

March 27, 1945.

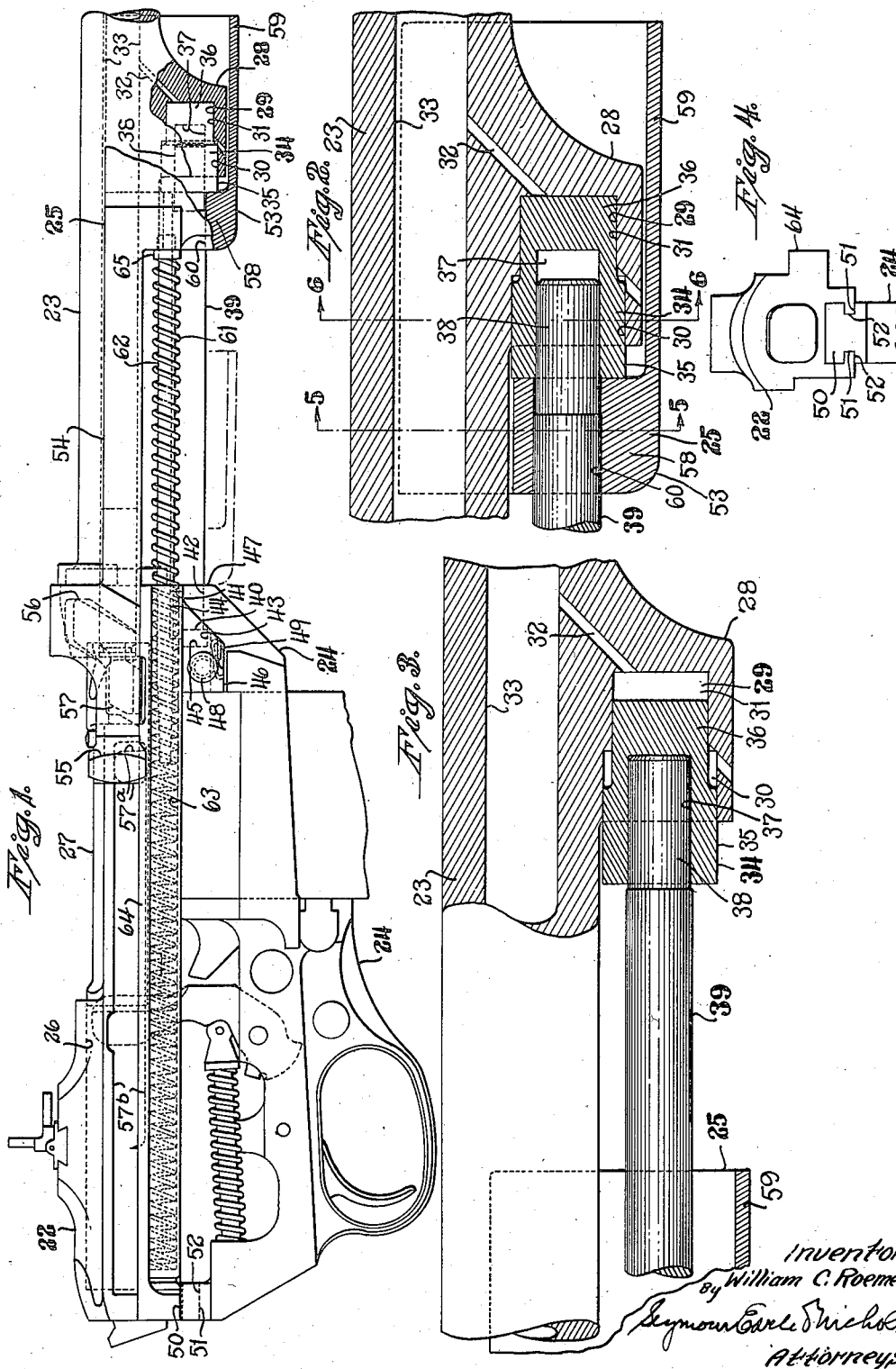
W. C. ROEMER

2,372,339

SELF-LOADING FIREARM

Filed Sept. 26, 1942

2 Sheets-Sheet 1



March 27, 1945.

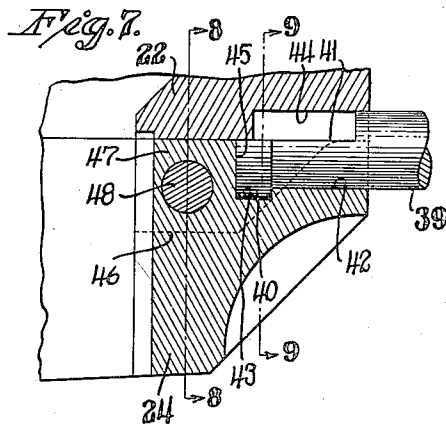
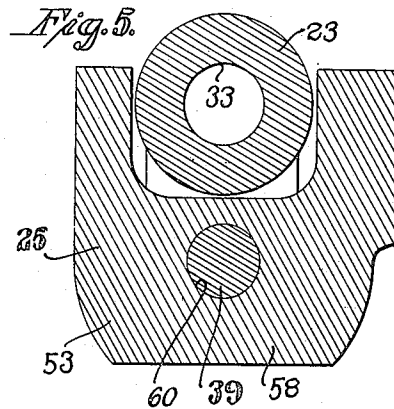
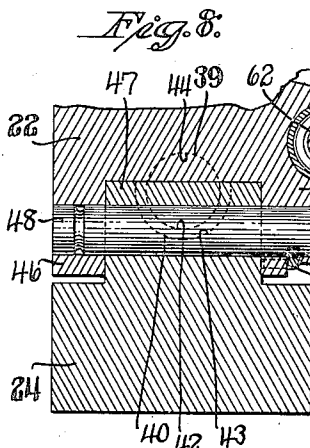
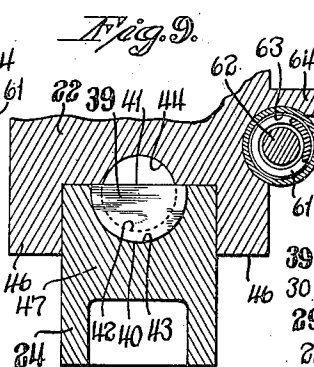
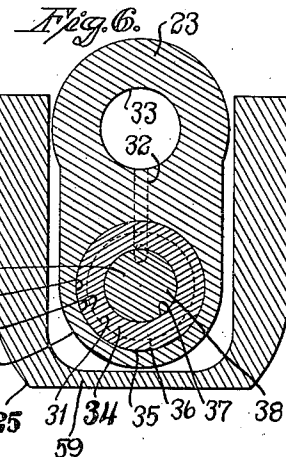
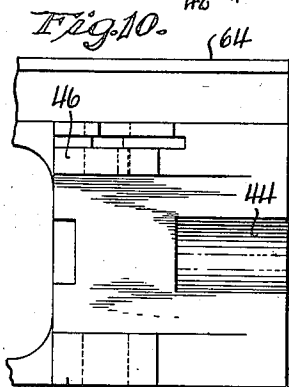
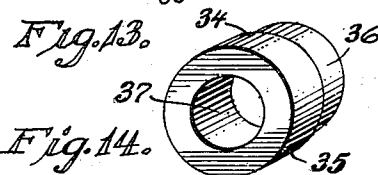
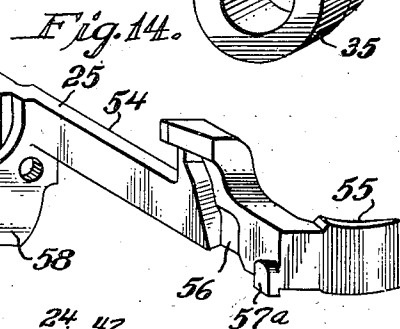
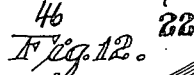
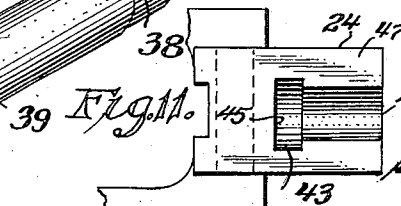
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SELF-LOADING FIREARM

Filed Sept. 26, 1942

2 Sheets-Sheet 2



Inventor
William C. Roemer
By
Symon E. Nichols
Attorneys

UNITED STATES PATENT OFFICE

2,372,339

SELF-LOADING FIREARM

William C. Roemer, New Haven, Conn., assignor to
Western Cartridge Company, New Haven,
Conn., a corporation of Delaware

Application September 26, 1942, Serial No. 459,749

9 Claims. (Cl. 42—3)

The present invention relates to improvements in firearms, and relates more particularly to improvements in self-loading firearms, i. e., firearms in which the forces developed by the discharge of a given cartridge effect the extraction and ejection of the just-fired cartridge preparatory to the automatic reloading of the firearm with a fresh cartridge.

One of the objects of the present invention is to provide a self-loading firearm with superior means for effecting the actuation of the breech-bolt thereof as a result of the discharge of a cartridge.

Another object of the present invention is to provide a self-loading firearm with superior means for guiding the action-slide or its equivalent during the operation of the firearm.

A further object of the present invention is to provide a superior self-loading firearm in which provision is made for the accurate guiding of the connecting-means between the piston and the breech-bolt, without requiring the undue weakening of the barrel of the firearm.

Still another object of the present invention is to provide a superior self-loading firearm with breech-bolt-actuating means which is both durable and rugged in its operation, but which may be readily and conveniently dismounted to permit inspection and cleaning.

With the above and other objects in view, as will appear to those skilled in the art from the present disclosure, this invention includes all features in the said disclosure which are novel over the prior art and which are not claimed in any separate application.

In the accompanying drawings, in which certain modes of carrying out the present invention are shown for illustrative purposes:

Fig. 1 is a broken view of the central portion of a self-loading repeating firearm embodying the present invention and showing the same partly in side elevation and partly in vertical central-longitudinal section, with the parts in the positions which they assume at the instant of the discharge of the firearm;

Fig. 2 is a broken view in vertical central-longitudinal section of the portions of the firearm adjacent the cylinder-lug of the barrel, and with the parts in their normal "at-rest" positions;

Fig. 3 is a similar view but showing the piston and action-slide at the limit of their respective rearward movements following the discharge of the firearm;

Fig. 4 is a broken view in rear elevation of the receiver and trigger-plate;

Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 2;

Fig. 6 is a similar view but taken on the line 6—6 of Fig. 2;

Fig. 7 is a broken view in vertical central-longitudinal section of the forward portions of the receiver and trigger-plate and the rear portion of the guide-rod;

Fig. 8 is a transverse sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a similar view taken on the line 9—9 of Fig. 7;

Fig. 10 is a broken underside view of the forward portion of the receiver together with the rear portion of the barrel;

Fig. 11 is a broken top or plan view of the forward portion of the trigger-plate;

Fig. 12 is a perspective view of the guide-rod, detached;

Fig. 13 is a similar view of the cup-shaped piston, detached; and

Fig. 14 is a perspective view of the action-slide, detached.

The particular self-loading firearm-structure illustrated in the accompanying drawings, comprises in the main a receiver 22, a barrel 23, a trigger-plate 24 and a reciprocating action-slide 25. The receiver 22, trigger-plate 24, barrel 23 and action-slide 25 are preferably formed of high-grade steel to afford maximum strength and minimum weight.

At its rear end, the barrel 23 is rigidly connected in any suitable manner to the forward end of the receiver 22, which latter is formed interiorly with a mechanism-receiving chamber 26 accommodating various features of the firearm-mechanism. The features of the mechanism within the mechanism-receiving chamber 26 do not require detailed description herein other than to note that the said mechanism includes a reciprocating breech-bolt 27 which also has oscillatory movement in the chamber 26 of the receiver 22 in a manner broadly similar to the breech-bolt of the well-known Garand rifle.

Adjacent its rear end, the barrel 23 is formed with an integral depending cylinder-lug 28 which is formed with a rearwardly-opening piston-chamber 29 having its longitudinal axis extending in substantial parallelism with the longitudinal axis of the said barrel. The said piston-chamber comprises a relatively-large cylindrically-contoured rear portion 30 and a relatively-small concentric and cylindrically-contoured forward portion 31.

Leading forwardly and upwardly from the front

end of the relatively-small forward portion 31 of the piston-chamber 29 is a gas-passage 32 communicating at its forward end with the bore 33 of the barrel 23, so as to conduct gas under pressure from the said bore to the piston-chamber 29 for purposes as will hereinafter appear.

Reciprocating in the piston-chamber 29 is a cup-shaped piston generally designated by the reference character 34 and comprising a relatively-large cylindrically-contoured rear portion 35 and a relatively-small cylindrically-contoured forward portion 36. The respective rear and forward portions 35 and 36 of the piston 34 reciprocate with a smooth sliding fit respectively in the portions 30 and 31 of the piston-chamber 29.

The cup-shaped piston 34 is formed with a rearwardly-opening cylindrically-contoured socket 37 receiving with a sliding fit the stem 38 of a guide-rod 39. The said guide-rod is arranged coaxially with respect to the central-longitudinal axis of the piston 29 and extends in substantial parallelism with the longitudinal axis of the barrel 23. At its rear end, the lower portion of the guide-rod 39 is formed with a flange-like anchoring-head 40 which is of substantially semicircular form and which is located directly below a clearance-notch 41 formed in the upper rear portion of the guide-rod 39, as is shown particularly well in Fig. 12. The lower rear portion of the guide-rod 39 lying immediately forwardly of its anchoring-head 40 is accommodated in an upwardly-opening longitudinally-extending groove 42 formed in the forward portion of the trigger-plate 24 and intersecting the forward edge of the said trigger-plate. The anchoring-head 40 of the guide-rod 39 is seated in an upwardly-opening anchoring-recess 43 formed in the trigger-plate 24 immediately to the rear of the groove 42. The said anchoring-recess 43 is of substantially semicircular form in cross section and corresponds closely to the transverse shape of the anchoring-head 40.

The upper rear portion of the guide-rod 39 is accommodated in a downwardly-opening longitudinal groove 44 formed in the under face of the forward portion of the receiver 22 and corresponding in transverse shape to the transverse shape of the guide-rod 39. At the rear of the anchoring-recess 43 the trigger-plate 24 is formed with a forwardly-facing stop-abutment 45 against which is seated the rear face of the guide-rod 39, which latter is thus held against rearward displacement. The forward displacement of the guide-rod 39 is prevented by the coaction of its anchoring-head 40 with the forward wall of the anchoring-recess 43.

On each of its respective opposite sides adjacent its forward end, the receiver 22 is formed with one of two downwardly-extending laterally-perforated coupling-ears 46—46 between which is received a coupling-ear 47 extending upwardly from the forward portion of the trigger-plate 24, as is especially well shown in Fig. 8. Extending transversely through the coupling-ears 46—46 and 47 is a coupling-pin 48 which is yieldingly retained in place by a detent-spring 49 and which serves to couple together the respective forward portions of the receiver 22 and trigger-plate 24. When the assembly is mounted in a stock in the usual manner of firearms, such a stock will normally cover the right end of the coupling-pin 48 and positively prevent its axial displacement to the right. As thus constructed and arranged, any longitudinal shocks applied to the guide-rod 39 are taken up by the trigger-plate 24 and thence

transmitted by the coupling-pin 48 to the forward portion of the receiver 22.

At its rear end the trigger-plate 24 is formed with an upwardly-extending rib 50 which is formed on each of its respective opposite sides with one of two longitudinal coupling-grooves 51—51, each of which receives with a sliding fit one of two laterally-spaced-apart coupling-ribs 52—52 extending inwardly in opposite directions respectively from each of the opposite sides of the rear portion of the receiver 22, as is especially well shown in Fig. 4.

The action-slide 25 before referred to is formed at its forward end with a head 53, from the upper right hand portion of which rearwardly extends an integral side-bar 54 which latter terminates at its rear in an outwardly-extending operating-handle 55, as is especially well shown in Fig. 14. In its inner face, just forwardly of its operating-handle 55, the side-bar 54 of the action-slide 25 is formed with a cam-recess 56 into which fits a lug 57 laterally off-setting from the forward end of the breech-bolt 27. The coaction of the lug 57 and the surfaces of the cam-recess 56 serves to operatively interconnect the action-slide 25 and the breech-bolt 27. At its rear, the action-slide 25 is formed with a depending guide-finger 57a riding in a longitudinal guide-groove 57b formed in the right side-wall of the receiver 22.

The head 53 at the forward end of the action-slide 25 includes a transversely-extending and relatively-heavy end-wall 58 from the perimeter of which forwardly extends a relatively-thin lateral wall 59 of U-shaped form in cross section and normally covering the bottom and sides of the cylinder-lug 28 and a portion of the sides of the barrel 23.

The end-wall 58 of the head 53 of the action-slide 25 is formed centrally with a longitudinally-extending bearing-passage 60 which is proportioned to receive with a free-sliding fit the main intermediate portion of the guide-rod 39. Bearing against the forward face of the end-wall 58 around the bearing-passage 60 is the rear end of the cup-shaped piston 34, which latter functions to drive the action-slide 25 rearwardly to effect the operation of the breech-bolt 27 in a manner as will hereinafter appear.

For the purpose of yieldingly urging the action-slide 25 forwardly into its foremost position and hence also moving the breech-bolt 27 into its breech-closing position, a helical breech-closing spring 61 is employed. The forward portion of the said breech-closing spring 61 encircles a breech-closing plunger 62. The rear portion of the breech-closing spring 61 fits within a forwardly-opening spring-chamber 63 extending longitudinally of the firearm-structure and removably secured to the receiver 22 beneath a longitudinal rib 64 formed integral with and projecting laterally from the right side of the said receiver, adjacent the lower edge thereof.

The rear end of the breech-closing spring 61 thrusts against the rear end-wall of the spring-chamber 63, and at its forward end the said spring thrusts against the rear face of a collar 65 formed integral with the forward portion of the breech-closing plunger 62 and thrusting at its forward face against the rear face of the end-wall 58 of the head 53 of the action-slide 25.

Normally the breech-closing spring 61 acting through the breech-closing plunger 62 maintains the forward face of the end-wall 58 of the head 53 in engagement with the rear end of the piston

34 and, in turn, maintains the forward end of the said piston against the front wall of the piston-chamber 29, as is clearly shown in Fig. 2.

When the firearm is discharged, gas under pressure will pass downwardly and rearwardly from the bore 33 of the barrel 23 and impinge against the forward end of the piston 34. Under these conditions, the piston 34 will be moved violently rearwardly until it is stopped by the engagement of the rear face of its end-wall with the forward end of the guide-rod 39, as is shown in Fig. 3. The movement imparted to the piston 34 as just described will cause the said piston to, in turn, impart rapid movement to the action-slide 25, which latter will be thrown rearwardly against the tension of the breech-closing spring 61 until the rear face of its head 53 strikes the forward face of the receiver 22. The parts will now have reached the positions in which they are shown in Fig. 3.

During its rearward travel as above described, the action-slide 25 will, through the intermediary of its cam-recess 56 and the lug 57 of the breech-bolt 27, effect the unlocking and retraction of the said breech-bolt. This movement will in the usual manner of firearms, effect the extraction and ejection of the just-fired cartridge. Also, during the rearward movement described, the forward portion of the action-slide 25 will be guided by the sliding of the surface of the bearing-passage 60 in its head 53 upon the periphery of the stationary guide-rod 39.

Following the completion of the actions just above described, the breech-closing spring 61 will act to again restore the parts to the positions in which they are indicated in Figs. 1 and 2.

When it is desired to separate the elements of the firearm for purposes of inspection, repair or cleaning, the coupling-pin 48 may be withdrawn lengthwise until it is completely out of the up-standing coupling-ear 47 of the trigger-plate 24, whereupon the said trigger-plate may be slid rearwardly until the rib 50 at the rear of the said trigger-plate is clear of the coupling-ribs 52-52 at the rear end of the receiver 22. As the trigger-plate is moved rearwardly as described, it will also carry with it the guide-rod 39, but due to the clearance-notch 41 formed in the said guide-rod, such movement will not be interfered with by the receiver 22.

The trigger-plate 24 may be now completely removed from the structure, following which the guide-rod 39 may be removed by springing its rear end downwardly and withdrawing it rearwardly from the bearing-passage 60 in the action-slide 25 and from the socket 37 in the piston 34. The springing-down of the rear end of the guide-rod 39 as just described is permitted not only by its own flexibility but by the freedom of fit which it has with reference to both the bearing-passage 60 and the socket 37.

Following the removal of the guide-rod 39, the action-slide 25 may be dismounted from the firearm and the piston 34 may be withdrawn rearwardly from the piston-chamber 29 in the cylinder-lug 28.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver-unit; a barrel projecting forwardly from the said receiver-unit; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber eccentrically located with respect to the bore of the said barrel and communicating with the bore of the said barrel; a piston reciprocating in the piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially coaxially with respect to and extending rearwardly from a point adjacent the said piston and supported at its rear end by the said receiver-unit, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston; a breech-bolt movable in the said receiver-unit; and an action-slide movable independently of both the said piston and the said guide-rod and provided with a guide-portion having sliding bearing on the said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is supported by the said receiver-unit, the said guide-portion being positioned to be engaged by the said piston at a point longitudinally intermediate the said piston and the point at which the said guide-rod is supported by the said receiver-unit, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod, the said action-slide being operatively connected to the said breech-bolt to move the same.

2. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver-unit; a breech-bolt reciprocating in the said receiver-unit; a barrel projecting forwardly from the said receiver-unit; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber eccentrically located with respect to the bore of the said barrel and communicating with the bore of the said barrel; a piston reciprocating in the piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially coaxially with respect to the said piston and having its forward end telescopically supported by the said piston and having its rear end supported by the said receiver-unit, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston; and an action-slide movable independently of both the said piston and the said guide-rod and operatively interconnecting the said piston and the said breech-bolt and provided with a guide-portion having sliding bearing on the said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is supported by the said receiver-unit, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

3. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a

breech-bolt which the said piston actuates, including in combination: a receiver-unit; a breech-bolt reciprocating in the said receiver-unit; a barrel projecting forwardly from the said receiver-unit; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber eccentrically located with respect to the bore of the said barrel and communicating with the bore of the said barrel; a rearwardly-opening cup-shaped piston reciprocating in the piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially co-axially with respect to the said cup-shaped piston and having its forward end extended into the said cup-shaped piston and having its rear end supported by the said receiver-unit, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston; and an action-slide movable independently of both the said piston and the said guide-rod and operatively interconnecting the said cup-shaped piston and the said breech-bolt and provided with a guide-portion having sliding bearing on the said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is supported by the said receiver-unit, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

4. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver-unit; a breech-bolt reciprocating in the said receiver-unit; a barrel projecting forwardly from the said receiver-unit; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber eccentrically located with respect to the bore of the said barrel and communicating with the bore of the said barrel; a rearwardly-opening cup-shaped piston reciprocating in the piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially co-axially with respect to the said cup-shaped piston and having its forward end extended into the said cup-shaped piston and having its rear end supported by the said receiver-unit, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston; and an action-slide movable independently of both the said piston and the said guide-rod and operatively interconnecting the said breech-bolt and the said piston and provided with a guide-portion engaged by the open rear end of the said cup-shaped piston and having sliding bearing on the said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is supported by the said receiver-unit, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

5. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver-unit; a barrel projecting forwardly from the said receiver-unit; a cylinder projecting laterally from

the said barrel and having a rearwardly-opening piston-chamber eccentrically located with respect to the bore of the said barrel and communicating with the bore of the said barrel; a piston reciprocating in the piston-chamber of the said cylinder; a normally-stationary guide-rod formed separately from and arranged substantially co-axially with respect to and extending rearwardly from a point adjacent the said piston and anchored at its rear in the said receiver-unit, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston; a breech-bolt movable in the said receiver-unit; and an action-slide movable independently of both the said piston and the said guide-rod and operatively interconnecting the said piston and the said breech-bolt and provided with a guide-portion having sliding bearing on said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is supported by the said receiver-unit, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

6. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver; a breech-bolt movable in the said receiver; a trigger-plate removably secured to the underside of the said receiver; a barrel projecting forwardly from the said receiver; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber communicating with the bore of the said barrel; a piston reciprocating in the piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially coaxially with respect to and extending rearwardly from the said piston, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston, the said guide-rod being held at its rear between an upper portion of the said trigger-plate and a lower portion of the said receiver and being releasable from the gun-structure by first detaching the said trigger-plate from the said receiver; and an action-slide movable independently of both the said piston and the said guide-rod and operatively interconnecting the said piston and the said breech-bolt, the said action-slide being provided with a guide-portion having sliding bearing on the said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is held between the said trigger-plate and the said receiver; the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

7. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver; a breech-bolt movable in the said receiver; a trigger-plate removably secured to the underside of the said receiver; a barrel projecting forwardly from the said receiver; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber communicating with the bore of the said barrel; a piston reciprocating in the

piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially coaxially with respect to the said piston and having its forward end telescopically supported thereby, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston, the said guide-rod being held at its rear between an upper portion of the said trigger-plate and a lower portion of the said receiver and being releasable from the gun-structure by first detaching the said trigger-plate from the said receiver; and an action-slide movable independently of both the said piston and the said guide-rod and operatively interconnecting the said piston and the said breech-bolt, the said action-slide being provided with a guide-portion having sliding bearing on the said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is held between the said trigger-plate and the said receiver, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

8. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver; a breech-bolt movable in the said receiver; a trigger-plate removably secured to the underside of the said receiver; a barrel projecting forwardly from the said receiver; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber communicating with the bore of the said barrel; a rearwardly-opening cup-shaped piston reciprocating in the piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially coaxially with respect to the said cup-shaped piston and having its forward end extending into and telescopically related to the said cup-shaped piston, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston, the said guide-rod having its rear end held between an upper portion of the said trigger-plate and a lower portion of the said receiver, the said trigger-plate and the said guide-rod being constructed and arranged so that the said guide-rod is supported at its rear by the said trigger-plate and is releasable from the gun-structure by first detaching the said trigger-plate from the said receiver; and an action-slide movable independently of both

the said piston and the said guide-rod and operatively interconnecting the said cup-shaped piston and the said breech-bolt, the said action-slide being provided with a guide-portion having sliding bearing on the said guide-rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is held between the said trigger-plate and the said receiver, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

9. A self-loading firearm-structure of the type wherein a gas-operated piston is confined to a stroke materially less than the stroke of a breech-bolt which the said piston actuates, including in combination: a receiver; a breech-bolt movable in the said receiver; a trigger-plate removably secured to the underside of the said receiver; a barrel projecting forwardly from the said receiver; a cylinder projecting laterally from the said barrel and having a rearwardly-opening piston-chamber communicating with the bore of the said barrel; a rearwardly-opening cup-shaped piston reciprocating in the piston-chamber of the said cylinder; a guide-rod formed separately from and arranged substantially coaxially with respect to the said cup-shaped piston and having its forward end extending into the said cup-shaped piston, a forward portion of the said guide-rod being positioned to be engaged by and to positively stop the rearward travel of the said piston, the said guide rod having its rear end held between an upper portion of the said trigger-plate and a lower portion of the said receiver, the said trigger-plate and the said guide-rod being constructed and arranged so that the said guide-rod is supported at its rear by the said trigger-plate and is releasable from the gun-structure by first detaching the said trigger-plate from the said receiver; and an action-slide movable independently of both the said piston and the said guide-rod and operatively interconnecting the said breech-bolt and the said cup-shaped piston, the said action-slide being provided with a guide-portion having sliding bearing on the said guide rod at a point longitudinally intermediate the said piston and the point at which the said guide-rod is held between the said trigger-plate and the said receiver, the said guide-portion being positioned to be engaged by the said piston and driven rearwardly thereby beyond the point at which the rearward movement of the said piston is halted by the said guide-rod.

WILLIAM C. ROEMER.