April 29, 1969 C. E. PURDIE 3,440,923

CARTRIDGE CASE RESIZING AND BULLET SEATING APPARATUS

Filed Sept. 6, 1967

FIG. 1

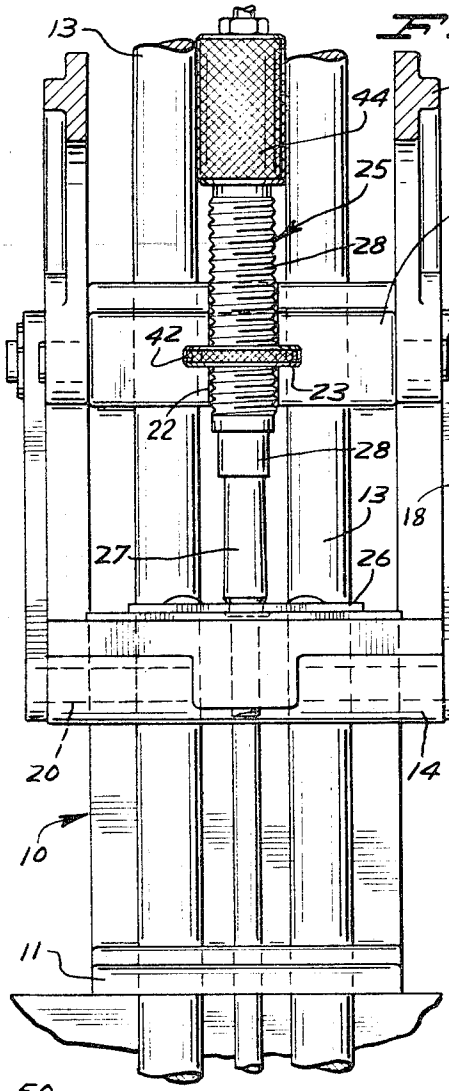
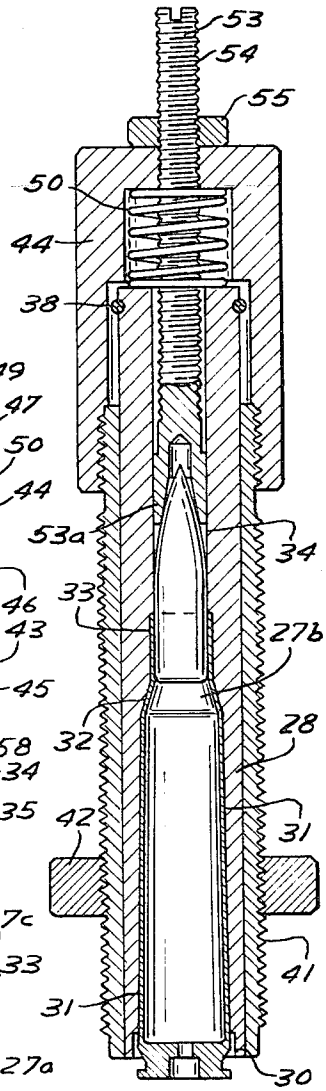


FIG. 3



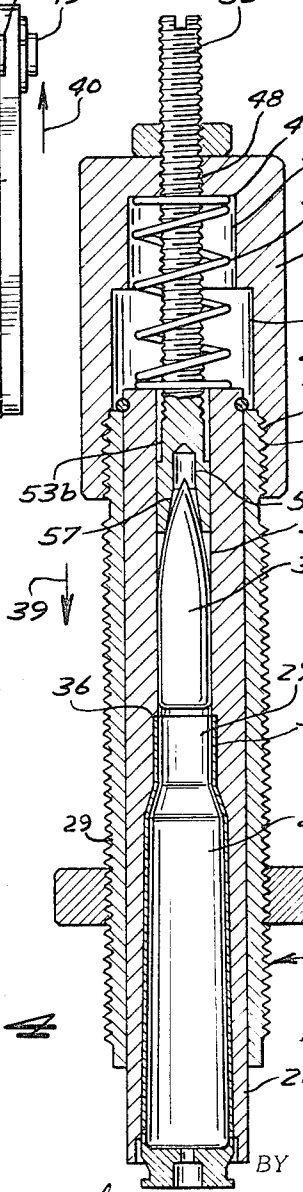


FIG. 4

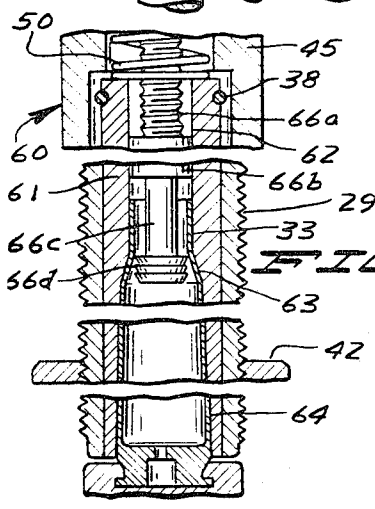


FIG. 2

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United States Patent Office 3,440,923 Patented Apr. 29, 1969

3,440,923

CARTRIDGE CASE RESIZING AND BULLET SEATING APPARATUS

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Filed Sept. 6, 1967, Ser. No. 665,769
Int. Cl. F42b 11/02
U.S. Cl. 86—43 13 Claims

ABSTRACT OF THE DISCLOSURE

A loading press to mount either a cartridge case resizing die or a bullet seating die and having a ram movable to move said case first into and then away from the respective die. Each die includes an axially elongated tubular retainer body slidably mounting a sleeve of a greater axial length than said body. A housing mounted on said body has a spring in the housing bore to urge the sleeve away from said bore, a retainer ring on the sleeve being abuttable against said body for limiting the movement of the sleeve away from the housing. The sleeves for the respective die have cartridge case bores, a tool (bullet seating or broaching) being mounted on the housing to extend into the respective sleeve bore.

Background of the invention

The invention relates to apparatus for resizing a cartridge case and seating a bullet in a resized cartridge case.

In U.S. Patent No. 2,741,148 to Thompson there is disclosed two embodiments of a loading die, one of which the bullet has been moved into the cartridge case neck to a substantially seated position before the neck is in the portion of the die that prevents the neck expanding outwardly. In the other embodiment the neck is held from expanding outwardly prior to the bullet seating operation, however, the bullet is seated through a manual force exerted on the die stem rather than through a mechanical force obtained through the movement of a ram of the loading press.

As to one embodiment of the neck resizing tool of Thompson, the resizing of the neck (internal) occurs at the time the ram is located a substantial distance away from its maximum uppermost position and thus substantially greater manual work is required to operate the ram than where such resizing is performed when the ram is closely adjacent its uppermost position.

When a cartridge is fired, it expands to fill the rifle chamber. Thus a reload cartridge cannot reliably be interchanged in other rifles of the same caliber, nor will the case neck hold a bullet unless the case has been reduced in size. Since the wall htickness of cartridge cases vary; and this variation increases from many firings, it becomes necessary to reduce the diameter of the case neck considerably below the proper diameter and then draw an expander element through the case neck to achieve the proper diameter to grip the bullet. With prior art dies, the effort needed to withdraw the expander element through the case neck sometimes exceeds the work effort required to resize the case. Further, since most rifle cases are tapered, there is the problem of seating the bullets coaxially with the case in order to obtain gilt edge accuracy. Inaccuracies also result from the case necks acquiring varying wall thicknesses; and the shifting of the axis of the case neck and the axis of the main body of the case from repeated firings and resizing. In order to overcome problems of the aforementioned nature, this invention has been made.

Brief description of the drawings

FIGURE 1 is a fragementary front view of a loading press mounting the bullet seating die of this invention,

said view showing the loading press in a condition that the cartridge case partially extends into the sleeve of the die;

FIGURE 2 is a vertical cross-sectional view of the bullet seating die prior to the sufficient force being exerted on the resized cartridge case to start the initial seating of the bullet;

FIGURE 3 is a view similar to FIGURE 2 other than the die is shown in a bullet seated position; and

FIGURE 4 is a vertical cross-sectional view of the resizing die in a position prior to retracting the cartridge case to withdraw the broach through the cartridge case neck, portions of said view being broken away.

Although the loading press that may be used for mounting the dies of this invention may be other than the loading press illustrated, for purposes of facilitating the description of the invention, the loading press disclosed in my pending application, Ser. No. 464,100, filed June 15, 1965, now Patent No. 3,345,903, will be briefly set forth. The loading press, generally designated **10**, includes a frame having a base portion **11** and a head **12** overhanging and spaced from said base portion, a pair of vertical guide rods **13** slidably extended through said base portion and head, a carrier or ram **14** vertically intermediate said base portion and head and attached to the guide rods to move therewith, and a handle **16**. The handle has bifurcated portions pivotally connected to the head by pivot members **17** and portions in spaced relation to the first mentioned portions that are pivotally connected at **19** to one end of the links **18**. The opposite end of the links are connected by pivot members **20** to the carrier. When the press is in the condition illustrated in FIGURE 1, pivots **19** are located horizontally rearwardly of pivots **17**. Further pivots **17** are in vertical alignment with pivots **20**. By pivoting the handle about pivots **17**, the carrier and guide rods are reciprocated between a position that the carrier is adjacent the head and a position the carrier is adjacent the base portion.

The head is provided with a U-shaped slot **22** extending vertically therethrough and opened in a forward direction and a U-shaped groove **23** vertically between the upper and lower surfaces of the head and opening to the slot **22**. Both of the resizing and bullet seating dies described hereinafter are of a construction to be removably retained in groove **23** to be directly above the cartridge case holder **26** that is mounted on the upper surface of the carrier.

Referring now in particular to FIGURES 2 and 3, the bullet seating die, generally designated **25**, includes an axially elongated cylindrical sleeve **28** that is slidably mounted by a retainer body **29**, said retainer body being of a shorter axial length than the sleeve. The sleeve has a bore extending axially therethrough, said bore including an enlarged diametric portion **30** that is of a relatively short axial length and opens to the lower end of the sleeve, and a somewhat reduced diameter bore portion **31** that is of an axial length to receive the main body portion **27*a*** of the cartridge case and that at one end opens to bore portion **30** and at the opposite end opens to the major base end of the frusto-conical bore portion **32**. The frusto-conical bore portion is of the same axial length as the tapered portion **27*b*** of the shell case which is integrally joined at one end of the main body **27*a*** and the opposite end to the neck **27*c*** of the cartridge case. The minor base end of bore portion **32** is integrally joined to the neck bore portion **33** which is of the same axial length as the cartridge case neck **27*c***. The upper end of the neck bore portion opens to the axially elongated reduced diameter bore portion **34**, bore portions **33** and **34** forming an annular shoulder of the transverse dimension that is substantially the same

as that of the thickness of the neck of the cartridge case. The diameters of the bore portions **31**, **32** and **33** are the same as the outside diameters of the main body **27***a*, tapered portion **27***b* and neck portion **27***c* of a properly resized, loaded cartridge case while the diameter of the bore portion **34** is substantially the same as the maximum outside diameter of the bullet **35**. Further the aforementioned bore portions extend coaxial relative one another.

The sleeve has an external annular groove adjacent the upper end thereof in which there is mounted a retainer ring **38**, said ring limiting the movement of the sleeve in the direction of the arrow **39** relative the retainer body upon abutting against said retainer body as illustrated in FIGURE 2. The retainer body has external threads **41** that form a matching fit with the internal threads of the cylindrical lock nut **42**. The lock nut is of a diameter and an axial thickness to be removably retained in the U-shaped groove **23** of the loading press. As may be noted from FIGURE 3, threads **41** extend the major axial length of the retainer body from a position adjacent the lower end of said retainer body to an elevation spaced from the upper end thereof. The upper end portion of the retainer body has threads **43** that form a matching fit with the internal threads **45** of the housing **44**.

The housing has a bore extending axially therethrough, the internally threaded portion **45** forming the lower end of said bore and opening to the non-threaded bore portion **46**, thread portion **45** and bore portion **46** forming a shoulder that abuts against the upper annular edge of the sleeve when the sleeve is in its uppermost position. Bore portion **46**, which is of a larger diameter than the outside diameter of the sleeve, in turn opens to the reduced diameter, non-threaded bore portion **47**, which is of a smaller diameter than that of the sleeve, bore portion **47** at its upper end opening to the internally threaded bore portion **48**. Bore portions **47**, **48** form an annular shoulder **49** that has one end of a coil spring **50** abutting thereagainst. The opposite end of the coil spring seats on the sleeve whereby the coil spring constantly resiliently urges the sleeve in the direction of arrow **39** toward a position that the retainer ring **38** abuts against the retainer body **28**, such as illustrated in FIGURE 2. When the housing is threaded on the retainer body and the sleeve is mounted by the retainer body, housing bore portions **45**, **46**, **47**, **48** extend coaxially relative one another and coaxial relative the bore portions of the sleeve.

An axially elongated bullet seating tool **53** has external threads **54** that form a matching fit with the housing threads **48**, threads **54** extending from adjacent the upper end of the sleeve and through a major portion of the length of the tool. A lock nut **55** is threaded on the tool to abut against the upper edge of the housing for retaining the seating tool in an adjusted position relative the housing. An intermediate portion of the bullet seating tool extends through coil spring **50**.

The tool **53** has an enlarged diametric lower end portion **53***a* that is of a diameter to form a close sliding fit with the sleeve bore portion **34**, and a reduced diameter portion **53***b* that at one end is integrally joined to the threaded portion **54** and at the opposite end to portion **53***a*. Thus, portions **53***a* and **54** have maximum diameters that are substantially less than the diameter of bore portion **34**. The lower end portion **53***a* has an axially elongated recess portion **57** that is of progressively increasing diameters in a downward direction and of a shape in vertical cross section to form a matching fit with the axial intermediate ogive portion of the bullet, the minimum diameter end of recess portion **57** opening to a generally cylindrical recess portion **58**. The cylindrical recess portion **58** is of a greater axial length than the ogive portion of the bullet that extends upwardly of recess portion **57** when recess portion **57** abuts against the bullet such as illustrated in FIGURE 3. The housing

mounts the tool to have recess portion **57** and recess **58** extend coaxial to the axes of the bore portions of the sleeve.

The seating tool, housing and sleeve are of axial lengths that when the retainer ring **38** abuts against the retainer body and the enlarged portion of the seating tool extends into the sleeve and the cartridge case abuts against the holder **36**, the lower end of the bullet seating tool is sufficiently spaced from the cartridge case that the bullet may be located within the bullet chamber **34** in a position that the bullet does not abut against either the seating tool or the cartridge case.

Referring now to FIGURE 4, the resizing die, generally designated **60**, will now be described. The resizing die includes a retainer body **29**, a housing **45**, a coil spring **50**, and a lock nut **42** that are of the same construction, and size and shape as the correspondingly numbered parts of the bullet seating die of FIGURES 2 and 3. The die **60** also includes a sleeve **61** that is of the same axial length and the same external construction as sleeve **28**. Sleeve **61** has an axially elongated bore extending therethrough, the sleeve bore including an upper reduced diameter bore portion **62** that is of substantially the same diameter as bore **34**, a tapered bore portion **63** that is of the same size and shape as bore portion **32** and a cartridge case bore portion **64** that is of the same size and shape as bore portion **31**.

A broaching tool **66** has an elongated stem portion **66***a* that is threadedly mounted by the housing in the same manner as the stem portion bullet seating tool is mounted by the housing. The broaching tool also includes an axially elongated, intermediate cylindrical portion **66***b* that is of an outside diameter to form a close sliding fit with bore portion **62**; a reduced diameter stem portion **66***c* that at one end is joined to portion **66***b* and at its opposite end joined to the cartridge case broach portion **66***d*. Stem portion **66***c* is of a greater axial length than the axial length of the cartridge case neck **33**, while the maximum diameter of broach portion **66***c* is slightly smaller than the inside diameter of the neck of the cartridge case prior to the cartridge case neck being resized, and of a diameter that is the same as the inside diameter of a properly resized cartridge case.

The bore portions of sleeve **65** and the housing bore portions are coaxial with one another.

The construction of the apparatus of this invention having been set forth, the operation thereof will now be described.

In using the bullet seating die of FIGURES 2 and 3, a properly resized cartridge case **27** is positioned in the cartridge case holder **26** to be held thereby, the holder retaining the case coaxial to the axes of the sleeve bore portions. Then the handle **16** is moved to move the ram **14** upwardly to have the neck portion of the cartridge case extended into bore portion **44**, the bullet **35** previously having been inserted in the cartridge case chamber **34**. As the cartridge case main body **31** moves into abutting engagement with the inner wall of the sleeve with the neck abutting (or very close to abutting) against the shoulder formed by bore portions **33**, **34**, further upward movement of the ram results in both the sleeve **28** and the cartridge case moving upwardly relative the retainer body. At the time the neck abuts against the shoulder formed by bore portions **33**, **34**, the bore portions **32**, **33** form a close fit with the outer surface of the cartridge case main body and tapered part outer surfaces respectively. Still further upward movement of the ram **14** results in the sleeve abutting against the housing shoulder formed by bore portions **46**, **47**.

As the sleeve moves upwardly to abut against the housing, the bullet seating tool prevents the bullet moving upwardly relative the housing, i.e., holds the bullet stationary, and accordingly, the bullet is forced into the neck portion of the cartridge case to expand the neck outwardly

to abut against the wall defining bore portion **33**. At the time the sleeve abuts against the housing, the bullet is properly seated in the cartridge case and forms a tight friction fit with the neck whereby the bullet and cartridge case are coaxial since both the cartridge and bullet are securely held in coaxial chambers during the entire seating process of the bullet. To be mentioned is that outside and inside diameters of the resized cartridge case neck are slightly smaller than they are at the time the bullet is seated, the bullet lower end being slightly rounded to facilitate the movement of the bullet into the cartridge neck.

When the ram **14** is moved downwardly in the direction of the arrow **39**, it pulls the cartridge case downwardly, which together with the action of spring **50** results in the sleeve moving downwardly relative to the retainer body until the retainer ring **38** abuts against the retainer body. At this time, continued downward movement of the ram results in the cartridge case and bullet being extracted from the sleeve.

In order to resize the cartridge case, the die of FIGURE 4 is mounted on the head of the loading press and the cartridge case to be resized is positioned on the holder **26** to be held thereby. Now the ram is moved upwardly to move the cartridge case to a position to extend into the bore of the sleeve **61**. Since the fired cartridge case has larger outside diameters than a resized cartridge case, the cartridge case in moving upwardly forces the sleeve to move in the same direction to abut against the housing prior to the time that the neck is at the elevation of the sleeve bore tapered portion. Accordingly, at the time continued upward movement of the ram moves progressively lower parts of the neck to a higher elevation than the broach portion prior to said neck parts being moved to elevations radially opposite base portion **62**. Thus, the neck of the cartridge case is free to pass over and does pass the broach portion to be moved to a higher elevation than the broach portion, but as the neck moves into bore portion **62** the outside diameter of said neck is reduced. At the time the tapered portion of the cartridge abuts against bore portion **63**, the cartridge case along its length has been resized other than for the inside diameter of the neck portion and possibly portions of the neck being slightly spaced from the wall defining bore portion **62**. Now the ram is moved downwardly to pull the cartridge case downward. The downward movement of the cartridge case results in the neck passing over the broach. As the neck passes over the broach to bear against the broach, the coaction of the broach passing through the neck and the bore wall of bore portion **62** bearing against the neck will result in resizing the neck to have concentric inside and outside diameters and the wall of the casing neck of a uniform thickness. Continued downward movement of the ram moves the cartridge case and the sleeve downwardly to a position that the retainer ring abuts against the retainer body. Further downward movement of the ram will withdraw the cartridge case from the sleeve.

At this time the cartridge case has its full length resized and the inside and outside diameters of the case will be concentric, and the wall of the neck will be a uniform thickness. This result is obtained by moving the ram (handle **16**) of the loading press from its lower position to its upper position and back to its lower position. The cartridge case that has been resized with the die of FIGURE 4 may then have the bullet loaded with the die of FIGURES 2 and 3. In this connection, it is to be mentioned that the inside and outside diameters of the cartridge case resized by the die **60** are slightly smaller than the diameter of the bullet portion that is seated in the neck, and as a result at the time the bullet is seated, the bullet forces the cartridge case neck wall outwardly to abut against the wall of the bore portion **33**.

With reference to both of the dies **25** and **60**, the ram is in its uppermost position when the bullet is fully seated as illustrated in FIGURE 3 and the broach is in the position illustrated in FIGURE 4 respectively. Further the initial downward movement of the ram moves the cartridge case neck over the broach, i.e. the broaching action being accomplished adjacent one end of the stroke of the handle for moving the ram.

What is claimed is:

1. In cartridge reloading apparatus for a cartridge case having a rim, a cartridge main body having an outer surface, a tapered part and a neck integrally joined, said cartridge being adapted to have a bullet seated in said neck, an axially elongated retainer body having a bore extending axially therethrough, an axially elongated unitary sleeve slidably mounted by said retainer body for axial movement in said retainer body bore, said sleeve having an axial bore extending therethrough, said sleeve bore having cartridge case main body, tapered part and neck bore portions, the main body bore portion forming a close fit with the main body outer surface from adjacent the rim to adjacent the tapered part and the tapered bore portion connecting the main body bore portion to the neck bore portion, an axially elongated tool having an enlarged diametric portion slidably extended into said sleeve bore, first means for mounting said tool on the retainer body in a position to extend into said sleeve bore, means mounted by the first means for resiliently urging said sleeve to move in the retainer body bore in a direction axially away from said first means, and means mounted on said sleeve for abutting against said retainer body to limit the movement of said sleeve in the above mentioned axial direction to a position that said enlarged portion is still located in said sleeve bore.

2. The apparatus of claim **1** further characterized in that said tool mounting means comprises a housing having an axially elongated first bore portion, said first bore portion having a first end and a second end, and a second bore portion of a smaller diameter than the first bore portion opening to said first bore portion first end to form a shoulder, that said housing is mounted on the retainer body to have the first bore portion extend axially relative the direction of elongation of the retainer body and the first bore portion second end open to the retainer body, the axial length of the first bore portion between the retainer body and said shoulder being substantially greater than the axial length of the cartridge case neck.

3. The apparatus of claim **1** further characterized in that said sleeve has a first end portion and a second end portion, that said sleeve bore has a reduced diameter bore portion of only a slightly smaller diameter than said neck bore portion and of a diameter to form a close fit with the bullet, said reduced diameter bore portion opening to said neck bore portion remote from said tapered bore portion.

4. The apparatus of claim **3** further characterized in that said tool is a bullet seating tool and has a bullet ogive recessed end portion located within the sleeve bore reduced diameter portion.

5. In cartridge reloading apparatus for a cartridge case having integrally joined rim, cartridge main body that has an outer surface, tapered part and neck, an axially elongated sleeve having a bore extending axially therethrough, said sleeve having a first end portion and a second end portion, said sleeve bore having cartridge case main body, tapered part, neck and reduced diameter bore portions, the main bore portion forming a close fit with main body outer surface from adjacent the rim to adjacent the tapered portion and said reduced diameter bore portion being of a slightly smaller diameter than said neck bore portion, opening through said first end portion and opening to the neck bore portion, an axially elongated cartridge case reloading tool having an enlarged diametric end portion of a smaller diameter than said reduced diameter and neck bore portions, and first means for mounting said sleeve for limited slidable axial movement between a first position and a second position and stationarily mounting said tool to position said enlarged diameter end

portion within said sleeve reduced diameter bore portion when the sleeve is in its first position and to extend axially relative said sleeve to perform a cartridge reloading operation when the sleeve is moved from its first position toward its second position.

6. The apparatus of claim 5 further characterized in that said first means includes an axially elongated retainer body of a substantially shorter length than said sleeve, said retainer body having a bore to slidably receive the sleeve.

7. The apparatus of claim 6 further characterized in that said retainer body include a first end portion and a second end portion, that said cartridge body bore portion is more closely adjacent said sleeve second end portion than the neck bore portion, said said first means includes second means mounted on the retainer body first end portion for mounting said tool and limiting the movement of the sleeve in a direction from its first position toward its second position to its second position and third means mounted on the sleeve first end portion to abut against the retainer body first end portion when the sleeve is in its first position.

8. The apparatus of claim 7 further characterized in that there is provided fourth means mounted by the second means for resiliently urging the sleeve to its first position and that the second means has a bore portion of a larger diameter than the sleeve axially aligned with the sleeve, opening to the sleeve and of at least as great an axial length as that of the cartridge case neck.

9. In cartridge reloading apparatus for a cartridge case having a rim, a cartridge main body having an outer surface, a tapered part and a neck integrally joined, an axially elongated retainer body having a bore extending axially therethrough, an axially elongated sleeve mounted by said retainer body for axial movement in said retainer body bore, said sleeve being of an axial length that is greater than the axial length of the retainer body by at least an amount equal to the axial length of the cartridge case neck and having an axial bore extending therethrough, said sleeve bore having cartridge case main body, tapered part and neck bore portions, the main body bore portion forming a close fit with the main body outer surface from adjacent the rim to adjacent the tapered part, an axially elongated tool having an enlarged diametric portion slidably extended into said sleeve bore, said tool enlarged diametric portion comprising a broach end portion located within said sleeve for resizing the cartridge case neck when said neck is in the neck bore portion, first means for mounting said tool on the retainer body in a position to extend into said sleeve bore, said first means having a first bore portion extending axially relative the retainer body and opening to the retainer body, said first bore portion being of a larger diameter than said sleeve and extending coaxially relative the sleeve, means mounted by the first means for resiliently urging said sleeve to move in the retainer body bore in a direction axially away from said first means, and means mounted on said sleeve for abutting against said retainer body to limit the movement of said sleeve in the above mentioned axial direction to a position that said enlarged portion is still located in said sleeve bore, said tool being of a length that the broach end portion is radially opposite the sleeve tapered bore portion when the abutting means abuts against the retainer body.

10. In a cartridge reloading apparatus that is adapted for seating a bullet having an ogive portion in a cartridge case having integrally joined rim, cartridge main body that has an outer surface, tapered part and neck, an axially elongated sleeve having a bore extending axially therethrough, said sleeve having a first end portion and a second end portion, said sleeve bore having a cartridge case main body bore portion, a tapered part bore portion, a neck bore portion, and a reduced diameter bore portion opening through said sleeve first end portion and

opening to the neck bore portion, said reduced diameter bore portion being of a slightly smaller diameter than the neck bore portion, and said cartridge main body bore portion being more closely adjacent said sleeve second end portion than the neck bore portion and forming a close fit with the main body outer surface from adjacent the rim to adjacent the tapered part, an axially elongated cartridge case reloading tool having an enlarged diametric end portion of a smaller diameter than said neck bore portion, said tool having an ogive recess in said enlarged diametric portion, and first means for mounting said sleeve for limited axial movement between a first position and a second position and stationarily mounting said tool to position said enlarged diameter end portion within said sleeve bore and to extend axially relative said sleeve to perform a cartridge reloading operation when the sleeve is moved between its positions, said first means including an axially elongated retainer body of a substantially shorter length than said sleeve, said retainer body having a bore to slidably receive the sleeve, a first end portion and a second end portion, second means mounted on the retainer body first end portion for mounting the tool and limiting the movement of the sleeve in a direction from its first position toward its second position to its second position and retaining said tool sufficiently remote from the neck bore portion to position a bullet to extend into said ogive recess and located the bullet entirely within said sleeve reduced diameter bore portion when said sleeve is in its first position and to seat said bullet when the sleeve with the cartridge case in said sleeve main body, tapered part and neck bore portions is moved to its second position and third means mounted on the sleeve first end portion to abut against the retainer body first end portion when the sleeve is in its first position.

11. In cartridge reloading apparatus that is adapted for resizing a cartridge case having integrally joined rim, cartridge main body that has an outer surface, tapered part and neck, an axially elongated sleeve having a bore extending axially therethrough, said sleeve having a first end portion and a second end portion, said sleeve bore having cartridge case main body, tapered part and neck bore portions, the main body bore portion forming a close fit with the main body outer surface from adjacent the rim to adjacent the tapered part, and the cartridge body bore portion being more closely adjacent said sleeve second end portion than the neck bore portion, an axially elongated cartridge case reloading tool having an enlarged diametric end portion of a smaller diameter than said neck bore portion, said enlarged diametric end portion comprising a broach portion, and first means for mounting said sleeve for limited axial movement between a first position and a second position and stationarily mounting said tool to position said enlarged diameter end portion within said sleeve bore and to extend axially relative said sleeve to perform a cartridge reloading operation when the sleeve is moved between its positions, said first means including an axially elongated retainer body of a substantially shorter length than said sleeve, said retainer body having a first end portion, a second end portion and a bore to slidably receive the sleeve, second means mounted on the retainer body first end portion for mounting said tool and limiting the movement of the sleeve in a direction from its first position toward its second position to its second position, said second means mounting the tool with the broach portion radially adjacent the tapered bore portion when the sleeve is in its second position, and third means mounted on the sleeve first end portion to abut against the retainer body first end portion when the sleeve is in its first position.

12. In cartridge reloading apparatus for a cartridge case having a rim, a cartridge main body having an outer surface, a tapered part and a neck integrally joined, said cartridge being adapted to have a bullet seated in said

neck, an axially elongated retainer body having a bore extending axially therethrough, an axially elongated sleeve slidably mounted by said retainer body for axial movement in said retainer body bore and being of an axial length that is greater than the axial length of the retainer body by at least an amount equal to the axial length of the cartridge case neck, said sleeve having an axial bore extending therethrough, said sleeve bore having cartridge case main body, tapered part and neck bore portions, the main body bore portion forming a close fit with the main body outer surface from adjacent the rim to adjacent the tapered part and the tapered bore portion connecting the main body bore portion to the neck bore portion, an axially elongated tool having an enlarged diametric portion slidably extended into said sleeve bore, first means for mounting said tool on the retainer body in a position to extend into said sleeve bore, means mounted by the first means for resiliently urging said sleeve to move in the retainer body bore in a direction axially away from said first means, and means mounted on said sleeve for abutting against said retainer body to limit the movement of said sleeve in the above mentioned axial direction to a position that said enlarged portion is still located in said sleeve bore, said tool mounting means comprising a housing having an axially elongated first bore portion that is of a larger diameter than the sleeve and extends coaxially relative the sleeve, said first bore portion having a first end and a second end, and a second bore portion of a smaller diameter than the first bore portion opening to said first bore portion first end to form a shoulder, said housing being mounted on the retainer body to have the first bore portion extend axially relative the direction of elongation of the retainer body and the first bore portion second end open to the retainer body, the axial length of the first bore portion between the retainer body and said shoulder being substantially greater than the axial length of the cartridge case neck.

13. In a cartridge reloading apparatus for a cartridge case having a rim, a cartridge main body having an outer surface, a tapered part and a neck integrally joined, said cartridge being adapted to have a bullet seated in said

neck, an axially elongated retainer body having a bore extending axially therethrough, an axially elongated sleeve slidably mounted by said retainer body for axial movement in said retainer body bore, said sleeve having an axial bore extending therethrough and having a first end portion and a second end portion, said sleeve bore having cartridge case main body, tapered part, reduced diameter and neck bore portions, the main body bore portion forming a close fit with the main body outer surface from adjacent the rim to adjacent the tapered part, the tapered bore portion connecting the main body bore portion to the neck bore portion, said reduced diameter bore portion opening to said neck bore portion remote from said tapered bore portion and being of only a slightly smaller diameter than said neck bore portion, an axially elongated tool having an enlarged diametric portion slidably extended into said sleeve bore, first means for mounting said tool on the retainer body in a position to extend into said sleeve bore, means mounted by the first means for resiliently urging said sleeve to move in the retainer body bore in a direction axially away from said first means, and means mounted on said sleeve for abutting against said retainer body to limit the movement of said sleeve in the above mentioned axial direction to a position that said enlarged portion is still located in said sleeve bore, the tool being of an axial length that said enlarged portion is located in the reduced diameter bore portion when the movement of the sleeve is limited by the abutting means abutting against said retainer body.

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