J. D. PEDERSEN.

FIREARM.

APPLICATION FILED SEPT. 15, 1919.

1,429,621. Patented Sept. 19, 1922.

3 SHEETS—SHEET 1.

Fig. 1.

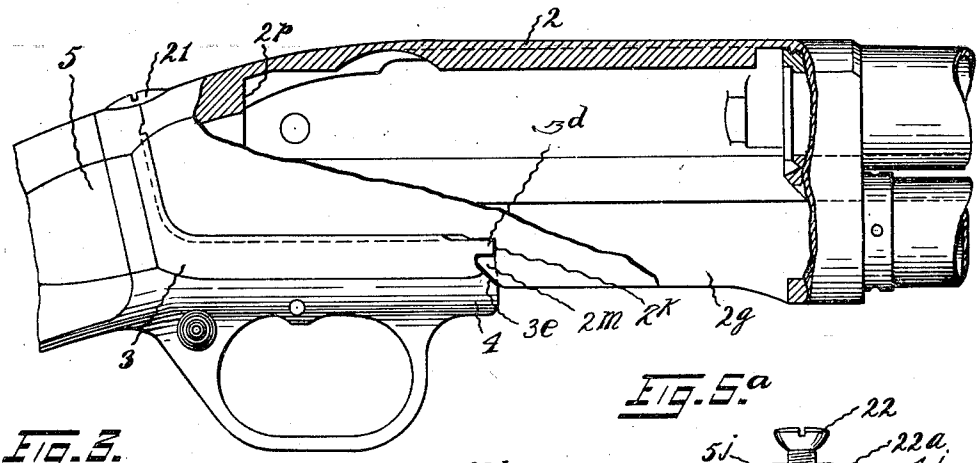


Fig. 6a.

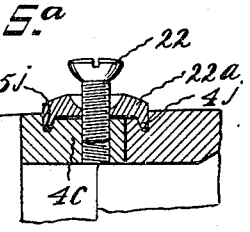


Fig. 3.

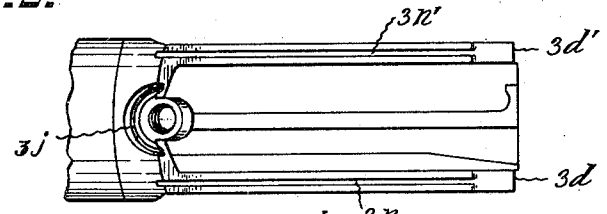


Fig. 2.

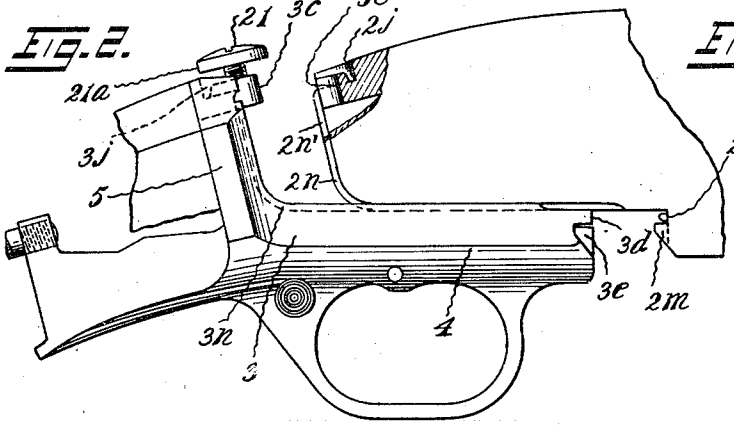


Fig. 4.

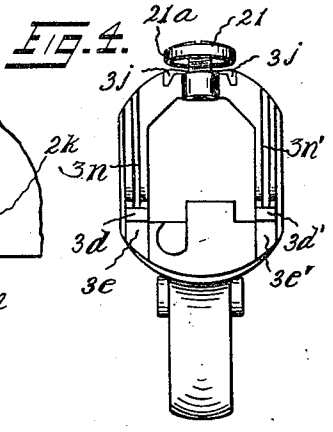
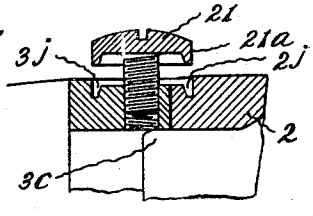


Fig. 5.



Inventor:
John D. Pedersen,
By his Atty, F. W. Richards.

J. D. PEDERSEN.

FIREARM.

APPLICATION FILED SEPT. 15, 1919.

1,429,621. Patented Sept. 19, 1922.

3 SHEETS—SHEET 2.

Fig. 6.

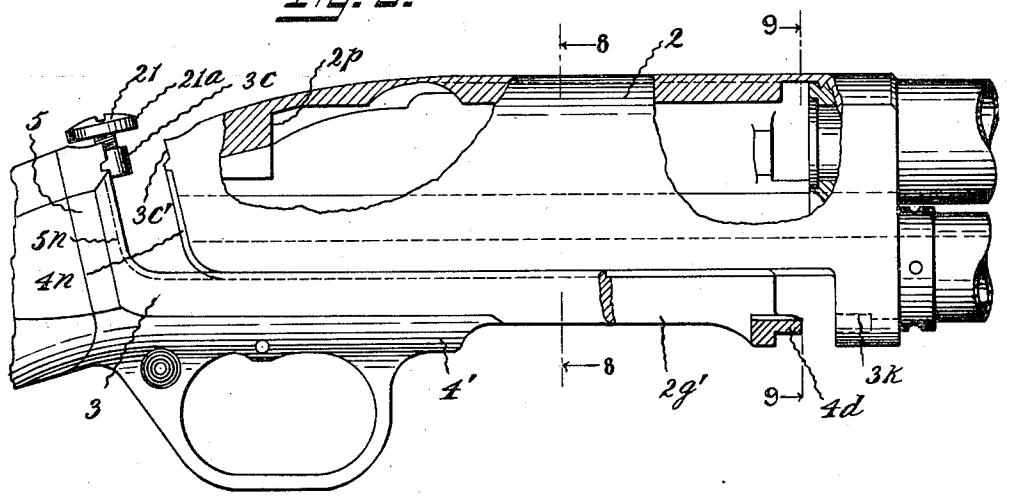


Fig. 7.

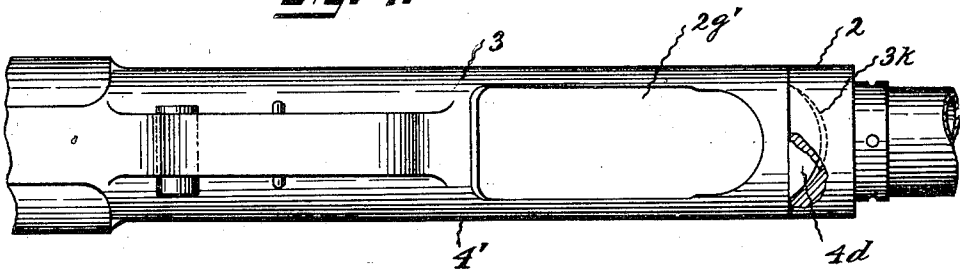


Fig. 8.

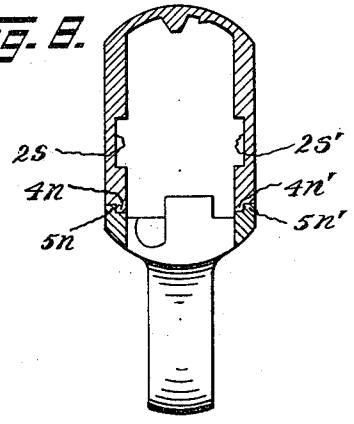
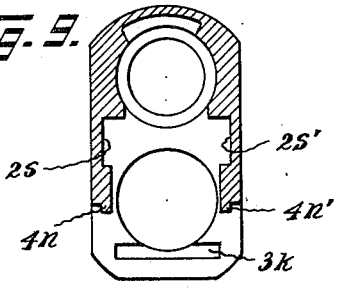


Fig. 9.



Inventor:
John D. Pedersen.
By his Att'y, F. H. Richards.

J. D. PEDERSEN.

FIREARM.

APPLICATION FILED SEPT. 15, 1919.

1,429,621.

Patented Sept. 19, 1922.

3 SHEETS—SHEET 3.

Fig. 10.

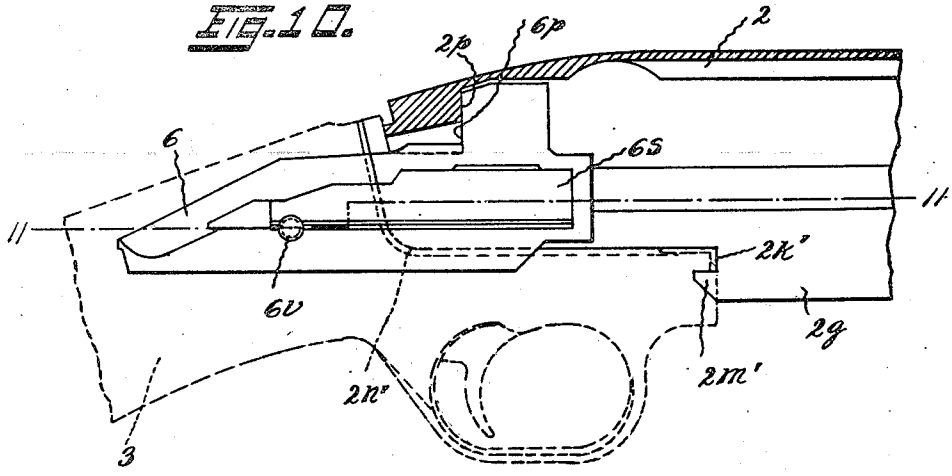


Fig. 11.

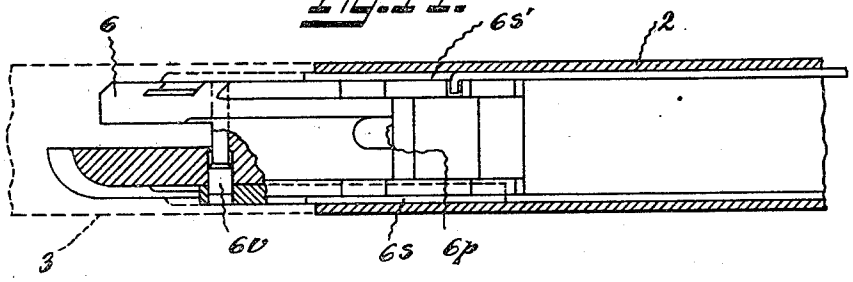
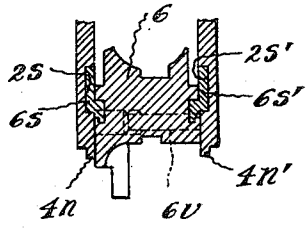


Fig. 12.



Inventor:

John D. Pedersen,

By his Att'y, F. H. Richards.

Patented Sept. 19, 1922. 1,429,621

UNITED STATES PATENT OFFICE.

JOHN D. PEDERSEN, OF JACKSON, WYOMING.

FIREARM.

Original application filed August 9, 1917, Serial No. 185,394. Divided and this application filed September 15, 1919. Serial No. 323,766.

To all whom it may concern:

Be it known that I, JOHN D. PEDERSEN, a citizen of the United States, residing in Jackson, in the county of Lincoln and State of Wyoming, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

My present invention relates more especially to that class of firearms in which the frame and receiver—together constituting preferably a closed framework for the gun-chamber—are separable by sliding movement of the frame out of engagement with interlocking guide faces suitably located on the two framework members.

My present invention is applicable to firearms having frames or receivers of various proportions, and to those having various kinds and arrangements of operating mechanism within the receiver. The present invention, however, is particularly applicable as a means for assembling the two principal parts of the frame in that large class of small arms which includes firearms of the kind described and illustrated in my U. S. Patent No. 1,317,988, dated October 7, 1919, application filed June 6, 1916, Serial No. 101,931, renewal Serial No. 185,394, filed August 9, 1917, the present application being a division of said application Serial No. 101,931.

A principal object of my present invention is to provide a gun-frame construction or "take-down," whereby the firearm may be quickly separated between the gun-stock and the gun-barrel, and, when thus taken down may be quickly re-assembled by a sliding movement of one part into interlocking engagement with the other part. I thus provide for opening the mechanism chamber in the gun-frame by effecting the separation of the frame by a sliding movement of one frame part relative to the other, and thereby provide for certain details of the operating mechanism being removed from and replaced into operative relation to the other details.

A feature of my present invention is the means, applicable to that class of firearms which is provided with a breechaction comprising a sliding breech-block, for removably mounting the sliding breech block member of such breechaction in the mechanism chamber of the firearm.

A feature of the main frame consists in the mechanism chamber having the lower side thereof open through its entire length when the guard-frame is removed, and having the guard-frame arranged, when in place, for enclosing only the rearward part of said chamber. Thus the forward part of the open lower side of said chamber constitutes,—and is available for use as—a combined loading-in and shell-ejecting port or opening, so that the framework may be said to have or require no opening formed therein especially for either of said purposes. With these objects in view the guard-frame is provided with locking means at the forward end thereof for retentively engaging with co-acting locking means located on the lower edges of the side walls of the main frame, and these co-acting locking means are arranged for co-action with frame aligning means which preferably consists of interlocking ribs and grooves, or interlocking ribs, substantially such as herein illustrated.

A further feature of my present invention is the arrangement of the rib and groove frame aligning means, or the interlocking rib frame aligning means, as the case may be, to prevent outward or inward flexure of the side walls of the main frame or receiver, or outward flexure only of such side walls.

A further feature of my present invention is the rim and clamp means for detachably but firmly connecting the rearward end of the main frame or receiver of the firearm and the rearwardly extending portion of the guide-frame thereof.

In the accompanying drawings forming part of this specification, for convenience of illustration I have shown my invention as applied to such a magazine arm as is shown in my said Patent 1,317,988, to which reference may be had.

In the accompanying drawings:—

Figure 1, is a fragmentary view or side elevation of a magazine firearm, partly broken away, showing a preferred form of my invention, the main frame or receiver and the guard-frame being in connected or locked relation.

Fig. 2, is a fragmentary side view or side

elevation of the same magazine firearm, partly broken away, the main frame or receiver and the guard-frame being disconnected or unlocked, the guard-frame, being in partly rearward sliding position, and showing the details of the rib and groove and clamp means for detachable connection of the rearward end of the main-frame or receiver and the upward extending portion of the guard-frame and showing the means for locking the forward end of the guard-frame to the lower edges of the side walls of the frame or receiver.

Fig. 3, is a fragmentary top or plan view of the guard-frame, showing the horizontal alignment grooves, the locking means at the forward end of the guard-frame, and a portion of the groove and clamp means for detachable connection pertaining to the guard-frame.

Fig. 4, is a front end view of the guard-frame showing in detail the upwardly extending alignment grooves, the rim and clamp means, a portion of the groove means for detachable connection pertaining to the guard-frame, and the means for locking at the forward end of the guard-frame.

Fig. 5, is a detail sectional view of the rim and groove and clamp means for detachably connecting the rear end of the main frame and the upwardly extending portion of the guard-frame.

Fig. 5^a, is a detail sectional view of a modified form of the detachably connecting means illustrated in Fig. 5.

Fig. 6, is a fragmentary side view or side elevation of a magazine firearm, partly broken away, showing a modified form of my invention to provide for a long magazine chamber of the firearm, the guard-frame being extended forwardly and provided with locking means engaging the forward end of the main-frame or receiver, the main frame or receiver and guard-frame having horizontal and upward extending interlocking rib alignment means.

Fig. 7, is a fragmentary under plan view or view from the under side of Fig. 6.

Fig. 8, is a sectional view on the line 8—8 of Fig. 6, looking in the direction of the arrows.

Fig. 9, is a sectional view on the line 9—9 of Fig. 6, looking in the direction of the arrows.

Fig. 10, is a fragmentary side view or side elevation of a magazine firearm comprising a main-frame or receiver and guard-frame provided with alignment, locking and detachably connecting means as herein illustrated, and provided with a breechaction comprising a sliding breech-block, the guard-frame—shown in outline—being disconnected and removed from the main frame or receiver, and said sliding breech-block member being retracted and in position for removal from the magazine chamber of the firearm.

Fig. 11, is a view on the line 11—11 of Fig. 10, viewed from above, showing the slide partly broken away.

Fig. 12, is a cross-section of the sliding breech-block of a breechaction illustrated in Fig. 10.

Similar characters designate like parts in all the views.

The two part framework, in the preferred form and arrangement thereof herein illustrated, and comprising the main frame or receiver 2, and the guard-frame 3 may be separably connected by interlocking means which are appurtenant thereto, and are used in combination with some suitable locking device, the main frame or receiver and the guard-frame forming what I term for purposes of description the barrel-stock mid-portion of the firearm. One arrangement of such means and device is indicated in, and will now be described in connection with, Figs 2 and 3. For holding the receiver 2 in proper alignment with, and in position laterally of, the guard-frame 3, the main frame or receiver 2, is provided at each side thereof, with ribs 2^n, $2^{n'}$, Fig. 2, extending rearwardly and upwardly curving at the rear end, which ribs closely engage in corresponding grooves 3^n, $3^{n'}$, which curve with the upwardly extending portion 5 of the guard-frame 3 and are formed in the guard-frame, Fig. 3. At the forward end of its horizontal or forward extending branch or arm 4, the guard-frame 3, has projections 3^d, $3^{d'}$, Figs. 2, 3 and 4, with adjacent recesses or pockets 3^e, $3^{e'}$, which projections 3^d, $3^{d'}$, closely engage in recesses 2^k, $2^{k'}$, having adjacent projections 2^m, $2^{m'}$, which conform to the recesses or pockets 3^e, $3^{e'}$, there being a recess as 2^k in, and a projection as 2^m on each side-wall of the main frame or receiver 2.

When the projections 3^d, $3^{d'}$, closely engage the recesses 2^k, $2^{k'}$, and the projections 2^m, $2^{m'}$, engage the recesses or pockets 3^e, $3^{e'}$, separation of the guard-frame 3 from the main frame or receiver 2 is prevented, when the two said parts are assembled together, the inner face of each of the projections 2^m, $2^{m'}$, contacting or engaging the inner side-wall of each of the recesses 3^e, $3^{e'}$, and preventing inward flexure of the guard-frame 3 and main frame or receiver 2, as from an external blow upon the side walls of the receiver 2.

When these parts are so assembled the nut portion 3^c, Fig. 2, rests within a recess $3^{c'}$, Fig. 2, formed in the main frame or receiver 2, while the cupped-head screw 21 has the head rim 21^a thereof engaging in an annular groove 2^j, 3^j, formed partly in the main frame or receiver 2, and partly in the guard-frame 3, whereby said rim 21^a en-

gages forwardly the main frame or receiver 2, and rearwardly the guard-frame 3. Thus the screw-head 21 serves as a clamp device which engages, by means of said rims, with both the main frame or receiver and the guard-frame, and thereby firmly connects these members. By partially withdrawing the screw 21, to disengage the head-rim 21^a from the annular groove 2^j, 3^j, the main frame or receiver 2 may be slid forwardly on the guard-frame 3, whereupon the guard-frame may be lowered and removed, together with any mechanism that may be assembled thereon.

One feature of my invention relates to the combined loading-in and shell-ejection port or opening, such as 2^g, which is comprised in the barrel-stock mid-portion of the firearm, the rear end of such port or opening being located about midway of such barrel-stock mid-portion. In the preferred form of my invention the rear end of the loading-in shell-ejection port or opening 2^g is formed by the forward end of the guard-frame 3, and the sides of such port or opening are formed by the side-walls of the main frame or receiver 2, the forward end of such port or opening being formed in said main frame or receiver.

The construction herein illustrated of the two-part frame, and the arrangement of the breechaction slide or breech-block 6, provided with the two removable guides 6^s, $6^{s'}$, affords among other advantages, an effective means for limiting the retraction of the breechaction by the direct engagement of a stop-face, as 6^p Fig. 11, of the slide or breech-block 6 with an abutment-face, as 2^p of the main frame or receiver 2. When the rearward frame member or guide-frame 3, is removed, the slide or breech-block 6, when retracted, will project far enough rearwardly of the main frame or receiver 2 for access to and the removal of the guide-retaining pin 6^v, Fig. 10, whereupon the guides 6^s, $6^{s'}$, may be withdrawn rearwardly from the guide-ways 2^s, $2^{s'}$ and from between the slide-block or breech-block 6 and the walls of the main frame or receiver 2, after which the slide or breech-block may be bodily lowered in an evident manner and thus taken out of the main frame or receiver for cleaning or any other desired purpose.

By this organization of said members a fixed abutment, as 2^p, may be provided as an integral part of the main frame or receiver, and may be located, Fig. 10, directly in the line of movement of said stop-face 6^p, while providing a convenient method of assembling and taking down the mechanism. Said guide-faces 6^s, $6^{s'}$, fit in the guide-ways 2^s, $2^{s'}$, respectively, of the main frame or receiver 2, and are preferably interlocked, by a tongue and groove construction,—with the slide or breech-block 6, Figs. 8, 9 and 12, and thus form in effect, as regards operation, a component part of the sliding breech-block of the breechaction. This construction provides great strength, and also for a face sliding movement of the breech-block in the frame, while the projecting ribs or guides 6^s, $6^{s'}$, engage in the respective channel-form guide-ways 2^s, $2^{s'}$, of the main frame or receiver.

The ribs 2^n, $2^{n'}$, of the main frame or receiver 2, engaging, as herein stated, the grooves 3^n, $3^{n'}$, of the guard-frame 3, provide a means for preventing either outward or inward flexure of the side-walls of the main frame or receiver 2, which side-walls in practice may be relatively thin.

In the modified form of my invention as shown in Fig. 6, the forwardly extending branch or arm 4′ of the guard-frame 3 is made longer than the forwardly extending branch or arm 4 thereof, shown in the first herein described form of my invention, such extension 4′ being almost the length of the main frame or receiver 2. In this way a long mechanism chamber for the firearm is provided, while the feature of a combined loading-in and shell-ejection port or opening as 2^g is retained, the combined loading-in shell-ejection port or opening $2^{g'}$ in the present instance however, while comprised in the barrel-stock mid-portion of the firearm, being formed in the guard-frame 3, that is, in the extended branch or arm 4′ thereof, instead of being formed in the main frame or receiver 2. The branch or arm 4′ is provided at its forward end with a projection or tongue 4^d, which engages or is received in a recess 3^k in the forward end of the main frame or receiver 2, to lock the guard-frame to the main frame or receiver, the projection or tongue 4^d being rounded to readily engage the recess 3^k, which recess is rounding to receive said tongue and also to facilitate the forming of the recess in the main frame or receiver 2. The rounded side-faces of the projection or tongue 4^d are arranged to engage or contact with the rounding side walls of the recess 3^k, and thereby prevent flexure of the guard-frame 3 and main-frame or receiver 2.

The means for sliding and alignment consists of ribs 4^n, $4^{n'}$, on the main frame or receiver 2 extending rearwardly and curving upwardly which interlockingly engage upwardly curving and forwardly extending ribs 5^n, $5^{n'}$, on the guard-frame 3, Figs. 6 and 8, which ribs also prevent outward flexure of the side-walls of the main frame or receiver.

In Fig. 5^a, a modified form of the means for detachaby connecting the rear end of the main frame or receiver 2, to the upwardly extending portion of the guard-frame 3 is shown, consisting of a screw 22 which engages a rim 22^a having means for

countersinking the head of the screw 22 therein, which rim 22^a engages the annular groove 4^j, 5^j, formed respectively in the main frame or receiver and the guard-frame, the screw 22 also engaging the nut portion 4^c.

Having thus described my invention, I claim:—

1. In a separable frame for firearms, in combination, frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; interlocking means comprising pairs of oppositely disposed faces for sliding connection of said receiver and said upwardly extending portion and arm of the guard-frame; means for detachably locking said arm at the forward end thereof to said receiver; and means on said guard-frame engageable with means on said guard-frame and engageable with means on said receiver for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame.

2. In a separable frame for firearms, in combination, frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; interlocking means for sliding connection of said receiver and said upwardly extending portion and arm of the guard-frame; means for detachably locking said arm at the forward end thereof to said receiver; and screw and rim means on said guard-frame engageable with groove means on said guard-frame and engageable with groove means on said receiver for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame.

3. In a separable frame for firearms, in combination, frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; interlocking means for sliding connection of said receiver and said upwardly extending portion and arm of the guard-frame; means for detachably locking said arm at the forward end thereof to said receiver; and screw and nut and rim means carried by said guard-frame, groove means in said guard-frame, and recess and groove means in said receiver, said screw means being engageable with said nut means for engaging said rim means with said groove means of the guard-frame and with said groove means of the receiver, and said nut means being engageable in said recess means of the receiver for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame.

4. In a separable frame for firearms, in combination, two frame members comprising a receiver provided with a mechanism chamber, and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; means arranged longitudinally of said receiver and said guard-frame and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; means for detachably locking said arm at the forward end thereof to said receiver; and means for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame comprising a screw and rim and a nut portion carried by said guard-frame, grooves located partly in said guard-frame and partly in said receiver, and a recess in said receiver for said nut portion.

5. In a separable frame for firearms, in combination, two frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; ribs arranged longitudinally on said receiver and extending upwardly and grooves arranged longitudinally on said guard-frame and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; means for detachably locking said arm at the forward end thereof to said receiver; and a screw and rim and a nut portion carried by said guard-frame, grooves located partly in said guard-frame and partly in said receiver, and a recess in said receiver for said nut portion for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame.

6. In a separable frame for firearms, in combination, two frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; means arranged longitudinally of said receiver and said guard-frame and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; interlocking projection and recess means for detachably locking said arm

at the forward end thereof to said receiver and preventing flexure of said arm and receiver at said point of locking; and means for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame.

7. In a separable frame for firearms, in combination, two frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; said receiver and said guard-frame forming the barrel-stock mid-portion of the firearm and said barrel-stock mid-portion comprising a loading-in shell-ejection port; means arranged longitudinally of said receiver and said guard-frame and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; means for detachably locking said arm at the forward end thereof to said receiver; and means for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame;

8. In a separable frame for firearms, in combination, frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; said receiver and said guard-frame forming the barrel-stock mid-portion of the firearm and said barrel-stock mid-portion comprising a loading-in shell-ejection port; means arranged longitudinally of said receiver and said guard-frame and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; interlocking projection and recess means for detachably locking said arm at the forward end thereof to said receiver and preventing flexure of said arm and receiver at the point of locking; and means for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame;

9. In a separable frame for firearms, in combination, two frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; said receiver and said guard-frame forming the barrel-stock mid-portion of the firearm and said barrel-stock mid-portion comprising a loading-in shell-ejection port, means arranged longitudinally of said receiver and said guard-frame, and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; interlocking projection and recess means for detachably locking said arm at the forward end thereof to said receiver and preventing flexure of said arm and receiver at the point of locking; and means for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame comprising a screw and rim and a nut portion carried by said guard-frame, grooves located partly in said guard-frame and partly in said receiver, and a recess in said receiver for said nut portion.

10. In a separable frame for firearms, in combination, two frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; said receiver and said guard-frame forming the barrel-stock mid-portion of the firearm and said barrel-stock mid-portion comprising a loading-in shell-ejecting port; means arranged longitudinally of said receiver and said guard-frame and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; interlocking projection and recess means for detachably locking said arm at the forward end thereof to said receiver and preventing flexure of said arm and receiver at the point of locking; and means on said guard-frame engageable with means on said guard-frame and with means on said receiver for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame; said receiver comprising a breech action chamber provided with a breech-block retractable in said receiver and removable therefrom when retracted and when said guard-frame is detached from said receiver.

11. In a separable frame for fireams, in combination, two frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; said receiver and said guard-frame forming the barrel-stock mid-portion of the firearm and said barrel-stock mid-portion comprising a loading-in shell-ejection port; means arranged longitudinally of said receiver and said guard-frame and extending upwardly for sliding interlocking connection of said receiver and said arm and upwardly extending portion of the guard-frame; interlocking projection and recess means for detachably locking said arm at the forward end thereof to said receiver and

preventing flexure of said arm and receiver at the point of locking; and means on said guard-frame engageable with means on said guard-frame and with means on said receiver for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame; said receiver comprising a breechaction chamber provided with a breech-block slidably retractable in said receiver having a stop-face, as 6^p, for engaging an abutment face, as 2^p, of the receiver for limiting the retraction of said breech-block, said breech-block being removable from said receiver when retracted and when said guard-frame is detached from said receiver.

12. In a separable frame for firearms, in combination, frame members comprising a receiver provided with a mechanism chamber and a guard-frame provided with an upwardly extending portion and an arm extending forwardly from said upwardly extending portion and below said mechanism chamber; said receiver and said guard-frame forming the barrel-stock mid-portion of the firearm and said barrel-stock mid-portion comprising a loading-in shell-ejection port; interlocking means for sliding connection of said receiver and said upwardly extending portion and arm of the guard-frame; means for detachably locking said arm at the forward end thereof to said receiver; and means for detachably connecting the rear end of said receiver and the upwardly extending portion of said guard-frame; said receiver comprising a breechaction chamber provided with a breech block slidably retractable in said receiver and removable therefrom when retracted and when said guard-frame is detached from said receiver.

JOHN D. PEDERSEN.

Witnesses:

FRANCIS H. RICHARDS,

GEORGE J. BARTELS.