The present invention relates to a tool for trimming the open end of a used cartridge case, and more particularly relates to a trimming tool that can be readily connected to a means for rotating it such as a standard portable electric drill or standard electric motor.

It is a common practice among sportsmen to salvage cartridge cases after they have been fired and to reload them for further use. However, because of the forces exerted during the firing of the loaded cartridge, the cartridge case becomes elongated and this lengthwise distortion will thereafter prevent the case from fitting correctly in a rifle or other firing mechanism. In order to compensate for this elongation of the base and permit its reuse, it is necessary to trim off a part of the open end of the case in order to restore the cartridge case to its original dimensions. Accordingly, it is an object of the present invention to provide a compact trimming tool which may be employed for trimming and chamfering cartridge cases simultaneously in a rapid and expedient manner.

In brief, the tool of the present invention in its broadest aspect comprises a tool holder having cutting blades mounted therein adapted to engage the open end of a cartridge case, and a movable pin adjusely mounted in a socket in said tool holder so as to positively determine the ultimate length of the cartridge case. Another aspect of the invention relates to a detachable safety guard for said tool which comprises an open cup which is designed to engage the end of the tool holder so as to protect an operator's hands from the depending edges of the cutting blades. The invention will be better understood by reference to the attached drawing wherein similar figures denote similar parts throughout and:

FIG. 1 shows the tool of this invention operatively connected to a standard power driven drill press;

FIG. 2 is a view of the tool of this invention showing the safety guard in section;

FIG. 3 is another view of the tool of this invention rotated ninety degrees from the view of FIG. 2;

FIG. 4 is a cross-sectional view taken along the lines 4--4 in FIG. 2;

FIG. 5 is a cross-sectional view taken along lines 5--5 in FIG. 2; and

FIG. 6 is another cross-sectional view taken along the lines 6--6 in FIG. 2.

Referring now more specifically to FIG. 2 of the drawing, a pin 11 is adjustably mounted in a socket 33 in the lower end of tool holder 17. In operation the lower end of pin 11 is inserted in the open end of an empty cartridge case 10. The pin 11 is vertically adjustable in the tool holder 17 and it may be set to a predetermined length by means of the set screw 12. The setting of the pin 11 in the socket 31 will determine the amount of metal which is removed from the top of cartridge case 10 and hence, the ultimate length of the case 10. When the pin 11 reaches the bottom of cartridge case 10, further progress of the tool holder 17 will be precluded and the case 10 will have been reduced to the desired length.

The actual trimming of the case 10 is accomplished by a pair of blades 13 and 15. Blade 13 is positioned in slot 25 which is cut into the bottom of the tool holder 17 and is held in the desired position by the set screw 14. Blade 15 is provided with a cutting edge 29 which is adapted to engage the internal circumferential edge of the cartridge case 10. In order to permit blade 15 to engage the internal circumferential edge of cartridge case 10, the pin 11 is machined flat on the side adjacent to blade 15 so that blade 15 is perpendicular to the center of the flat side of pin 11. Blade 13 is located in slot 27 which is also cut into the bottom of the tool holder 17 and it is held in position by the set screw 14. The cutting edge 30 of blade 13 is adapted to engage the external circumferential edge of the top of cartridge case 10. Hence, the blade 13 is adapted to chamfer the outside circumferential edge of cartridge case 10 while simultaneously blade 15 trims the length of case 10 and chamfers the internal circumferential edge. The top of the tool holder 17 may be provided with a socket 18 adapted to receive means for rotating the tool which is secured in place by set screws 19 and 20.

The means employed for rotating the tool is not a part of the present invention and any convenient means may be employed. One advantage of the tool of this invention is that it may be readily adapted for use with power driven machinery such as a portable electric drill or standard electric motor. An adapter 21 which is preferably constructed of a resilient material such as rubber may also be slidably and concentrically mounted on tool holder 17. In the preferred embodiment, the resilient adapter 21 is designed to receive an open cup 22 and to hold it securely. The opening 23 in cup 22 will surround the top of the cartridge case 10 when the tool is in operative position and cup 22 serves to collect a portion of the metal turning from the trimming operation. More importantly, however, cup 22 acts as a safety guard since it protects the operator's hands from accidental contact with the depending edges of the cutting blades 13 and 15.

FIG. 3 is another view of the cartridge trimming tool of this invention. In this view, the set screw 16 which holds the knife blade 15 is shown in more detail. Also a frontal view of the set screws 20 and 19 is shown as well as the socket 18.

Referring now to FIG. 4, which is a top view taken along the lines 4--4, the arrangement of the set screws 14 and 16 and the cutting blades 13 and 15 is more clearly delineated. In FIG. 5, which is a top view taken along the lines 5--5, the arrangement of the set screw 12 which secures the pin 11 is also shown.

FIG. 6 represents still another sectional view taken along the lines 5--5 where the set screw 19 is shown in more detail as well as the socket 18 which is adapted to engage the motive means.

FIG. 1 shows the tool of this invention connected to a standard drill press 28. The tool holder 17 is connected to the drill press 28 by means of the rod 25 which is secured in socket 18. Also shown in this view is a work holder 24 which may be used to hold the cartridge case 10 during the trimming operations, but cannot be exercised to properly align the work holder. It is for the latter reason that the preferred method of using the tool involves manually enveloping the pin with the cartridge case in such a manner the case will be self-aligning.

A number of modifications of the tool shown in the drawing will be obvious to those skilled in the art. As one example of such a modification, the resilient adapter 21 might be eliminated. In lieu thereof the tool holder 17 could be threaded at its lower end so as to engage with corresponding threads on the inside of cup 22. Accordingly, this application for Letters Patent is intended to cover all such modifications as would reasonably fall within the scope of the appended claims.

Other modes of applying the principle of this invention may be employed instead of those specifically set forth above, changes being made as regards the details herein.
disclosed provided the elements set forth in any of the following claims, or the equivalent of such be employed.

It is, therefore, particularly pointed out and distinctly claimed as the invention:

1. A trimmer for a tubular cartridge case having an open end and a closed end, said trimmer being for trimming the open end a predetermined distance from the closed end, and comprising in combination, a rotatable tool holder having means at one end for drivingly engaging a driven shaft, a substantially rigid cartridge case support member adjusting projecting from the other end of said tool holder coincident with the axis of rotation and adapted to be inserted in the open end of the cartridge case, said support member being cylindrical, of uniform diameter, a work holder means for axially positioning the cartridge case, a cutting tool carried by the tool holder adjacent the support member for rotary trimming engagement with the open end of the cartridge case, and means coacting between the tool holder and the support member to adjustably secure the support member in predetermined axial position relative to the cutting tool corresponding to the predetermined distance of trimming from the closed end of the cartridge case whereby the free end of the support member contacts as a limiting abutment against the closed end of the cartridge case to determine the extent of axial trim at the open end of the cartridge case.

2. A cartridge case trimming tool comprising in combination a cylindrical rotatable tool holder, said tool holder being provided with concentric sockets at both ends thereof and a lateral open slot at one end thereof, a pair of cutting blades oppositely disposed in said lateral slot so that the cutting edges thereof extend beyond the end of said tool holder, a pair of set screws positioned on a minor chord in said tool holder for securing said blades in said slot, a pin adjustably disposed within said socket adjacent to said slot and extending a predetermined distance beyond the cutting edges of said blades, a set screw radially positioned in said tool holder and operatively coacting with said pin to secure it within said socket, a pair of set screws radially positioned in said tool holder and coacting with said socket at the end of said tool holder opposite to said cutting blades to secure therein a tool rotating member, a resilient sleeve concentrically mounted on said tool holder adjacent to said cutting blades, and an open cup removably encircling said sleeve rotate therewith to preclude accidental contact of an operator's hands with said cutting blades and to collect the metal turnings from a trimming operation.

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