

July 12, 1966

W. KREUZER

3,260,207

RIFLE SHELL

Filed Aug. 19, 1964

2 Sheets-Sheet 1

FIG. 1

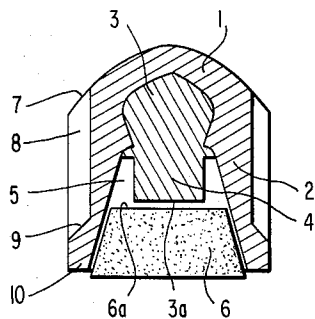


FIG. 2

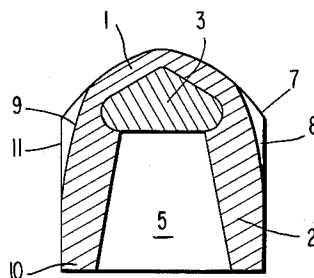
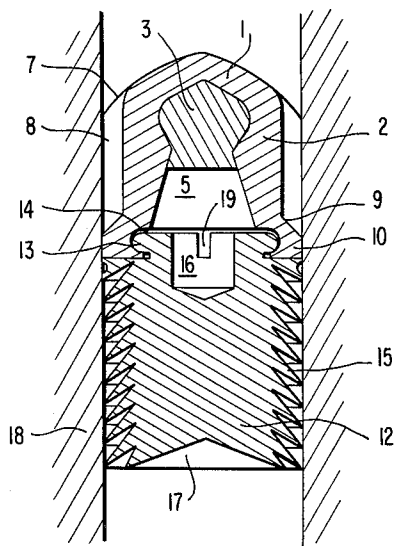


FIG. 3



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FIG 4

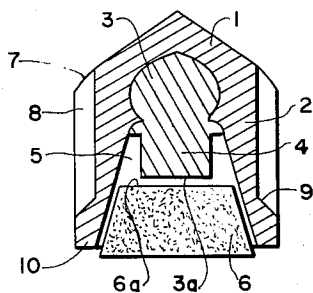
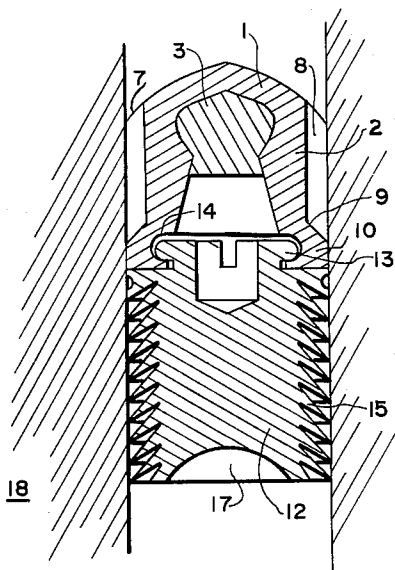


FIG 5



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3,260,207

RIFLE SHELL

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Claims priority, application Germany, Aug. 23, 1963,

D 42,309

21 Claims. (Cl. 102—92.5)

The present invention relates to rifle or gun-barrel shells. These shells serve, as is known, the purpose to place the hunter equipped with a rifle, that is, with an arm or gun constructed for buckshot, while hunting, to cope also successfully with suddenly and surprisingly appearing cloven-hoofed game.

The rifle or gun-barrel shells are known already in different constructions. Thus, there is, for example, known in the prior art a gun-barrel or sporting rifle shell with a hollow cylindrical shell jacket open at both end faces thereof and having an insert arranged in the hollow space of the shell jacket and secured at the shell jacket, which is constructed in the form of a threaded or spirally shaped flat band or tape wound about the shell axis. Since the insert does not fulfill or fulfills only in a very inadequate manner the task ascribed thereto, namely to impart to the shell a spin for purposes of increasing the flight stability and the firing accuracy, such a shell is not satisfactory, the more so as its external shape assures no satisfactory flight characteristics by reason of the ring-shaped forward end-face boundary surface of the shell jacket disposed perpendicularly to the shell axis. Therebeyond this type of prior art shell—as is also the case with all other known rifle or gun-barrel shells to a greater or lesser extent—has the disadvantage that in case of impact on hard parts of the animal body, it is very strongly deformed, thereby losing considerably in penetrating force and depth effect so that under certain circumstances it gets stuck in the body of the animal without killing the same, which however, is not compatible with proper hunting. This disadvantageous property has its cause in that the rifle or gun-barrel shells are made of lead or a lead-antimony alloy, that is, of a very easily deformable, soft material. The use of such a material is, however, conditioned by the fact that the buckshot rifles, that is the arms from which are fired the rifle or gun-barrel shells, are provided at the forward end of the smooth barrel thereof, that is of the barrel not provided with grooves or rifling, with a so-called choke bore, that is, with a constriction of the barrel in the direction toward its mouth. However, the rifle or gun-barrel shells have to be able to adapt themselves well to this constriction of the barrel, if, during the firing thereof, a damage of the arm is to be avoided.

Similar to the preceding rifle or gun-barrel shell described above are the conditions also with another known rifle or gun-barrel shell, in which a forward circular flat disk and a rearward circular flat disk are connected with each other by a wide, flat and spirally wound band or tape arranged therebetween.

Two further prior art types of rifle or gun-barrel shells exhibit considerably more favorable but by no means satisfactory stability and flight properties. These two prior art shells are provided with a shell jacket or casing essentially constructed as hollow cylinder, closed off at the forward end by a conically, spherically or similarly shaped, outwardly curved or projecting bottom, which shell jacket is provided along the circumference thereof with several guide strips or vanes extending parallel or slightly obliquely to the shell axis and distributed uniformly over the circumference, whereby the guide strips or vanes pass over into an annularly shaped collar provided at the rear end of the shell jacket while the collar

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also serves for the guidance of the shell in the gun or rifle barrel in as gas-tight a manner as possible. With one of these two prior art shell constructions the convexly curved configuration of the bottom extends over the entire cross section of the end face of the cylindrical shell jacket so that only the end surfaces of the guide strips are disposed in a plane perpendicular to the flight path. Accordingly, with this type of shell the air resistance is relatively slight. Disadvantageous with such type of shell is, however, the open rear part because the shell can be forced out of its intended flight path by the influence of the gases of the propellant charge since the gas sealing plug or stopper arranged loosely to the rear of the shell remains behind with respect to the shell during the exit of the shell out of the gun or rifle barrel so that propellant gases which possess directly ahead of the barrel mouth a larger velocity than the stopper or plug, are able to penetrate past the stopper or plug into the hollow space of the shell. This disadvantage is eliminated with the other of the two types of prior art shells in that the gas sealing plug or stopper is secured by means of a thread or screw at an approximately cylindrical extension arranged within the shell space and extending up to the rear end of the shell; however, this type of shell has the disadvantage that only the central portion of the bottom is curved in the outward direction so that in addition to the end faces of the guide vanes, an annular surface surrounding the central portion is still further disposed in a plane perpendicular to the flight path whereby the shell is exposed to a strong influence by the air. Both these types of prior art shells additionally have the disadvantage already mentioned above of a relatively strong deformation upon impact on particularly hard parts of the animal body and, therefore, do not exhibit the desired or required penetrating force or depth effect.

The present invention aims at an improvement of rifle or gun-barrel shells, especially at an increase of the penetrating force and depth effect. For a rifle shell made of lead or a lead alloy with a shell jacket or casing constructed essentially as hollow cylinder which is closed off at the forward end thereof by a bottom projecting or outwardly curved in a conical, spherical or similar manner over the entire end cross section of the shell jacket and which is provided along the circumference thereof with several evenly distributed guide vanes, preferably arranged parallel to the shell axis, which pass over into a ring-shaped collar provided at the rear end of the shell jacket, the present invention proposes to reinforce the bottom by means of a core or the like arranged in the hollow space of the shell and secured in the shell jacket and made of a harder material, especially of a more non-deformable material against impact effect, for example, of yellow brass. The otherwise customary flattening and deforming in the shape of a mushroom head on the part of the shell tip is avoided with certainty by the measures in accordance with the present invention, that is, there is achieved in accordance with the present invention that the bottom upon impact of the shell on the animal body, especially also in case of impact on hard parts of the same, maintains its curved shape so that the shell bores deeply in a wedge-like manner into the animal body and eventually bore through the same and leaves the same again. This advantageous effect is further reinforced if according to a further feature of the present invention the part of the shell jacket adjoining the bottom is also reinforced.

As further improvements of such a rifle or gun-barrel shell, and more particularly for the improvement of its flight properties, the present invention additionally proposes to bevel off or incline strongly the end surfaces of the guide vanes in the direction toward the outside and

toward the rear. The inclined surfaces can be constructed thereby either plane or also approximately in extension of the curvature of the bottom. It has been discovered to be favorable if the inclination or beveling off is realized at an angle of maximum 45° to the shell axis. An improvement of the flight properties and firing accuracy of the shell is also achieved in that the parts of the ring-shaped collar disposed between the guide vanes are beveled off or inclined at the forward end faces thereof in the direction toward the outside and toward the rear; the air resistance opposing the shell is thereby also effectively decreased.

In order to prevent that the gases of the propellant charge penetrate into the hollow space of the shell, according to a still further proposal of the present invention provision is made to close off the rear portion of the shell by means of a closure plug or stopper arranged within the shell, preferably in a flush manner. It thereby suffices if the stopper or plug is lightly pressed into the hollow space, for by the effect of the propellant gases the closure plug is held securely in the rear portion of the shell during the passage of the shell through the rifle barrel and at least also still during the first part of the flight path. Thereafter, the plug may become detached from the shell without inconvenience, that is, may remain behind with respect to the shell. Since the velocity of the powder gases, in contrast to that of the shell, decreases very rapidly behind the barrel mouth, the powder gases can, of course, no longer influence the shell along the further part of the flight path of the shell so that no impairment of the flight path thereof can take place by these powder gases, even if the plug should become detached from the shell, that is with an open rear part of the shell.

Instead of providing a separate closure plug or stopper in the rear part of the shell, use may also be made of the known measure to utilize the gas sealing stopper or plug of the cartridge as closure plug in that the same is connected with the rear part of the shell. For that case the present invention proposes to secure the stopper or plug equipped along its circumference with a number of annularly shaped disks or lamellae, disposed one behind the other and preferably made of plastic material, by means of a flange-like collar constructed at the forward end thereof within a ring-shaped recess in the shell rear part. It has been found thereby to be particularly appropriate to orient the lamellae or disks obliquely toward the rear, that is, to construct the same of conical shape with the apex pointing toward the bottom.

Such a construction of the lamellae or disks assures not only very favorable flight properties, especially a slight air resistance, but also a good sealing effect of the plug or stopper against the gases of the propellant charge during the passage of the shell through the barrel of the arm because the lamellae or disks are slightly raised or erected by the pressure of the powder gases acting thereagainst from behind and thereby pressed along the entire circumference thereof in a sealing manner against the barrel, and for the reason that these lamellae or disks, disposed one behind the other, additionally have an effect that is similar to that of a labyrinth seal.

By reason of the large elasticity and yieldingness of lamellae or disks constructed and arranged in this manner, it is additionally possible to give to the same a slight excessive diametric dimension, however, at least to adapt the diameter of the plug or stopper to the maximum barrel caliber under consideration of the large manufacturing tolerances used with the internal diameter of the barrel for buckshot rifles and therewith to increase considerably the sealing effect. Furthermore, lamellae or disks constructed in such a manner—which is very important with the relatively thin-walled rifle barrels—have also the advantage of a very small wear on the barrel by reason of their ability due to the elasticity and yieldingness thereof, to adapt themselves well during the passage through

the barrel to the inner walls thereof than is the case, for example, with the plugs of the usual type or also with plugs or stoppers having a radially outwardly directed lamellae; furthermore, the lamellae or disks oriented toward the rear have a lesser tendency with a narrow barrel caliber and strong choke bore to shear off than, for example, radially outwardly directed lamellae or disks.

It has also proved itself appropriate for the simple securing of the plug in the shell rear part to slot or slit the flange-like collar of the plug several times. Furthermore, it is advantageous for the full utilization of the powder gases of the propellant charge and particularly for purposes of achieving an effect of the powder gases on the plug or stopper, that is as exact as possible in the direction of the shell axis, to provide the bottom of the plug with a centrally arranged conically, spherically or similarly shaped recess.

Accordingly, it is an object of the present invention to provide a shell for rifles, especially for hunting rifles, which is simple in construction, yet effectively eliminates the aforementioned drawbacks and shortcomings encountered with the prior art constructions.

It is another object of the present invention to provide a shell for rifles that assures satisfactory flight properties, increases the firing accuracy and additionally enhances the penetrating force and depth effect.

Still a further object of the present invention resides in the provision of a rifle shell which permits the use of relatively soft, easily deformable material, yet is provided with a reinforcement that effectively prevents excessive deformation, especially during impact on relatively hard parts of the animal target.

Another object of the present invention resides in the provision of a rifle shell that exhibits good sealing properties, has slight air resistance during its free flight and prevents flattening of the shell tip upon impact on the animal target.

Still a further object of the present invention resides in the provision of a rifle shell that remains substantially unaffected in its flight path by the presence of the gases to the rear of the shell.

A still further object of the present invention resides in the provision of a rifle shell that assures good adaptation thereof to the barrel dimension notwithstanding the relatively large manufacturing tolerances used in the manufacture of the barrel diameter of such guns.

These and further objects, features, and advantages of the present invention will become more obvious from the following description when taken in connection with the accompanying drawing which shows, for purposes of illustration only, several embodiments in accordance therewith, and wherein

FIGURE 1 is a cross sectional view through a shell in accordance with the present invention having a closure plug arranged in the rear part of the shell,

FIGURE 2 is a cross sectional view, similar to FIGURE 1, of a modified embodiment of a rifle shell in accordance with the present invention,

FIGURE 3 is a cross sectional view through a still further modified embodiment of a rifle shell having a gas seal stopper secured in the shell rear part and serving as closure plug,

FIGURE 4 is a cross-sectional view, similar to FIGURE 1, through a shell in accordance with the present invention wherein the forward portion is conically shaped, and

FIGURE 5 is a cross-sectional view, similar to FIGURE 3, through a still further modified embodiment of a rifle shell having a gas seal stopper secured in the rear shell part and having a spherical recess.

Referring now to the drawing wherein like reference numerals are used throughout the various views to designate like parts, and more particularly FIGURE 1, the bottom is designated by reference numeral 1. The forward part of the shell jacket or casing 2 adjoining the

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bottom 1 is reinforced by means of a core 3 made, for example, of brass, whereby the core 3 is secured against unintentional disengagement or detachment by a necked-down constriction of the shell jacket. Of course, any other known material may be used as core material for any or all the embodiments described herein. The cylindrical extension 4 provided at the rear end of the core 3 is constructed as abutment for the plug or stopper 6 which closes off the hollow space 5 of the shell in a gas-tight manner and which consists, for example, of felt, cork, plastic material or the like so that the stopper or plug 6 terminates approximately flush with the end of the shell jacket 2, if its forward end surface 6a abuts against the rear end surface 3a of the core 3. The end surfaces 7 of the guide vanes 8, for example, six in number, evenly distributed over the circumferences of the shell jacket 2 and formed thereat, are beveled off or inclined at an angle of 45° to the shell axis and are constructed as plane surfaces. Similarly, the forward end surfaces 9 of the parts of the annularly shaped collar 10 disposed between the guide vanes and formed at the rear end of the shell casing 2 are beveled off or cut off obliquely at an angle of 45° to the shell axis and are also constructed as plane surfaces.

In FIGURE 2, those parts corresponding to similar parts of FIGURE 1 are designated by the same reference numerals. The core 3 has in this embodiment a different shape and reinforces only the bottom 1. The core 3 is held against unintentional disengagement or detachment by means of constrictions in the shell jacket 2. The end surfaces 7 and guide vanes 8 are constructed in this embodiment as extensions of the curvature of the bottom 1 whereas the forward end surfaces 9 of the parts of the ring-shaped collar 10 disposed between the guide vanes 8 are extended up to the bottom 1 so that a very pronounced inclination results that assures a particularly low air resistance, especially as the slightly convexly curved surfaces 9 pass over into the bottom 1 by means of a curvature with relatively small radius. A rounding-off or curvature is also provided at the transition of the end surfaces 7 into the outer surfaces 11 of the guide vanes 8 extending parallel to the axis.

As in the embodiment of FIGURE 1, a closure plug 6 closing up the hollow space 5 of the shell may, of course, be provided also in this embodiment. Any such plug or stopper will be appropriately so dimensioned that it is pressed into the hollow space 5 of the shell 2 by the pressure of the propellant gases just so far that it closes off flush with the end of the shell jacket 2. In order to limit with certainty the pressing-in of the plug or stopper 6 into the shell jacket 2, to the desired extent, an abutment may also be provided in the shell jacket 2 in that the inner surfaces of the shell jacket 2 may be offset in a step-shaped manner by means of an indent or cut-in recess.

In the embodiment of FIGURE 3, the core 3 reinforces both the bottom 1 as well as also the forward part of the shell jacket 2. The end surfaces 7 and 9 are again beveled off or inclined in the same manner as in the embodiment of FIGURE 1. A plug or stopper 12 made, for example, of plastic material is arranged at the rear end of the shell jacket 2 and is so held by means of the ring-shaped collar 13 provided at the forward end thereof in the groove 14 provided in the rear end of the shell jacket 2 that the forward end-face of the plug 12 abuts flush against the rear end-face of the shell jacket 2 and thus closes the hollow space 5 of the shell in a gas-tight manner. The plug or stopper 12 is provided at its circumference with a number of annularly shaped lamellae or disks 15, one disposed behind the other and of conical shape oriented to the rear, which seek to erect themselves slightly or seek to spread apart slightly upon firing, that is, during the passage of the shell and of the plug 12 through the barrel 18 of the arm under the pressure of the propellant gases and are thus securely and well sealingly pressed against the barrel 18, whereby the loss in

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propellant gases is reduced to a minimum, particularly as the lamellae additionally possess also the effect of a labyrinth seal.

The central bore 16 provided at the forward end of the plug 12 may serve both for purposes of material-savings as well as also for purposes of influencing the location of the center of gravity of the shell whereas the conical recess 17 accommodated the rear end of the plug 12 serves the purpose to permit to as large as possible a portion of the gas pressure to act centrally on the plug 12 in order to achieve thereby as large as possible a utilization of the gas pressure.

To secure the plug 12 more easily in the shell jacket or casing 2 the ring-shaped collar 13 is provided with several radial cut outs or slots 19 at the end face thereof, which are evenly distributed over the circumference, whereby the collar 13 and the annular segment-shaped parts thereof become somewhat yielding and/or elastic.

In FIGURE 4, those parts corresponding to similar parts of FIGURE 1 are designated by the same reference numerals. In this embodiment, the bottom 3 has a conical shape.

In FIGURE 5, those parts corresponding to similar parts of FIGURE 3 are designated by the same reference numerals. This embodiment is substantially the same as that of FIGURE 3; however, at the rear end of the plug 12, the recess 17 is of a spherical shape.

While I have shown and described several embodiments in accordance with the present invention, it is understood that the same is not limited thereto but is susceptible of numerous changes and modifications as known to a person skilled in the art, and I therefore, do not wish to be limited to the details shown and described herein but intend to cover all such changes and modifications as are encompassed by the scope of the appended claims.

I claim:

1. A shot-gun bullet for shooting large animals, comprising:

shell jacket means of a size and shape to be fired from a shot-gun, constructed substantially as hollow cylinder and made of a material relatively easily deformable under the impact of being fired from a shot-gun to constrict in diameter during passage through the choke of a shot-gun,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said annularly shaped collar means,

and core means made of a relatively harder material substantially non-deformable under the impact of being fired from a shot-gun and striking a large animal, said core means being arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means so that said bottom means will substantially retain its configuration during firing from a shot-gun and striking a large animal.

2. A rifle shell, comprising:

shell jacket means constructed substantially as hollow cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more

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non-deformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

and closure plug means for closing off the hollow space of the shell jacket means in a gas-tight manner, said closure plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said lamellae-like elements being oriented obliquely toward the rear end being of approximately conical shape.

3. A rifle shell, comprising:

shell jacket means constructed substantially as hollow cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more non-deformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

and closure plug means for closing off the hollow space of the shell jacket means in a gas-tight manner, said closure plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said closure plug means being provided at the forward end thereof with a collar-shaped extension and being secured with the collar shaped extension thereof in a correspondingly shaped recess provided in the rear part of the shell jacket means.

4. A rifle shell, comprising:

shell jacket means constructed substantially as hollow cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more non-deformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

and closure plug means for closing off the hollow space of the shell jacket means in a gas-tight manner, said closure plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said closure plug means being provided at the forward end thereof with a collar extension and being secured with the collar shaped extension thereof in a correspondingly shaped recess provided in the rear part of the shell jacket means,

said collar shaped extension being provided with a plurality of radially extending apertures along the end face thereof.

5. A rifle shell, comprising:

shell jacket means constructed substantially as hollow

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cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more non-deformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

and closure plug means for closing off the hollow space of the shell jacket means in a gas-tight manner, said closure plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said plug means being provided at the forward end with a central bore.

6. A rifle shell, comprising:

shell jacket means constructed substantially as hollow cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more non-deformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

and closure plug means for closing off the hollow space of the shell jacket means in a gas-tight manner, said closure plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said plug means being provided at the rear end with a central recess.

7. A rifle shell according to claim 6, wherein the said recess is of substantially conical shape.

8. A rifle shell according to claim 6, wherein the said recess is of substantially spherical shape.

9. A rifle shell, comprising:

shell jacket means constructed substantially as hollow cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more non-deformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

and closure plug means for closing off the hollow space of the shell jacket means in a gas-tight manner, said closure plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said lamellae-like elements being oriented obliquely toward the rear and being approximately of conical shape,

said closure plug means being provided at the forward end thereof with a collar shaped extension and being secured with the collar shaped extension thereof in a correspondingly shaped recess provided in the rear part of the shell jacket means,

said collar shaped extension being provided with a plurality of radially extending apertures along the end face thereof.

10. A rifle shell, comprising:

shell jacket means constructed substantially as hollow cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more non-deformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

and closure plug means for closing off the hollow space of the shell jacket means in a gas-tight manner, said plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said lamellae-like elements being oriented obliquely toward the rear and being of approximately conical shape,

said closure plug means being provided at the forward end thereof with a collar shaped extension and being secured with the collar shaped extension thereof in a correspondingly shaped recess provided in the rear part of the shell jacket means,

said collar shaped extension being provided with a plurality of radially extending apertures along the end face thereof,

and said plug means being provided at the forward end with a central bore and at the rear end thereof with a central recess.

11. A rifle shell, comprising:

shell jacket means constructed substantially as hollow cylinder and made of a relatively easily deformable material,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which pass over into said collar means,

core means made of a relatively harder material more nondeformable against impact arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means,

said core means also reinforcing the portion of the shell jacket means adjoining the bottom means, the end surfaces of said guide vane means being strongly inclined in the direction toward the outside and toward the rear,

the parts of the annularly shaped collar means disposed between the guide vane means being also strongly inclined at the front end surfaces thereof in the outward and rearward directions,

said closure plug means made of plastic material for

closing off the hollow space of the shell jacket means in a gas-tight manner, said closure plug means being arranged and secured at the rear end of said shell jacket means and being provided with a plurality of annularly shaped lamellae-like elements one disposed behind the other,

said lamellae-like elements being oriented obliquely toward the rear and being of approximately conical shape,

said closure plug means being provided at the forward end thereof with a collar shaped extension and being secured with the collar shaped extension thereof in a correspondingly shaped recess provided in the rear part of the shell jacket means,

said collar shaped extension being provided with a plurality of radially extending apertures along the end face thereof,

and said plug means being provided at the forward end with a central bore and at the rear end thereof with a central recess.

12. A shot-gun bullet for shooting large animals, comprising:

shell jacket means, of a size and shape to be fired from a shot-gun, constructed substantially as hollow cylinder and made of a material relatively easily deformable under the impact of being fired from a shot-gun to constrict in diameter during passage through the choke of a shot-gun, said material being selected from the group of lead and lead alloys,

said shell jacket means including bottom means closing off the forward end thereof and projecting outwardly substantially over the entire cross section of the end face thereof, annularly shaped collar means at the rear end of said shell jacket means, and a plurality of substantially uniformly distributed guide vane means along the circumference thereof which extend approximately parallel to the shell axis, and pass over into said annularly shaped collar means,

and core means made of a relatively harder material substantially nondeformable under the impact of being fired from a shot-gun and striking a large animal, said material essentially consisting of brass, said core means being arranged within the hollow space of the shell jacket means and secured in said shell jacket means for reinforcing the bottom means so that said bottom means will substantially retain its configuration during firing from a shot-gun and striking a large animal.

13. A rifle shell according to claim 1, wherein the bottom means projecting outwardly substantially over the entire cross section of the end face of said shell jacket means is of convexly curved configuration.

14. A rifle shell according to claim 1, wherein the bottom means projecting outwardly substantially over the entire cross section of the end face of said shell jacket is of spherical configuration.

15. A rifle shell according to claim 1, wherein the bottom means projecting outwardly substantially over the entire cross section of the end face of said shell jacket is of conical configuration.

16. The shot-gun bullet of claim 1, including said core means also reinforcing the portion of said shell jacket means adjoining said bottom means.

17. The shot-gun bullet of claim 1, including the forward end surfaces of said guide vane means being strongly inclined in the direction toward the outside and toward the rear.

18. The shot-gun bullet of claim 17, including the parts of said annularly shaped collar means disposed between said guide vane means being also inclined strongly at the front end surfaces thereof in the direction toward the outside and toward the rear.

19. The shot-gun bullet of claim 1, including separate closure plug means for closing in a gas-tight manner the hollow space of said shell jacket means toward the rear,

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said closure plug means being arranged within said shell jacket means adjacent to said core means and terminating in a substantially flush manner with the rear end of said shell jacket means.

20. The shot-gun bullet of claim 1, including closure plug means for closing off the hollow space of said shell jacket means in a gas-tight manner, said closure plug means including a plurality of annularly shaped lamellae-like elements one disposed behind the other and each of said elements having an outer peripheral portion axially spaced from the outer peripheral portion of the adjacent element.

21. The shot-gun bullet of claim 18, including: said core means also reinforcing the portion of said shell jacket means adjoining said bottom means, and separate closure plug means for closing in a gas-tight manner the hollow space of said shell jacket means at the rear thereof, said closure plug means being arranged at least in part within said shell jacket means and being secured to the rear end thereof.

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