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(54) **Receiver for bolt action firearm and method of manufacture.**

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(70) Proprietor: **STURM, RUGER & COMPANY, INC.**
Lacey Place
Southport Connecticut 06490 (US)

(72) Inventor: **Ruger, William Batterman**
Croydon New Hampshire 03773 (US)

(74) Representative: **McCallum, William Potter et al**
Cruikshank & Fairweather 19 Royal Exchange
Square
Glasgow G1 3AE Scotland (GB)

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Description

This invention relates to receivers used in rifles which receivers have seating surfaces against which bolt lugs are positioned and to the method of manufacture of the receiver with such seating surfaces wherein the preamble of claims 1 and 3 is based on US—A—1924692.

Prior rifle receivers have had spaced apart lug seating surfaces which were so positioned that manufacture of the receiver including the lug seats required numerous operational steps and often meeting required tolerances was difficult.

The present invention overcomes weaknesses of the prior art by providing an improved receiver and method of manufacture.

According to the present invention there is provided a receiver for a bolt action firearm having a barrel, a bolt with lugs a stock, a receiver housing having a forward portion adapted to engage the barrel, a rearward portion adapted to engage the stock and hollow breech portion between said forward and rearward portions characterised in that there is provided; two seat surfaces on the rearward receiver portions for mating with spaced lugs on the bolt, said seat surfaces being formed by a single stroke of a broach cutting means.

According to a further aspect of the present invention there is provided a method of manufacture of a receiver for a bolt action firearm the receiver comprising a rearward position with a breech opening adjacent thereto characterised in that the method includes the steps of:-

a) forming a metal receiver blank having the rearward portion and the breech opening adjacent thereto;

b) controlling the amount of metal in said rearward portion to an amount which does not exceed that which can be machined by a single stroke of a broaching tool, and

c) passing a broach means through the breech opening to remove metal from the rearward portion to form at least two spaced apart bolt lug seat surfaces thereon.

at least one bolt lug seat thereon.

As will be apparent from the foregoing, the invention concerns the formation of a receiver having forward, breech opening and rearward portions with two spaced bolt lugs seats positioned on the rearward portion so that they can be readily formed by the simple broaching operation. The broach is passed through the breech opening to machine the lug seats.

It is a feature that the lug seats may after forming lie in a plane perpendicular to the bore of the rifle barrel.

It is also a feature that the receiver blank can be cast with a controlled amount of metal material in the areas adjacent the seats to be formed such that the seats can be formed in a single stroke of a broaching tool.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings in which:-

Fig. 1 is a side elevational view of a rifle, partially broken away, to show portions of the bolt including the bolt lugs and the receiver of this invention;

Fig. 2 is a plan view of the rifle showing the receiver;

Fig. 3 is a plan view of the receiver of the invention during manufacture with the broach shown in section; and

Fig. 4 is the section along line 4—4 of Fig. 3.

Referring to Figs. 1 and 2, rifle 10 includes barrel 11, receiver 12, breech bolt assembly 13, bolt 14, bolt handle 16, bolt head sleeve 17 and cocking piece 19. Also shown are stock 21 and tang 22.

Receiver 12 includes forward portion 23, rearward portion 24 and a hollow breech portion 26. Bolt 14 carries upper bolt lug 27 and lower bolt lug 28. Forward receiver portion 24 has upper lug seat 27a and lower lug seat 28a. Bolt lugs 27 and 28 engage receiver lug seats 27a and 28a when the bolt is in its closed position (Fig. 1).

Turning to Figs. 3 and 4, the method of manufacture of receiver lug seats 27a and 28a is shown in which a broach 35 is positioned in breech opening 30. Initially, the receiver blank is formed by investment casting, forging or other method. Portions of the receiver blank are then finished by machining, grinding or otherwise as known in the art. As part of this manufacturing process, the forward areas 31, 32 of the rearward portion 24 are partially removed by machining to provide the desired location of surfaces 27a and 28a. In the practice of this invention, the receiver blank includes metal material in the forward areas 31, 32 of the rearward receiver portion 24 so that metal removed from area 31, 32 by machining provides surface seats 27a, 28a of proper area and location within acceptable tolerances. Further the method of manufacture provides that the volume of metal material in areas 31, 32 preferably does not exceed that which can be machined by one stroke of a broach tool. By controlling the amount of metal in areas 31, 32 seats 27a, 28a can be formed in one broach stroke.

Referring to Fig. 4, broach tool 35 has broach teeth 36 which machine metal from the forward areas 31, 32 as broach 35 is moved downwardly (see arrow in Fig. 4). Broach 35 carries sufficient teeth of selected size, length and angle such that the machining of forward areas 31, 32 to form seat surfaces 27a and 28a is accomplished in one downward stroke. Broach 35 is preferably positioned to move perpendicularly to the axis of the barrel or a line parallel thereto (see centre line C/L of Fig. 4). With broach 35 so oriented during its machining stroke, seat surfaces 27a and 28a will be in the same plane and each seat surface equidistant from the end of the barrel 11.

Claims

1. A receiver for a bolt action firearm having a barrel (11), a bolt (14) with lugs (27, 28), a stock (21), a receiver housing having a forward portion (23) adapted to engage the barrel (11), a rearward

portion (24) adapted to engage the stock (21) and hollow breech portion (26) between said forward and rearward portions characterised in that there is provided; two seat surfaces (27a, 28a) on the rearward receiver portions (23) for mating with spaced lugs (27, 28) on the bolt (14), said seat surfaces being formed by a single stroke of a broach cutting means (35).

2. A receiver as claimed in claim 1, characterised in that said two spaced-apart lug seat surfaces (27a, 28a) lie in a single plane.

3. A method of manufacture of a receiver for a bolt action firearm the receiver comprising a rearward portion (24) with a breech opening (30) adjacent thereto, characterised in that the method includes the steps of:-

a) forming a metal receiver blank having the rearward portion (24) and the breech opening (30);

b) controlling the amount of metal in said rearward portion to an amount which does not exceed that which can be machined by a single stroke of a broaching tool, and

c) passing a broach means (35) through the breech opening (30) to remove metal from the rearward portion (24) to form at least two spaced apart bolt leg seat surfaces (27a, 28a) thereon.

4. A method as claimed in claim 3, in which the broach means (35) is passed through a plane perpendicular to the center line of a barrel of the firearm.

Patentansprüche

1. Ein Verschlußgehäuse für eine Schußwaffe mit Bolzen, ausgestattet mit einem Lauf (11), einem Bolzen (14) mit Zapfen (27, 28) einem Schaft (21), einem Verschlußgehäuse mit einem vorderen Teil (23) für die Aufnahme des Laufs, und einem rückwärtigen Teil (24) für die Aufnahme des Schafts (21), und einem hohlen Verschlußteil (26) zwischen besagten vorderen und rückwärtigen Teilen, dadurch gekennzeichnet, daß folgendes vorhanden ist: zwei Führungsflächen (27a, 28a) auf den rückwärtigen Gehäuseteilen (23) für das Zusammenpassen von mit Zwischenräumen angeordneten Zapfen (27, 28) auf dem Bolzen (14), wobei die besagten Führungsflächen mittels einer einzigen Bewegung einer Aussparung schneidenden Vorrichtung (35) geformt sind.

2. Ein Verschlußgehäuse wie beansprucht in Anspruch 1, dadurch gekennzeichnet, daß die besagten zwei mit Zwischenräumen angeordneten Zapfenführungsflächen (27a, 28a) in einer Ebene liegen.

3. Ein Verfahren für die Herstellung eines Verschlußgehäuses für eine Schußwaffe mit Bolzen, wobei das Gehäuse aus einem rückwärtigen Teil (24) mit einer daran angrenzenden Verschlußöffnung (30) besteht, dadurch gekennzeichnet, daß das Verfahren folgende Schritte enthält:

a) die Fertigung einer Metallgehäusefläche, wobei der rückwärtige Teil (24) und die Verschlußöffnung (30) vorhanden sind;

b) die Kontrolle der Metallmenge in besagtem rückwärtigen Teil in einem Ausmaß, welches über das, was mit einer einzigen Bewegung eines Aussparungswerkzeugs bearbeitet werden kann, nicht hinausgeht; und

c) das Durchführen eines Aussparungswerkzeugs (35) durch die Verschlußöffnung (30) zum Entfernen von Metall von dem rückwärtigen Teil (24) zwecks Fertigung von mindestens zwei mit einem Zwischenraum versehenen Bolzenzapfenführungsflächen (27a, 28a) auf besagtem rückwärtigen Teil.

4. Ein verfahren wie in Anspruch 3 beansprucht, in dem das Aussparungswerkzeug (35) durch eine Fläche, rechtwinkelig zur Achse des Laufs der Schußwaffe, geführt wird.

Revendications

1. Boîte de culasse pour une arme à feu à culasse mobile comportant un canon (11), une culasse (14) avec des bossages de référence (27, 28), un fût (21), une boîte de culasse présentant une partie avant (23) conçue pour venir en prise avec le canon (11), une partie arrière (24) conçue pour venir en prise avec le fût (21) et une partie creuse (26), formant ouverture de la boîte de culasse, entre ladite partie avant et ladite partie arrière, caractérisé en ce qu'il y est prévu: deux surfaces formant siège (27a, 28a) sur la partie arrière (23) de la boîte de culasse pour correspondre avec les bossages (27, 28), situés à une certaine distance l'un de l'autre, sur la culasse (14), lesdites surfaces formant siège étant formées par une unique course d'un moyen de brochage (35).

2. Boîte de culasse selon la revendication 1 caractérisée en ce que les deux dites surfaces (27a, 28a), formant siège et espacées l'une de l'autre, sont situées dans un plan unique.

3. Procédé de fabrication d'une boîte de culasse pour une arme à feu à culasse mobile, la boîte de culasse présentant une partie arrière (24) avec une ouverture (30) de boîte de culasse qui lui est adjacente, caractérisé en ce que le procédé comporte les étapes de:

(a) former une ébauche métallique de boîte de culasse présentant la partie arrière (24) et l'ouverture (30) de boîte de culasse;

(b) faire en sorte que la quantité de métal en surépaisseur dans ladite partie arrière soit une quantité qui ne dépasse pas celle qui peut être enlevée par usinage en une unique course d'un outil de brochage et

(c) passer un moyen de brochage (35) dans l'ouverture (30), de la boîte de culasse pour enlever du métal sur la partie arrière (24) pour former sur cette partie au moins deux surfaces (27a, 28a), espacées l'une de l'autre, formant siège des bossages de référence de la culasse.

4. Procédé selon la revendication 3, dans lequel on fait passer le moyen de brochage (35) dans un plan perpendiculaire à l'axe d'un canon de l'arme à feu.

FIG. 1

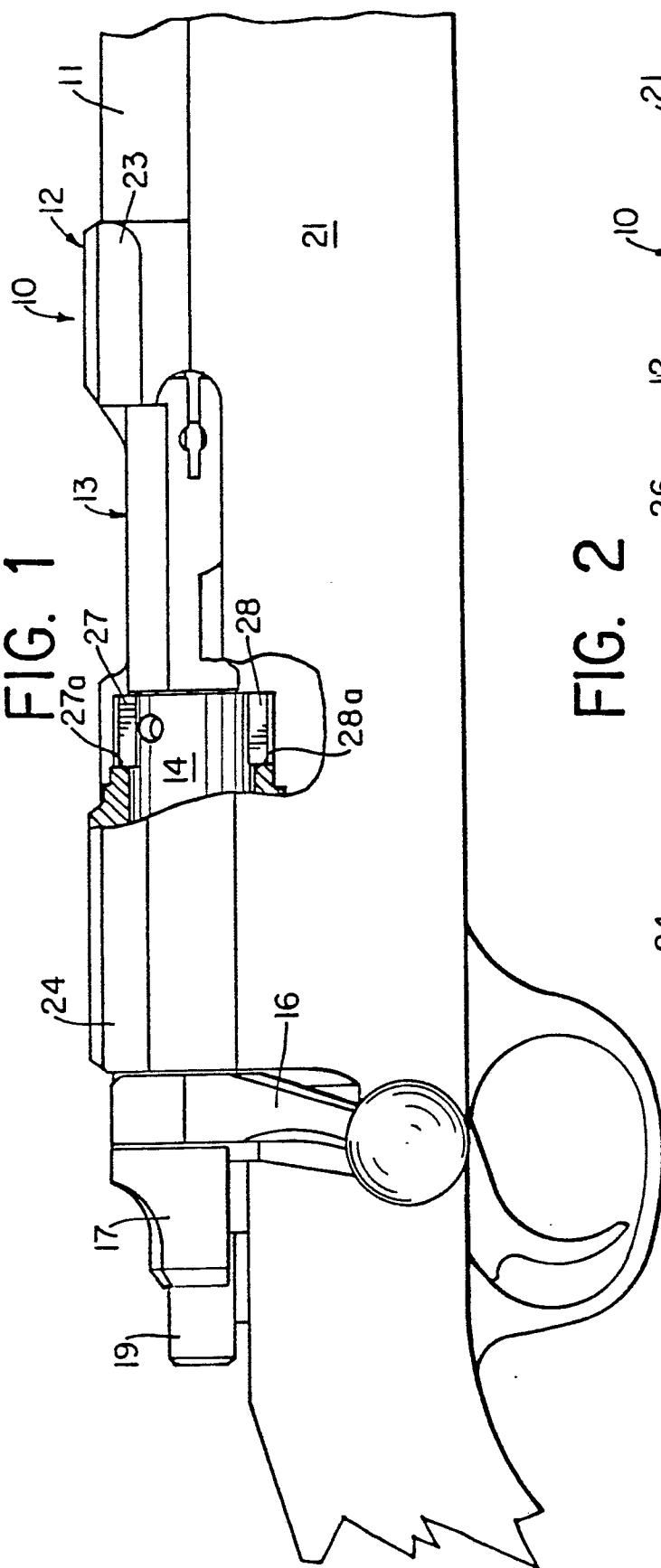


FIG. 2

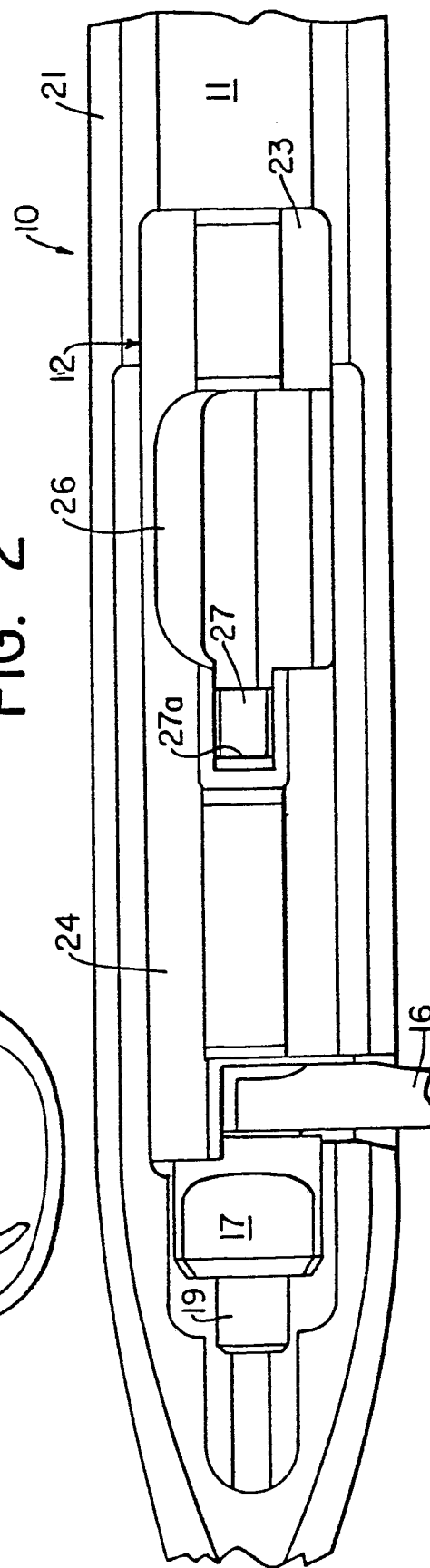


FIG. 3

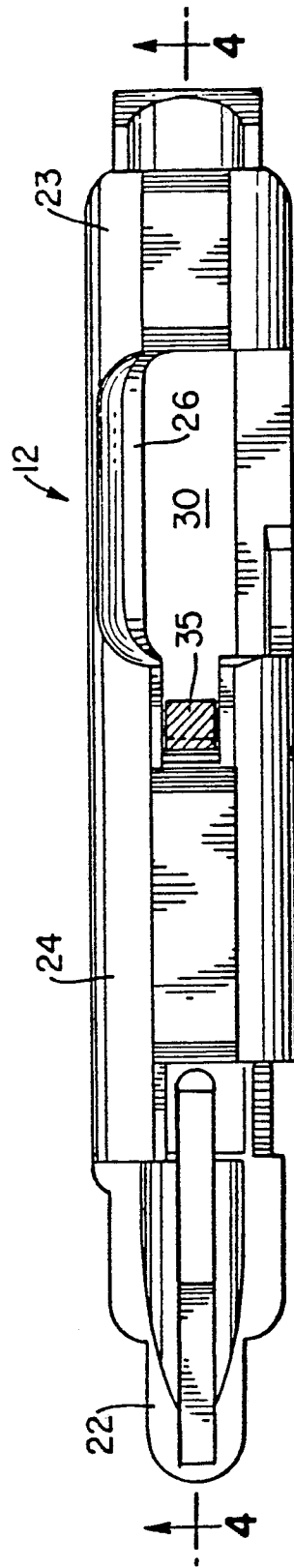


FIG. 4

