J. D. PEDERSEN.

FIREARM.

APPLICATION FILED NOV. 27, 1917. RENEWED JULY 31, 1919.

1,333,570. Patented Mar. 9, 1920.

Fig. 3.

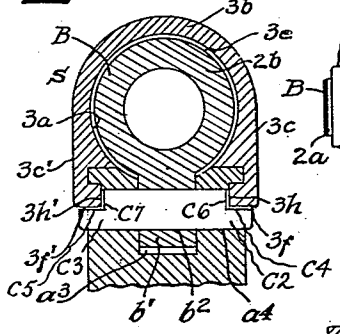


Fig. 1.

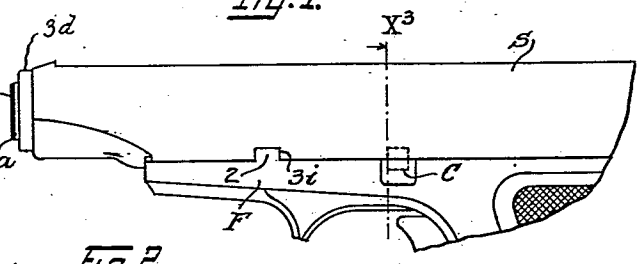


Fig. 2.

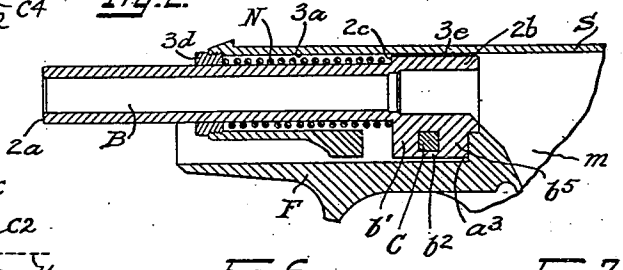


Fig. 4.

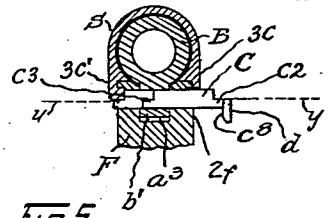


Fig. 5.

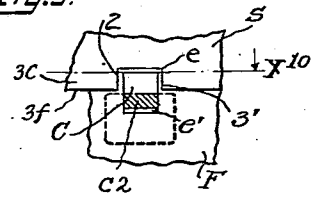


Fig. 6.

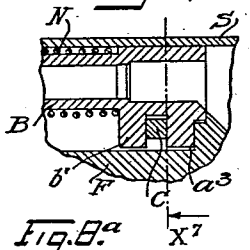


Fig. 7.

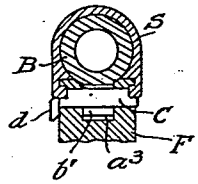


Fig. 8a.

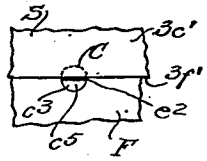


Fig. 8.

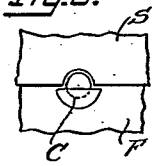


Fig. 9.

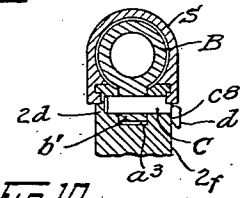


Fig. 10.

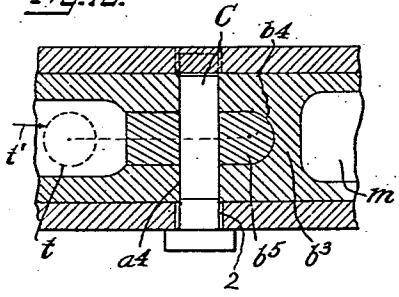


Fig. 11.

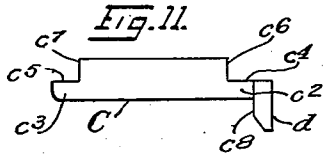


Fig. 12.

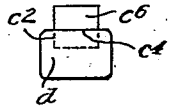


Fig. 13.

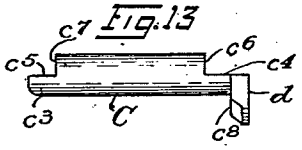
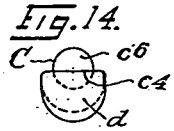


Fig. 14.



Inventor:

John D. Pedersen,

By his Atty, F. W. Richards.

UNITED STATES PATENT OFFICE.

JOHN D. PEDERSEN, OF JACKSON, WYOMING.

FIREARM.

1,333,570. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed November 27, 1917, Serial No. 204,149. Renewed July 31, 1919. Serial No. 314,426.

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.

This invention relates to that class of firearms in which the barrel is without longitudinal movement relative to the frame, but is detachably united thereto.

My present improvements are especially applicable to that class of small-arms among others, which are commonly designated as auto-loading pistols, and which usually comprise three principal members, including a frame; a bolt-carrier (or "breech-slide") slidably mounted on the frame; and, a non-reciprocating barrel slidably supported at its forward end in the bolt-carrying slide, and at its rear end detachably connected to the frame.

One of the principal objects of the invention is to furnish for use in firearm mechanisms of said class, an improved interlock-connection for detachably uniting the barrel to the frame, and comprising a transverse bar, or "cross-bar," which in addition to directly and releasably uniting the barrel to the frame shall also be directly coactive with the breech-slide for holding in place and releasing such cross-bar.

In the accompanying drawing forming a part of this specification, my present improvements are illustrated as applied to an auto-loading pistol, of which only the forward portion is shown, but sufficient for fully illustrating the arrangement and mode of operation of the features and devices hereinafter described.

Figure 1 is a side view or elevation of the forward portion of an auto-loading pistol comprising my present improvements in a preferred form and arrangement thereof; in this view the "bolt-carrier," or breech-slide, S, is shown in its forward or firing position.

Fig. 2 is a side elevation similar to and drawn in alinement with and below Fig. 1, but showing the breech slide retracted to about the usual loading position; in this view some of the parts are shown partially broken away for more fully illustrating certain features, as hereinafter more fully described.

Fig. 3 is an enlarged cross-section taken on the line X^3 of Fig. 1, for showing in a side view thereof and in working position, the cross-bar, C, whereby the barrel and frame are detachably united.

Fig. 4 is a cross-sectional view similar to Fig. 3 for illustrating the manner of withdrawing and inserting said barrel-and-frame connecting cross-bar, C; in this view, the cross-bar is shown as being withdrawn about one-third of its length.

Fig. 5 is an enlarged view of a portion of Fig. 1, but with some portions broken away or shown in section, for illustrating certain variations which may be adopted in some instances as regards the manner of fitting together the coacting members and surfaces.

Fig. 6 is a view,—similar to Fig. 2,—for illustrating a modification in the organization and mode of fitting together and connecting the frame, F, barrel, B, and slide, S, of the firearm mechanism, and which may be adopted in connection with a frame-and-barrel uniting cross-bar having a rectangular cross-sectional form.

Fig. 7 is a cross-sectional view in line X^7 of Fig. 6,—similar to Figs. 3 and 4,—for illustrating certain details hereinafter described, especially the provision of a head or handle on one end of said cross-bar.

Fig. 8 is a view corresponding to a portion of Figs. 1 and 5, for illustrating the improvement when the cross-bar is made circular in section; and, Fig. 8^a is a similar and corresponding view from the opposite side of the firearm.

Fig. 9 is a cross-sectional view similar to Figs. 4 and 7 for further illustrating the features shown in Figs. 3 and 8^a.

Fig. 10 is a plan view, taken on the line X^{10}, Fig. 5, for showing the cross-bar, C, in a top view, and also the arrangement of certain features thereof relative to the barrel, slide and frame.

Figs. 11 and 12 are, respectively, a side view and an end view of the cross-bar when this member is made square in cross-section; and, Figs. 13 and 14 are views similar to Figs. 11 and 12, for showing the cross-bar when made circular in cross-section.

Similar characters designate like parts in all the views.

In the drawing, F is the forward portion of the frame or "receiver" of an auto-loading pistol of the class to which my present invention is applicable. This frame-member in practice, may be made of any suitable

design and proportions, and the particular design, F, shown herein, has been selected merely for the purposes of illustration, and because it may be considered as typical of various other such frames which are already well-known in this art.

The bolt-carrying breech-slide,—designated in a general way by S,—is shown slidably mounted on the frame F in a well-known manner by means of the usual kind of interengaging ribs and grooves; these are clearly shown in the sectional views Figs. 3 and 4, and being already common in the art, do not require a particular description,—see, for instance, Figs. 2, 3, 8, 9, of U. S. Patent, No. 580,924, April 20, 1897. The particular style or variety of "slide," S, which is herein illustrated, is shown as being one of that well-known class of sliding breech-bolt carriers which are removable from the frame in a forward direction only; hence, I have herein shown the slide formed and arranged for having the barrel, B, inserted therein (in a well-known manner and herein shown) while the slide is off from the frame, so that these two members, S and B, after being thus assembled together may be then together slid into place in the usual manner, from the front of the frame.

The forward portion of the slide S, (at the left-hand in Figs. 1, 2), is shown formed with an interior barrel chamber, 3^a, and as having in section, (Fig. 3), a customary inverted-U shape, so that the slide, at the section indicated, may be said to have,—to be made up of,—a top-wall, as 3^b, (usually curved about as shown), and the two depending side-walls, 3^c, $3^{c'}$, which extend downwardly to a position somewhat lower than the bore of the barrel. In one of these side-walls,—in this instance, the side-wall 3^c,—there is formed a recess or gate-way, as 2, for a purpose hereinafter explained.

The barrel is designated in a general way by B, and is shown inclosed within the slide-chamber 3^a, (Figs. 1, 2, and 3), excepting that the forward end, 2^a, is shown slidably supported in a well-known manner in a ring or bearing, 3^d, which is removably fixed in the forward end of said slide member, so that said end-portion 2^a may be said to extend outwardly, in a forward direction, from said chamber 3^a; this feature of the barrel-mounting is also illustrated in Figs. 5 and 7 of U. S. Patent No. 747,585, dated Dec. 22, 1903. The temporary removal of said ring 3^d, also facilitates the preliminary assembling of the slide and barrel, already mentioned. The rear end, 2^b, of the barrel B is shown enlarged to nearly fill, transversely, said chamber 3^a, and thus also to form at 2^c, a shoulder, between which and said bearing 3^d, the slide-actuating spring, N, is held under suitable compression.

In the system as thus far described, of organizing the three principal members of an auto-loading pistol, it is contemplated that,—for the purposes of my present improvements,—the barrel at the rearward end thereof will be supported and releasably retained in position by an interlock-connection directly with the frame. It is also desirable, obviously, so to unite the barrel and frame that the rearward end of the barrel can have no movement,—nor any "play,"—transversely of the frame either laterally or vertically. When the slide S has the usual upper wall, (as indicated for instance, at 3^b, Fig. 3), of course, the barrel B will be covered or "housed" in by said slide-wall. However, the rear end 2^b of the barrel, (except in a modification hereinafter described), is preferably so reduced in size relative to said chamber space within the slide, as not to actually bear against the inner surface of said slide-wall,—thus avoiding the possibility of any undue friction as between the barrel and the moving slide. When said parts are thus arranged and properly fitted, a slight space will be formed between the slide-walls and barrel-end 2^b, as indicated at 3^e, (Fig. 3) where,—in accordance with a conventional practice,—the very small amount of space actually or normally required is shown very much enlarged to secure clearness of illustration.

For the purpose of releasably connecting the barrel with the frame, these members may be provided with inter-engaging portions and with a fastening which together constitute a device in the nature of an interlock. The form of this device herein illustrated has an interlock construction made in substantial accordance with a well-known barrel-and-frame attaching means of which one instance is well illustrated in U. S. Patent No. 489,366, dated January 3, 1893. In accordance with the principle and method there illustrated, the frame F, is herein shown having formed therein the recess a^3, (see Figs. 2 and 3, of said Patent No. 489,366, and also of the drawing of this application), and the barrel B is shown provided with a downward extension, b', which in practice may have any proportions convenient and suitable for the particular size and shape of the recess. Said depending portion b' of the barrel, should, of course, fit rather closely between the side walls of the recess (see Figs. 3 and 10), so that the rearward end 2^b of the barrel will be held in place with a proper degree of rigidity. When the barrel, being thus fitted, is put in place on the frame, these two members are then strongly united by means of a transverse bar, as C, which is fitted into the cross-bar seat, at a^4, of the frame, and into the similar seat, at b^2, of the barrel; these seats thus form, in effect, transverse and alined cross-bar seats which extend through the frame and are positioned

partly above and partly below the plane of the lower edge of the bar-retaining means which is appurtenant to the slide.

While the class of tenon-and-cross-bar connection disclosed in one form thereof in said Patent No. 489,366 is a well-known mortise-joint kind of barrel-attaching means, especially in shoulder arms, yet, in my present improvements, the cross-bar has a different position and construction, and thus operates and directly coacts in a new way in combination with the sliding bolt-carrier of an auto-loading firearm having a non-reciprocating barrel. In each of these instances, however, it will be seen that on withdrawing the cross-bar, the barrel is removable from the frame by a sliding movement and in a forward direction only.

In the operation of the mechanism, the cross-bar C receives by direct contact, and receives transversely thereto, the rearwardly-acting pressure of the barrel under the recoil, and also the pressure of the spring N as transmitted thereto through the barrel; and, as regards the sustaining of these transversely-applied forces, said cross-bar does not have imparted thereto any turning movement or tendency to rotate. Hence, in practice, the mid-length portion of the cross-bar may have any desired form or shape in cross-section. This cross-sectional form is shown in Figs. 1 to 7, as being rectangular, and this for convenience of manufacture may be a square. When of this construction, said cross-bar has the advantage of flat forward and rearward surfaces (see Figs. 2 and 6) on and by which to receive and transmit the pressures and forces; also, in fitting together the several parts during the process of manufacture, the cross-bar may be fitted closely as against movement in a direction longitudinally of the frame, while fitted much more freely in a relatively vertical direction. The latter arrangement is briefly illustrated in the fragmentary view Fig. 5, where the bar-seat at a^4 in the frame F is shown with small but clear spaces at e and e', above and below the square cross-bar C. This construction and arrangement is deemed to be especially applicable when the barrel,—according to a modification, Fig. 6,—is to be supported by and within the slide, and to be interlocked with the frame only for preventing the longitudinal movement thereof relative to the frame.

The cross-bar C is, of course, a two-member-connecting device, and in the drawing it is shown located in a new position, since it is in a position sufficiently high in the frame so that the upper side of the seat a^4 is above the plane of the lower edge 3^t, of the side-wall, 3^c, of the slide. Thus the bar C and said lower edge 3^t may be said each normally to intercept or interfere with the other; but an actual interference is avoided by making and arranging the cross-bar in the following manner:

As seen in a side view thereof, (Figs. 3, 11, 13), the cross-bar C has the end-portions c^2, c^3, thereof reduced in size,—and hence, of a notched construction, — being thus shaped so that when the mechanism is assembled, said end-portions will extend and lie closely underneath the slide-walls 3^c, $3^{c'}$, respectively. Thus the said full-length form of the cross-bar, C, has the two bearing faces c^4, c^5, disposed longitudinally thereof, and adapted to coact with the lower-edge surfaces 3^t, $3^{t'}$, respectively, of the slide S. In Fig. 4, the position of the plane of said bar-surfaces c^4, c^5, is shown by a medial line, as y, which line, preferably and usually, in practice, should be located about or approximately midway of the height of the cross-bar, thus bringing all that part of the cross-bar which lies above said mid-plane line y thereof, into a position directly between said slide-walls; this preferred arrangement is clearly indicated in Figs. 3 and 11.

This construction and arrangement also provides for making on the cross-bar, a pair of vertically-disposed and outwardly-facing faces or surfaces, as c^6, c^7, which are in positions adjoining the sides, respectively, of the frame F and are transverse to the cross-bar and also to said plane of the faces c^4, c^5. Said surfaces c^6, c^7, are therefore each in a position for coacting with one of the inwardly-facing surfaces or faces, at 3^h, $3^{h'}$, (Fig. 3), of the slide-walls 3^c, $3^{c'}$. The lower slide-faces 3^t, $3^{t'}$, by an analogous coaction, but with said bar-faces c^4, c^5, serve to prevent the cross-bar from turning (whenever this bar is made circular in section), while the said inner and transverse surfaces c^6, c^7, positively prevent said bar from having endwise movement in either direction, even when the cross-bar is fitted quite freely in its seats. It should be understood in this connection that a single pair of said surfaces, as c^4, 3^t, or c^5, $3^{t'}$, will operate effectively to prevent turning, in the manner here explained, which is by the engagement of a slide-wall, as 3^c, in a notch of the cross-bar, and by the engagement of the cross-bar within one of the said slide-walls.

In order to provide for inserting and withdrawing said cross-bar C when this member is constructed and positioned as here explained, one of the slide-walls, (in this instance, the wall 3^c) may have the continuity thereof terminated or interrupted at a point or position for permitting the withdrawal of the cross-bar out of its said alined seats, when the slide is in some one position in the stroke thereof. This object may be accomplished by forming a recess or gate-way space, as 2, (Figs. 1, 2, 5), in such a position in said bar-retaining

side-wall that when the slide is at some convenient point between the ends of its travel, or working stroke, this recess will come into alinement with said cross-bar seat a^4, of the frame, and thereby permit the body of the cross-bar to be pushed or drawn out through said recess as through a door or gate-way therefor.

In some instances, if desired, instead of cutting out a recess in the said depending and bar-retaining slide-wall, as 3^c, such wall may have, as to such bar-retaining portion thereof, its continuity of length limited in one direction for thereby permitting the withdrawal of the body of the cross-bar (Figs. 4, 5), outwardly past said slide-wall when the slide is in some one, (or in a sufficiently retracted), position thereof; this retracted position, in practice, may be at or near the rearward end of the working stroke of the slide. One such limit of continuity of length is shown at 3^i, Figs. 1 and 5, this being the point where, in the present instance, a bar-retaining portion of the slide-wall 3^c is shown to be terminated, or discontinued, in the forward direction. Thus such a slide-wall of limited length, may be considered as being one means appurtenant to the slide and in position and arranged for coacting with a transverse face, as c^6, of the cross-bar C, during one portion of the reciprocating movement of the slide and for withdrawing from such coacting position during a further movement of the slide.

In practice, it is deemed desirable that recess or gate-way, 2, should not be so located as to be in front of the face or shoulder c^6 of the cross-bar when the slide S is being held in a fully retracted position; thus the user, when desiring to take out the cross-bar, will be required to draw back the slide for only a short distance. This arrangement also has the advantage that in the normal operation of the firearm, said gate-way recess will pass by the cross-bar C while the slide S is moving at a high velocity thereby safeguarding the operation. A further safeguard is also secured, since the parts may be fitted so that the force of the spring N, and the action of the recoil, will apply pressure to the cross-bar C during the time the recess 2 is passing this bar, and thus will tend to hold the bar so firmly as to prevent any longitudinal movement during such a brief time-interval.

In making the frame F, the forming therein of the recess a^3, of a precisionized size and location, is an important step, and in connection with the arrangement of the cross-bar C, I have indicated in Fig. 10, a preferred and improved construction of the interlock-connection which is particularly favorable for securing the required results in those respects. The dotted circle t, represents a milling cutter having a diameter corresponding to the thickness of the depending part b' of the barrel, so that when the cutter is fed in the direction of the arrow t', the cutter, (this being operated in an ordinary milling-machine in a well-known manner), will cut out the recess a^3 and also leave the end-face thereof of a circular-arc form,—this is shown at b^4, in Fig. 10. Thus the curved recess-face b^4, comes only a short distance forward of a magazine chamber with which auto-loading pistols are usually provided, and which is partially shown in a usual position, at m, (Fig. 10); this mode of making the recess a^3 has the advantage of leaving a cross-wall, b^3, the forward side of which is curved in the plan view, and is vertical in side view,—Fig. 2. As a result of these features, the rearward part, at b^5, (Figs. 2, 10), of said barrel-extension b', serves to transmit the recoil force directly to the frame and against a vertically-disposed abutment face, while said barrel-portion b^5, since it lies rearward of the cross-bar C, is thus securely and constantly held against said frame-abutment face at b^4.

When the cross-bar member of the barrel-and-frame interlock is to be closely fitted to its seats in the barrel and frame, respectively, said cross-bar, in some instances, may be made circular in cross-section; this form is further illustrated in Figs. 13 and 14. This particular form or shape,—which may be designated as the "cylindrical" form,—has the advantage, in practice, that the bar-seats, or openings, therefor, in the barrel and frame, may be readily made by drilling and reaming, this being usually considered a cheaper method than the making of such seat-openings of rectangular shapes, since to make the latter shape may involve resorting to the more difficult broaching process. However, it will be observed that the transverse stresses to which such cross-bar member is subjected, will be the same, or nearly the same in the two cases, and that said stresses or forces do not operate or tend in any way to rotate said cylindrical cross-bar.

Also, it will now be evident that each of the pairs of coacting faces,—as c^6, 3^h, and c^7, $3^{h'}$, of the cross-bar and slide will operate in the same way for retaining the cross-bar against a longitudinal movement thereof, whether the said cross-bar shall be rectangular or circular in section. Furthermore, the cross-bar, C,—whether of circular or other section,—does not have in the assembled mechanism the function of a pivot in relation to any of the members, since the barrel alone is supported thereon and since this member has no turning or working movement with relation to the cross-bar or to the frame during the operation of the mechanism.

The upper face c^5, (Fig. 8^a), of the reduced end c^3 of said cross-bar C,—provided this bar is in the form of a cylindrical shaft, so that it is normally revoluble in the frame,—operates in connection with the lower slide surface $3^{f'}$, of the slide-wall $3^{c'}$, to prevent the cross-bar from being turned in the frame during the time while the space or gate-way 2 (of the opposite slide-wall 3^c,—see Fig. 5), is in a position close to said bar. However, by so fitting or positioning said bar-end c^3 as to provide a small but proper amount of space at e^2, (Fig. 8^a), the cross-bar (when of cylindrical form, as stated), may be allowed in some instances, to turn slightly whenever such a small rotative movement shall, for any reason, be deemed desirable.

In Figs. 1, 4, 7, and 11, the cross-bar C is shown provided with a flange or head, as *d*, which is shown fitted to lie close against the outside surface of the frame F, so that in practice said cross-bar, when provided with this head or flange, will normally be held against longitudinal movement by the coaction of the inner surface c^8 of said head and the transverse surface c^6, which is located close to the vertically-disposed inner surface 3^h of the slide-wall 3^c. When the cross-bar is thus provided with the two movement-limiting surfaces c^6 and c^8, the opposite end thereof, c^3, may be omitted, and also said bar may terminate at a point just within the frame; this omission is shown in the modified arrangement illustrated in the sectional view Fig. 9. In this arrangement, in practice, the bar-seat, or bore in the frame, for receiving said cross-bar, need not extend entirely through the frame, but there may be a thin wall as 2^d, Fig. 9, between the outer surface of the frame and the end of the cross-bar, so that this bar will not then be accessible from that side of the frame which is opposite to the said head *d* thereof.

On account of the ordinary mode of taking the pistol in hand, it will usually be desirable to have the cross-bar located with the head *d* thereof at the left-hand side of the pistol frame, and this, it will be understood, is the arrangement herein illustrated. However, it will be evident without further illustration that in constructing the parts, these may be arranged in a reverse manner in which case the cross-bar will have the head thereof at the right-hand side of the frame.

In place of a bar-head of the particular form shown at *d*, it will be obvious that a head of some other suitable form and size might be substituted; such another head, if desired, may have the shape and character of a handle, of which various forms are already well-known as applied to manually-withdrawable barrel-and-frame connecting devices in various kinds of small-arms. In this connection, it will be remembered that heretofore in some instances a two-member-connecting cross-bar for releasably attaching the barrel to the frame in a firearm, and having the form of a small shaft,—and provided integrally with a handle or arm,—has been arranged for first being turned to effect a release of the same, and for then being drawn outwardly to disconnect the two members,—see, for instance, such a combined shaft and handle which is shown in Figs. 14, 15, and 16 of U. S. Patent No. 599,595, Feb. 22, 1898; also, the similar combined device "*i*", shown in Fig. 3 of U. S. Patent No. 512,434, Jan. 9, 1894; and, the shaft-form cross-bar member "*w*" shown in Fig. 9 of U. S. Patent No. 26,364, Dec, 6, 1859. In my present improvement, and contrary to said prior devices, the cross-bar member C is not turned (and need not be capable of being turned) preliminarily to the withdrawal thereof, but when the slide, S, is moved to bring the recess or gate-way 2 into alinement with said member C, (see Fig. 5), this member may then be drawn directly outward, (Fig. 4), and thus free the barrel and the frame each from the other, except as to the engagement of the aforesaid depending part of the barrel within the recess or mortise of the frame. That outward movement, however, of said cross-bar is effectually prevented at all times during the normal operation of the firearm, because the sliding bolt-carrier S is always moving either forwardly or rearwardly whenever said gate-way 2 is at or adjacent to said cross-bar member,—see Fig. 5.

From the foregoing description, it will now be evident that in the class of firearms selected for illustration herein, there are, in effect, two systems of barrel-mounting to each of which my present invention is equally applicable as regards the retention and release of the cross-bar by means appurtenant to the sliding member. In the first of these systems,—illustrated in Figs. 1, 2, 3,—the rear end of the barrel is directly but releasably united to the frame in a way to prevent (when the parts are properly fitted) any movement of said barrel-end on, or relative to the frame. In the second said system, the rear barrel-end, (Figs. 6, 7), is slidably fitted or supported by, and is guided within and by, the chamber-inclosing wall of the slide, and is releasably united to the frame only as regards and against a movement of the barrel longitudinally of the frame; one instance of this second system, (but with a different means for, and method of, barrel connection and release), is shown in Figs. 5 and 7, of the aforesaid U. S. Patent No. 747,585, in which, however, the barrel for the release thereof, is rotatable, whereas in said first system when arranged

in the particular manner which I have described in connection with Fig. 6, the barrel at all times while the mechanism is assembled, is, or may be, non-rotatable.

Having thus described my invention, I claim—

1. In a firearm, the combination with a frame and with a barrel, of a slide supported for reciprocating movements forwardly and rearwardly on the frame, said frame and barrel each having near the rearward end of the barrel, interlock portions provided transversely with alined cross-bar seats, a barrel-and-frame uniting cross-bar having the body portion thereof disposed in said alined seats, and also having at the upper side and transversely upon said body portion thereof, a bearing face in a position adjoining one side of the frame, and means appurtenant to the slide and in position and arranged for coacting with said bearing face of the body portion of the cross-bar and thereby hold the cross-bar from displacement during one portion of the reciprocating movement of the slide, and for withdrawing from such coacting position during a further movement of the slide.

2. In a firearm, the combination with a frame and with a barrel, of a slide supported for reciprocating movements forwardly and rearwardly on the frame, said frame and barrel each having near the rearward end of the barrel, interlock portions provided transversely with cross-bar seats which are cylindrical and alined, a barrel-and-frame uniting cross-bar having a cylindrical body portion thereof disposed in said alined seats, and also having at the upper side and transversely upon said body portion thereof, a bearing face in a position adjoining one side of the frame, and means appurtenant to the slide and in position and arranged for coacting with said bearing face of the body portion of the cross-bar and thereby hold the cross-bar from displacement during one portion of the reciprocating movement of the slide, and for withdrawing from such coacting position during a further movement of the slide.

3. In a firearm, the combination with a frame, of a chambered slide supported on the frame and having depending side-walls slidably engaging the frame, a barrel in the chamber of the slide and having an enlarged rearward end, a slide-actuating spring reacting against said enlarged barrel-end, said enlarged barrel-end and the frame having interlock portions provided with alined cross-bar seats positioned in the frame at a height partly above and partly below the lower edge of one of said side-walls, and a cross-bar having the body portion thereof disposed in said alined seats of the frame and barrel and also having said body portion notched for engagement with said one of the slide walls, whereby to normally retain the cross-bar in place, said bar-retaining slide wall having therein a gate-way space in a position for permitting the withdrawal of the body of the cross-bar outwardly through said space when the slide is in one position thereof.

4. In a firearm, the combination with a frame, of a chambered slide on the frame and having a side wall engaging over one side of the frame, a barrel supported in the chamber of the slide, said barrel and frame having at the rearward end of the barrel, interlock portions provided with alined cross-bar seats positioned in the frame at a height partly above and partly below the plane of the lower edge of said side wall of the slide, and a barrel-and-frame uniting cross-bar having the body portion thereof disposed in said alined seats of the frame and barrel, and also notched for engagement with the slide wall, whereby to normally hold the cross-bar in place, said slide wall having therein a gate-way space in a position for permitting the withdrawal of the body of the cross-bar outwardly through said space when the slide is in one position thereof.

5. In a firearm, the combination with a frame, of a chambered slide supported on the frame and provided with a side wall engaging over one side of the frame and there having an inwardly-facing surface, a barrel supported within the chamber of the slide, said barrel and frame each having at the rearward end of the barrel, interlock portions provided transversely with alined cross-bar seats positioned in the frame at a height partly above and partly below the lower edge of said wall of the slide, and a cross-bar having the body portion thereof disposd in said alined seats of the frame and barrel, and also notched for engagement with said inwardly-facing surface of the slide wall, whereby to normally hold the cross-bar in place, and said slide wall having therein a gate-way space in a position for permitting the withdrawal of the body of the cross-bar outwardly through said space when the slide is in one position thereof.

6. In a firearm, the combination with a frame and with a barrel, of a slide supported on the frame and provided with a depending wall engaging over one side of the frame and there having an inwardly-facing surface, said frame and barrel each having near the rearward end of the barrel, interlock portions provided transversely with alined cross-bar seats positioned in the frame at a height partly above and partly below the lower edge of said depending wall of the slide, and a cross-bar hav ng the body portion thereof disposed in said alined seats of the frame and barrel, and also notched for

engagement with said inwardly-facing surface of the slide wall, whereby to hold the cross-bar against outward movement in said seats, said depending wall having its continuity limited in one direction for permitting the withdrawal of the body of the cross-bar outwardly past said slide-wall when the slide is in one retracted position thereof.

7. In a firearm, the combination with a frame and with a barrel, of a slide supported on the frame and provided with a depending wall engaging over one side of the frame and there having an inwardly-facing surface in position for engaging a cross-bar, said frame and barrel each having near the rearward end of the barrel, interlock portions provided transversely with alined cross-bar seats positioned in the frame at a height partly above and partly below the plane of the lower edge of said depending wall of the slide, and a cross-bar having the body portion thereof disposed in said alined seats of the frame and barrel, and also having said body portion notched at one end thereof for engagement with said inwardly-facing surface of the slide wall, whereby to normally hold the cross-bar against outward movement in said seats when the slide is in forward position, said depending slide wall having a position on the slide such that during the retraction of the slide, said inwardly-facing surface will be drawn out of engagement with said notched end of the cross-bar, and thereby permit the cross-bar to be withdrawn.

8. In a firearm, the combination with a frame and with a barrel, of a slide supported on the frame and provided with a depending wall engaging over one side of the frame and there having an inwardly-facing bar-retaining surface, said frame and barrel each having interlock portions provided transversely with alined cross-bar seats positioned in the frame with a medial line thereof in a position substantially coinciding with the lower edge of said bar-retaining surface of the slide, and a cross-bar having a full-sized body portion thereof slidably disposed in said alined seats for thereby releasably-uniting the barrel to the frame, said cross-bar having above a medial line thereof an outwardly-facing surface engaging said inwardly-facing surface of the slide and also having below said medial line thereof, an outwardly extended end-portion having an upper surface in a position contiguous to the lower edge of said depending slide wall.

9. In a firearm, the combination with a frame and with a barrel, of a slide supported on the frame and provided with a depending wall engaging over one side of the frame and there having an inwardly-facing bar-retaining surface, said frame and barrel each having interlock portions provided transversely with alined cross-bar seats positioned in the frame with a medial line thereof in a position substantially coinciding with the lower edge of said bar-retaining surface of the slide, and a cross-bar having a full-sized body portion thereof slidably disposed in said alined seats for thereby releasably-uniting the barrel to the frame, said cross-bar having above a medial line thereof an outwardly-facing surface engaging said inwardly-facing surface of the slide and also having below said medial line thereof, an outwardly extended end portion having an upper surface in a position contiguous to the lower edge of said depending slide wall, and also having on said end-portion an enlarged head having an inwardly-facing surface thereof in a position contiguous to the frame.

10. In a firearm, the combination with a frame, of a slide supported on the frame and having a pair of depending side-walls which slidably inclose the top portion of the frame, a barrel in position between said side-walls of the slide, the frame and the rearward end of the barrel having interlock portions provided transversely with alined cross-bar seats which together extend through the frame and are positioned in the frame at a height partly above and partly below the plane of the lower edges of said side-walls, and a cross-bar having the body portion thereof disposed in said alined seats of the frame and barrel and of a length to extend under each of said side-walls, and also having said body portion notched near each end thereof for engagement with said side-walls respectively, whereby the side-walls by engaging in said notches normally prevent longitudinal movement of the cross-bar in either direction, said slide having the continuity of one of said side-walls interrupted at a position for permitting the withdrawal of the body of the cross-bar outwardly from said seats when the slide is in one position in the stroke thereof.

11. In a firearm, the combination with a frame, of a slide supported on the frame and having a pair of depending side-walls which slidably inclose the top portion of the frame, a barrel in position between said side-walls of the slide, the frame and the rearward end of the barrel having interlock portions provided transversely with alined cross-bar seats which are circular in section and which together extend through the frame and are positioned in the frame at a height partly above and partly below the plane of the lower edges of said side-walls, and a cylindrical cross-bar having the body portion thereof disposed in said alined seats of the frame and barrel and of a length to extend under each of said side-walls, and also having said body portion notched near each end thereof for engagement with said side-walls, respectively, whereby the side-

walls by engaging in said notches normally prevent longitudinal movement of the cross-bar in either direction, and also prevent rotation thereof, said slide having the continuity of one of said side-walls interrupted at a position for permitting the withdrawal of the body of the cross-bar outwardly from said seats when the slide is in one position in the stroke thereof.

12. In a firearm, the combination with a frame, of a slide supported on the frame and having a pair of depending side-walls which slidably inclose the top portion of the frame, a barrel in position between said side-walls of the slide, the frame and the rearward end of the barrel having interlock portions provided transversely with alined cross-bar seats which are circular in section and which are positioned in the frame at a height partly above and partly below the lower edges of said side-walls, and a cylindrical cross-bar having the body portion thereof disposed in said alined seats of the frame and barrel and having at one end thereof an outward extension which is under one of said side-walls for thereby preventing the rotation of the cross-bar, said slide having the continuity of one of said side-walls interrupted at a position for permitting the withdrawal of the body of the cross-bar outwardly from said seats when the slide is in one position in the stroke thereof.

JOHN D. PEDERSEN.

Witnesses:
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L. E. WETMORE