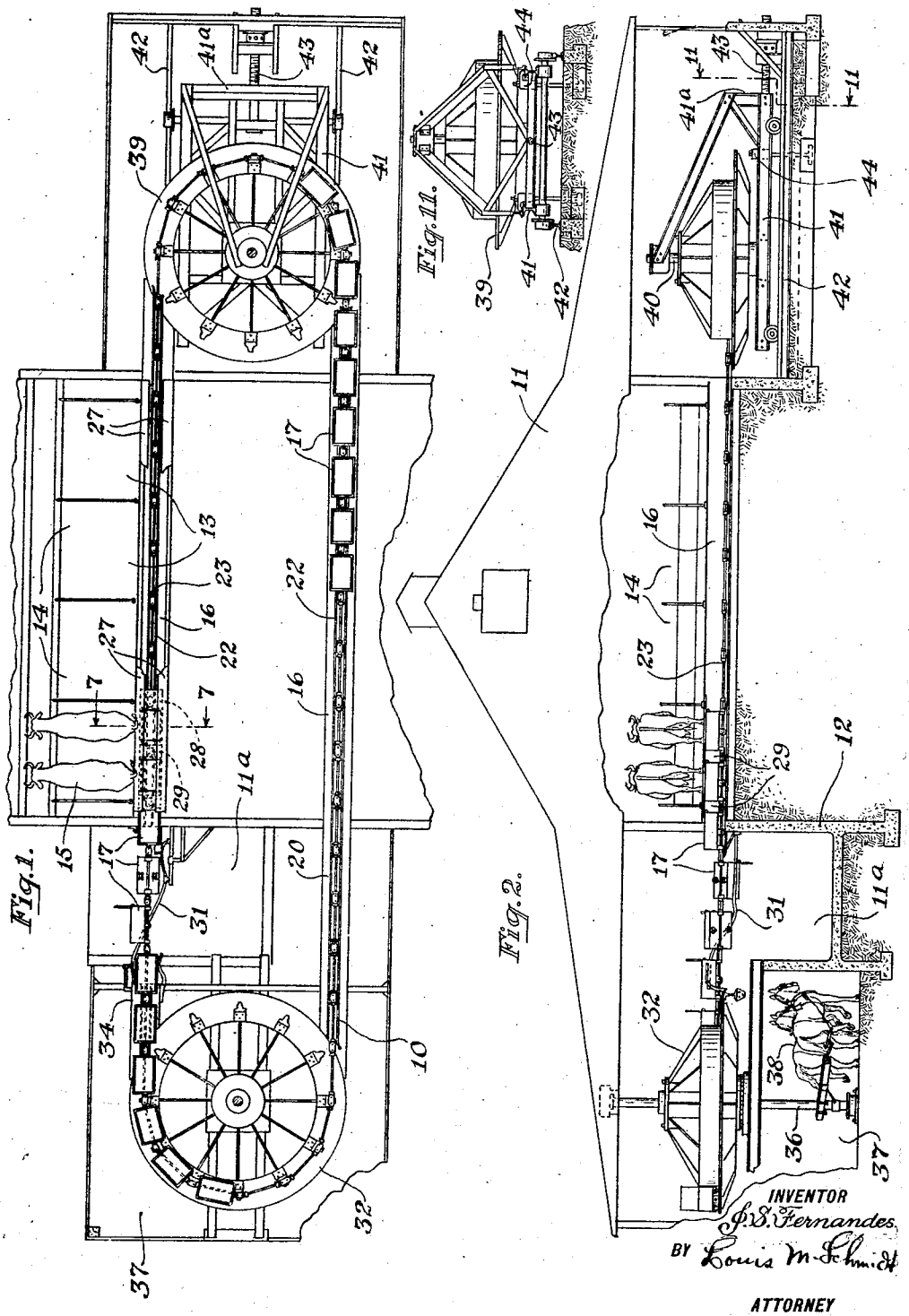
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J. S. FERNANDES

STABLE CLEANER

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J. S. FERNANDES

STABLE CLEANER

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Fig. 9.

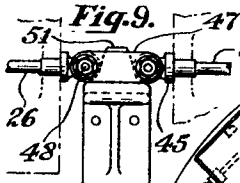


Fig. 3.

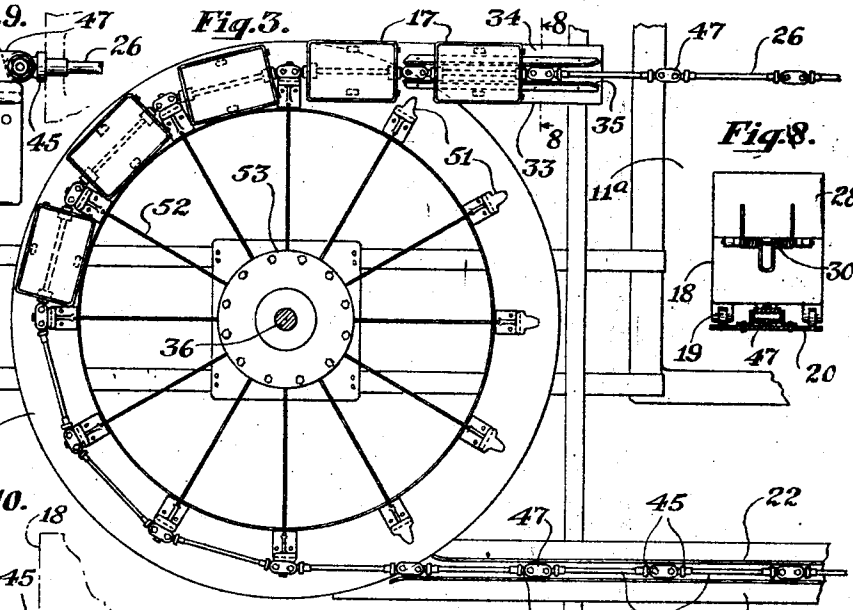


Fig. 8.

Fig. 10.

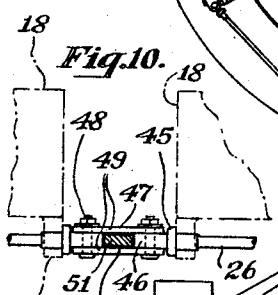


Fig. 4.

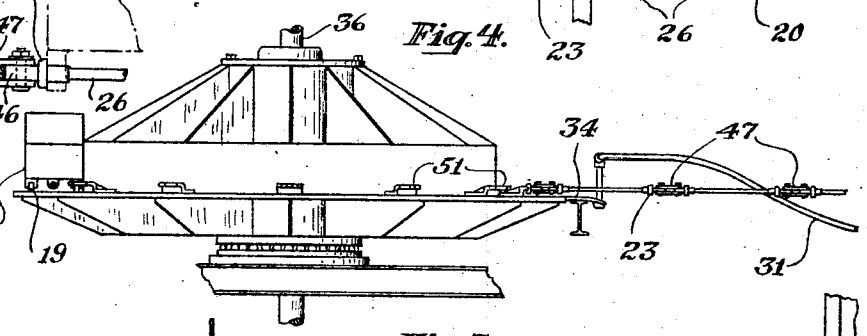


Fig. 5.

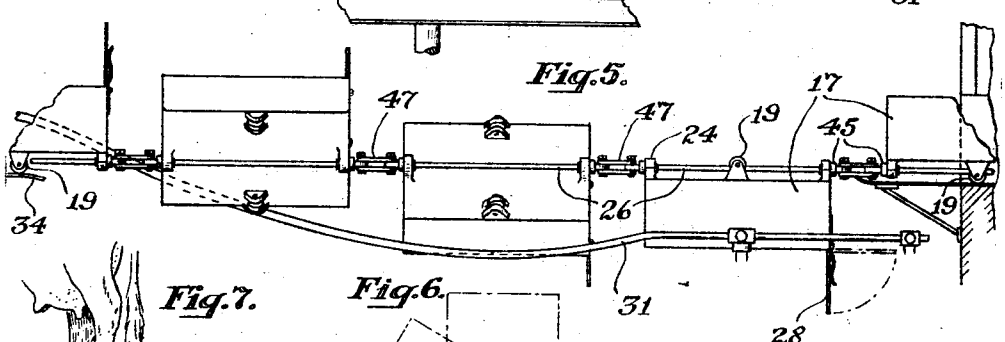


Fig. 7.

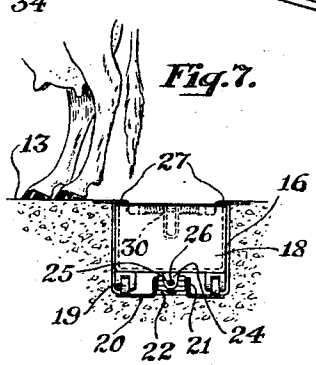
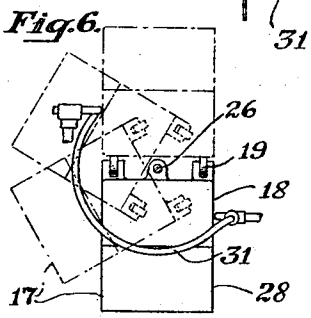


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH SANTOS FERNANDES, OF HARTFORD, CONNECTICUT.

STABLE CLEANER.

Application filed August 19, 1924. Serial No. 732,993.

To all whom it may concern:

Be it known that I, JOSEPH S. FERNANDES, a citizen of Portugal, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Stable Cleaners, of which the following is a specification.

My invention relates to improvements in stable cleaners, having reference to the cleaning of cow-barns of modern form of construction having concrete bases and foundation work and involving the use of a conveyor structure for removing the manure from in back of the stalls for the cows, and the object of my improvement is to produce a combination of devices that will serve to effect by means of a power driven mechanism the arduous and laborious duties that are now performed by manual labor in an essentially automatic and efficient manner.

In the accompanying drawing:—

Figure 1 is a plan view of my improved stable cleaner as applied to a cow-barn.

Figure 2 is a side elevation of the same.

Figure 3 is a plan view on an enlarged scale of one end of the same, showing the power-driven wheel and adjacent parts.

Figure 4 is a side elevation of the same.

Figure 5 is a side elevation on a still further enlarged scale of the car-dumping section of the conveyor system and the adjacent parts.

Figure 6 is an end elevational view of the dumping section, a car being indicated in different positions.

Figure 7 is a sectional view on the line 7—7 of Fig. 1.

Figure 8 is a sectional view on the line 8—8 of Fig. 3.

Figure 9 is a plan view of the detail of the inter-engaging parts of the driving wheel and the conveyor chain, comprising a a prong or tooth on the one and a special link on the other.

Figure 10 is an edge view of the same.

Figure 11 is a sectional view on the line 11—11 of Fig. 2, and on the same scale.

My improved stable cleaner comprises a conveyor structure 10 that is applied to a stable 11 of modern form and in which concrete structural work 12 is employed on a liberal scale for the bases and foundations, including the beds 13 for the stalls 14 for the cows 15 and for the different elements of the structural work to be described.

As shown there are four stalls 14 each of which is adapted for two cows 15 and immediately in back or outside of the stalls proper is a trough or trench 16 of suitable size and form to operatively house a car 17 and the connected parts.

The car 17 has a box-like body 18 that is open at the top and that serves as the container to receive and deliver the manure that is deposited therein from in back of the stalls 14. The bottom of the car 17 is provided with a set of wheels 19 that rest during the greater part of the travel on tracks 20 of plate-like form, said wheels 19 being laterally spaced, as shown in Fig. 7.

The inner edge portions 21 of the tracks 20 are turned upwardly and opposed one to the other in spaced relation to provide a guideway 22 for the chain portion 23 of the conveyor structure 10. Adjacent each end of the car 17 is a pendant lug 24 that is provided with a perforation 25 by which it is operatively mounted on the rod element 26 of the chain 23. Flanges 27 are provided along the lateral edges of the trench 16 that overhang the car 17 so as to prevent refuse from being deposited between the sides of the car and the opposed side walls of the trench 16. The flanges 27 also serve as the operative means for deflecting certain spring covers 28 that are provided at the rear end of each car 17 and that in the depressed position serve to bridge and cover the space 29 between adjacent cars 17.

In Fig. 8 is shown the spring-hinge 30 that connects the car body 18 with the cover 28, the mounting being such as to provide for swinging the cover rearwardly responsive to contact with the flanges 27.

At the manure pit 11_a, outside the stable 11, the track rails 20 are interrupted and also the overhanging flanges 27 and the car 17 is free to swing laterally on the rod 26 so as to dump the car, the spring-hinge 30 serving substantially simultaneously to open the cover 28 and permit of freedom of movement of the car that is being dumped.

After the car has been dumped while in registration with the pit 11^a the car 17 is restored to the upright position by means of a guide-contact rod 31 that is suitably

curved, as shown, so that the change in position of the car is effected gradually as it travels along and for a short distance before engagement is made with the driving wheel 32 there may be a short section 33 having a platform 34 for supporting the car 17 and a guide-trough or channel 35 for the conveyor chain 23.

In the structure shown in Figs. 1 and 2 the left-hand wheel 32 serves as the drive-wheel for the conveyor chain 23 and is itself driven in any proper manner. As shown, said wheel 32 has its shaft 36 extended downwardly into a driving pit 37 and means are provided for driving the same by means of horses 38, and for which a motor may be substituted.

The right-hand wheel 39 is similar to the left-hand wheel 32 as to the structure of the wheel itself but the mounting thereof is, however, special in that it is supported for adjustment to provide tension to the conveyor chain 23. Said wheel 39 is operatively supported by means of its shaft 40 on a carriage 41 that rides on the set of rails 42 and which carriage 41 is adapted to be shifted to the position desired for adjustment by means of the adjustment screw 43 that engages with the outer end portion 41ª of said carriage 41. A tightening device 44 in the form of a screw-operated device may be provided to hold the carriage 41 in the adjusted position, two such devices being conveniently provided placed individually adjacent one of the track rails 42.

The rod elements 26 of the conveyor chain 23 are provided adjacent the ends with collars 45 that serve to position the car 17 thereon by engagement with the pendant lugs 24 and the end portions 46 that project beyond said collars 45 are connected to the driving links 47.

Said driving links 47 are, as shown of double form, comprising a pair of plates 49 that are positioned in spaced relation and connected to the rods 26 by the pivotal pins or bolts 48. The space 50 intermediate the plates 49 is an operative fit for the tooth or prong 51 that serves as the driving element of the wheel 32.

The driving teeth 51 may be conveniently located each at the end of a wheel-spoke 52 that projects outwardly from the hub 53, the parts being constructed and arranged so that as the driving wheel 32 rotates the teeth 51 serve to operatively engage with the driving links 47, the direction of movement in the drawings as shown being counter-clockwise.

Stalls may be provided also on the opposite side of the barn from those shown and these may be served with the apparatus shown and described, the principles of operation being the same.

I claim as my invention:—

1. A stable cleaner comprising in combination, a stable having a longitudinally directed trench, a conveyor structure having a chain that travels in said trench and is extended outside said stable, a car pivotally mounted on said chain so as to tilt sideways thereon and means for moving said chain, means holding said car in upright position when in registration with said trench, flanges on said trench for overhanging the sides of the car, and a cover hinged to one end of said car for bridging the space adjacent said end and intermediate said car and an adjacent car.

2. In a stable cleaner, a stable having a trench, cars operated in said trench, flanges on said trench covering the spaces between the opposed sides of the trench and cars, a cover at one end of a car for bridging the space between said end and the adjacent car and provided with spring actuated means tending to open said cover, and said flanges cooperating with said cover to hold the same closed.

3. In a stable cleaner, a stable having a trench, connected cars operating in said trench, spring actuated covers on said cars for bridging the spaces between adjacent cars, and means provided for holding said covers in opposition to the spring actuating means when the said cars are operating in said trench.

4. A stable cleaner comprising in combination, a stable having a trench, a dumping chamber outside said stable, a chain traveling in said trench and extending across said chamber, a set of cars traveling in said trench and across said chamber, the bottom of said trench serving as the support for said cars when in the trench, and means connecting said cars individually with said chain and serving to support said cars when in registration with said chamber, said connecting means being of pivotal form for permitting of dumping said cars.

5. A stable cleaner as described in claim 4, said chain being located substantially underneath the middle of said cars individually.

6. In a stable cleaner, a stable having a trench, cars traveling in said trench and a chain for driving said cars, flat plate-like tracks in said trench, spaced laterally one from the other and wheels on said cars for traveling on said tracks, channel walls projected upwardly from the inner edges of said tracks and opposed one to the other in spaced relation, so as to provide a channel, and said chain being positioned in said channel.

7. In a stable cleaner, a stable, a dumping chamber adjacent one end of said stable, cars and chain driving means therefor, a driving wheel for said chain outside said

stable and beyond said chamber, said chain extending across said chamber, a trench within said stable having tracks for said cars that terminate at one end of said chamber, and an auxiliary track structure beyond the other end of said chamber and adjacent said driving wheel for said cars.

8. In a stable cleaner as described in claim 7, said cars having pivotal connection with said chain for permitting of tilting sidewise when in registration with said chamber, and a cam device for cooperating with the car structure for restoring it to the upright position.

JOSEPH SANTOS FERNANDES.