July 29, 1924. 1,503,335

F. E. ROSE

CHICKEN FEEDER

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Fig. 1.

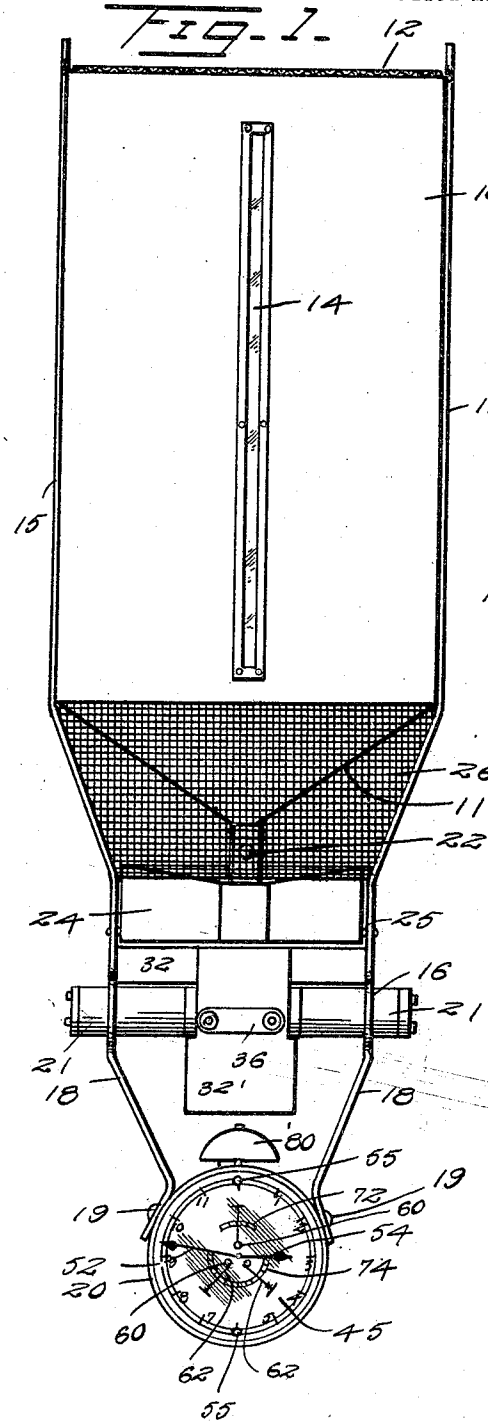

Fig. 2.

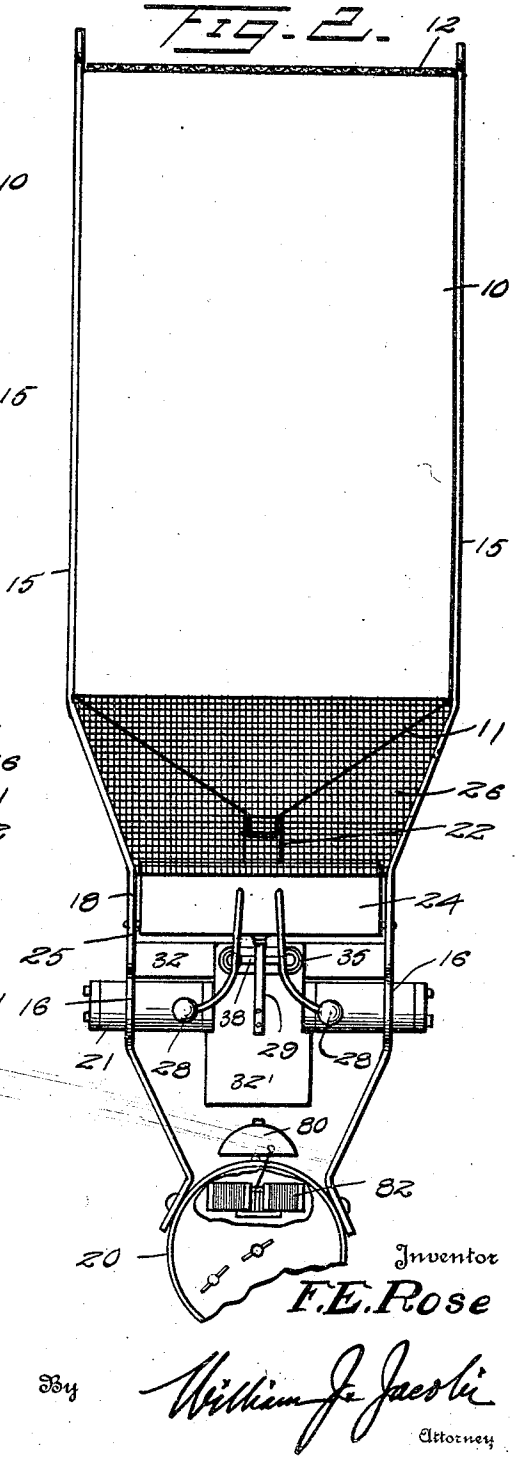

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Fig. 3.

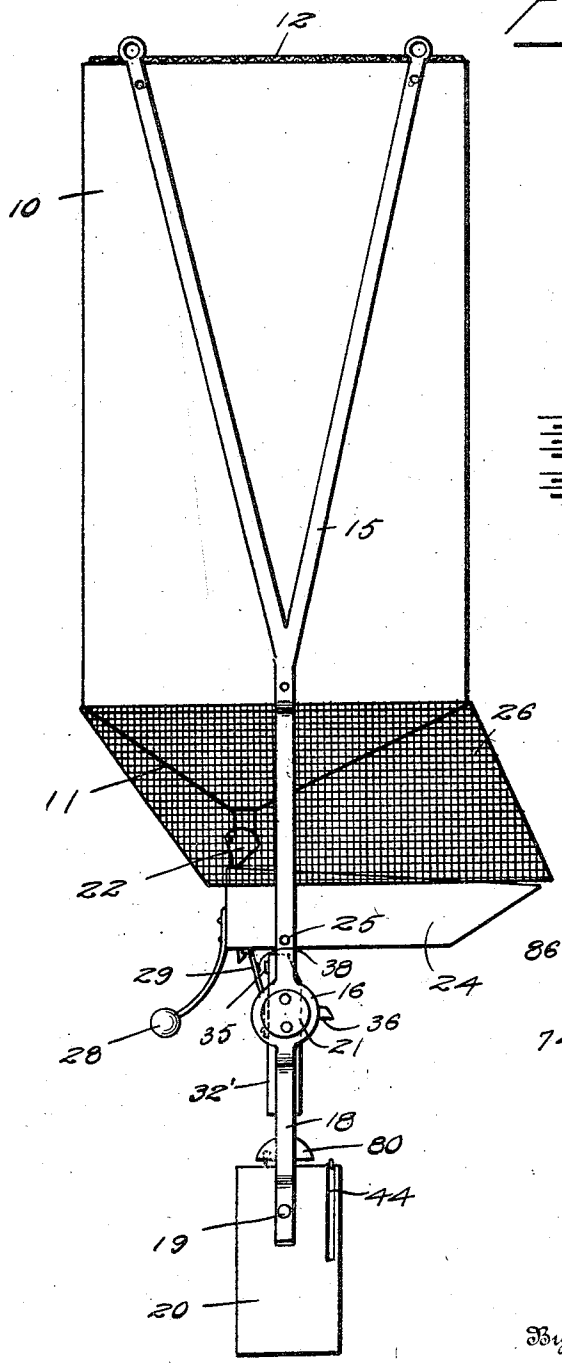
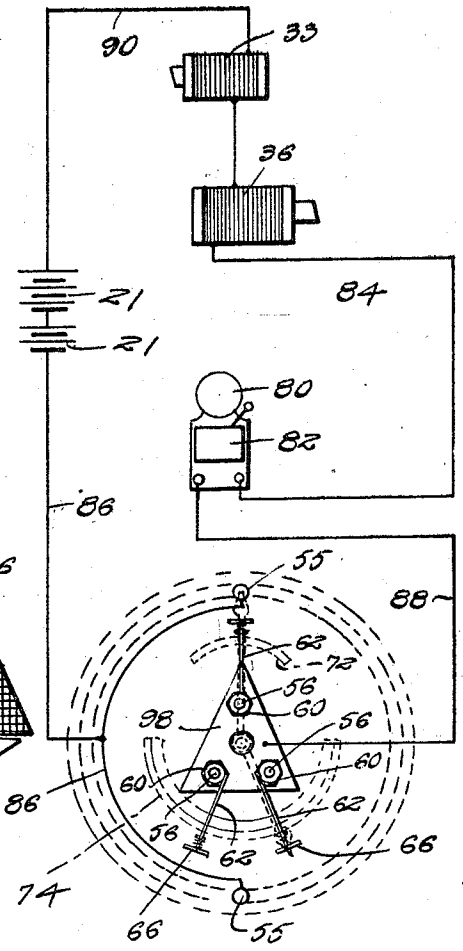


Fig. 8.



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CHICKEN FEEDER

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FIG. 4.

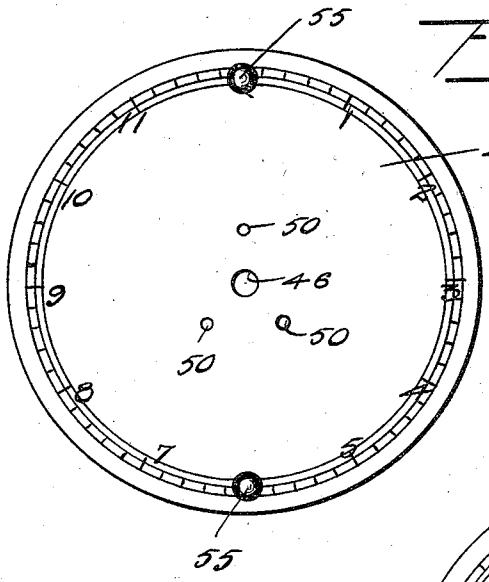

FIG. 5.

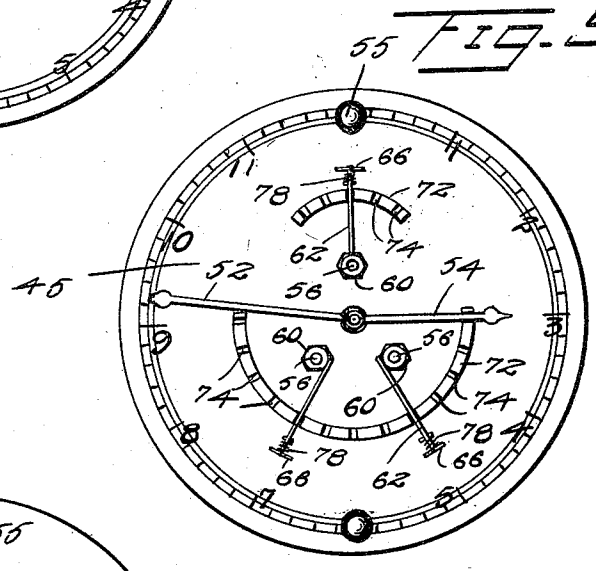

FIG. 6.

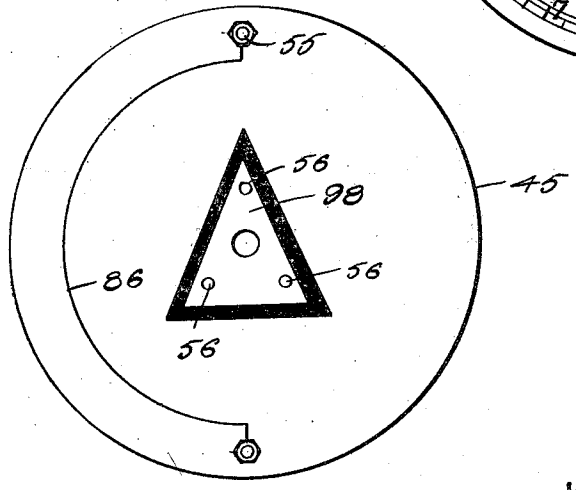

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Fig. 11.

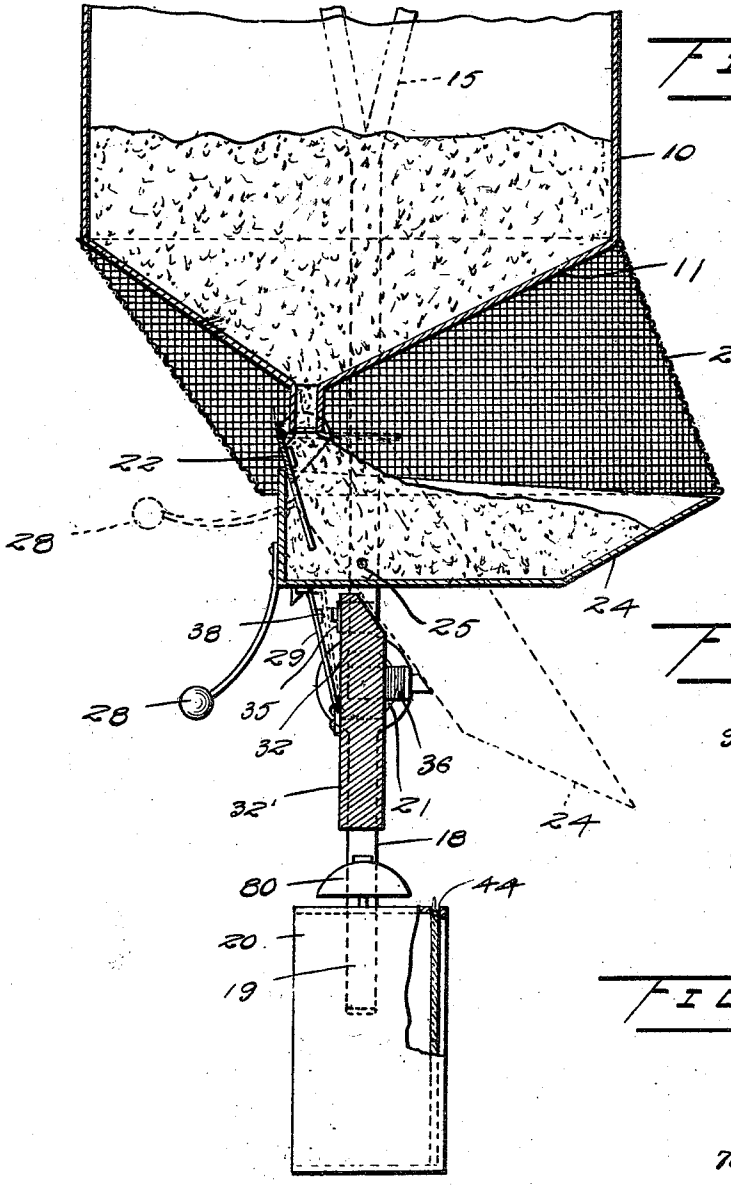


Fig. 7.

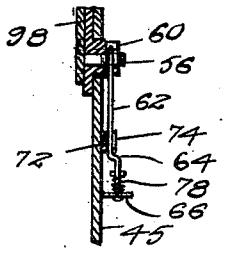


Fig. 9.

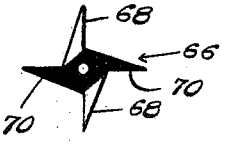
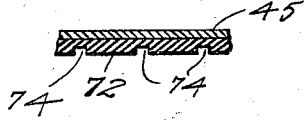


Fig. 10.



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Patented July 29, 1924. 1,503,335

UNITED STATES PATENT OFFICE.

FAY E. ROSE, OF MONTAGUE, MICHIGAN.

CHICKEN FEEDER.

Application filed March 19, 1923. Serial No. 626,067.

To all whom it may concern:

Be it known that FAY E. ROSE, a citizen of the United States of America, residing at Montague, in the county of Muskegon and State of Michigan, has invented certain new and useful Improvements in Chicken Feeders, of which the following is a specification.

This invention relates to chicken feeder devices and particularly to an apparatus which is entirely automatic in its operation.

An object of the invention is to provide an apparatus controlled by a time mechanism for operating the same at regular and predetermined intervals.

A further object is to provide an electrically operated mechanism for regularly and periodically operating the feeder.

Another object is to provide in connection with the time mechanism, and the operating mechanism for dumping the feed pan, means for automatically returning the pan to its initial position for refilling.

Another object is to provide an audible alarm device controlled by the clock for announcing the time of feeding.

Many other objects and features of advantages of the invention will be apparent to others upon reference to the accompanying specification and drawings.

In the drawings:

Figure 1 is a front elevation of the chicken feeder;

Figure 2 is a rear view thereof;

Figure 3 is a side elevation;

Figure 4 is a front view of the clock face with the contact arms removed;

Figure 5 is a view similar to Figure 4 with the contact arms in position;

Figure 6 is a rear view of the clock face;

Figure 7 is a detail view of one of the contact arms, and

Figure 8 is a diagram of the wiring circuits.

Figure 9 is a detail view of the star-shaped contact.

Figure 10 is a detail sectional view of the notched strip.

Figure 11 is a vertical longitudinal sectional view showing the operating mechanism.

Referring now more particularly to the drawings by numerals of reference, 10 indicates the feed holding tank, having a hopper bottom 11 and a screened removable cover 12, the front of said tank being provided with a vertical slot having a glass or other transparent material window 14, through which the level of the contents in said tank may be observed.

Secured to each side wall of the tank 10, and extending a suitable distance below the bottom thereof is a metallic plate 15 formed in proximity to its lower end with a loop or circular strap 16, adapted to clamp around a dry battery 21, as will be later described.

Rigidly secured to the plates 15, below the battery supporting straps, are a pair of downwardly and inwardly convergent arms 18 having terminal eyes 19 through which are passed fastening devices for securing to opposite sides of a clock frame 20.

The outlet of the hopper is provided with a gate or valve 22, which is normally maintained open by gravity to discharge a quantity of feed from the tank into a dump pan 24, pivotally supported by and intermediate the plates 15, below said hopper, on shafts 25. The space between the lower edges of the tank 10 and the top of the dump pan 24, when in horizontal or loading position is covered by a strip of chicken wire 26, fastened at its upper edges to said tank. This prevents the chickens from having access to the contents of the pan until the same has been dumped at the feeding period.

The pan 24, after the contents have been dumped, is automatically moved to its initial or loading position through the medium of weights 28, carried by the rear end thereof, and in which position it is locked by means of a latch spring 29, having a hooked upper end, 30 which engages a cooperating part on the pan bottom.

Supported further by and between the lower portions of the plates 15 is a transverse wood or other non-conducting material frame, 32, from which depends an intermediate block 32′, of similar material, and in which latter the inner ends of the dry batteries 21 may have their support.

The depending block 32′, carries an upper and lower pair of electro-magnets 35, and 36 respectively, the former being arranged so that their armature attracting ends, are directed toward the rear of the block 34, while the latter are directed forwardly thereof.

The means for controlling these magnets will be later described, but it is sufficient to state at this time that when an armature plate 38 carried by the latch spring 29, is drawn toward the magnets 35, when the

latter are energized said latch spring will release the pan, which being loaded and forwardly overbalanced, will dump its contents, at the same time engaging a trip 40 on the hopper valve and closing the latter. When the pan is in its lowermost or dumped position, the forward underside thereof engages the energized magnets 36 which prevent its return under influence of the weights carried thereby, until the electric circuits, in which said magnets are included, is interrupted in a manner to be described in full.

I will now refer to the clock controlling mechanism through which the various elements of my feeder are brought into operation and automatically restored to their initial position.

The clock frame 20, supported by the convergent arms 18 and containing a clock mechanism of the usual type is provided at its front with an extension flange having an upper semi-circular slot 44 through which the clock bezel may be set in position over the face 45, which latter has printed thereon in usual manner the numerals 1 to 12.

In addition to the central hour and minute posts opening 46 in the clock face, which is larger in diameter than usual to provide a clearance gap between the outer minute hand post, and the wall of said opening 46, said face is provided with a series of smaller openings 50 arranged around said central opening 46. The minute hand 52 is spaced forwardly of the hour hand 54, a greater distance than is usually the practice in the ordinary timepiece, and the end thereof is extended and terminally turned to a plane perpendicular to the body thereof, for the purpose of providing a wiping contact with a pair of diametrically opposed contacts 55, carried by the clock face and preferably arranged adjacent the hour numerals 6 and 12, said contacts being suitably insulated from the clock face.

Secured to each of the three corners of a triangular brass plate 98, carried by the rear face of the clock face, and insulated therefrom by an interposed sheet of insulating material such as rubber, is a post 56 which passes forwardly through its alined opening on the clock face, but does not contact with the wall thereof. This provision for preventing electrical contact between the several posts 56 may of course be substituted by suitable insulating sleeves, this detail being within the skill of the ordinary electrician.

Each of the posts 56 carries on its outer threaded end, a nut 60 having a radial brass spring contact arm 62, arranged in the plane of the clock face the outer extremity of which arm is bent to provide a portion 64, elevated above the plane of the body portion thereof. Journaled on the extension 64 of each arm 62, is a contact wheel in the form of a four pointed star 66, alternate points 68 being of electrical conducting material while the others, 70, are non-conducting. The conducting points, 68, are electrically connected with the supporting post which carries the star.

Cooperating with each of the spring contact arms, and secured to the face of the clock, is an arcuate strip 72, of suitable insulating material, such as rubber, said strip being provided with a series of notches 74, corresponding to the hour and half hour. The stars are frictionally held in position upon their supports by coiled springs 78 which prevent their accidental rotary displacement.

In the present construction, the usual alarm bell and operating mechanism are removed, and in place thereof I provide an electric bell 80, and the magnet 82, therefor, said magnet being included in an electric circuit 84, which includes the dry batteries 21. Electric conducting wires 86 and 88 are electrically connected respectively with the posts with which the minute hand contacts and with the triangular metal insulated plate 98, the latter being electrically connected with the arms 62 carrying the stars, 66, and to one pole of each of the batteries.

The magnets 35 and 36 are arranged in multiple with the bell circuit being connected therewith by wires 88 and 90.

In operation, the arms 62 are set on the strips 72 corresponding to the hour or half hour of feeding and assuming that the chickens are fed at three periods in 24 hours, the small or hour hand will contact with each star twice during said 24 hours. In view of the fact that the chickens are fed only during the daylight period or between sunrise and sunset it is necessary that only during one circuit of said hour hand that an electric circuit be completed through the alarm and operating mechanism. It is to accomplish this result that alternate points of said star are of non-conducting material.

When the small or hour hand contacts with conducting portion or point of any star, and the large minute hand simultaneously engages either of the posts, the electric circuit is completed through the electric bell and through the upper and lower sets of electromagnets, the upper set releasing the pan and permitting it under influence of the weight of the feed therein, to dump said pan engaging the lower front set of magnets which retain it in lowered position until the circuit is broken by either of the hands snapping off their respective contacts.

From the foregoing description of the construction of my improved apparatus, it will be seen that I provide a simple, inexpensive and efficient means for carrying out the objects of my invention, and while I

have particularly described the elements best adapted to perform the functions set forth, it is obvious that various changes in form, proportion and in the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the principles of the invention.

From the foregoing description and operation of my invention it is believed that a full understanding thereof may be had.

What I claim as new and desire to protect by Letters Patent is:—

1. A chicken feeder comprising a tank, a supporting means on said tank, a dump pan pivotally mounted on said supporting means, below said tank, a clock mounted on said supporting means, electrical contacts on the face of said clock and cooperating with said contacts, an electric circuit adapted to be closed by said hands and including said contacts, an electric bell in said circuit, two sets of magnets on said supporting means and included in said circuits, means operated by one of said magnets for releasing said dump pan when said circuit is complete and said other magnet adapted to hold said pan in dumping position.

2. A time controlled electrically operated chicken feeding mechanism, comprising a dump pan, a releasing magnet, a holding magnet, a clock, a plurality of electrical contacts, on said clock, an electrical circuit including said magnets and said contacts, and clock hands for engaging said contacts and closing the electric circuit through said magnets.

3. An apparatus as set forth in claim 2, and an electrically controlled alarm in said electrical circuit.

In testimony whereof I affix my signature.

FAY E. ROSE.