

July 8, 1947.

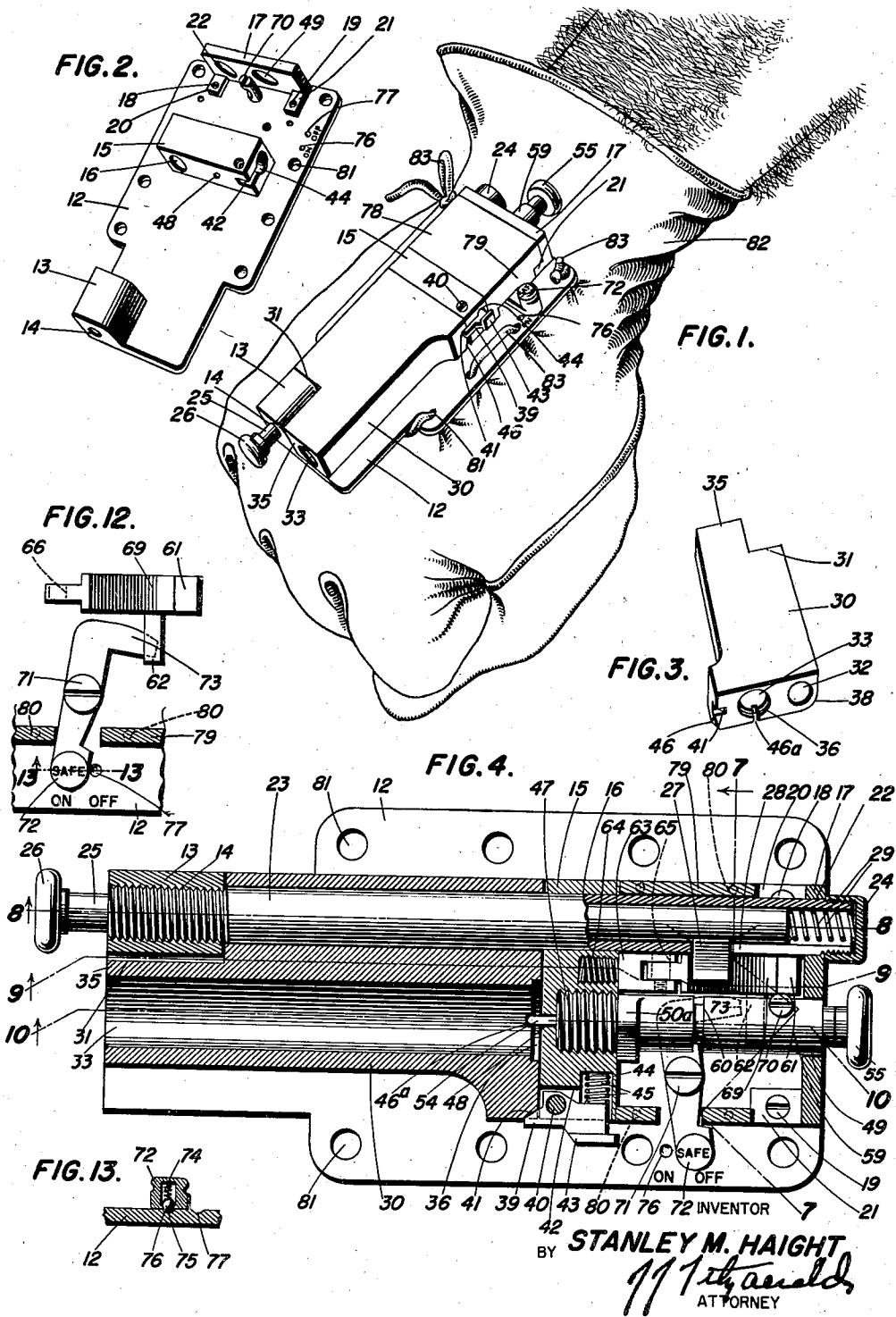
S. M. HAIGHT

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FIST GUN

Filed Feb. 29, 1944

2 Sheets-Sheet 1



INVENTOR  
 BY *Stanley M. Haight*  
 ATTORNEY

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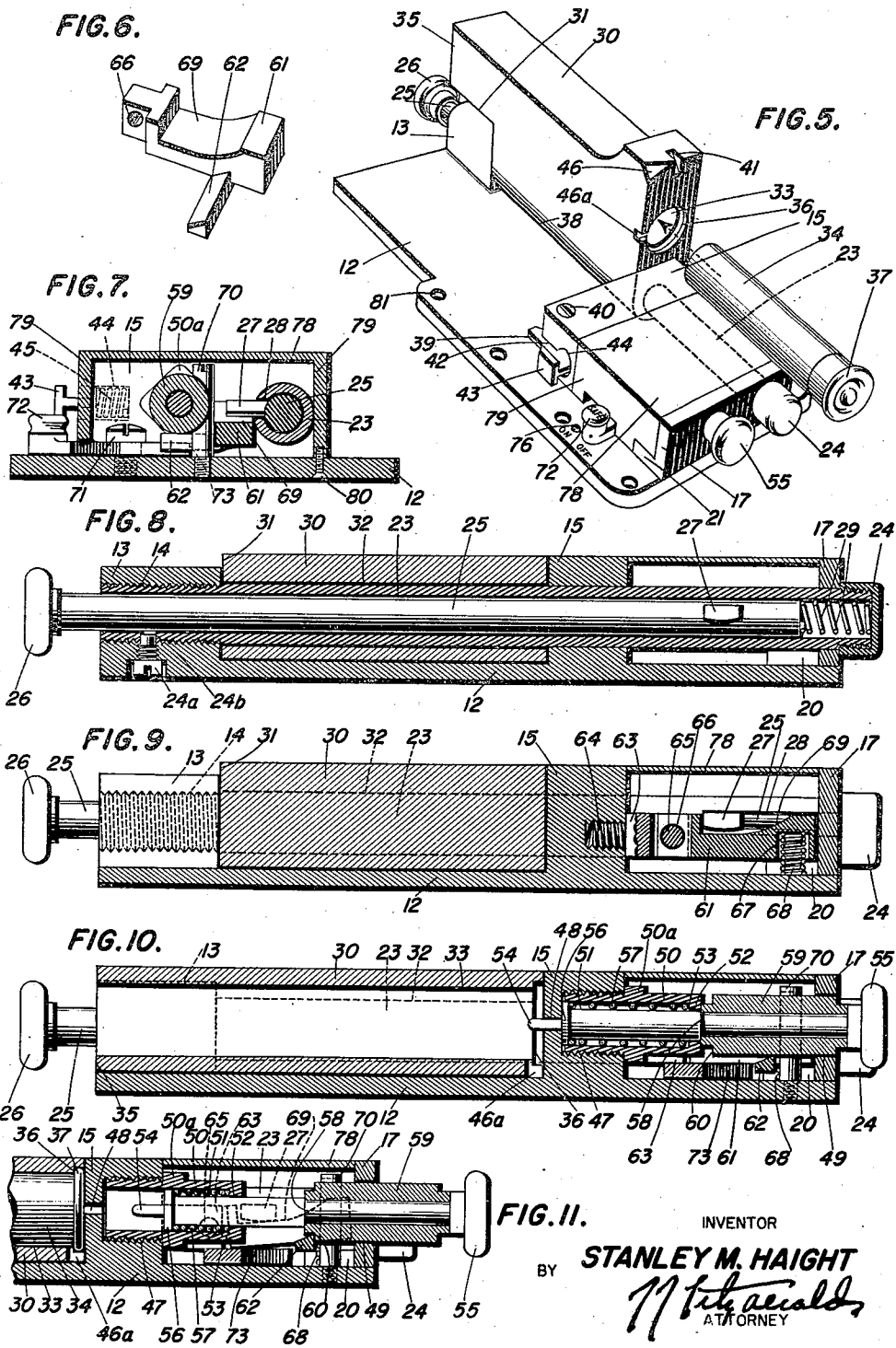
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2 Sheets-Sheet 2



INVENTOR  
**STANLEY M. HAIGHT**  
BY *W. H. Reynolds*  
ATTORNEY

# UNITED STATES PATENT OFFICE

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FIST GUN

Stanley M. Haight, United States Navy

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11 Claims. (Cl. 42—13)

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1

This invention relates to firearms, and in particular to a firearm which is adapted to be used when in actual physical contact with an adversary, as in hand to hand fighting during warfare.

Small firearms which may be concealed as in the palm of the hand or in the coat sleeve, or which are deceiving in appearance, are not new, as exemplified by the devices shown in the Alden Patent 1,741,902, the Juhasz Patent 1,726,228 and the Woods Patent 1,073,312. The purpose of these devices is concealment and surprise against hold-ups and the like, and they do not involve physical contact with the adversary.

My device, on the contrary is not primarily intended to be concealed, although it may be if so desired, and the purpose is to provide the wearer with a lethal weapon which he may keep attached to his person at all times without undue difficulty. Modern warfare, with its infiltration tactics and surprise, entails considerable hand to hand fighting. Due to the surprise nature of these attacks, the attacked personnel are frequently caught comparatively unarmed, in that they have laid aside their normal arms while engaged in other duties, or while sleeping, etc.

The device, in the illustrated embodiment is in the form of a firearm which is worn on the back of the hand, and has its trigger projecting in the direction of the fingers. The barrel substantially parallels the direction of the fingers. When the fist is doubled up, the trigger is exposed for contact and the fingers are removed from the line of fire of the lethal charge of the weapon. Thus when the wearer becomes engaged in hand to hand fighting and his other weapons such as rifle or bayonet are ineffective, he need only double up the fist of the hand to which the weapon is attached, and strike his adversary. Even though the trigger of the weapon is not struck against a vital organ of the adversary, such as the head or abdomen, the nature of the lethal charge at these close quarters is such that the adversary will be instantly knocked out or disabled, because the weapon is loaded with a shotgun shell, and the shattering effect of such a shell, particularly at close range, is well known. The weapon contains only a single shell, and while it can be reloaded easily, it may not be possible to do so during the same action, but since it remains attached to the hand it is still a very effective "brass knuckle" in subsequent fighting.

It is accordingly the primary object of my invention to provide a novel firearm which is adapted to be worn at all times, and with which a

2

lethal charge can be discharged into an adversary by pressing or striking the weapon against him.

Another purpose of the invention is the provision of a novel weapon which discharges its charge into an object when the trigger is pressed or struck against the object.

Another object is the provision of a novel firearm adapted to be worn on the back of the hand and discharged by striking or pressing its trigger against an object or adversary, there being a safety device operable to prevent the inadvertent discharge of the gun when the safety is on.

Still further objects of the invention will appear as the description thereof proceeds with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of the device attached to the back of a glove on the hand of a person, the fist being doubled and the gun ready for action;

Fig. 2 is a perspective view of the base of the gun, with the mechanism and barrel removed;

Fig. 3 is a perspective view of the barrel of the gun, looking at it from the rear;

Fig. 4 is a partial sectional view in a plane parallel to the base and passing through the barrel substantially at its diameter;

Fig. 5 is a perspective view of the gun, detached from the glove, with the barrel rotated into the loading position, and showing a shell in position to be loaded.

Fig. 6 is a perspective view of the sear;

Fig. 7 is a view in cross-section taken along the line 7—7 of Fig. 4;

Fig. 8 is a longitudinal view in cross-section along the line 8—8 of Fig. 4;

Fig. 9 is a longitudinal view in cross-section along the line 9—9 of Fig. 4;

Fig. 10 is a longitudinal view in cross-section along the line 10—10 of Fig. 4;

Fig. 11 is a partial longitudinal view in cross-section along the line 10—10 and similar to Fig. 10, but showing the firing pin in cocked position;

Fig. 12 is a plan view in detail of the safety locking mechanism; and

Fig. 13 is a cross-sectional view along line 13—13 of Fig. 12 showing the details of the spring pressed detent on the safety mechanism.

The gun is made of metal throughout, and comprises a base 12, shown substantially stripped in Fig. 2. The base 12 comprises a flat portion which is fastened to the back of the hand or glove as shown in Fig. 1. Integral with or securely fas-

tened to the base 12 is a shoulder 13 which has a longitudinal threaded bore 14 extending parallel to the longest dimension of the base. A breech block 15 is also integral with or securely fastened to the base 12, extending transversely thereof as shown clearly in Figs. 1, 2 and 5. The breech block has a bore 16 in axial alignment with the bore 14, for a purpose to be described. At the rear of the base 12 is a plate 17 mounted at right angles to the base, as by machine screws 18 and 19 passing through lugs 20 and 21 which are integral with the plate, the screws engaging tapped holes in the base 12. The plate 17 has a hole 22 therethrough, in axial alignment with the bores 14 and 16 in shoulder 13 and breech block 15.

A trigger tube 23, threaded at one end to engage the threaded bore 14 in the shoulder 13, extends the length of the base 12, and passes through the bore 16 and the hole 22, with both of which it has a fairly close fit. The tube 23 is threaded on the end which passes through plate 17. A cap 24 is threaded onto this end of tube 23 and tightened against the side of plate 17, the tube 23 thereby being secured at each end. The tube is locked against turning by a screw 24a which is threaded into the bottom of the base 12 and has an unthreaded portion fitting into a mating hole 24b in the tube 23. Mounted for sliding movement within the bore of trigger tube 23 is a trigger bar 25 which at one end projects beyond the shoulder 13 to form a trigger. The projecting end may have an enlarged impact button 26 threaded thereon.

As best shown in Figs. 4, 8, 9 and 11, a lug 27 projects from one side of the trigger bar 25 near its other end, and extends through and past a longitudinal slot 28 in the side wall of the tube 23. The trigger bar 25 terminates short of the end of the tube 23 when the trigger bar is at the left end of its stroke as shown in Figs. 4, 8 and 9. The left end of the stroke is determined by engagement of the lug 27 with the end of the slot 28. It is normally held in this position by a coil compression spring 29 within the bore of tube 23, the spring being compressed between the end of the trigger bar 23 and the cap 24, which closes the end of tube 23.

The tube 23 also serves as a hinge pin for a barrel 30 of the weapon as is shown in Figs. 4, 5 and 8. The barrel 30 is shown separately in perspective in Fig. 3, and consists of a single block of metal of a length extending from the breech block 15 to the front edge of the base 12, except for a side portion which is cut away at 31. This shortened side portion fits between the shoulder 13 and the breech block 15 and contains a bore 32 through which passes the tube 23, thus forming the hinged connection between the barrel 30 and the base 12 of the gun. As shown in Fig. 3, the lower corner of the barrel is rounded at 38 so the corner will clear the base. Parallel to the bore 32 is a bore 33 which receives a shotgun shell or cartridge 34 and through which the charge passes when the shell is exploded. As shown in Fig. 4, the muzzle 35 is adjacent the button 26. At the inner end of bore 33 is an enlarged recess 36 into which fits the external flange 37 of the shell or cartridge 34.

In order to load or unload the gun, the barrel 30 is swung up to the position shown in Fig. 5. After the shell is inserted into the bore, the barrel is swung down against the base and the breech block where it is latched in position by a spring pressed latch 39 in the breech block 15 as shown in Fig. 1. The latch is shown more

fully in Fig. 4 and comprises a lever pivoted on a pin 40 in the breech block 15. The latch portion 39 of the lever fits into a horizontal notch 41 in the side and corner of the barrel 30. A corresponding slot 42 in the breech block 15 accommodates the lever, which has a finger piece 43. A hole 44 in the breech block 15 accommodates a coil compression spring 45 which bears against the inner side of the finger piece 43 to urge the lever clockwise as viewed in Fig. 4, and to thus cause the latch 39 to be resiliently seated in the notch 41 in the barrel. As shown particularly in Figs. 3 and 5, the barrel is ground away beneath the notch 41 to provide a cam surface 46. When the barrel is being closed this cam surface raises the latch 39 to allow the barrel to be seated, after which the latch falls into the notch 41 and locks the barrel in place. The barrel is released from the latch 39 by depressing the finger piece 43 against the action of the spring 45. At its rear, by the recess 36, the barrel has a groove 46a in which a firing pin 54 slides when the barrel 30 is swung up and down.

The breech block 15 has a threaded hole 47 extending almost therethrough, and in axial alignment with the bore 33 when the barrel is in the position of Fig. 1. The threaded hole 47 terminates in a smaller axially aligned hole 48 which does go through the breech block. In axial alignment with the aforementioned holes is a hole 49 passing through the plate 17. A threaded bushing 50 having a square external flange 50a is threaded into and seated in the hole 47 in the breech block. The bushing has a large internal bore 51 for most of its length, terminating in a smaller bore 52, there being an internal shoulder 53 at their juncture. A firing pin 54 has a portion of small diameter passing through the hole 48 for engagement with the firing cap of the shell in the barrel 30, as shown in Figs. 4 and 10. The firing pin is of a length extending past the plate 17 and has a knob 55 threaded on its outer end. The firing pin has an enlarged portion which slides in the bore 52, and an external flange 56 which slides in the large bore 51 in the bushing 50. A spring 57 is compressed between the flange 56 on the firing pin and the shoulder 53, thus urging the firing pin to the left. Beyond the enlarged portion which slides in bore 52, the firing pin diameter is reduced to form a shoulder 58 and passes through a bushing 59 which slides through the hole 49 in plate 17. The bushing 59 is clamped to the firing pin between the shoulder 58 and the knob 55. Adjacent shoulder 58 the bushing has an annular recess terminating in a sharp shoulder 60. Thus the firing pin may be pulled to the right to cock it against the action of spring 57 as shown in Fig. 11. When released, it will fly to the left and its small portion 54 at the left end will strike the firing cap of the shell to explode it.

In Fig. 6 is shown a perspective view of a sear 61 having a latch 62 which is spring pressed against the shoulder 60 to hold the firing pin in the cocked position shown in Fig. 11. An eye bolt 63 appearing in Figs. 4 and 9 has its threaded portion 64 screwed into a threaded hole in the breech block 15. The bolt has two spaced eyes, a pin 65 passing through one and having threaded engagement with the other. The sear 61 has a hole 66 through which the pin 65 passes, the sear 61 being thus pivoted about the pin 65. As shown in Fig. 9, there is a blind hole 67 in the bottom of the sear, and a coil spring 68 which is seated in this hole bears against the top of the

base 12, thus normally raising the free end of the sear 61. When the firing pin is drawn back to the cocked position of Fig. 11, the spring 68 forces the latch 62 upwards whereupon it is held in resilient engagement with the shoulder 60 by the combined action of springs 57 and 68. The top of the sear has a recess with an upwardly sweeping top surface or cam 69. As best shown in Figs. 4, 9 and 11, the lug 27 which projects from the trigger bar 25 extends over the cam 69. When the trigger 25 is moved backwards by a thrust on the button 26, the lug 27 engages the cam 69 to force the sear and latch 62 downwards against the force of spring 68. When the sear has been sufficiently depressed, the latch 62 is disengaged from the shoulder 60, and the firing pin will fly to the left to explode the shell. Thus the gun is cocked by pulling the firing pin back by means of the knob 55 until the latch 62 engages the shoulder 60. The gun may be discharged by pushing on or striking the trigger bar button 26.

A round post 70 is threaded into the base 12 and extends vertically upwards therefrom between the bushing 59 and the sear 61 as shown most clearly in Figs. 7 and 4. The diameter of the post is too great for it to fit between these two elements, so a circular cut is milled in the side facing the bushing 59, the diameter of the cut being substantially the same as that of the bushing so that the bushing bears against substantially the whole area of the cut in the post. The post 70 thus forms a brace or guide preventing sideways movement of the free end of the sear 61.

Safety means are provided to prevent accidental discharge of the gun while it is cocked. Such means are desirable because while it is intended that the gun be worn and in readiness for use substantially all of the time, there are occasions when the trigger button 26 might be struck unintentionally, as when the wearer is working with his hands, or when asleep, etc.

The safety means is shown particularly in Figs. 4 and 12. It comprises a lever which is L shaped in plan and pivoted about a screw 71 which is threaded into the base 12, the lever itself lying flat upon the base. At its exterior end the lever has a button 72 which enables the wearer to move the lever. When the safety is in the locked position, its end 73 lies under the sear 62 as shown in Fig. 12. As is apparent from Figs. 10 and 11, the safety cannot pass under the sear to lock it unless the firing pin is cocked because there is not room under the sear for the end 73. When the firing pin is cocked, as in Figs. 11 and 12 and with the safety in the "on" position of Fig. 12, the sear 61 cannot be depressed by moving the trigger bar 25 backwards, because with the end 73 of the safety under the latch 62, the latch is held thereby against downward movement. Similarly the trigger bar 25 cannot be pushed back for its normal stroke. Thus after the gun is loaded by the insertion of a shell as in Fig. 5, and the firing pin is cocked by pulling back on the knob 55, the safety can be pushed into the "on" position shown in Fig. 12, or it can be left in the "off" position of Fig. 4.

A spring pressed detent as shown in Fig. 13 may be used to hold the safety in either its on or off position. The knob 72 has a bore containing a spring 74 and a ball 75 which are retained in the bore by reducing the diameter of the hole at its lower end to a diameter less than that of the ball 75. The base 12 is provided with depressions 76 and 77 into which the protruding

portion of ball 75 fits when the safety lever is in the on or off position respectively. Thus the safety lever will not shift from either position unless it is pushed hard enough to overcome the spring pressed detent.

The mechanism between the breech block 15 and the plate 17 is protected by a cover plate 78, shown in section in Fig. 7. Defending side portions 79 of the cover plate extend to the base 12 and the entire cover plate may be fastened to the base by screws 83 which pass through the base and are screwed into the side portions 79. The cover plate may however be secured by any other suitable means.

The gun may be secured to the back of the wearer's hand by any suitable means. One such means is shown in Fig. 1. The base 12 is provided with a series of holes 81, and a glove 82 or other hand covering is worn on the hand. The gun is secured to the back of the glove by a thong 83 of any suitable material which passes through the back of the glove and through the holes 81. In a similar manner, the gun may be secured to the glove by means of rivets or small machine screws passing through the holes 82. If this method of securing the gun to the wearer's hand is used, the glove may be merely a skeleton glove without fingers if desired. It is to be understood that any other suitable means to fasten the glove to the back of the hand may be used.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

#### I claim:

1. A firearm having a muzzle, a trigger projecting from the firearm closely adjacent and forward of said muzzle, a substantially flat base by which the firearm can be fastened to the back of a person's hand with the muzzle portion and trigger overhanging the knuckles, whereby when the hand is closed into a fist the fingers are removed from the line of fire from the muzzle, and the trigger may be depressed by striking or pressing the fist against an object.

2. A firearm having a muzzle, a trigger projecting from the firearm closely adjacent and forward of said muzzle, a substantially flat base by which the firearm can be fastened to the back of a person's hand with the muzzle portion and trigger overhanging the knuckles, whereby the firearm may be discharged directly into an object by rolling the hand into a fist to expose the trigger and remove the fingers from the line of fire, and striking the fist and trigger against the object.

3. A firearm comprising a base member, a breech block on said base member, a barrel, means hinging said barrel to said base member for movement into a position in alignment with said breech block for firing, and out of alignment with said breech block for loading, releasable means locking said barrel in its position of alignment with said breech block, and firing mechanism including a trigger and support therefor, said trigger support forming said hinging means.

4. A firearm comprising a base member, a breech block on said base member, a barrel, means hinging said barrel to said base member for movement into a position in alignment with said breech block for firing and out of alignment with said breech block for loading, said hinging means comprising a tube passing through said breech block and said barrel; a trigger slidably sup-

ported within said tube; a sear mechanism, said trigger terminating at one end adjacent said sear mechanism and at the other end adjacent the muzzle of said barrel.

5. A firearm comprising a substantially flat longitudinally extending base member, a shoulder secured to said base member and projecting substantially vertically therefrom, a breech block secured to said base member at a position spaced longitudinally of said shoulder and projecting substantially vertically from said base member in the same direction as said shoulder, a barrel having a cartridge chamber, a tube extending longitudinally of said base member through said shoulder, said breech block and said barrel to hingedly secure said barrel to said base member intermediate said shoulder and said breech block, with the cartridge chamber of said barrel in abutting relation with said breech block for firing whereby said barrel may be swung up from its firing position to expose said chamber for loading, means releasably locking said barrel to said base and breech block, a firing pin extending from said breech block for firing said cartridge, a trigger slidably supported in said tube and operable to release said firing pin.

6. The firearm described in claim 5 characterized further by the addition thereto of a plate secured to said base member to extend substantially vertically therefrom at a position spaced longitudinally of said breech block on the side thereof opposite said shoulder, said firing pin extending through and beyond said plate whereby said pin may be grasped for cocking, a sear between said breech block and said plate, and means responsive to the movement of said trigger in said tube for releasing said firing pin from said sear.

7. A firearm adapted to be worn on the hand comprising a substantially flat longitudinally extending base member having a forward end adapted to extend toward said fingers when worn on said hand, a barrel hingedly mounted on said base to extend longitudinally thereof and having a muzzle portion adjacent said forward end; a breech block secured to said base at the end opposite said forward end to abut said barrel when said barrel is in its firing position; releasable means for locking said barrel in said firing position; and a trigger having an impact member projecting forwardly beyond said muzzle and said base member so that when said firearm is worn said impact member will extend forwardly of the hand when the fingers are clinched.

8. The combination of a hand covering, a firearm fastened to the back of said hand covering to extend longitudinally thereof with the muzzle directed toward the portion of said hand covering adapted to accommodate said fingers, and a

trigger projecting beyond the muzzle of said firearm so that when said hand covering is worn the trigger will extend in advance of said hand covering when said fingers are clinched.

9. In a firearm; a base; a breech block fixed to said base; a shoulder fixed to said base at a point spaced from said breech block; a trigger tube seated in said shoulder and said breech block; a barrel pivotally mounted on said trigger tube and having a bore paralleling said tube, said barrel being rotatable between a loading position wherein it is swung away from said base and breech block and a firing position wherein it lies adjacent said base and said breech block; releasable means for locking said barrel to said breech block in said firing position; a reciprocable firing pin in said breech block; a reciprocable trigger bar in said trigger tube; said firing pin and said trigger bar having portions extending beyond said breech block on the side thereof remote from said barrel; and means by which rearward movement of said trigger bar effects forward movement of said firing pin.

10. The combination with a glove, of a firearm fastened to the back thereof; said firearm having a barrel pointing toward the fingers of said glove; and a trigger pointing toward the fingers of said glove and extending beyond the muzzle of the barrel, and in advance of the glove when the fingers are clenched.

11. A firearm comprising a base, a breech block on said base, a barrel, means hinging said barrel to said base about an axis parallel to the bore of said barrel for movement to a position in alignment with said breech block for firing, and away from said breech block for loading, releasable means locking said barrel to said breech block in alignment therewith, and firing mechanism including a trigger and support therefor, said trigger support forming said hinging means.

STANLEY M. HAIGHT.

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