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BALLING GUN FOR ANIMALS

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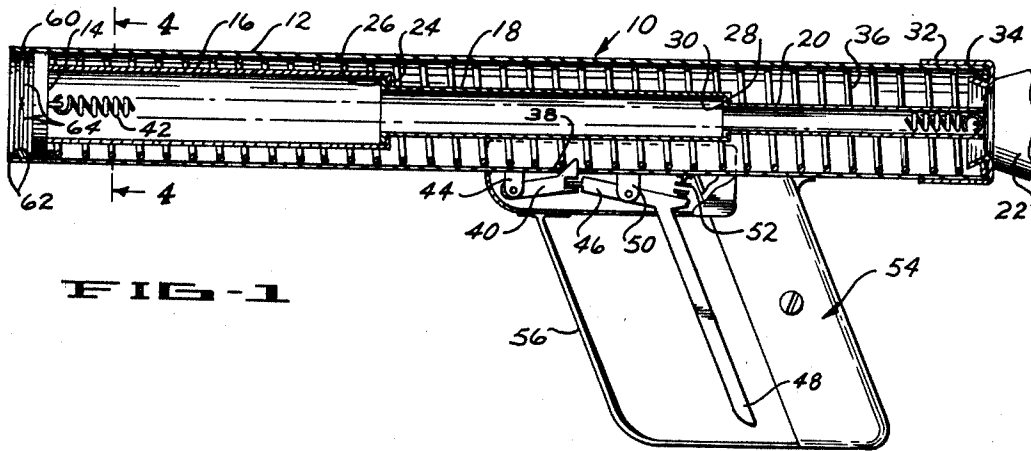


FIG. 1

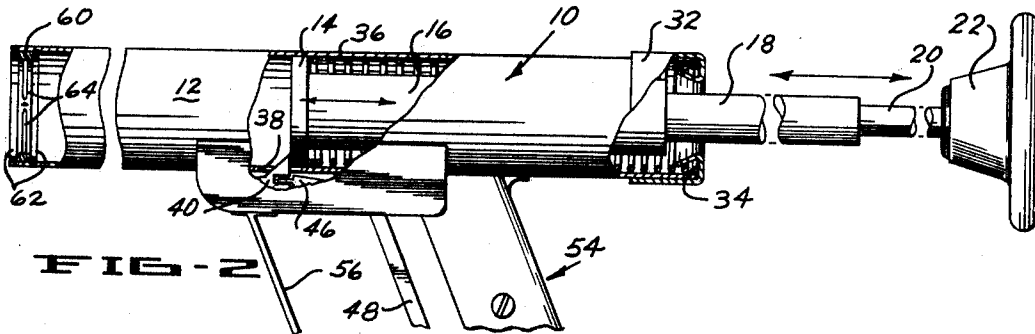


FIG. 2

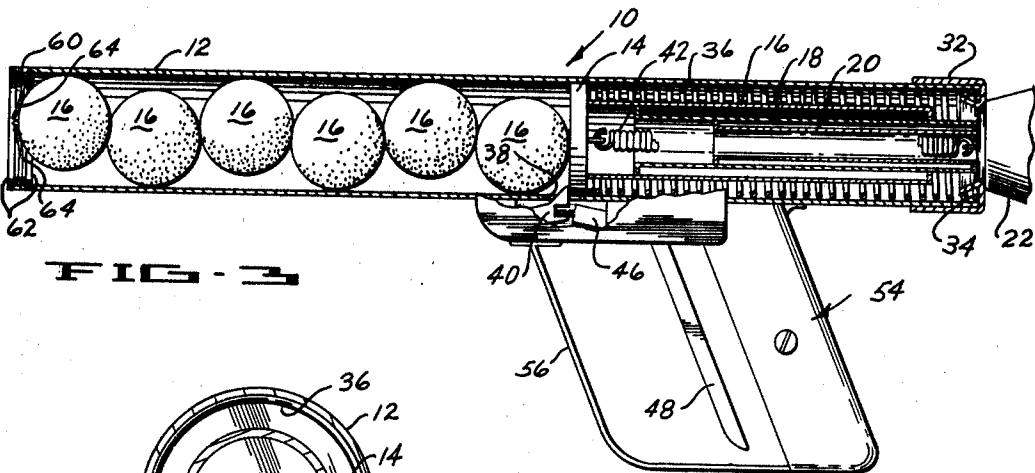


FIG. 3

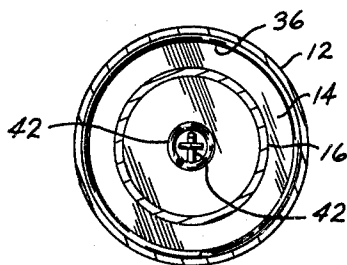


FIG. 4

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BALLING GUNS FOR ANIMALS
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ABSTRACT OF THE DISCLOSURE

A balling gun including a muzzle loading barrel having a thrust member axially movable therein. An axially telescopic retraction means connected to the thrust member and including a cocking handle movable rearwardly to telescope the retraction means to a retracted position. A bias means interposed between the thrust member and the rear of the gun for urging the thrust member forwardly to discharge material, deposited in the barrel, out the muzzle. Trigger means is provided for holding the thrust member in its retracted position.

The present invention relates to a balling gun for animals, and more particularly to a balling gun having a barrel insertable into the throat of an animal to discharge medicines and related items for swallowing.

Guns of this type are well known in the prior art and are utilized to administer vitamins and feed supplements and the like to animals such as cows on dairy farms. Sometimes the guns are used to propel small magnets into the cow's throat so that the swallowed magnets attract otherwise harmful bits of metal for later removal.

Balling guns of the prior art are characterized by a cocking mechanism which is pulled rearwardly for receiving the pellets or tablets of medicine and for compressing a spring to afford the necessary propulsion force. However, such rearward movement projects the cocking mechanism a considerable distance to the rear of the gun. Then, when the user inserts the gun barrel into the animal's throat, the rearwardly projecting cocking mechanism frequently becomes bent or otherwise damaged by the struggling animal. It also presents a serious hazard because of its rapid forward motion when the gun is discharged.

Balling guns of the prior art additionally are usually incapable of propelling magnets and the like into an animal's throat because of the ferrous nature of the materials utilized to manufacture the gun. Moreover, such guns generally include no means to retain such magnets or even medicine pellets or tablets within the gun subsequent to cocking of the gun and prior to discharge thereof.

Accordingly, it is an object of the present invention to provide a balling gun made of stainless steel for easily projecting magnetic elements into the throats of animals such as cows.

Another object of the invention is to provide a balling gun in which the cocking mechanism or retraction means for cocking the gun is axially collapsible or telescopic so that after the gun is cocked the retraction means are nestable within the hollow interior of the gun barrel. In this manner the retraction member is completely out of the way during treatment of a struggling animal.

A related object of the invention is the provision of a tension spring which automatically tends to urge the retraction means into retracted position within the gun barrel subsequent to cocking of the gun.

A further object of the invention is the provision of a

balling gun having deflectable stop means located at the forward end of the barrel to yieldably retain medicine pellets and tablets in the barrel subsequent loading and prior to discharge thereof. In one embodiment of the invention the deflectable stop means is constituted by a ring which mounts a plurality of radially inwardly projecting bristles made of yieldable and resilient plastic material. In this regard, a related object of the invention is the provision of a balling gun adapted to accommodate different numbers of tablets, up to six or seven relatively large pills, for example.

Yet another object of the invention is to provide a balling gun of the aforementioned character which is relatively inexpensive, comparatively easy to manufacture, and characterized by a long and reliable service life.

Other objects and features of the invention will become apparent from consideration of the following description taken in connection with the accompanying drawings, in which:

FIG. 1 is a longitudinal cross-sectional view of a balling gun according to the present invention, a portion of the cocking handle being omitted and the thrust element being illustrated in its advanced position;

FIG. 2 is an enlarged side elevational view of the balling gun of FIG. 1, portions thereof being foreshortened, other portions being cut away for brevity, and the thrust element being shown in its retracted position and the cocking handle shown in its extended position;

FIG. 3 is a view similar to FIG. 1, but illustrating the thrust element in its retracted position and the cocking handle in its retracted position; and

FIG. 4 is an enlarged transverse cross-sectional view taken along the line 4—4 of FIG. 1.

Referring now to the drawings, there is illustrated a balling gun 10 according to the present invention and comprising, generally, an elongated, tubular muzzle loading barrel 12 adapted to receive material such as medicines and related items in the open forward or discharge end. In one successful embodiment of the invention the barrel was made approximately one inch for easy disposition in the mouth and throat of an animal such as a cow.

The gun 10 includes a transverse disk or thrust member 14 which is longitudinally or axially slidable within the barrel 12. As will be seen, the thrust member 14 is characterized by a rearward or retracted position, as best viewed in FIG. 3, in which the forward or discharge end of the barrel 12 is opened for receipt of a plurality of medicine tablets or pellets 16. The forward or advanced position of the thrust member 14 is best viewed in FIG. 1. The medicine pellets 16 may take any suitable form, the spherical form illustrated being merely exemplary, since the gun 10 is equally adapted to handle disk, square, and rectangular shaped tablets as well.

The thrust member 14 is axially moved from its advanced position to its retracted position by retraction means which include three coaxially arranged retraction sections 16, 18, and 20, as best viewed in FIG. 1. The forward end of the most forwardly located retraction section 16 is brazed or otherwise secured to the inner surface of the thrust member 14. The rearward end of the most rearwardly located retraction section 20 is secured to a cocking handle 22 located exteriorly of the barrel 12 adjacent the rearward end thereof.

The retraction sections 16, 18, and 20 are mutually interengaged at annular flanges provided on their adjacent ends, the larger diameter retraction section 16 having an inwardly directed annular flange 24 releasably engageable with an outwardly directed annular flange 26 of the intermediate diameter retraction section 18. Like-

wise, the opposite end of the retraction section 18 is characterized by an inwardly directed annular flange 28 which is releasably engageable with an outwardly directed annular flange 30 provided on the adjacent end of the rear-most retraction section 20.

An annular cap 32 is fixedly secured upon the rearward end of the barrel 12 and includes a radially inwardly directed portion which is reversely formed at its inner edge to define an annular channel 34 within the interior of the barrel 12. As best viewed in FIG. 2, the cocking handle 22 partially nests within and abuts against the cap 32 when the cocking handle is in its retracted position. In addition, the channel 34 provides a seat for one end of a helical compression spring 36 which extends the length of the barrel 12 in engagement with the inner surface thereof. The opposite end of the spring 36 abuts against the inner surface of the thrust member 14.

The spring 36 normally biases the thrust member 14 to the advanced position illustrated in FIG. 1. However, by grasping the cocking handle 22 and pulling it rearwardly of the barrel 12, the user of the gun 10 effects interengagement of the annular flanges of the retraction sections 16, 18, and 20 to pull the thrust member 14 rearwardly against the bias of the compression spring 36. The rearward movement of the cocking handle 22 is continued until the thrust member 14 is in its retracted position just rearwardly of a detent or sear slot 38 provided in the underside of the wall of the barrel 12 at the midportion thereof. An elongated detent element or sear 40 normally is biased for projection of its rearward end through the slot 38 to hold the thrust member 14 in its retracted position subsequent initial depression of the sear 40 to permit rearward passage of the thrust member 14. The sear and associated trigger mechanism will be described more particularly hereinafter.

As best viewed in FIG. 2, the cocking handle 22 at this time projects rearwardly of the barrel, the amount of projection being approximately twelve inches in the actual embodiment to which reference was previously made. This undesirable projection is prevented by merely axially pressing the cocking handle 22 inwardly to telescope the retraction sections 16, 18, and 20 within the hollow interior of the barrel 12. Preferably this is done automatically by a tension spring 42 which opposes, but which is weaker than, the compression spring 36.

The tension spring 42 extends through the hollow interiors of the retraction sections and is secured at one extremity to the inner surface of the thrust member 14 and at its opposite extremity to the cocking handle 22. With this arrangement the cocking handle 22 is always biased inwardly or forwardly into engagement with the rearward end of the barrel 12.

With the gun cocked, the medicine tablets or pellets 16 can be loaded into the open forward end of the barrel 12 in position for forcible discharge under the forward impetus of the thrust member 14 when it is released upon release of the sear 40.

The sear 40 is pivotably supported at the underside of the barrel 12 by a depending mounting tab 44 for swinging, pivotal movement of the rear end of the sear through the slot 38. In addition, the rearward end of the sear 40 is slotted to receive the forwardly projecting end of an elongated arm 46 which forms an integral upper extension of a depending trigger 48. The midportion of the arm 46 is pivotably secured to the underside of the barrel 12 by a mounting tab 50, and a compression spring 52 is suitably secured in position for engagement at its opposite extremities with the rearwardly extending extremity of the arm 46 and with the underside of the barrel 12. This biases the trigger 48 forwardly and also biases the sear 40 upwardly into position for projection of its rearward extremity through the sear slot 38. A suitable trigger frame 54 is attached to the underside of the barrel 12 to shield the sear and trigger components, 75

and includes a conventional trigger guard 56 in front of the trigger 48.

Located within the barrel 12 is a means for yieldably retaining the pellets 16 in the barrel subsequent loading but prior to discharge thereof. More particularly, an annular ring 60 is held in position within the barrel 12 by a pair of usual and conventional snap rings 62 located in suitable annular grooves provided in the inner surface of the wall of the barrel 12 on either side of the ring 60.

The ring 60 includes a plurality of radially inwardly projecting bristles 64 made of plastic material which is sufficiently stiff to prevent the pellets 16 from accidentally falling out of the barrel 12, but also sufficiently yieldable and resilient to permit ready passage of the pellets 16 outwardly of the barrel upon discharge of the gun 10. The snap rings 62 not only secure the ring 60 in position, but the interiorly located one of the rings 62 also serves to engage the thrust member 14 to limit its forward movement and establish the advanced position of the thrust member.

In operation the gun is first cocked by pulling on the cocking handle 22 to retract the thrust member 14 until it is engaged and held in its retracted position by the sear 40. Upon release of the cocking handle 22, the bias of the tension spring 42 urges the handle inwardly while simultaneously telescoping the retractor sections 16, 18, and 20. The tablets or pellets 16 are then loaded into the open forward end of the barrel 12 adjacent the outer surface of the thrust member 14. The trigger 48 is next pulled to release the sear 40, and the compressed spring 36 then drives the pellets 16 forwardly with sufficient force to discharge the pellets deep within the throat of the animal being treated.

Various modifications and changes may be made with regard to the foregoing detailed description without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. A balling gun comprising:

a barrel adapted to receive material such as medicines and related items for discharge down the throat of an animal;

a thrust member axially movable in said barrel; axially collapsible retraction means connected to said thrust member and including a cocking handle movable rearwardly of the rear of said barrel to axially collapse said retraction means for moving said thrust member to a retracted position for receiving said material within said barrel;

a bias means tending to urge said thrust member toward an advanced position for forcibly discharging said material out of said barrel;

means for releasably engaging said thrust member to hold said thrust member in said retracted position against the bias of said bias means, the collapsible character of said retraction means enabling said cocking handle to be positioned adjacent the rear portion of said barrel out of the way of the user of the gun despite the location of said thrust member in said retracted position; and

deflectable means located at the forward end of said barrel and projecting into the path of said material, said deflectable means having sufficient resiliency to yieldingly retain said material from falling out the muzzle of said barrel prior to discharge of said gun and to enable said bias means to force said material by said means upon discharge of said gun without substantial resistance.

2. A balling gun according to claim 1 wherein another bias means, weaker than the already recited bias means, is interposed between said thrust member and said retraction means and tends to collapse said retraction means and urge said cocking handle forwardly against the rear portion of said barrel.

3. A balling gun as set forth in claim 1 wherein said retraction means, when in its extended position, is of

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sufficient length to enable said bias means to push said thrust member to substantially the muzzle of said barrel to push said material by said deflectable means.

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