June 17, 1930. C. COSPER 1,764,151

SELF CLEANING HUTCH

Filed Nov. 21, 1928 3 Sheets-Sheet 1

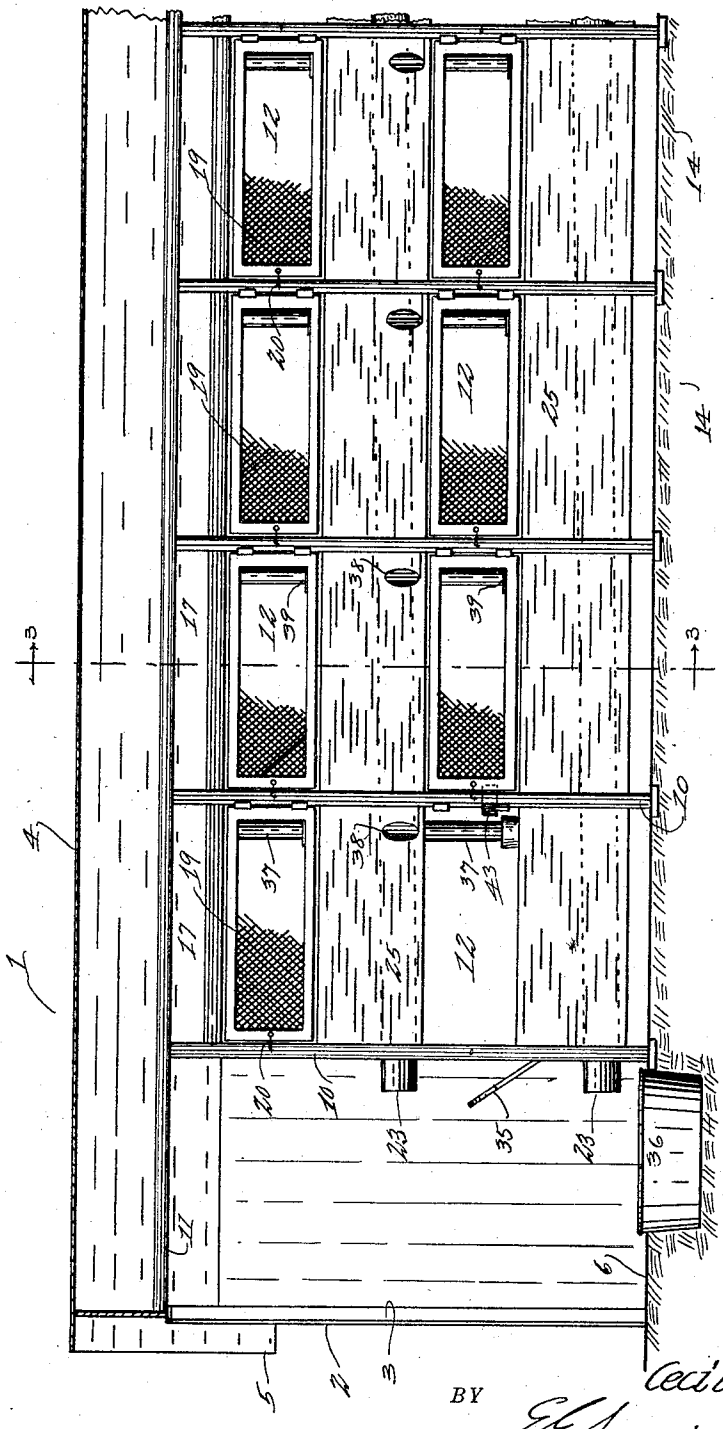


Fig. 1

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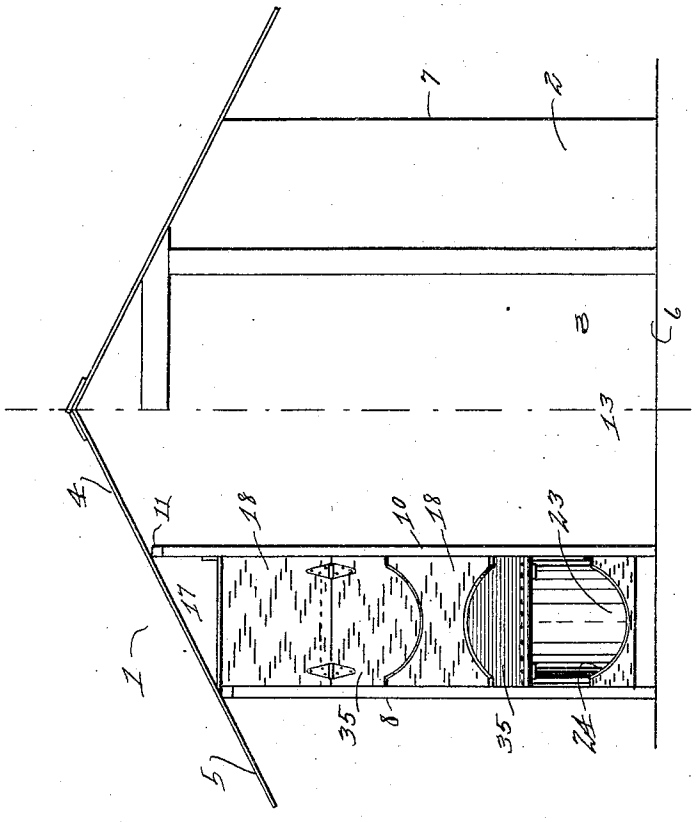


Fig. 2

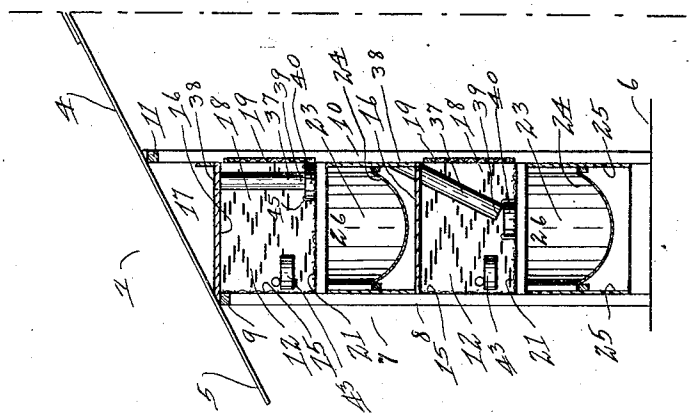


Fig. 3

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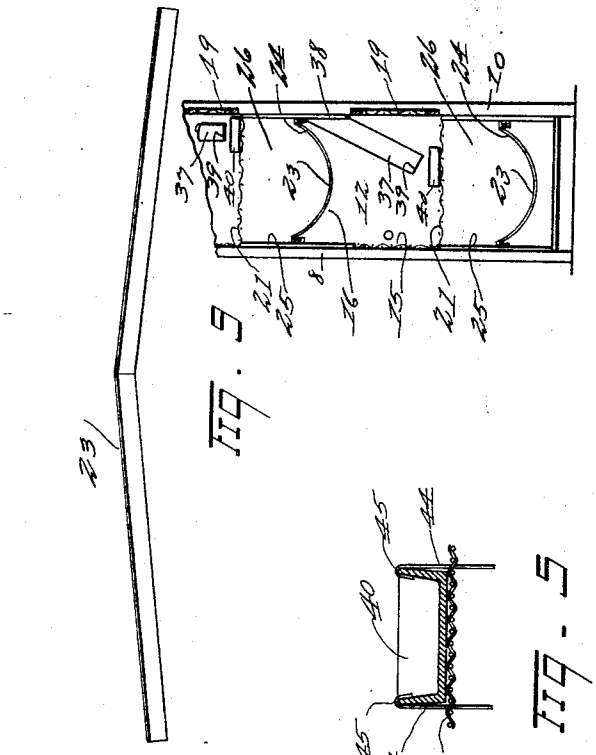


FIG. 9

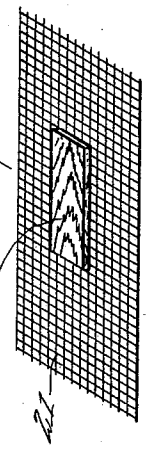


FIG. 10

FIG. 5

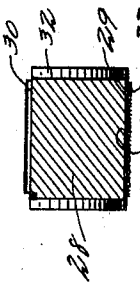


FIG. 8

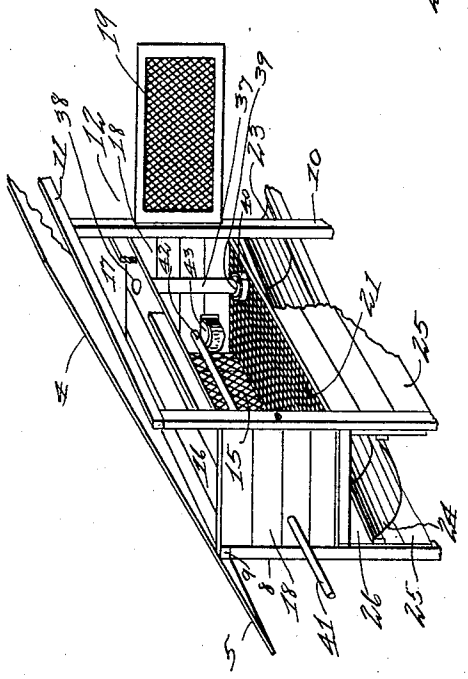


FIG. 4

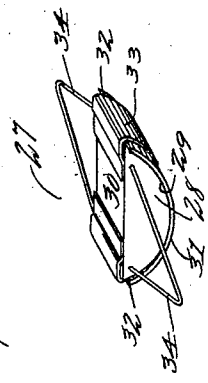


FIG. 7

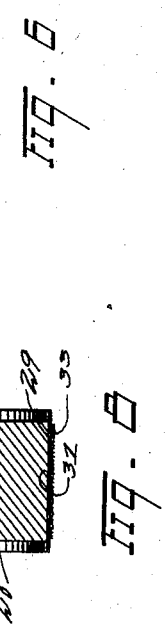


FIG. 6

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Patented June 17, 1930 1,764,151

UNITED STATES PATENT OFFICE

CECIL COSPER, OF WALLA WALLA, WASHINGTON

SELF-CLEANING HUTCH

Application filed November 21, 1928. Serial No. 320,769.

This invention relates to hutches, for the care and housing of live stock of the smaller variety, but primarily for the use of rabbits and stock of a like nature when raised for commercial purposes.

The word "rabbit" will be used to designate such live stock throughout the specifications and the invention contemplates an improved hutch whereby the excessive expense incident to rabbit raising is reduced to a profit showing balance by a combination of features, each relatively small in themselves but providing a result large in the aggregate.

It has been said, and demonstrated, that labor is the greatest item of expense incident to this industry, overbalancing in many instances all the other expenses. This is logical when it is considered that labor has to do with all its phases:

In health there must be precautionary measures against disease, cleanliness, ample air that is fresh, no drafts, uncontaminated food, fresh water, prevention of sore hocks, and injury, sunlight etc., all directly responsible to labor;

In disease isolation, disinfection, prevention of contagion, treatment, etc., also a responsibility of labor. In addition to this are the usual odds and ends which need not be mentioned here.

In considering the above items it may be summed up that with health disease is eliminated, hence the prime idea is to maintain health, and to accomplish this it may well be summed up in clean hutches, hutches that are clean to a degree that even the air circulating therethrough is uncontaminated and remains in its sun-purified condition.

With the above in mind one of the objects of the invention is to provide a hutch that may be perfectly cleaned in a minimum of time and with a minimum of labor. Another object of the invention is to provide a hutch that is self-cleaning in the main.

A further object of the invention is to provide a hutch of relatively low cost of construction.

A further object of the invention is to provide a hutch that will permit plenty of fresh air without draft.

A further object of the invention is to provide a hutch that will not harm the hocks.

A further object of the invention is to provide a hutch that will afford a secure footing for the rabbit.

A further object of the invention is to provide a hutch in which the excreta cannot be retained, to cause the rabbit to have uncertain footing, to provide and spread disease, and to contaminate its air and its food; and

A further object of the invention is to provide a hutch in which the excreta are immediately removed upon passing, to the furtherance of health, and that will accumulate the excreta in a manner harmless to the rabbit and convenient for use as a fertilizer.

With these and other objects in view reference is now had to the accompanying drawings in which

Fig. 1 is a front elevation of hutches arranged in extended tiers, and showing one of the doors thereof removed;

Fig. 2 is an end elevation of a hut, with part removed to show the end of the hutches;

Fig. 3 is a sectional elevation of the hutches taken on the line 3—3 of Fig. 1;

Fig. 4 is a perspective view of one of the hutches;

Fig. 5 is a vertical section of a feed cup showing a securing means therefor;

Fig. 6 is a perspective view of the resting board, shown in relation to the floor;

Fig. 7 is a perspective view of the scraper;

Fig. 8 is a longitudinal cross section thereof;

Fig. 9 is a side elevation of the excreta trough reduced; and

Fig. 10 shows the application of the excreta trough as a roof for the lower hutches.

Having reference to the drawings like numerals refer to like parts throughout the several views and the numeral 1 refers to a hut which consists of end walls 2 having an entrance 3, a roof 4 extended to provide prominent and projecting eaves 5, with a floor 6,

all of which may be constructed of any suitable material. The side walls 7 are constructed mainly of uprights 8 which with a top plate 9 supports the eaves 5, and these uprights together with inner uprights 10, and their plate 11, form the supports to the roof 4.

The hutches 12 are constructed within the hut and preferably on opposite sides thereof and are built in conjunction with these uprights and with a spacing from the opposite hutches to provide a runway 13 between them, from which the rabbits may be given the necessary attention. The hutches are preferably constructed in tiers 14 of two or three hutches high and the tiers are extended, as shown in Fig. 1 to practically the entire length of the hut.

This is deemed the most economical arrangement as with a hut 60 feet long, and with tiers two hutches high, sixty hutches can be housed therein and under the one roof or with tiers three high ninety hutches can be economically housed.

Details of construction are shown in Fig. 4 and with reference to this figure it will be noted that each hutch 12 consists of an outer wall 15 of wire screen, preferably secured to the inside of the outer uprights 8; a ceiling 16 arranged to cover the hutch and to provide for an overhead air space 17 between it and the roof 4 of the hut; end partitions 18; and a screen door 19 hinged to one of the inner uprights 10 and constructed in a manner to close between two of said inner uprights, with any suitable means as a hook and eye 20, to secure the door in the closed position and at the same time presenting nothing that will catch the clothes of the attendant.

Completing the hutch structure is a screen floor 21 firmly secured to the hutch in a manner to prevent sagging and yet to present a certain amount of inherent resiliency, the screen being preferably of rectangular mesh about ½ inch on its sides and of #17 gage wire thus providing resultant interstices much smaller than the rabbit's foot and a gage of wire that cannot cut the feet under the most trying circumstances.

By the use of this floor the excreta from the rabbit are never present to cause the rabbit to slip (with possible bone fracture which has been known to occur) or to cause sore hocks, from the ammonia content, or to stain the fur of animals raised for that product. As a precautionary measure against injury from constant contact with the wire of the floor a resting board 22 is provided (see Fig. 8) which consists of a small board of a size sufficient to accommodate the hocks and fore feet of the rabbit. The board is preferably left free of the floor and thus can be moved to the place used by the rabbit as a resting place, or to the place deemed most advisable by the attendant.

The resilient quality of the screen floor is apparently much enjoyed by the rabbit and the resting board being small and light in weight, will readily move with the movement of the resilient screen floor. Where the board is of the size described it is found that there are never any excreta left thereon and hence a resting board, used in combination with a resilient floor, is found to be an ideal combination.

Screen floors are recognized as having been used hertofore, however, such floors formed part only of the entire floor with the balance constructed of painted wood, or slats, and at times sloping, with the screen part disposed to provide the toilet. In all cases the provisions made to receive the excreta in conjunction with such floors will permit a constant draft of air, of greater or less severity to blow on the rabbit, which draft, which is detrimental to health must be prevented.

To overcome this objection an excreta trough 23 is provided which trough extends throughout the length of the hutches and is provided with a fall to simplify cleaning.

The trough is preferably arcuate in cross section and provides sloping sides 24 although it is obvious that any form may be used, the purpose being to shape the trough so that the solid matter will lodge in the center thereof and so that the liquid matter will flow to the same place regardless of where it first comes in contact with the trough, with another purpose in view, now to be explained.

By this arrangement damp places on any sloping portion of the trough are prone to rapid evaporation and will dry without sending off objectionable vapors so prevalent in hutches constructed otherwise.

In addition to this the sides 24 of the trough may be extended upward to meet and seal the floor or a panel 25 may be utilized in its place to seal and to provide a dead air space 26 between the trough 23 and the floor 6, thereby positively preventing draft to the rabbits, and without a movement of air over the deposited excreta the odor therefrom is reduced to a minimum.

Where the hutches are extended any considerable length the trough 23 will fall in two directions, as shown in Fig. 9 and in any event 6 inches in 30 feet has been found to be the most economical and desirable fall, this fall requiring only about 10 inches of space between two superimposed hutches, permitting assembling three hutches of 18 inches height each, in a tier, bringing the bottom of the top hutch 5½ feet from the floor of the hut, a convenient working height for the average attendant.

This arrangement also breaks the side wall 7 of the hut by closing that portion of the wall adjacent to the side of the trough, thus closing all the outer wall except at the hutches. Hence the space 17 above the ceiling 16 of the top hutch, and the dead air space 26 above the trough providing a similar space above the next lower hutch, and finally with the dead air space below the bottom hutch and the partly closed side walls it is evident that little draft can possibly occur, and that with the doors of the hut closed no further protection against climatic conditions would be necessary even in the most severe winter weather.

With all the outer wall closed, as above mentioned, and where two or more hutches constitute a tier the trough of the top hutch may be utilized to provide a ceiling or roof for the next lower hutch as shown in Fig. 10 which shows the absence of another ceiling and obviously both ceilings may be used to create a dead air space if deemed advisable to provide greater warmth and as shown in Fig. 3.

In localities of abnormally low temperature a sack or other means, not shown, covering the screen of the hutch doors 19, could be used if deemed advisable, plenty of fresh air being available through the remaining open screen forming the outer wall 15 of the hutch. In such cases however it is common practice to place a nest box, not shown, in the hutch for the rabbit during the coldest weather.

It is now apparent that the hutch as specified above will remain clean, constantly, and with a minimum of attention, however the trough should have attention, which attention will require only a few moments of time as a cleaning means 27 is used for the purpose in a manner to be described:

The cleaning means consists of a scraper composed of a block 28 having its bottom 29 shaped to conform to the form of trough with its top 30 flat to pass conveniently below the hutch floors, a scraper blade 31 is attached to and covers the circular bottom and has its edges 32 projected beyond the sides of the block, in a manner for either forward or backward operation, and a carpet 33, or other similar material, covers the body of the scraper over the scraper blade, but leaving the edges 32 of the scraper blade free for a purpose to be explained.

Straps 34 are rigidly secured to the block as shown in Fig. 7, and drag ropes, not shown, are secured to the straps for the purpose of drawing the scraper from one end of the excreta trough to the other.

The action of the scraper is such that pulling on either drag rope and strap will compress the carpet 33 and permit the free edge 32 of the scraper to engage the trough, thus scraping all matter from the trough, to be followed immediately by the carpet which will wipe the surface to a comparatively dry stage.

By referring to Fig. 2 it is readily apparent that the cleaning means can pass into or be withdrawn from the trough 23 from the ends thereof and for this purpose closures 35 are provided that when closed will seal the end of the trough thus completely closing and completing the above mentioned dead air space 26. The excreta may be deposited in a vessel 36 temporarily to eventually be used as fertilizer, this fertilizer having a value sometimes estimated at 15¢ per animal thus forming an item worth consideration.

The hutch 12 is completed by the addition of feeding and watering means, the feeding means consisting of a tube 37, whose inlet 28 is placed convenient to be served by the attendant, and having its discharge end 39 directed to a feeding vessel 40; and a water pipe 41 passed through the extended hutches and provided with an outlet 42 positioned to discharge into a water pan 43 secured in the end partition 18 between two hutches, forming the watering means thus serving both hutches with one pan and by remote control.

This arrangement for watering is rendered possible as by the use of a screen floor 6 any overflow occurring would not effect the rabbit as it would immediately run into the said trough.

In Figs. 3 and 10 the feeding tube 33 for the lower hutches is shown as being inclined with its inlet end 38 convenient to the attendant, and this is rendered possible by the sloping sides 24 of the trough which permits the tube to pass by the trough and to the proper place above the feeding vessel and providing for conditions differing from that of the top hutch.

By this arrangement feeding may be carried on without disturbing the animal, and with equal facility in any of the hutches.

As the rabbits are inclined to disturb their food in looking for choice morsels they will paw and nose around their feeding vessel with a result that the vessel must be secured against dislodgment, and for this purpose of securement rods 44 are prepared having one of their ends turned to provide hooks 45, the hooks being adapted to engage the vessel 40, while the rod passes through the interstices of the screen floor thereby maintaining the vessel in proper register with the end of the tube and preventing accidental dislodgment. It is now evident from the above that ample fresh air is available for the rabbits at all times; that the circulation can be efficiently controlled; that there can be no accumulation of excreta, to the detriment of the rabbit; that the cleaning can be done at an exceedingly low cost; that there

can be no contaminated food; that feeding can be accomplished with a minimum of labor; that even the excreta may be turned to profit as fertilizer; and that disease is practically impossible with an immaculate hutch derived by the use of the above described trough.

Another point of cleanliness in favor of this combination is that food contamination is impossible as no matter how much the food is moved about the floor during the eating process it will remain free of pollution, and, that part of the straw and food of a like nature falling through the screen floor will act to a great extent as an absorbent of the liquid matter in the trough between the periods of cleaning, tending to greater cleanliness.

Having thus described my invention, I claim:—

1. A self cleaning hutch comprising in combination a resilient openwork floor, an excreta trough disposed to enclose the underside of the floor of said hutch, and having extended sides arranged to provide a dead air space therebetween, end closures for said trough adapted to provide for cleaning purposes and to complete said dead air space, and means to clean said trough.

2. A self cleaning hutch comprising in combination hutches having screen floors, excreta troughs disposed below the floor of said hutches and having extended sides arranged to provide a dead air space beneath said floors, said troughs being arranged to centralize the accumulation of excreta therein, end closures for said troughs adapted to provide for cleaning purposes and to complete said dead air space, and means to clean said troughs.

3. A self cleaning hutch comprising in combination a multiplicity of hutches having screen floors, excreta troughs extended throughout the length of and secured to said hutches, and having extended sides, and disposed to provide a dead air space beneath said floors, said sides being arranged to provide a minimum of retention of liquid matter thereon, as an aid to evaporation, and to centralize the accumulation of excreta thereon, end closures for said troughs adapted to provide for cleaning purposes and to complete said dead air space, and means to clean said troughs.

4. A self cleaning hutch comprising in combination hutches arranged in tiers and having screen floors, continuous excreta troughs extended throughout the length of said tiers and positioned below the respective floors, and disposed to provide a dead air space below and adjacent said floors, and having sloping sides directed towards the center of said troughs, closures adapted to seal the ends of the respective troughs and said dead air space, and a cleaning means adapted for slidable engagement with said troughs and for insertion and withdrawal through said sealing means.

5. A self cleaning hutch comprising in combination a multiplicity of tiers of hutches having an extended arrangement and having screen floors, inclined excreta troughs extended thruout the length of said tiers and provided with sloping sides, and positioned below each of said floors, and having its sides extended and secured to said hutches to provide a dead air space adjacent and beneath said floors, and arranged to provide a roof for the successive under hutches, said sloping sides being adapted to permit the installation of gravity feeders to the under hutches, closures disposed at the ends of said troughs, and means to clean said troughs thru said closures.

6. A self cleaning hutch comprising in combination a multiplicity of tiers of hutches having an extended arrangement, and having screen floors, resting boards, excreta troughs extended thruout the length of said tiers and disposed with their centers elevated and its ends depressed, and positioned below each of said floors, and adapted to provide a dead air space ajacent said floors, and arranged to provide a roof for the successive under hutches, closures adapted to seal the ends of said dead air space and to close the ends of said troughs, and means to clean said troughs from the center to the ends thereof.

In testimony whereof I affix my signature.

CECIL COSPER.