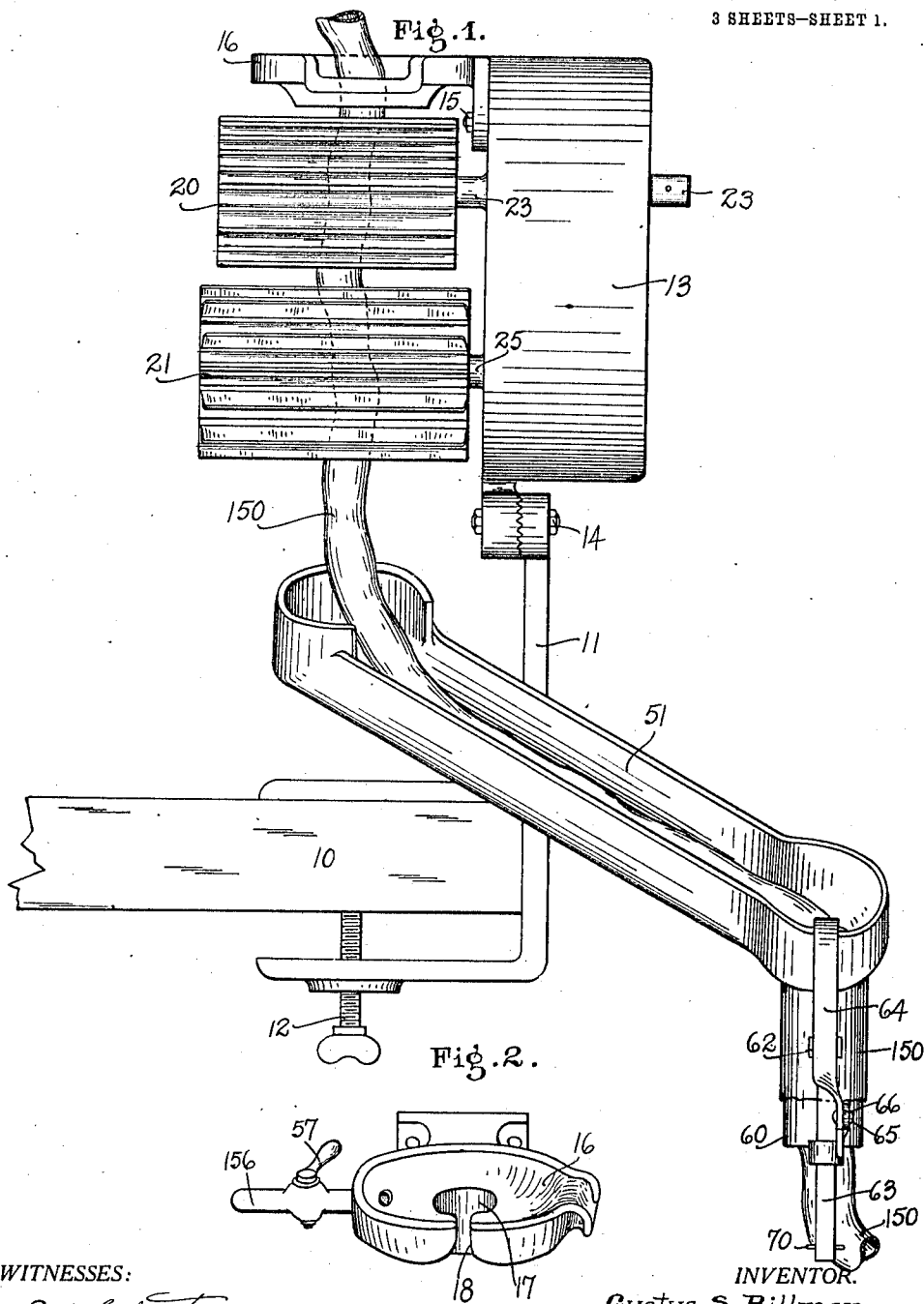


G. S. BILLMAN.
 INTESTINE CLEANSING MACHINE.
 APPLICATION FILED MAR. 26, 1912.

1,048,487.

Patented Dec. 31, 1912.

3 SHEETS—SHEET 1.



WITNESSES:

A. H. Edgerton.
 O. M. McLaughlin

Gustav S. Billman.

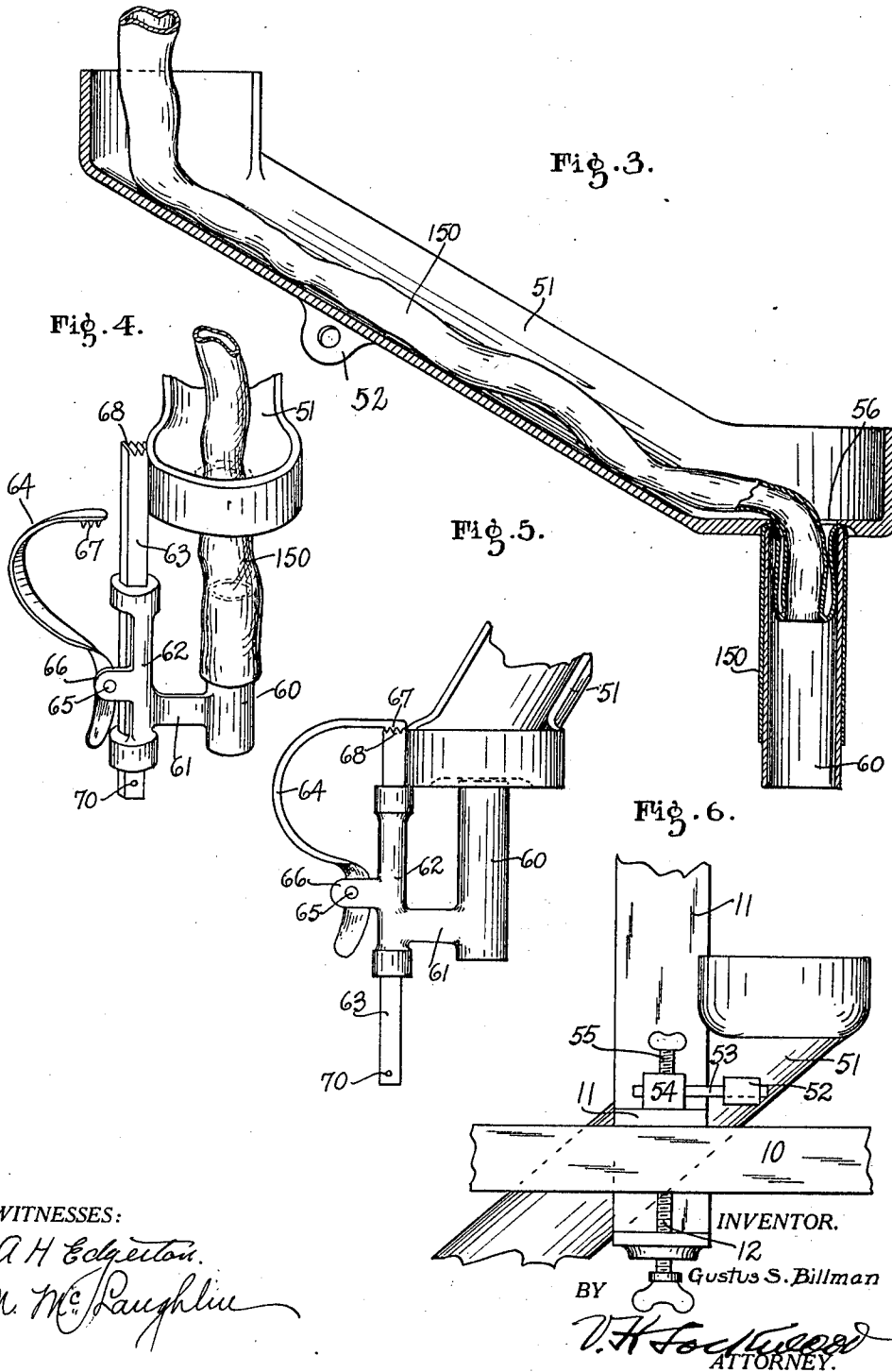
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 INTESTINE CLEANING MACHINE.
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3 SHEETS—SHEET 2.



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3 SHEETS--SHEET 3.

Fig. 11.

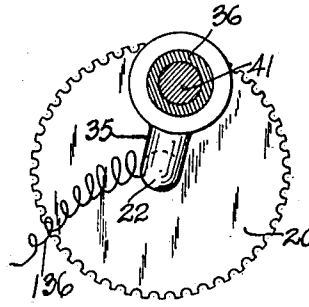


Fig. 9.

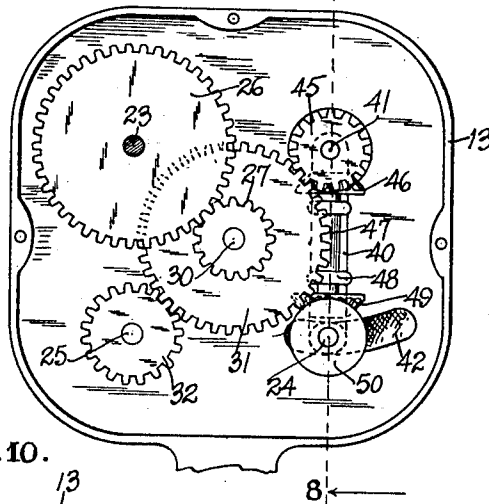
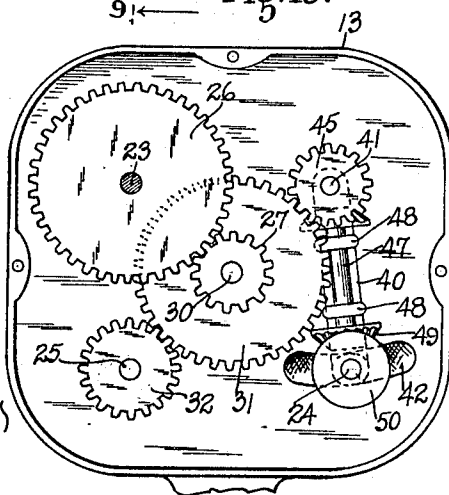


Fig. 10.



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GUSTUS S. BILLMAN, OF SHELBYVILLE, INDIANA.

INTESTINE-CLEANING MACHINE.

1,048,487.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed March 25, 1912. Serial No. 685,988.

To all whom it may concern:

Be it known that I, GUSTUS S. BILLMAN, of Shelbyville, county of Shelby, and State of Indiana, have invented a certain useful Intestine-Cleaning Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The object of this invention is to provide an improved construction of machines for cleaning intestines of animals. To that end, I have devised a very simple and easily operated machine which performs the work very rapidly.

The nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings, Figure 1 is an elevation of the machine, showing the same secured to a table, the latter being partially broken away. Fig. 2 is a perspective view of the means at the upper end of the machine for guiding the intestine and supplying water to the machine. Fig. 3 is a longitudinal section through the intestine guide and inverter at the lower end of the machine. Fig. 4 is a perspective view of the inverter, a portion of the guide being broken away and showing the parts in position when the intestine is first started through the machine. Fig. 5 is the same, showing the parts in the position they occupy during the inversion of the intestine. Fig. 6 is a rear elevation of a portion of the lower intestine guide and means for mounting the same, parts being broken away. Fig. 7 is an elevation of the left-hand end of the upper part of the machine as shown in Fig. 1. Fig. 8 is a section on the line 8—8 of Fig. 9, with the outer ends of the feed drum and the scraper broken away. Fig. 9 is a section through the gear case on the line 9—9 of Fig. 8. Fig. 10 is the same showing the parts in altered position. Fig. 11 is a vertical section on the line 11—11 of Fig. 8, showing the mounting of the feed drum.

In the drawings herein there is shown a table 10 to which a supporting frame 11 is clamped by a screw 12. Upon said frame 11 a gear case 13 is secured by a bolt 14. This renders the machine readily attachable to any table or removable as is desired.

To the case 13 near its upper end, there

is secured by the bolts 15 a dish-like member 16, see Figs. 1 and 2, to which the intestine 55 is supplied and which guides the intestine as it is fed to the machine. It has a central opening 17 with a slot 18 therefrom through one side. The intestine is inserted vertically through the slot 18 into the opening 17 and extends down therefrom between the feed drums 20 and thence between the scrapers 21. The left-hand feed drum 20 is mounted, as shown in Figs. 8 and 11, upon a spindle 22 which has an arm 35 pivoted on a boss 36 extending from the gear case 13, so that the feed drum will have lateral play and it is drawn toward the other feed drum by a spring 136 extending from said spindle and fixed to the case 13 or other means. This causes a frictional engagement between the two feed drums 20 whereby they will hold the intestine passing through them from longitudinal movement excepting as they may feed it downward.

The right-hand feed drum 20, appearing in Fig. 7, is secured upon a shaft 23 extending through the gear case 13 and carries a gear 26 which meshes with a pinion 27, see Figs. 8 and 9, secured on a shaft 30 and said shaft carries a gear 31 which meshes with a pinion 32 secured on a shaft 25 extending through the gear case 13 and having secured on it the right-hand scraper 21, which appears in Fig. 7. The end of the shaft 23 projects beyond the case to receive a crank, not shown, whereby it is driven, and through the gearing described, the right-hand drum, shown in Fig. 7, is driven.

The left-hand scraper 21, shown in Fig. 7, is laterally movable toward and from its companion scraper by being mounted on a shaft 24 which extends through a swinging frame 40 which is suspended from a shaft 41 mounted in the gear case substantially in alinement with the spindle 22 of the left-hand feed drum, as appears in Fig. 7. This swinging frame appears in Fig. 8, and the lower bearing portion extends through a slot 42 in the wall of the case 13 which slot is curved concentric with the shaft 41, and said slot permits the lateral movement of the shaft 24, and a spring 44 secured to the lower part of the frame 40 and also to the case 13, tends to force the left-hand scraper into engagement with its companion scraper,

but permits said movable scraper to yield to accommodate the intestine passing between them.

The scraper 21 shown at the left-hand end in Fig. 7, is driven by the following means: On the shaft 41 a pinion 45 meshes with and is driven by the gear 31 and the pinion 45 has a bevel gear secured to it which meshes with a bevel gear 46 on a vertical shaft 47 extending through the horizontal arms 48 from the swinging frame 40 and carries a bevel gear 49 on its lower end which engages a bevel gear 50 secured on the shaft 24. This gearing arrangement enables the shaft 24 and its scraper 21 to be actuated regardless of the lateral movement thereof as the intestines pass between the scrapers. Therefore, both scrapers are positively actuated.

The intestine 150 which passes down through the machine, as shown in Fig. 1, enters the intestine guide 51 which is secured in place at an inclination by an ear 52 carrying a pin 53 which runs through an ear 54 on the frame 11 and is held in place by a thumb screw 55, see Fig. 6. The upper end of the intestine guide is dish-shaped to receive the intestine and the lower end is similarly formed and has a hole 56 centrally located in it for the exit of the intestine by gravity, weight of the water and other fluid which also passes through the machine along with the intestine. For that purpose a water supply pipe 156 is secured to and discharges into the dish-shaped receptacle 16 at the top and it is closed by a valve 57.

The intestine is inverted after it has been cleaned by the following mechanism and while it is going through the machine. A short tube 60 is held on an arm 61 extending from a frame 62 which is slidable on a rectangular rod 63 arranged vertically and secured at the side of the lower end of the intestine guide 51. A stop 70 limits the downward movement of said frame 62. After the advancing end of the intestine has passed from the guide 51 it is slipped by hand over the upper end of the tube 60 for an inch or so, as shown. Then the frame 62 is slipped up on the rod 63 from the position shown in Fig. 4, to the position shown in Fig. 5, and it is held in that upper position by a spring bar 64 which is pivoted at 65 to ears 66 from the frame 62 and on its upper end has a rack 67 adapted to engage the sharpened surface 68 of the upper end of the rod 63 and thus hold the bar 64 in place and the tube 60 elevated against the lower end of the intestine guide 51 so that the intestine will be pinched between said two members. Then the weight of the intestine and of the water and the other fluids flowing through the machine with the intestine and down the guide 51, will carry the intestine through the tube 60 down into any suitable receptacle and invert it as it is being thus carried downward.

After the intestine is cleaned and has passed through the machine and has thus been wholly inverted, the catch 64 is released and the end of the intestine which has been slipped over the tube 60, is removed.

I claim as my invention:

1. A machine for cleaning intestines including a dish-shaped receptacle at the upper end of the machine with an opening through it and a slotted opening from said vertical opening to the outer edge of the receptacle whereby an intestine may be laterally inserted therein, and means located below said receptacle for drawing the intestine downward through said receptacle and cleaning it.

2. A machine for cleaning intestines including a dish-shaped receptacle at the upper end of the machine with a vertical opening through it for the insertion of an intestine, a water supply pipe communicating with said receptacle, and means below said receptacle for feeding the intestine downward and cleaning the same.

3. A machine for cleaning intestines including a frame, a pair of frictional engaging feeding drums, one of which is fixedly located in said frame, a spindle on which the other feeding drum is mounted in said frame, means for oscillatably mounting one end of said spindle on the frame of the machine, and a spring tending to draw said spindle toward the fixedly located feeding drum.

4. A machine for cleaning intestines including a frame, a pair of rotary scrapers projecting therefrom, one of which is fixedly located in said frame, a shaft on which the other scraper is mounted, gearing for driving said shaft, means for oscillatably mounting said shaft so that it is movable toward and from the fixedly located scraper, and a second gearing mechanism for driving said scraper.

5. A machine for cleaning intestines including a frame, a pair of scrapers, a shaft fixedly located in the frame on which one of said scrapers is secured, gearing for driving said shaft, a shaft on which the other scraper is secured, a swinging frame for suspending said shaft so that the shaft may be oscillatably moved toward and from the other shaft, a spring tending to draw said movable shaft toward the fixedly located shaft, and gearing for driving the movable shaft which gearing is mounted in connection with said swinging frame and driven by the gearing for driving the fixed shaft.

6. A machine for cleaning intestines including a frame, a pair of scrapers, a shaft fixedly located in the frame on which one of said scrapers is secured, gearing for driving said shaft, a movable shaft on which the other scraper is secured, a counter-shaft, a frame swinging from said counter-shaft

on which the movable scraper shaft is mounted, a spring tending to draw the free end of said frame toward the fixedly located scraper shaft, a gear on said counter-shaft which is driven by the gearing for driving the fixed shaft, a gear on the movable shaft, and an intermediate gearing for transmitting power to the latter gear from the gear on the counter-shaft.

7. A machine for cleaning intestines including a supporting frame, a receptacle at the upper end of the frame for receiving the intestine, means below said receptacle for feeding and cleaning the intestine, and an inclined trough-like guideway secured to said frame with its upper end below said cleaning means.

8. A machine for cleaning intestines including an inclined trough-like guide for receiving the intestine after it has been cleaned and down which the intestine moves by gravity and which at its lower end is provided with an outlet hole through which the intestine passes by gravity, an inverting tube under and in alinement with said hole, and means for moving said tube up against the lower end of the guide for holding the advancing end of intestine so that the intestine will be caused to pass through the tube and be inverted by the gravity of the intestine and fluid associated therewith.

9. A machine for cleaning intestines including a frame, a dished receptacle at the upper end of the frame through which the intestine passes downward, a water supply pipe discharging in said receptacle, means

below said receptacle for feeding the intestine downward and cleaning the same, an inclined trough-like guide secured to said frame with its upper end below said cleaning means for receiving the intestine and with a hole in its lower end through which the intestine passes out, a tube under and in alinement with said hole, and means for holding said tube up against the lower end of the guide for holding the advancing end of the intestine so that the gravity of the water passing through the guide will cause the downward movement of the intestine through the tube and invert the same.

10. A machine for cleaning intestines including an inclined trough-like guide for receiving the intestines after it has been cleaned and down which the intestine moves by gravity and which at its lower end is provided with an outlet hole through which the intestine passes by gravity, an inverting tube under and in alinement with said hole, a rod secured beside the lower end of the guide, a frame vertically slidable on said rod and carrying said tube, and a catch bar connected with said frame adapted to engage the upper end of said rod when the frame is elevated for holding the frame in its elevated position.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

GUSTUS S. BILLMAN.

Witnesses:

O. M. McLAUGHLIN,
G. H. BOINK.