Jan. 1, 1963 E. W. FOX 3,071,110

ANIMAL ACTUATED POULTRY NEST APPLIANCE

Filed April 4, 1960

Fig. 1.

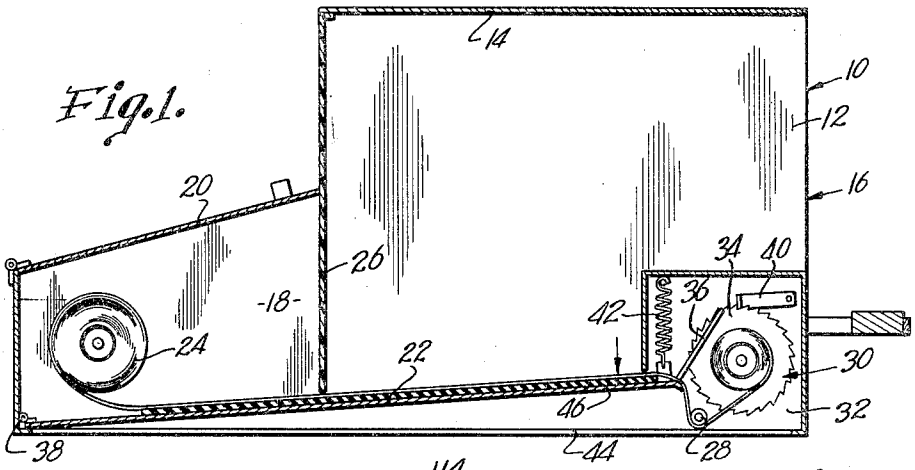
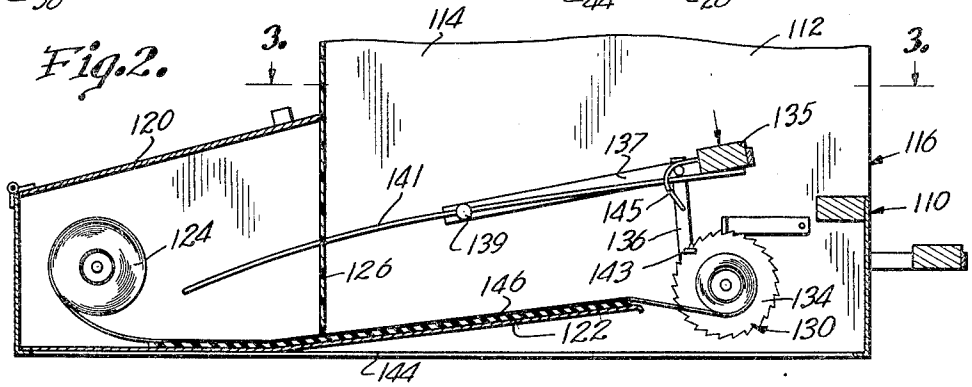


Fig. 2.



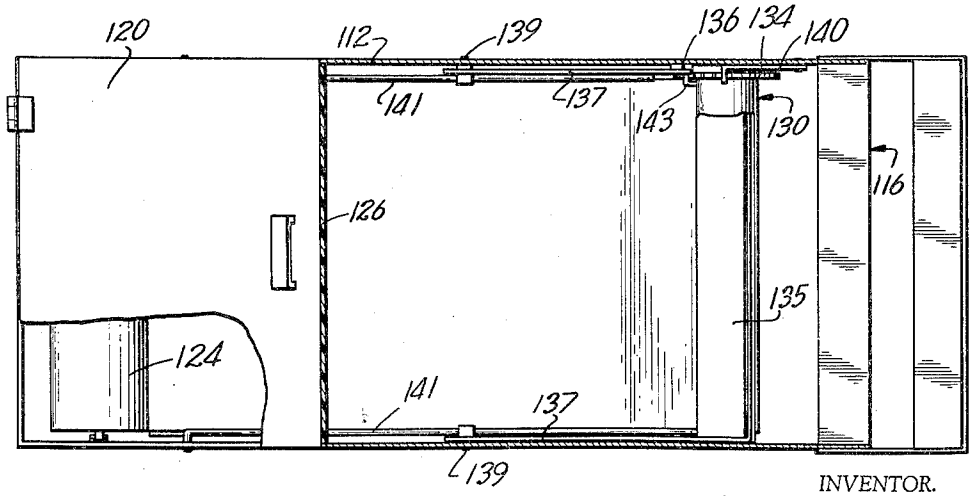


Fig. 3.

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ANIMAL ACTUATED POULTRY NEST APPLIANCE

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This invention relates to egg production, and more particularly to a nest construction for eliminating dirty eggs, the primary object being to automatically maintain a hen's nest perfectly clean at all times through use of structure that is of itself, actuated by the hen as she enters and leaves the nest.

It is the most important object of the present invention to provide a nest structure having an area or surface upon which the egg is laid made from paper or the like and to include means for automatically presenting a clean supply of the paper for each succeeding hen, and which clean supply is presented automatically because of certain mechanism that must inherently be actuated by the hen itself.

In the drawing:

FIGURE 1 is a vertical, cross-sectional view through a poultry nest construction made pursuant to my present invention illustrating one embodiment of the invention.

FIG. 2 is a fragmentary, vertical, cross-sectional view similar to FIG. 1 showing a modified form of the invention; and

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 2.

In the form of my invention illustrated in FIG. 1, a housing broadly designated by the numeral 10, is provided with a pair of spaced, vertical side walls, one of which is illustrated and designated by the numeral 12. Such side walls are interconnected by a top wall 14 and the front of the housing 10 is substantially open to present an access opening 16 for the hen.

A separate egg-receiving chamber 18 at the rear of the housing 10 and forming a part thereof, has a vertically swingable lid 20 to permit access to the eggs as will hereinafter become apparent. By virtue of the fact that a floor 22 is normally inclined as shown, the eggs laid by the hens will roll into the compartment 18 and against a supply roll of paper 24 in the compartment 18 which serves the secondary function of presenting a bumper and thereby minimizing egg breakage. Breakage of eggs is also reduced by virtue of the provision of a flexible curtain 26 depending from the top 14 at the rear thereof in front of the lid 20. Curtain 26 separates the compartment 18 from the hen and serves as a deflector for the eggs rolling into the compartment 18.

The roll of paper 24 is rotatably carried by the housing 10 within the compartment 18 and, therefore, journalled in the side walls of housing 10 for rotation during certain movements initiated by the hen in the manner about to be described. Paper from the roll 24 is stretched across the floor 22 forwardly to the forwardmost end of the latter and thence under a roller 28 and passing to a take-up reel 30 about which the soiled paper is wrapped in a coil. The take-up reel 30 is likewise journalled for rotation in the side walls of the housing 10 and, more particularly, is disposed within a chamber 32 at the forwardmost and lowermost end of the housing 10.

The details of construction of the means for removably mounting the supply roll 24 and the take-up reel 30 within the side walls of the housing 10, may be quite conventional and has, therefore, not been illustrated. Suffice to say that reel 30 is provided with a ratchet 34 whose peripheral teeth are engaged by a pawl 36 that is in turn coupled with the floor 22 at one end of the latter and adjacent one edge of the paper 24 across the floor 22.

It is apparent, therefore, that each time the floor 22 is

swung downwardly about hinge means 38, a pull is exerted upon the ratchet 34 to rotate the reel 30 in a direction to wind the soiled paper thereon. The retrograde rotation of the reel 30 is prevented by a swingable latch 40. Floor 22 is yieldably held biased upwardly in the inclined position illustrated in FIG. 1 by a spring 42.

It is obvious from the foregoing that a hen entering the housing 10 through the access opening 16, must alight upon the floor 22, and more particularly upon the paper surface that is presented thereabove. Her inherent weight lowers the floor 22 which may be stopped by flange 44. This action provides slack in the paper between the forward end of the floor 22 and the roller 28. It also actuates the ratchet and pawl mechanism 34—36 to rotate the reel 30 and take up the slack.

When the hen leaves the housing 10, the spring 42 returns the floor 22 to the position shown in FIG. 1 and, by virtue of the action of the latch 40, such upward movement of the floor 22 withdraws a fresh supply of paper from the roll 24.

If desired, the floor 22 may be provided with a pad 46 of rubber or other soft resilient material beneath the paper to also cushion the egg when laid by the hen.

It is now apparent that all eggs passing into the compartment 18 will be clean for the reason that hen instinctively faces the opening 16 in the housing 10 during laying of the egg, and therefore, the egg will roll away from the feet of the hen and not become soiled thereby. On the other hand, the paper that is soiled by the dirty feet of the hen, moves forwardly and ultimately onto the reel 30 where it is collected for ultimate disposal.

The embodiment of the invention illustrated in FIGS. 2 and 3 is, in all respects, identical with that just above described except that the inclined floor 22 across which the paper is stretched as illustrated, is rigid. The mechanism for actuating pawl 136 to advance the ratchet wheel 134 is in the nature of a perch 135 disposed above the ratchet wheel 134 in a position where the hen must alight thereon in order to gain access to the floor 122. The perch 135 is carried by a pair of arms 137 that are vertically swingable by virtue of pivot pins 139 that serve as the mounting means for the arms 137.

Springs 141 for the arms 137, yieldably bias the perch 135 upwardly in the normal position illustrated in FIGS. 2 and 3. The rearmost ends of the springs 141 are attached to the housing 110, whereas the forwardmost ends of the springs 141 extend to a position beneath the perch 135. It is to be noted that each spring 141 passes through a corresponding pivot pin 139.

Detent 143 on pawl 136 which engages the teeth of the ratchet 134, is held against the latter by a spring 145 secured to the perch 135 and to the pawl 136.

The operation of the embodiment of FIGS. 2 and 3 is essentially the same as above described with respect to FIG. 1, except that the paper is wound on take-up means 130 at the same time that such paper is taken off the supply roll 124. This action occurs when the hen steps onto the perch 135, thereby lowering the latter against the action of springs 141, through the inherent weight of the bird. This lowers the pawl 136 which is pivotally coupled with one of the arms 137, and rotates the ratchet wheel 134 anticlockwise viewing FIG. 2, and therefore, in a direction to pull the paper forwardly along the inclined floor 122 of the housing 110.

It is of course, obvious that any suitable type of paper may be employed in carrying out the concepts of the instant invention, but it is to be preferred that selection may be made from a material that is relatively strong, yet highly absorbent, since it is to be desired that any moisture on the feet of the hen be immediately taken up by the paper.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In a hen's nest a housing having an access opening for the hen; a floor in the housing, one end of the floor being pivotally coupled to the housing; spring means secured to the housing and the floor normally biasing the floor into an inclined position with the other end of the floor disposed at a higher elevation than the one end thereof; a take-up roller proximal the other end of said floor; a supply of paper in the housing, said supply comprising a roll of paper spaced above said one end of the floor and a stretch of said paper supply extending in overlying relationship to said floor, said stretch being secured to the take-up roller; a ratchet and pawl assembly operably coupling the floor to the take-up roller for operating the latter to roll the paper thereon when said floor is pivoted with respect to the housing against the bias of the spring means, said other end of the floor being disposed adjacent said access opening whereby the weight

of the hen entering the nest operates said take-up roller causing the floor to pull a fresh stretch of paper from the supply as the hen leaves the nest.

2. Apparatus as set forth in claim 1 wherein said ratchet and pawl assembly includes means to prevent retrograde movement of the take-up roller.

3. Apparatus as set forth in claim 1 wherein is provided a curtain of flexible material extending across said floor between the opposite ends thereof.

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