Fig. 1.

Fig. 2.

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Attorneys
The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to means for securing interchangeability of the parts of a firearm with particular reference to obtaining the proper headspace for the firearm.

Inherent in firearms having fixed barrels with breech mechanisms that lock against a fixed part of the receiver is the difficulty of obtaining the proper spacing between the face of the bolt and the cartridge, which is generally referred to as headspace. Due to wear of tools manufacturing tolerances are provided on all dimensions of the various components of the firearm as well as other tolerances that govern fit of the components. It may thus be readily seen that even amongst a number of similar components corresponding dimensions can vary slightly and for example some of these pieces will be longer or shorter than others. In the assembly of new rifles, it is frequently impossible to obtain the proper headspace because the accumulation of tolerances in components comprising the breech mechanism are such that the bolt face will not position for correct headspacing. Then only by laborious selective assembly and repeated trial can the proper headspace conditions be obtained.

The locking surfaces of firearms which have been subjected to prolonged firing stretch and wear from the constant pounding of repeated explosions. This often increases the headspace to such an extent that whatever combination of new breech mechanism components are placed in the firearm the correct headspace cannot be obtained. It then becomes necessary to replace these components or institute a major overhaul to obtain the correct headspace in order to restore the firearm to its original useful condition.

It is an object of this invention to provide a variable means for obtaining interchangeability of any combination of components of the breech mechanism of a firearm.

Another object of this invention is to provide a ready means for effectively restoring the headspace of used and worn firearms.

It is a particular object of this invention to provide adjustable headspace means for a firearm such as disclosed in U. S. Patent No. 1,293,022 to John M. Browning.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of the preferred embodiment as shown in the accompanying drawing in which:

Fig. 1 is a partial view in axial section of the breeching mechanism of a firearm.

Fig. 2 is a perspective view of the headspace adjusting plate.

In Fig. 1 is shown in section the breeching mechanism of a firearm, such as shown in U. S. Patent No. 1,293,022 to John M. Browning, in its closed or locked position within the receiver 1, which is also shown in section. The breeching mechanism comprises mainly the bolt 2, the bolt lock 3, the link 4, and the slide 5. With the breech mechanism in the position shown, the bolt lock 3 engages the shoulder 6 on the receiver 1 and in this position will resist the rearward force of the gases against the bolt 2 when a cartridge 7 is fired.

To properly support the head of the cartridge 7, the face 8 of bolt 2 must at all times engage or very nearly engage the face of the cartridge 7. The space between the head of the cartridge, or some convenient reference point in the chamber, and the face of the bolt is known as the headspace. It is necessary that when the bearing surface 9 of the bolt lock 3 snugly engages the shoulder 6 of receiver 1 the bolt face 8 is within prescribed headspace limits to prevent ruptured or blown off cartridge heads with resultant dangerous escape of gas.

As previously pointed out, due to allowable manufacturing tolerances it is possible under some conditions to have certain components or combinations of components, which comprise the breech mechanism, be of such length that the bolt face 8 will not come within prescribed headspace limits. Such a condition exists when a bolt lock 3 and a bolt 2 of minimum length, joined together by a pin 15 of maximum diameter, are assembled to a receiver 1 in which the shoulder 6 is the maximum distance from the end 13 of receiver 1, and when the shoulder 14 of chamber 7 is a maximum distance from end 13 of receiver 1. Thus, under the condition of maximum and minimum tolerances just described, the bolt face 8 will not be sufficiently forward to be within the headspace tolerances. As it is extremely inconvenient, and laborious, and often at times unsavory, to obtain the proper headspace by selective assembly of the affected components, a convenient means for adjustable obtaining the headspace without the need for selective assembly is provided.

A dovetailed slot 10 is provided in the bolt lock 3. In the slot 10 a headspace adjusting plate 11
(Fig. 2) is slidably inserted and securely held by the slot 10. The plate 11 is then locked in place by the stake 16 in stake slot 15 or by other suitable means. It should be understood that this locking means should not permanently fasten the plate 11 to the bolt lock 2 but only securely enough to prevent its loosening during operation of the gun as it may be necessary to remove the plate 11 as will be presently shown.

By providing the headspace adjusting plates 11 in a wide variety of slightly differing thicknesses, it is possible to obtain any headspace adjustment desired which will satisfy tolerance requirements despite an accumulation of tolerances that without the headspace adjusting plate 11 would have caused the rejection of the components.

Firearms that have been subjected to severe firing frequently develop excessive headspace which cannot be corrected without replacement of components. Such firearms may be conveniently and inexpensively restored to their original usefulness by provision of the slot 10 and the plate 11 as described. At any time a firearm embodying this invention is fired to such an extent as to increase the headspace beyond the prescribed limits, it is only necessary to replace the headspace adjusting plate 11 with a thicker plate to correct this condition.

It should be understood that the method described can be applied to firearms other than the one illustrated in the drawing and is therefore applicable to any firearm with a fixed barrel and a breech mechanism that locks against a fixed part of the receiver.

I claim:
1. In a firearm having a fixed receiver, a bolt and a barrel, a bolt locking assembly comprising a fixed locking surface in said receiver, a pivoted member on said bolt having a surface adjacent to said receiver surface in the locked position of said pivoted member, the improvement comprising a slot in said pivoted member surface, a locking member secured in said slot and having a surface in engagement with said receiver locking surface in the locked position of said pivoted member, the thickness of said locking member being selected to obtain proper headspace.

2. In a firearm having a receiver, a barrel, a movable bolt in said receiver, and a bolt locking assembly comprising a fixed locking surface in said receiver and a pivoted member on said bolt having a surface adjacent to said receiver surface in the locked position of said pivoted member, the improvement comprising a separate insert in said pivoted member positioned for engagement with said locking surface in the locking position of said pivoted member, said insert protruding beyond the surface of said pivoted member in accordance with the headspace requirements of said firearm.

3. In a firearm as in claim 2, removable fastening means for said insert whereby inserts of different sizes may be readily interchanged.

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