

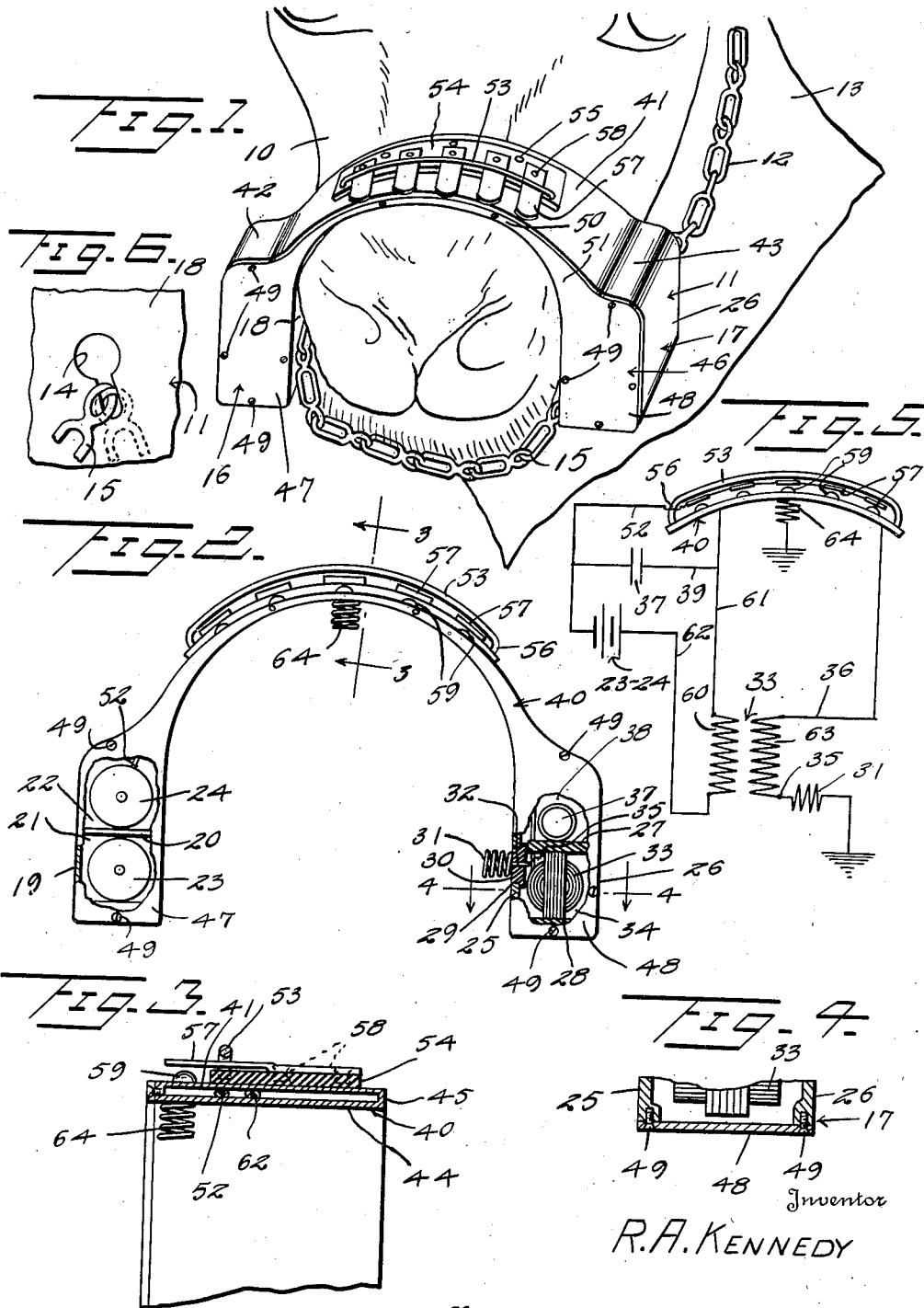
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ELECTRIC CALF WEANER

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ELECTRIC CALF WEANER

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This invention relates to a calf weaning device and more particularly to an electric weaner.

An object of this invention is to provide a device which may be mounted on the head of the calf and which is adapted to produce an electric shock only to the calf.

Another object of this invention is to provide a weaner of this type which will produce a shock to the calf as the head of the calf moves away from the cow, the shock being a single jolt produced from a high tension transformer.

Heretofore devices of this type have been produced which give a continuous shock to the calf during the feeding operation, but such devices have been found unsatisfactory as they affected the nervous system of the calf and frequently the circuit closing devices became stuck in closed position thereby producing a continuous shock to the calf until the current source was exhausted during all of which time the calf was being subjected to an undesired shock. This resulted in unduly exciting the calf and otherwise affected the physical condition of the calf.

It is, therefore, a further object of this invention to provide a device which employs a circuit closing means for closing an electric circuit to a step-up transformer and which is so constructed that during the time that the circuit is closed to the transformer, the calf will not be shocked, but a shock will be produced when the circuit closing means is moved to a circuit breaking position. In this manner in the event the circuit and breaking means should become stuck in a closed position, the calf will not be affected thereby.

A still further object of this invention is to provide a weaner of this type which is relatively light in weight and will not unduly inconvenience the calf when it is worn.

A further object of this invention is to provide a device which is adapted to act only on the calf and not affect the cow.

To the foregoing objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawing wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a perspective view of a calf weaning device constructed according to an embodi-

ment of this invention showing the device in applied position on the head of a calf.

Figure 2 is a detail front elevation of the device partly broken away and in section.

Figure 3 is a fragmentary sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a fragmentary sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a diagrammatic view of the electric circuits embodied in this device.

Figure 6 is a fragmentary view of the inner wall of one side of the weaner showing the manner of adjustably securing the chin chain.

Referring to the drawing, numeral 10 designates the head of a calf on which an electric weaning device generally designated as 11 is mounted. The weaning device 11 is supported in the position over the nose of the calf by means of a chain 12 which engages about the neck 13 of the calf rearwardly of the ears and the opposite ends of the chains 12 are secured to the weaning device 11 in any suitable manner. A second substantially short length of chain 15 extends downwardly from the weaning device 11 and engages loosely beneath the lower jaw of the calf. The chain 15 may be adjusted as to length by adjustment of the links thereof in button-hole slots 14 carried by the inner walls of the weaning device 11. It will be understood that the chain 12 may have a releasable connector embodied therewith so that this chain may be readily applied or removed.

The weaning device 11 comprises a substantially U-shaped housing which is provided with a pair of housing members 16 and 17 comprising battery and transformer housings, respectively. The housing 16 is of substantially rectangular configuration and the inner and outer side walls 18 and 19, respectively, may be formed from a single piece of sheet metal or the like and a partition 20 is disposed in housing 16 above the bottom thereof dividing the housing 16 into lower and upper battery compartments 21 and 22, respectively. Batteries 23 and 24 are adapted to be positioned in the compartments 21 and 22, respectively.

The housing 17 is formed substantially similar to the housing 16 being provided with integral inner and outer walls 25 and 26, respectively, and an inner dividing wall or partition 27 is disposed in the housing 17 above the bottom wall 28 thereof. The inner side wall 25 is provided with an opening 29 therethrough and an insulated plug 30 is adapted to be mounted in the opening 29. A spring contact member 31

projects outwardly from the wall 25 and is provided with an extension 32 which extends axially through the plug 30. A step-up transformer 33 is mounted in the lower transformer compartment 34 and one side of the secondary of the transformer 34 is connected by means of a conductor 35 to the extension 32. A condenser 37 is connected across the primary of the transformer 33 by means of a conductor 39 and is mounted in a condenser compartment 38 positioned above the transformer compartment 34. The opposite side of the transformer is connected by means of a conductor 36 to the metal housing 17.

An arcuate hollow relatively thin housing 40 connects the two housings 16 and 17 together and communicates at the opposite ends thereof with these two housings. The outer wall 41 of the housing 40 merges at the opposite ends thereof with the top walls 42 and 43 of the housings 16 and 17, respectively, and the inner wall 44 merges at the opposite ends thereof with the inner walls 18 and 25 of the housings 16 and 17, respectively. The rear wall 45 of the arcuate connecting housing 40 also merges at the opposite ends thereof in the rear walls of the two housings 16 and 17.

A cover or closure generally designated as 46 engages the front ends of the housings 16 and 17 and also engages the front edge of the connecting housing 40. The closure 46 comprises a pair of plates 47 and 48 which are secured to the front edges of the housings 16 and 17, respectively, by fastening devices 49. An arcuate connecting member 50 is formed integral with the plates 47 and 48 and at the opposite ends thereof, the arcuate connecting member 50 flares outwardly as at 51 so as to close the open forward side of the housing 40 at the opposite ends thereof where this arcuate housing enlarges and merges with the two housings 16 and 17.

A conductor 52 is connected at one end to one side of the batteries 23 and 24 and the other end of the conductor 52 is connected to a plurality of electrically connected yieldable contact members 57 which form one side of a switch and are secured in spaced apart parallel relation to the outer surface of an insulating member 54 by fastening devices 58. The insulating member 58 is secured to the outer surface of the arcuate member 40 by fastening devices 55.

An arcuate protecting bar 53 is secured to the insulating member 54 and the opposite ends of the bar 53 are bent downwardly as at 56 so that the larger portion of the bar 53 will be offset upwardly in order to protect the switch members 57 against movement to a closed position by contact with weeds or the like.

The forward ends of the contact members 57 project forwardly from the bar 53 and stationary contact members 59 are secured to the outer wall 41 of the housing 40 beneath the projecting ends of the contact members 57 and form the other side of a switch which is grounded to the housing 11. The transformer 33 has one side of the primary 60 thereof connected by a conductor 61 to the housing 11 and the other side of this primary is connected by means of a conductor 62 to one terminal of the batteries 23 and 24. In this manner when a yieldable contact 57 engages its associated contact 59, a circuit will be completed from one terminal of the batteries 23-24 to the bar 56, a yieldable contact 57, a stationary contact 59, the conductor 61, primary 60 and the conductor 62. In this manner the primary 60 will be energized and the secondary 63 of the

transformer 33 will be inductively energized. The conductor 39 with the condenser 37 interposed therein is connected between the conductors 52 and 61 so as to eliminate a spark gap between the switch members 57 and 59. A yieldable contact 64 in the form of a spring or the like is secured to the bottom wall 44 of the housing 40 and is adapted to engage the upper side of the nose of the calf so that when pressure is relieved on the contact 57 which is engaging its associating stationary contact 59, there will be an electric shock produced from the secondary 63 through the conductor 36, housing wall 44, spring contact 64 through the nose 10 of the calf to the spring contact 31 through the conductor 35 back to the opposite side of the secondary 33. In Figure 5, the head of the calf is indicated by the ground symbols.

In the use and operation of this weaning device, the weaning member 11 is adapted to be mounted on the nose of the calf being suspended from the chain 12. The chain 15 is adapted to engage beneath the lower body of the calf. When the calf nudges the cow with its nose, there will be pressure exerted on a selected one or more of the contacts 57. These contacts 57 are formed of resilient or spring metal so that only a slight pressure will be necessary to effect engagement of a contact 57 with a stationary contact 59. At the time the circuit is closed from the batteries 23 and 24 to the primary 60 of the transformer 33, no shock will be exerted on the calf. However, electric energy will be stored up in the transformer 33 so that as soon as the pressure is relieved from a particular one or more of the contacts 57 which are engaged with their associated stationary contacts 59, a spark gap will be produced between the two contacts 57 and 59 and at the same time, the calf will be subjected to an electric shock by reason of the grounding of the two contacts 31 and 64 to the head of the calf.

With a device of this kind, in the event the calf should maintain pressure against one or more of the movable or yieldable contacts 57, the calf will not be subjected to an electric shock, this being true also if one or more of the contacts 57 should become bent or otherwise disposed in contact with its associated stationary contact 59.

With a device of this kind, the calf will be subjected to only one electric shock which occurs at the time the movable contact 57 which has been engaged with a stationary contact 59 moves to a circuit breaking position. The step-up transformer 33 is a conventional step-up transformer which will increase the voltage received from the batteries 23 and 24 without increasing the amperage so that the calf will not be burned at the time it is subjected to the electric shock.

What I claim is:

1. An animal weaning device comprising a pair of housings engageable on opposite sides of the nose of an animal, an arcuate housing connected to and communicating with said pair of housings and engageable over the nose of the animal, batteries in one of said pair of housings, a step-up transformer in the other of said pair of housings, an electric circuit connecting said batteries with the primary of said transformer, a switch in said circuit including stationary contacts fixed to said arcuate housing and yieldable contacts carried by said arcuate housing, a shock producing circuit connected to the secondary of said transformer, and a pair of spaced contacts in said shock circuit and engageable with the nose of

the animal whereby to shock the animal upon breaking of the first electric circuit.

2. An animal weaning device including a housing structure, means supporting said structure on the nose of the animal, an electric shock producing means carried by said housing structure, said means including a circuit making and breaking means so constructed and arranged as to produce a shock upon movement of said circuit making and breaking means to a circuit breaking position.

3. An animal weaning device including a housing structure, means supporting said structure on the nose of the animal, primary and second electric circuits in said structure, an electric current supply in said structure connected to said primary circuit, a step-up transformer in said structure and connected to both said primary and secondary circuits, and a normally open switch in said primary circuit, movement of said switch to an open position producing a spark-gap and effecting an electric shock from said secondary circuit.

4. An animal weaning device including an electric shock producing means, means suspending said first means on the nose of a calf, and normally inactive means connected with said first means and constructed and arranged to be operable upon movement from an active to an inactive position for producing an electric shock.

5. An animal weaning device including an electric shock producing means, means suspending said first means on the nose of the animal, said first means including an arcuate housing engageable over the nose of the animal, a battery housing at one end of said first housing, batteries in said battery housing, a step-up transformer housing at the other end of said first housing, a step-up transformer in said transformer housing, and normally inactive means carried by said housings operable upon movement from an inactive to an active position to energize said transformer, said latter means upon movement from an active to an inactive position being operable to produce an electric shock.

6. An animal weaning apparatus including a housing structure substantially U-shaped in front elevation and engageable over the nose of the animal, means suspending said structure in operative position with the opposite legs thereof

in dependent position and the bight thereof resting on the nose of the animal, and means carried by said structure and constructed and arranged for producing a shock only when pressure is released on the apparatus.

7. An animal weaning means including an inverted U-shaped housing engageable over the nose of the animal, means suspending said housing on the nose of the animal with the bight thereof engaging over the top of the animal's nose, a source of electric current carried by one dependent leg of said housing, a step-up transformer carried by the other dependent leg of said housing, and circuit making and breaking means carried by the bight of said housing and electrically connected with said source of electric current and said transformer.

8. An animal weaning means including an inverted U-shaped housing engageable over the nose of the animal, means suspending said housing on the nose of the animal with the bight thereof engaging over the top of the animal's nose, a source of electric current carried by one dependent leg of said housing, a step-up transformer carried by the other dependent leg of said housing, and normally open circuit making and breaking means carried by the bight of said housing and electrically connected with said source of electric current and said transformer, said latter means being so arranged with respect to said source and said transformer as to transmit a shock to the animal when said latter means moves from a circuit closing to a circuit breaking position.

9. An animal weaning means including an inverted U-shaped housing engageable over the nose of the animal, means suspending said housing on the nose of the animal with the bight thereof engaging over the top of the animal's nose, a source of electric current carried by one dependent leg of said housing, a step-up transformer carried by the other dependent leg of said housing, a pair of yieldable electrodes carried by the inner side of said housing connected with said transformer and engageable with the animal, and circuit making and breaking means carried by the bight of said housing and electrically connected with said source of electric current and said transformer.

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