April 30, 1968 C. P. GUSTIN 3,380,346

APPARATUS FOR IMPROVING ACCURACY OF SEMI-AUTOMATIC FIREARMS

Filed June 23, 1966

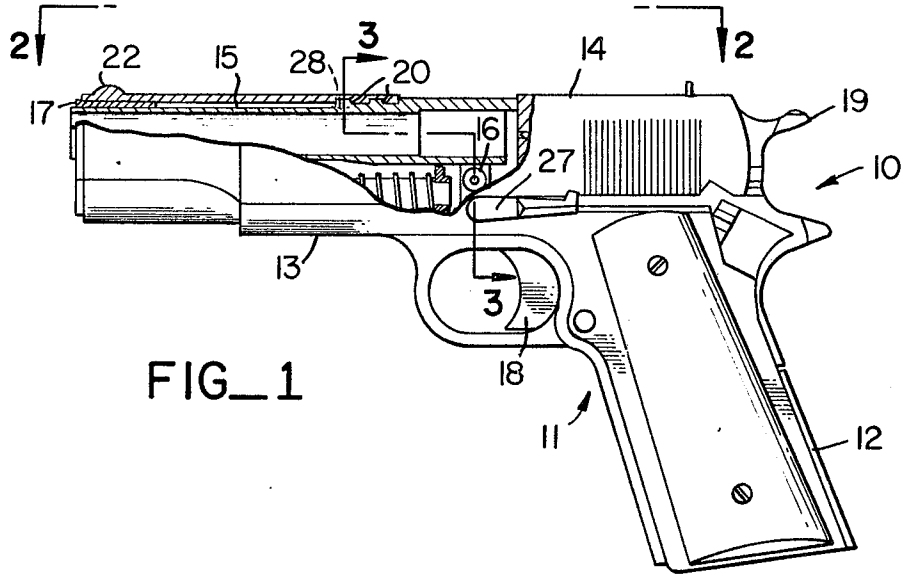


FIG_1

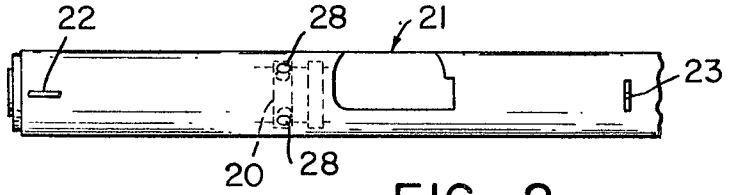


FIG_2

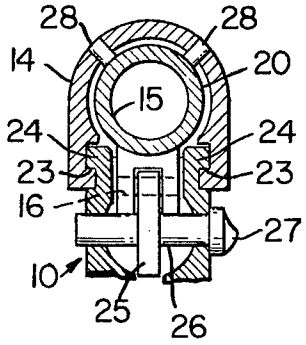


FIG_3

INVENTOR.
CASSIUS P. GUSTIN
BY
Townsend & Townsend
ATTORNEYS

United States Patent Office 3,380,346 Patented Apr. 30, 1968

3,380,346

APPARATUS FOR IMPROVING ACCURACY OF SEMI-AUTOMATIC FIREARMS

Cassius P. Gustin, 1729 Ohio Ave., Modesto, Calif. 95351

Filed June 23, 1966, Ser. No. 559,855
6 Claims. (Cl. 89—196)

ABSTRACT OF THE DISCLOSURE

Apparatus for improving the accuracy of semi-automatic firearms in which a pair of studs is installed in the slide of a pistol at the barrel lug groove so that the barrel lug contacts the studs when the pistol is in the battery position.

The present invention relates to firearms utilizing the Browning locked breech auto-loading action such as the well-known Colt semi-automatic .45 caliber pistol, Model of 1911, and concerns primarily a means for improving the accuracy of such guns simply and inexpensively.

Conventional weapons of this type are manufactured with comparatively wide tolerances on the moving parts in order to permit easy substitution of broken or worn parts and to permit the pistols to function reliably under all kinds of adverse conditions, specifically, with much foreign matter in their mechanism. Such wide clearances make for good, reliable military weapons; but because the barrel of the weapon does not return to precisely the same relative position within the slide at the battery, or firing, position, and as the sights are affixed to the upper portion of the slide, these weapons are unsuitable for use as target guns.

It is an object of the present invention to provide simple and inexpensive means for increasing the accuracy of weapons of the type described by assuring that the barrel and slide retain the same relative position in registry with each other at battery after each firing.

In the present invention there is provided a plurality of projections or studs on the inside of the slide located at the barrel lug recess. The addition of such projections to the conventional weapon of the type described results in the barrel of the weapon being constrained to assume the same position with respect to the slide and its sights after each shot. A feature and advantage of the invention is, therefore, that greatly improved accuracy is possible in the firing of the weapon, as the barrel and sights are in substantially precisely the same alignment after each shot.

Another feature and advantage of the invention is that although the accuracy of the weapon is greatly improved, the operating parts retain their wide clearances and thus parts may be freely substituted or replaced without destroying the accuracy of the modified weapon.

Still another feature and advantage of the invention is that wear of the projections or studs is minimal in the operation of the weapon so that the modified weapon retains its accuracy over long periods of use.

Other objects and advantages of the invention will become apparent upon reading the following specification and referring to the accompanying drawing in which similar characters of reference represent corresponding parts in each of the several views.

In the drawing:

FIG. 1 is a side view, partially cut away, of a pistol improved in accordance with the invention;

FIG. 2 is a partial top view of the slide along the line 2—2 of FIG. 1; and

FIG. 3 is an enlarged section taken on line 3—3 of FIGS. 1 and 2.

Referring more particularly to the drawing, shown at **10** is a .45 caliber semi-automatic pistol of the well-known type referred to above. The weapon comprises a receiver or frame **11** which includes a handle **12** and a forward extending part **13**. The slide **14** is reciprocably mounted upon the frame. The front sight **22** and rear sight **23** are affixed to the upper surface of the slide. The barrel **15** is movably mounted upon the frame by means of lug **16**, affixed to the barrel, and link **25**. The barrel is held within the slide by means of barrel bushing **17**.

When the pistol is at the battery position as illustrated in FIG. 1, squeezing the trigger **18** causes the hammer **19** to fall, firing the cartridge in the chamber (not shown). The slide recoils rearward. As it does, the barrel moves rearward and downward, disengaging the barrel lugs **20** from their complementary grooves (not separately numbered) in the slide. The spent cartridge is ejected through opening **21** shown in FIG. 2 as the slide completes its rearward motion. This rearward motion also recocks the hammer **19**.

The slide moves forward in counter-recoil motion from its far-rearward recoil position and picks up a fresh cartridge to insert it in the chamber (not shown). As the slide reaches its fully forward position the barrel lugs **20** re-engage the barrel lug grooves in the slide to lock the slide and barrel together. Squeezing the trigger then repeats the cycle.

As may be seen more clearly in FIG. 3, the slide **14** is provided with lengthwise slots or ways **23** which ride upon corresponding lugs **24** formed in the frame **10**. The barrel **15** is loosely received within a longitudinal recess in the slide. Affixed to the lower portion of the barrel is a lug **16**; pivotally connected to this lug is a link **25**. The pin portion **26** of the slide stop assembly **27** passes through link **25**. When the slide moves rearward in recoil, the barrel is carried with the slide for only a portion of its motion, because the barrel pivots upon the link **25**, moving downward as it moves rearward.

The linkage consisting of lug **16**, link **25**, and pin **26** are manufactured with comparatively wide tolerances in conventional weapons. There are also wide tolerances between the slide ways **23** and the receiver or frame lugs **24**, and between the barrel **15** and barrel bushing **17**. As a result, when the barrel returns to the battery position after firing, with the barrel lugs **20** locked in the barrel lug grooves, the barrel and slide are in relatively different positions with respect to each other, i.e., they are not in the same relative in-line registry or alignment after each firing.

The principal object of the present invention is to assure reproducible alignment or registry of the barrel and slide after each firing of a weapon. As may best be seen in FIG. 3, an embodiment of the invention comprises a pair of small surface-area spacer elements or studs **28** installed in the slide, each at an angle of approximately 45° to a vertical plane bisecting the firearm. The studs are installed so that they pass into the forward barrel lug groove, contacting the forward barrel lug **20** when the firearm is in the battery position.

In a particular embodiment of the present invention, as described below by way of example, two studs are installed in the slide at points located so that the studs will enter the forward barrel lug recess in the slide. This is accomplished by drilling two holes (31 wire gage) each 45° from the vertical plane bisecting the firearm, carefully threading the holes using a $\frac{5}{48}$ gun tap, then fitting headless screws into the threaded holes until they just contact the barrel lug when the weapon is at battery position. The headless screws should preferably have flat ends and be made of alloy steel. If the slide is retracted approximately ½ inch and the screws turned in approxi-

mately ⅛ turn or .0025 inch, the screws will then positively engage the forward barrel lug when the slide is returned to the battery position. The slight penetration of the adjusting screws into the forward barrel lug will cause the slide to lift in the receiver ways at the battery position, thus eliminating one source of inaccuracy in the firing of the gun. This may be clearly seen in FIG. 3. The upward pressure upon the barrel caused by the action of the recoil spring upon the bottom barrel lug will force the barrel into contact with the two projecting screw faces so that the barrel will assume the same relative position in registry with the slide each time the barrel and slide return to the battery or firing position, thus eliminating the other major source of inaccuracy in firing the weapon.

After the final adjustment to assure minimal relative movement of the parts of the firearm, the screws may be locked in position by deforming the threads at the outside face of each screw by means of a center punch or similar tool. Final locking of the screws is accomplished by welding or brazing or similarly affixing the screw to the threaded hole on the outside surface of the slide. The slide may be returned to its original appearance thereafter by filling in the threaded holes above the screws by means of welding, brazing, or other similar processes; restoring the original contour of the slide by conventional machine or hand processes; then polishing and rebluing the slide.

These and other modifications of my invention may be practiced, it being understood that the form of my invention, as described above, is to be taken as a preferred example of the same. Such description has been by way of illustration and example for purposes of clarity of understanding. Various changes and modifications may be made without departing from the spirit of my invention as limited only by the scope of the appended claims.

I claim:

1. In a semi-automatic firearm of the type having a frame; a slide reciprocably mounted on said frame; a barrel mounted on said frame and disposed to move between a battery position locked to said slide and a recoil position disengaged from said slide; the interior of said slide having a lug groove transverse the longitudinal axis of said slide; said barrel having a raised lug disposed to fit within said lug groove when said slide and said barrel are at the battery position and said lug and said groove disposed to be disengaged from each other to permit the slide to move rearwardly while said barrel is in the recoil position; the combination with said barrel and said slide of a plurality of small surface-area spacer elements disposed at said lug groove and between said barrel and said slide to force said barrel into repeatable alignment with said slide each time said barrel and slide are moved into battery position.

2. The invention of claim **1** wherein said spacer elements include two members fixedly attached to said slide at said lug groove and positioned to extend inwardly from the inner surface of the groove whereby said barrel lug is engaged at two spaced-apart points when said firearm is at battery position to space the lug from direct engagement with the inner surface of said groove.

3. The invention of claim **1** wherein said slide carries rigidly therewith front and rear sights and wherein said spacer elements comprise two members fixedly attached to said slide at said lug groove, said members symmetrically positioned about a plane which includes the longitudinal axis of said slide along the line of the sights and the longitudinal axis of the barrel, said members extending inwardly adjacent said barrel lug whereby said barrel lug is engaged by said members when said firearm is at battery position.

4. In a semi-automatic firearm of the type having a frame; a slide reciprocably mounted on said frame; a barrel mounted on said frame and disposed to move between a battery position locked to said slide and a recoil position disengaged from said slide; the interior of said slide having a lug groove transverse the longitudinal axis of said slide having a lug groove transverse the longitudinal axis of said slide; said barrel having a raised lug displosed to fit within said lug groove when said slide and said barrel are at the battery position and said lug and said groove disposed to be disengaged from each other to permit the slide to move rearwardly while said barrel is in the recoil position; and a pair of studs fixedly attached to said slide, said studs projecting inwardly and contacting said barrel lug at two angularly spaced-apart points.

5. The invention of claim **4** wherein said slide carries front and rear sights rigidly therewith and wherein said studs are symmetrically positioned about a plane through the line of the sights and bisecting the firearm.

6. In a semi-automatic firearm the combination of a frame, a slide slidably attached to said frame, said slide having a recess transverse its longitudinal axis, a barrel having a raised barrel lug upon its upper surface, said barrel movably mounted within said slide so that said barrel lug is disposed within said slide recess when said firearm is at firing position, a plurality of spacer elements disposed between said barrel lug and said transverse recess whereby said barrel and said slide are held in repeatable alignment whenever said firearm is in firing position.

References Cited

UNITED STATES PATENTS

3,252,237 5/1966 Korzeniewski ------ 89—196 X

BENJAMIN A. BORCHELT, *Primary Examiner.*

S. C. BENTLEY, *Assistant Examiner.*