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SHOTGUN SHELL CASE NECK RESIZER

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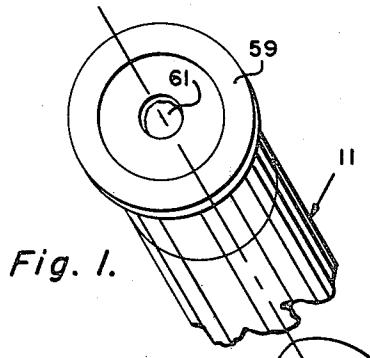


Fig. 1.

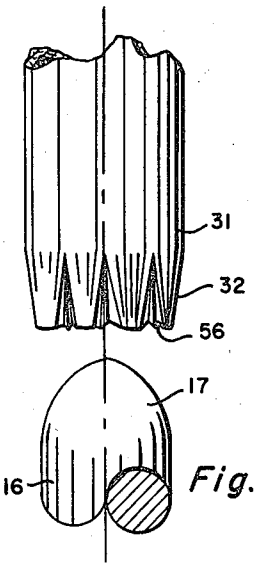
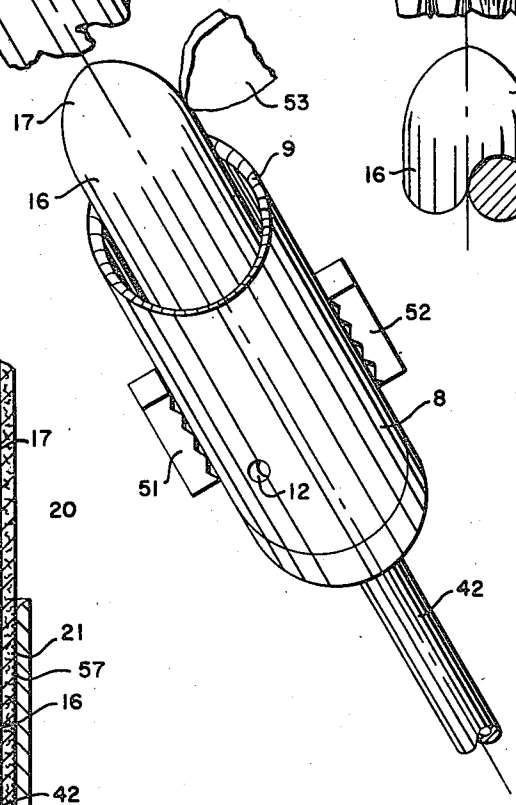


Fig. 2.



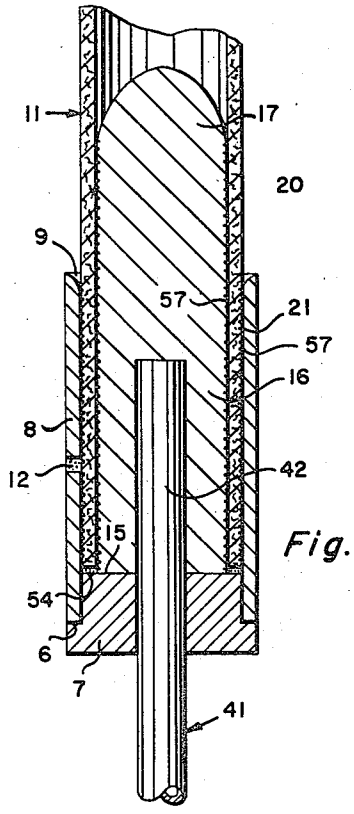


Fig. 3.

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SHOTGUN SHELL CASE NECK RESIZER

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1 Claim. (Cl. 86—23)

The invention relates to devices for reworking used shotgun shells to put the shells in condition for reloading.

In recent years the price of new shotgun shells has reached the point where the reworking of shells after use has become highly attractive. Furthermore, many hobbyists prefer, for the satisfaction it gives them, to rework their own ammunition.

It is therefore an object of the invention to provide a shell resizer which is economical to manufacture and which therefore puts the device within the economic reach of all persons who are interested in such activity.

It is another object of the invention to provide a shell resizer which is simple and has no moving parts to get out of order.

It is yet another object of the invention to provide a shell resizer which requires but very little space for its use.

It is a further object of the invention to provide a shell resizer which is easy to use and yet which enables the operator quickly to turn out a precision product.

It is yet a further object of the invention to provide a shell resizer which produces a uniform product, a feature of great importance to users who especially desire uniform and reliable shooting results.

It is another object of the invention to provide a generally improved shotgun shell case neck resizer.

Other objects together with the foregoing are attained in the embodiment described in the following description and shown in the accompanying drawings in which:

Figure 1 is a perspective of the resizer clamped in vertical position and illustrating the manner of placement of a shotgun shell on the resizer.

Figure 2 is a fragmentary view of the pilot nose of the resizer and illustrating the manner of placement of a used shotgun shell case neck over the pilot nose preparatory to resizing.

Figure 3 is a median vertical section of the resizer showing a shotgun shell case in operative position within a resizer and undergoing the resizing treatment.

While the shell resizer of my invention is susceptible of numerous physical embodiments depending upon the types of shells to be used and the particular environment and manner of use, a substantial number of the herein shown and described resizers have been made and used by persons skilled in the art of reworking shells and have performed in an eminently satisfactory fashion.

Mounted vertically on a stepped shoulder 6 of a circular cylindrical base plate 7 is a tube 8 terminating at its open upper end in a bell mouth 9 adapted smoothly to guide downwardly a shotgun shell case, generally designated by the numeral 11. A blow-hole 12, or aperture, is disposed within the side of the tube 8 in a location intermediate the opposite ends of the tube.

Mounted on the upper surface 15 of the base plate 7 and disposed coaxially therewith is a solid right circular cylindrical stud 16 terminating at its upper end in a smoothly rounded nose 17 or pilot.

The inner diameter of the tube 8 and the outer diameter of the stud 16 are predetermined, the dimensions being chosen so that the cavity 21, or compartment, defined by the tube and stud will receive in snug fit fashion the shotgun shell case 11.

Furthermore, the lengths of the stud 16 and the tube 8 are chosen so that they bear a predetermined relation to the length dimension of the shell case to be resized and especially to the length of the shell neck. In other words the length of the annular cavity 21 is selected so that the cavity's length exceeds by only a predetermined amount the portion of the shell case ordinarily termed the neck portion, a term known to those skileld in the art, and comprising the crimped portion and the portion adjacent thereto. Preferably, the cavity length exceeds the length of the shell neck portion by an amount approximating ¼ to ⅓ of the shell length. Furthermore, the portion 20 of the stud which extends outwardly beyond bell mouth 9 is chosen so that the stud provides a substantial measure of support to the entire shell length, the support feature of the projecting stud being an important aspect of the device, and serving accurately to center the shell during resizing and to prevent canting or tilting.

As appears most clearly in Figure 2, the customary shell case neck portion 31 is considerably out of round or of highly irregular outline adjacent the shell closure portion 32 owing to the fact that the closure is often not wholly unfolded.

In overcoming this difficulty the rounded nose or pilot 17 is of especial utility, since, as appears in Figure 2, the nose portion 17 enters the partially folded closure 32 and forces it open as the shell is urged downwardly over the stud.

At the lower end of the device a heating element 41 is provided, similar to the element of an electrically heated soldering iron. The inner portion 42 of the heating element 41 serves quickly to heat not only the stud 16 but also by conduction the base 7 and the tube 8.

Prior to resizing the first shell the device is clamped between suitable jams 51 and 52 and the heating source is applied. Upon the device's reaching the required degree of heat, a daub of resizing material is applied to the stud 16 by touching the outside of the stud with a piece 53 of resizing wax such as paraffin. An instant only is required to melt a sufficient quantity of the wax. Owing to the high heat of the components of the device, the wax substantially instantaneously fluxes over the entire surface of the stud and over the interior walls of the tube 8, as well as running downwardly to cover the exposed portion 54 of the base plate. The surrounding walls of the cavity 21 in other words, are lined with a thin but uniform layer of very hot wax.

The shell 11 is thereupon inserted over the pilot nose 17, as seen most clearly in Figure 2, the pilot nose camming in an opening direction the closure portion 32. As the shell is progressively urged downwardly over the stud, the closure leading edge portion 56 is smoothly guided downwardly by the bell mouth 9 into the cavity 21. The shell is thereupon urged downwardly farther until it reaches the portion 54 of the base plate at which time the user is informed by sense of touch that the shell has been inserted the proper distance into the resizer. As the shell is urged downwardly into the cavity 21, the heat of the interior stud and of the exterior tube brings the shell case neck portion rapidly to an elevated temperature.

The hot paraffin wax lining 57 on the walls of the cavity and in contact with the inner and outer layers of the shell penetrates within the pores of the shell case material. Any gases developed by the interaction of the extremely hot wax and the shell case escape through the blow-hole 12, the blow-hole also serving as an overflow for any excessive wax.

Upon determining that the shell has reached the inner-

most location, the operator gives a quarter to a half turn, in both directions, to the shell and immediately withdraws the same. Upon withdrawal, the shell is conveniently placed in a vertical position resting upon its base 59 and allowed to cool. The heat from the metal as well as the hot wax both serve to reform the shell neck portion into a perfect hollow circular cylindrical form and, as the wax cools and solidifies, the neck portion is not only retained in its perfect shape but is also water proofed by the wax in a fashion highly to be desired.

It can therefore be seen that I have provided a shotgun shell case neck resizer which is not only economical to manufacture but which is simple, quick and effective in operation, and which, furthermore, is long-lived.

What is claimed is:

A device for use in resizing the neck portion of a shotgun case comprising: a circular base plate having a thickness equal to at least one-fourth of its diameter, a tube having its base mounted coaxially on said plate, the walls of said tube having a vent hole therein, a right circular cylinder having its base mounted coaxially on said plate and defining in conjunction with said tube an annular compartment adapted snugly to receive a shotgun shell case neck to a predetermined depth, said cylinder projecting outwardly beyond the margin of said tube and terminating in a rounded nose, and an electrical heating element extending coaxially through said base and into said cylinder.

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