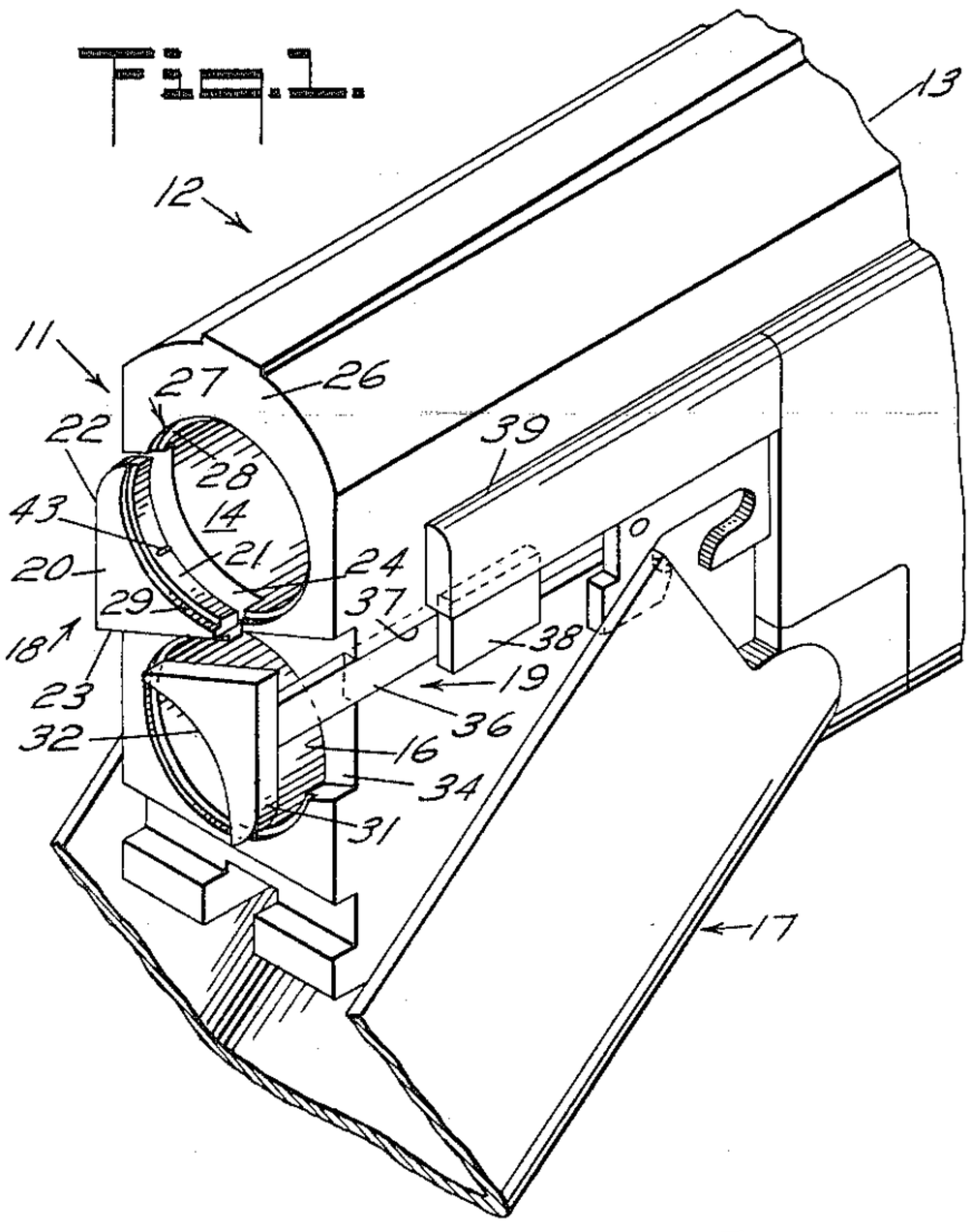
Sept. 20, 1960 B. W. STEVENS 2,952,933

SHELL RETAINER MOUNTED ON EXTRACTOR

Filed June 5, 1958

Fig. 1.



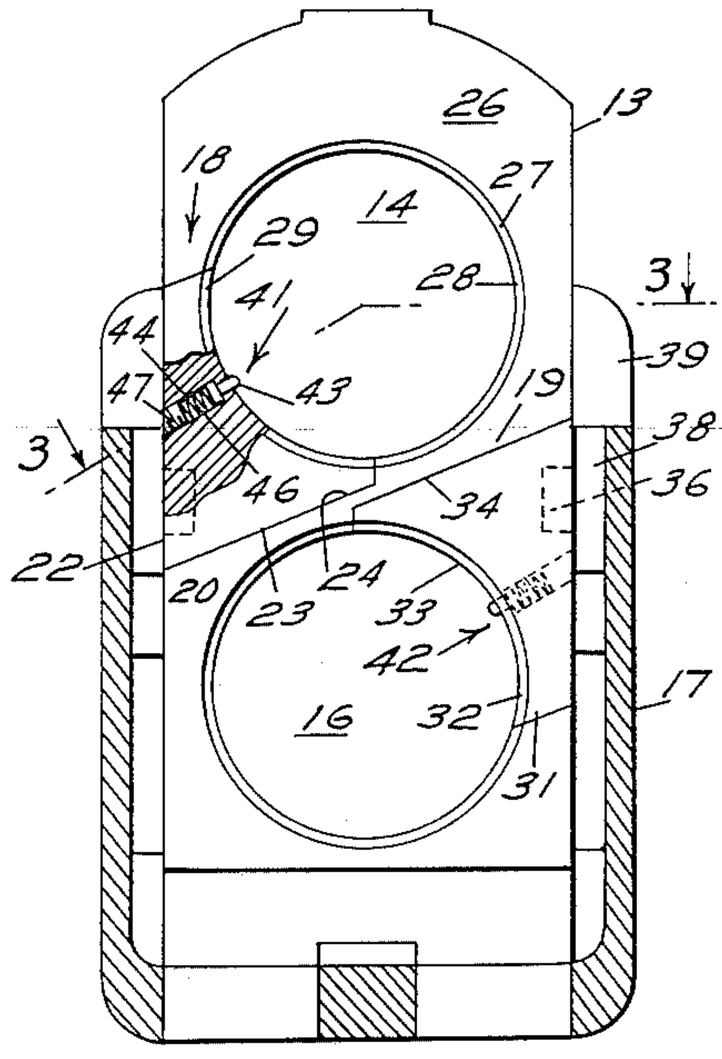


Fig. 2.

Fig. 3.

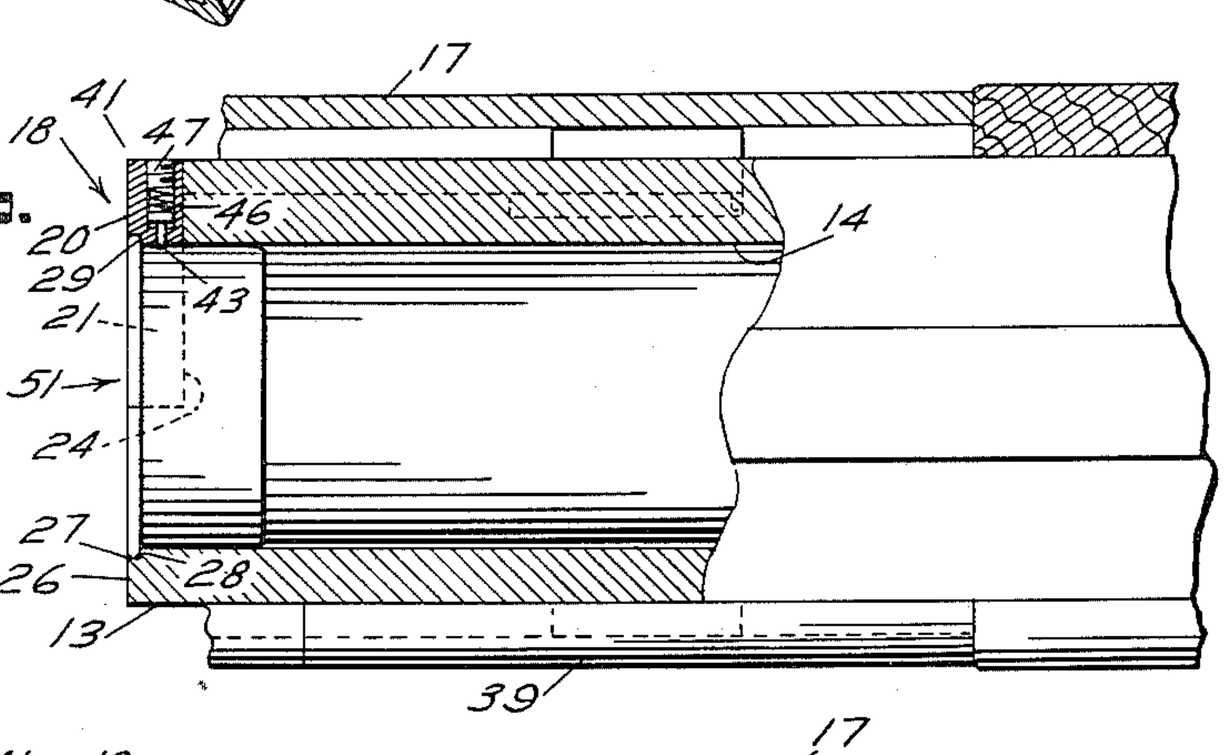
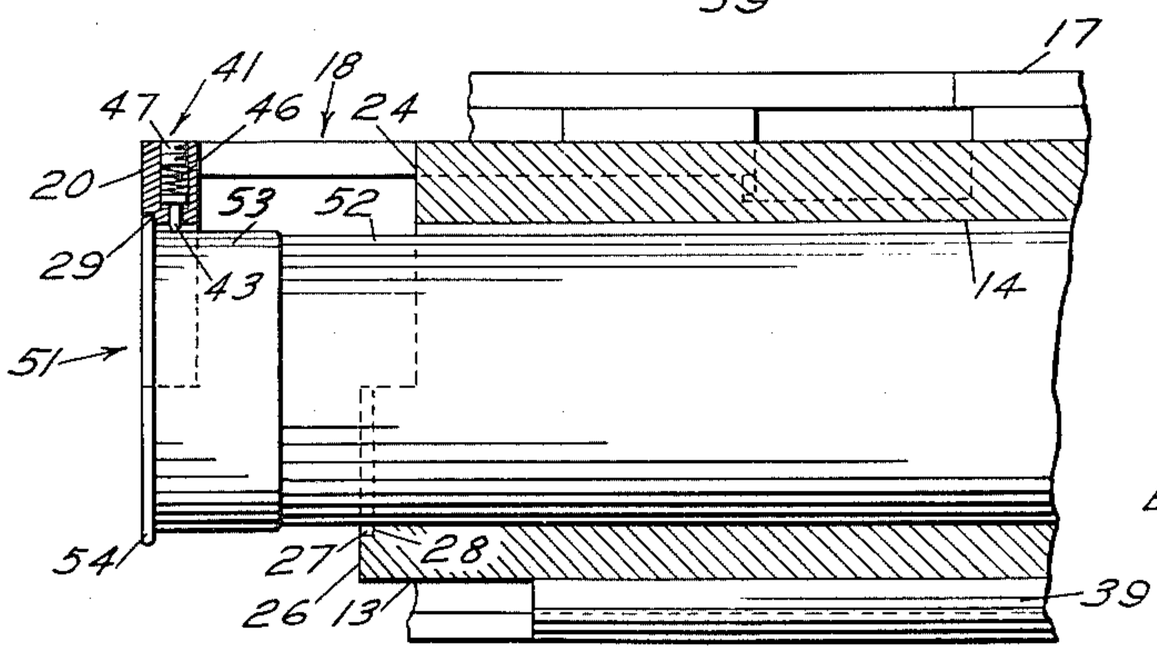


Fig. 4.



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SHELL RETAINER MOUNTED ON EXTRACTOR

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3 Claims. (Cl. 42—1)

The present invention relates to an improvement in firearms and shotguns or the like in particular, and more specifically the invention relates to means for retaining shells in a shotgun or similar firearm.

In the utilization of shotguns it is quite often necessary to load and reload in very close quarters wherein it is not possible to direct the gun barrel downward. The shooting of fowl such as ducks or the like requires an upward shot trajectory so that the gun is normally held with the muzzle upwards and in places such as duck blinds insufficient space is available to swing the gun barrel downward for reloading but instead timely reloading must be carried out with the gun pointed upwards. This poses a problem in the reloading operation for a shell placed in the gun breech will by gravity immediately slide back out of same so that heretofore it has been necessary to manually hold the shell in position as the gun is being closed, by placing a finger on the back of the shell and pressing same into the gun. This problem is seriously multiplied for double-barrelled shotguns for the manual manipulation required in such a loading operation is quite difficult.

The foregoing problem is herein solved by the provision of means automatically retaining the shell in position against the force of gravity acting upon the shell. While this gun modification prevents the shell from slipping rearwardly from the gun it also admits ready manual shell removal inasmuch as no force of great magnitude is applied to the shell nor is there any chance of the exploding shell in any way causing interconnection of shell casing and retention means. Further, the retention means herein is substantially wholly protected from explosion forces even of faulty shells so that no material stressing of the retention means is possible and consequently a minimization of original cost and maintenance results. Of further particular interest regarding the present invention is the fact that same is particularly well adapted for incorporation in existing firearms in that for most installations no operations on the gun barrel are required so that inexpensive modification is all that is necessary.

It is an object of the present invention to provide an improved firearm construction including shell retention means exteriorly of the firearm barrel.

It is another object of the present invention to provide an improved breech for shotguns and the like including shell retention means disposed to engage only a metal cap portion of a cartridge.

It is a further object of the present invention to provide an improved shotgun having shell retention means for retaining a shell against gravitational forces and disposed out of shell blast area.

It is yet another object of the present invention to provide an improved shell retainer for a gun disposed thereon to radially contact only the shell cap.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

The invention is illustrated in the accompanying drawing wherein:

Figure 1 is a perspective view of a shotgun breech in open position.

Figure 2 is a transverse sectional view through a shotgun breech in closed position and taken in a plane through the shell extractor with portions broken away as indicated.

Figure 3 is a longitudinal sectional view of the shotgun breech taken in the plane 3—3 of Figure 2 with a shell injected.

Figure 4 is a sectional view in the same plane as Figure 3 but showing the shell in position prior to injection.

Considering now the invention in some detail and referring first to Figure 1 of the drawing, there is illustrated the breech **11** of a generally conventional "over-under" double-barrelled shotgun **12**. There will be seen to be provided a barrel **13** having upper and lower bores **14** and **16** respectively, with a channel housing **17** pivotally mounted thereon. The housing **17** is mounted beneath the barrel **13** at the rear thereof and is adapted to carry firing mechanism and a stock, not shown. As in many conventional shotguns, there is herein included selective automatic shell extractors **18** and **19** and considering the upper extractor **18**, for example, same will be seen to include a sector **20** having a concavely arcuate surface **21** corresponding to the bore curvature and an overall triangular configuration including straight sides **22** and **23** intersecting at an angle. The sector **20** has a generally planar shape and is adapted to fit snugly within a depression **24** formed in the rear face **26** of the barrel **13**. About each of the barrel bores **14** and **16** at the rear face of the barrel **13** there is formed a step **27** comprising an indentation about the bore and defining a shoulder **28**. This step configuration is continued upon the arcuate face **21** of the sector **20** in the form of a step **29** thereon at the rear or outer surface of the sector so that with the sector snugly fitted in the barrel depression **24** there is provided a continuous step about the bore at the rear face **26** of the barrel, inasmuch as the sector has the same thickness as the barrel depression **24**.

The lower extractor **19** is made the same as the upper extractor **18** described above except that it is placed on the opposite side of the barrel **13**. This lower extractor includes a sector **31** having an arcuate face **32** with a step or shoulder **33** along the outer or rear edge thereof and fits within another depression **34** formed in the rear face **26** of the barrel. A slide bar **36** is rigidly affixed to the front face of the sector **31** at the vertical straight side thereof and this bar **36** is slidably disposed in a rectangular slot **37** milled or otherwise formed in the barrel along a side thereof and is spring loaded. The extractor slide bar **36** is connected, as by means including a block **38** mounted partially beneath a plate **39** on the barrel, to the upper leading corner of the channel housing **17** so that upon breaking of the gun, or opening of the breech thereof, the channel housing pivoting about its lower leading corner operates through the block **38** and bar **36** to

slide the sector **31** rearwardly of the barrel out of the depression therein.

This extractor structure is repeated for the upper extractor **18** and is conventional in shotgun construction. The extractor sectors, while not necessary to the present invention, provide convenient location for the placement and mounting of the improvement herein without modification of the gun barrel. As may be best seen in Figures 2–4, there are provided like cartridge retainers **41** and **42** upon the extractors **18** and **19** respectively and the retainer **41**, for example, includes a detent **43** disposed within a small hole **44** in the sector **20** and extending through the arcuate sector face **21**. A spring **46** is compressed between the detent **43** and a plug **47** threaded into the sector from the straight side **22** thereof so as to urge the detent beyond the arcuate sector face **21**. The detent is slidably disposed in the hole **44** and is restrained from leaving same by cooperating shoulders on the detent and sector.

In operation of the present invention there is injected into the bore **14**, for example, a shell **51** including a cylinder **52** of cardboard or the like extending from a cap **53** having a rear flange **54** thereabout. Such a shell **51** is conventional and is adapted to fit within the bore **14**, however, a relatively loose fit is provided so that with the barrel inclined upwards the shell tends to slide rearwardly out of the bore before the breech is closed. In shell insertion the shell flange engages the extractor shoulder **29** as shown in Figure 4, and by pressing the shell fully into the barrel bore the extractor **18** is slid forward to dispose the sector **20** in the depression **24**, i.e., the position shown in Figure 3. In the present invention the sliding of the shell fully into the barrel bore operates not only to move the extractor forward but also to depress the detent **43** thereon whereby the shell retainer spring **46** is further compressed. The detent **43** thus bears radially upon the metal shell cap **53** so as to hold the shell from falling out of the barrel. Of particular importance is the placement of shell retaining means **41** and **42** for same are disposed to engage the metal shell cap **53** with the shell **51** fully inserted in the barrel. With this retainer placement there is no possibility of catching the relatively soft shell cardboard **52** on the retainer and also there is no possibility of retainer damage during firing of the gun. This rearward retainer disposition for engaging the cartridge cap portion is highly advantageous for the foregoing reasons as well as other reasons including the relative accessibility of the location for ready installation of the retainer upon guns already built. Furthermore, the retainer spring **46** is not compressed by shell explosion as the rear metal shell cap engaged by the retainer does not deform during shell firing.

It will be appreciated that the retainer **41** exerts only a small radial force upon the shell **51** so that the shell is easily removed from the extractor with only slight manually applied pressure. As shown in Figure 4, the extractor **18** withdraws the shell **51** slightly from the barrel upon opening of the breech and finger pressure readily removes the shell for discard. Also in guns having no extractor the retainer force is only sufficient to hold the shell against falling with gravitational force and no difficulty is interposed thereby to the manual extraction of the spent shell.

What is claimed is:

1. A shell retainer for a gun having a barrel including forward and rearward ends and a breech opening adjacent said rearward end, a retractable shell extractor supported at the rearward end of said barrel for movement longitudinally of the barrel and having a shell contacting face adapted to engage a side portion of a metal shell cap, the shell retainer comprising a spring actuated member mounted on said extractor for limited extension beyond the contacting face of the extractor for engagement with a shell when the shell is positioned opposite said face.

2. A gun comprising an elongated hollow barrel having front and rear ends, an extractor means slidably supported at the rear end of said barrel and movable longitudinally of the barrel, said extractor means having an arcuate stepped face adapted to engage a shell cap for retracting the shell, a detent slidably mounted in said extractor means, spring means normally urging said detent means such that a portion of the detent means extends beyond said arcuate stepped face, whereby shells inserted within the barrel are retained from falling rearwardly therefrom by radial detent pressure thereon.

3. Apparatus as defined in claim 2 wherein said extractor means has a radially extending hole formed in said stepped surface, said detent being slidably disposed within said hole, said spring means for urging the detent outwardly being disposed in said hole and engaging said detent means, and means movably disposed in said hole and engaging said spring.

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