This invention relates to devices for trimming spent cartridge cases to render them safely reusable.

In the practice of self-loading ammunition, spent cartridge casings are reworked, and reloaded so that they can be fired again. In many instances, the same cartridge casing may be used several times, at a great saving in cost of ammunition to the user.

However, as shells are fired, their cartridge casings stretch under explosive force, and repeated firings increases this stretching. If the cartridge is reloaded, an amount of casing material equal to the amount stretched is not trimmed off the open end of the casing, that end of the casing will abut the frusto-conical section of the rifle chamber which forms a periphery for the rifle bore, and be crimped against the bullet as the rifle bolt is seated. Since the rifle chamber tightly surrounds such crimped section, the cartridge casing cannot yield as it normally does when fired and dangerous pressures are built up that may damage the rifle and possibly injure the user.

It is therefore a principal object of this invention to provide a tool that can be used to quickly and accurately trim a spent cartridge casing to its original standard length.

Further objects of this invention are to provide such a trimming tool that is simply operated, is adapted for use with conventional loading presses, that is composed of but a few economically constructed parts, and that can be used to accurately trim a cartridge case to a specific length.

In accomplishing the above objects, I utilize a cylindrical housing exteriorly threaded at its bottom end for use with standard loading presses and provided with a side window therein to facilitate removal of cuttings, a cartridge casing guide positioned in the bore of the housing, an adjustment plug positioned in the top end of said housing bore, a rotating cutter extending through the adjustment plug, means to bias the cutter into continuous cutting engagement with a cartridge to be trimmed, and means for limiting downward movement of the cutter and for rotating the cutter.

There is shown in the accompanying drawing a specific embodiment of the invention representing what is presently regarded as the best mode of carrying out the generic concepts in actual practice. From the detailed description of this presently preferred form of the invention, other more specific objects and features will become apparent.

In the drawing:
FIG. 1 is a cross section elevation of the assembled cartridge case trimmer;
FIG. 2 is a side view of the cutter; and
FIG. 3, an end view of the cutter, showing the formation of the cutting edges.

Referring now to the drawing:
In the illustrated preferred construction, the cartridge case trimmer shown generally at 10 includes a cylindrical housing 11 having side windows 12 through which cuttings are expelled in a manner to be further explained. Housing 11 is exteriorly threaded at its bottom end, as shown at 13, and is adapted to be screwed into standard loading presses.
A shoulder 14 is provided in bore 15 of the housing, and a cartridge case guide 16 is seated thereon and held securely in place by a set screw 17, screwed into engagement with threads in port 18 which extends through the housing sidewall.
Guide 16 has a hole 19 therethrough, through which the neck of the cartridge casing to be trimmed is inserted. Since guide 16 surrounds the neck of the cartridge casing, any particular guide can be used for all bullets of the same caliber, regardless of the size of the remainder of the cartridge casing. However, it is necessary in operation of the cutter to have a separate guide for each caliber of bullet casing trimmed.

The upper end of bore 15 is threaded and adapted to receive an exteriorly threaded adjustment plug 20 which may be screwed into housing 11 a desired distance, and then locked in place by lock nut 21 which surrounds plug 20. Lock nut 21 is adapted to be screwed down tight against housing 11.

Stem 22 of cutter 23 extends through adjustment plug 20 and has a cutting head 24 formed at its lower end. A handle 25 is secured to the other end of stem 23 and serves as a means by which the cutter can be rotated.

An expansion spring 26 is provided between the underside of plug 20 and the top of head 24 and serves to bias the head away from the plug. Handle 25 prevents the cutter being forced out of plug 20.

In operation, a cartridge casing of standard size is inserted through guide 16 and securely held in place, as for example, by a lever of a standard loading press. The caliber of the bullet being loaded, and the corresponding size of the neck of the cartridge, will determine the size opening required through guide 16. Adjustment plug 20 is screwed into or out of housing 11 until the cutting blades 27 of the cutting head 24 just contact the open edge of the standard cartridge casing without compressing spring 26, and lock nut 21 is tightened against housing 11 to prevent further movement of the plug.

The standard cartridge casing is removed and the spent cartridges to be trimmed are inserted in its place. Since they are longer than the standard cartridge casing, they, when raised, compress spring 26, an amount depending upon their greater length. The tendency of spring 26 to expand will result in the blades 27 being forced into biting engagement with the cartridge casing, such that rotation of handle 25 will cause the cartridge casing to be cut away until the spring has again reached its maximum allowed expansion. The trimmed cartridge casing will then be the same length as the spent one used to determine the position of adjustment plug 20.

A preferable form of cutting head 24 is shown best in FIGS. 2 and 3. As shown, it includes blades 27, each of which consists of a sharply raised edge 28 and a segment 29 tapered both from the raised edge back to the bottom of the following raised edge, and away from the center of the cutting head. One blade is provided in each quadrant of the cutting head, and the raised edges, instead of extending as opposite pairs from the center of the head to the outer edge, extend from points offset a distance "X" from the center of the head to points on the outer edge, where they would have been positioned had they been formed as opposite pairs.

Additionally, the raised edge of each blade is beveled upwardly and outwardly from the center of the head at an angle of approximately five degrees.

Because of this formation of the cutting head, clockwise rotation of the cutter will result in blades 27 cutting stretched cartridge casing against which the head 24 is firmly seated, and the cuttings formed in this operation will travel along the raised edges 28, upwardly and outwardly, until they are forced through windows 12 formed in the sidewall of the housing.
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Whereas there is here illustrated and specifically described a certain preferred construction of apparatus which is presently regarded as the best mode of carrying out the invention, it should be understood that various changes may be made and other constructions adopted without departing from the inventive subject matter particularly pointed out and claimed herebelow.

I claim:

1. A cartridge case trimmer comprising: a housing having a passage therethrough and being exteriorly threaded at one end; a cartridge casing guide positioned in said passage, said guide having a bore therethrough, and said bore being of sufficient diameter to receive the neck of a cartridge casing to be trimmed; a rotary cutter extending through the other end of said housing and into the housing, said cutter including a stem and a cutting head; means limiting longitudinal movement of said rotary cutter; adjustment means comprising a plug in threaded engagement with the passage through the housing and freely surrounding said stem, for adjusting the position of said means limiting longitudinal movement of said rotary cutter; and a spring positioned between the plug and the cutting head, said spring biasing said cutter toward the cartridge casing guide.

2. The cartridge case trimmer of claim 1, further including an open window formed in the sidewall of the housing; and a cutting head at the lower end of the cutter, said cutting head having a cutting blade in each quadrant thereof and each cutting blade having a raised edge to guide cuttings upwardly and away from the center of said head.

3. The cartridge case trimmer of claim 1, wherein the means limiting downward movement of the rotary cutter comprises a handle fixed to the end of the rotary cutter stem opposite the cutting head, said handle further providing means for rotating said cutter.

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