

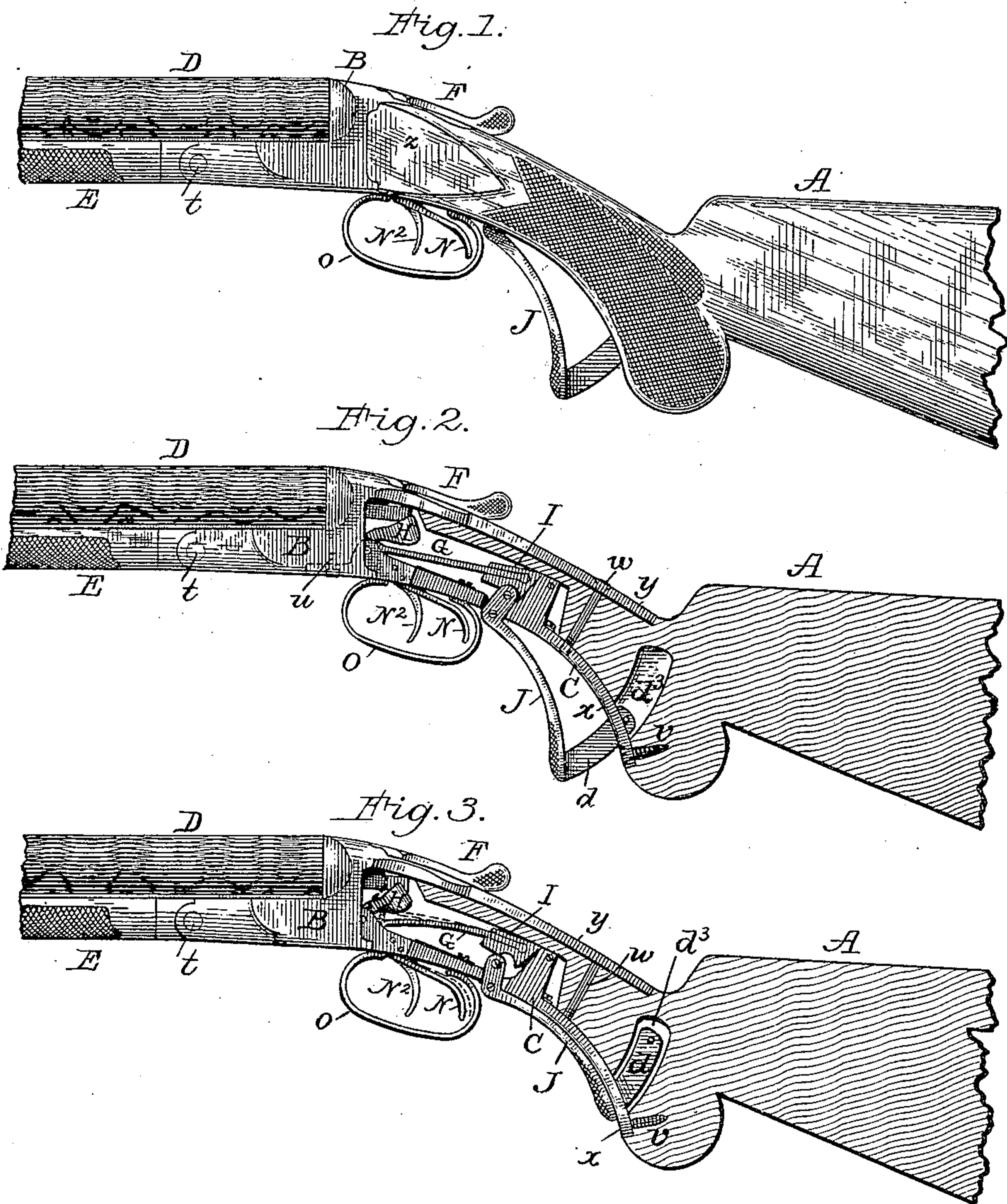
(Model.)

2 Sheets—Sheet 1.

W. H. WHITNEY.  
SAFETY LOCK FOR FIRE ARMS.

No. 451,191.

Patented Apr. 28, 1891.



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Fig. 4.

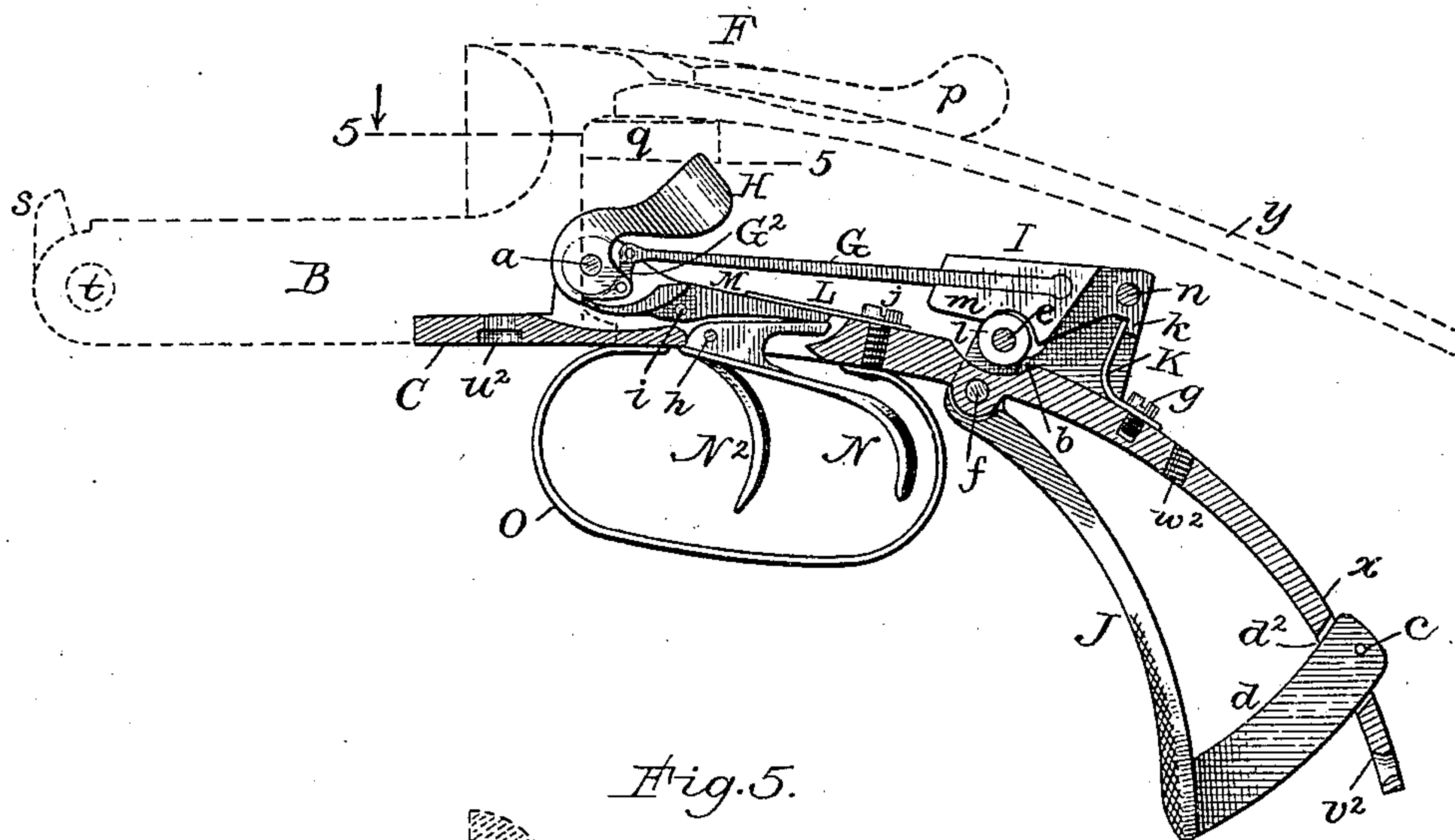


Fig. 5.

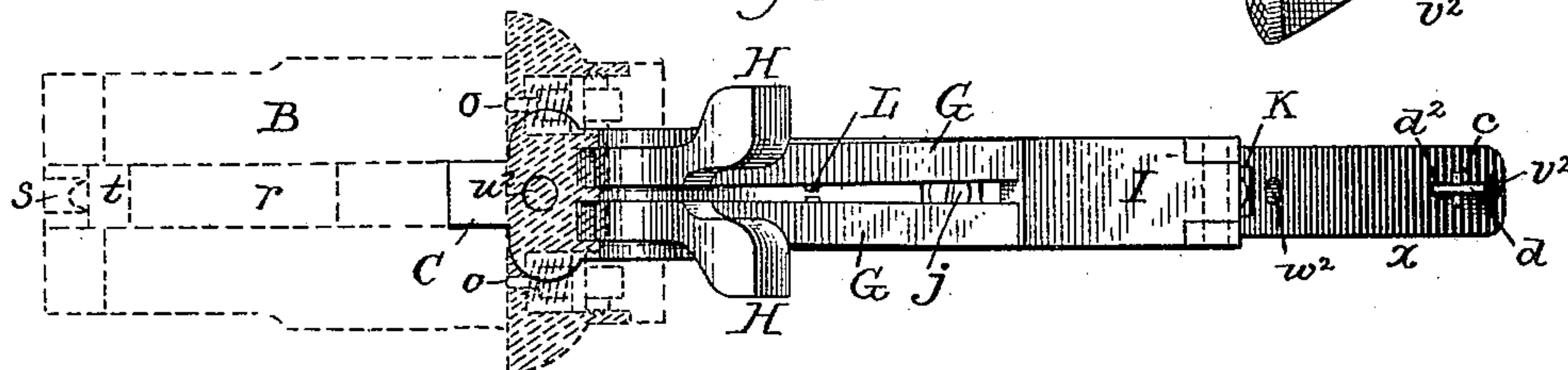


Fig. 6.

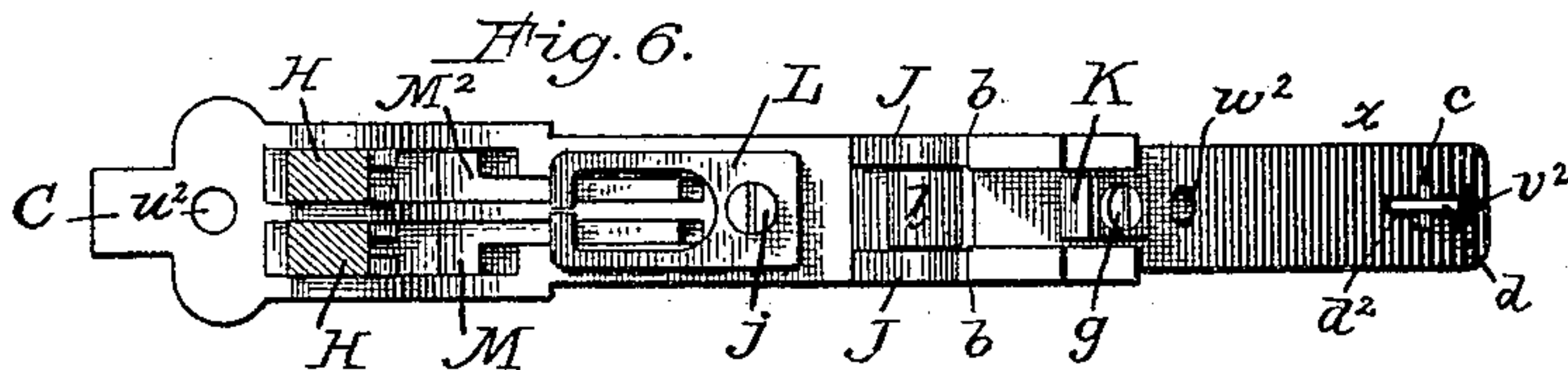


Fig. 7.

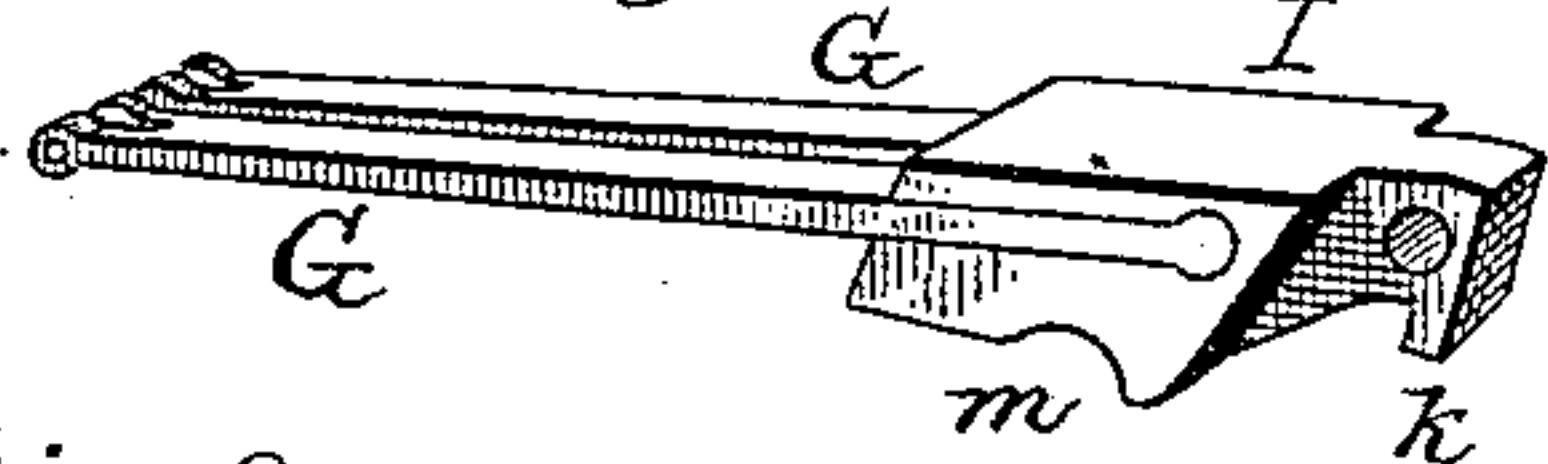


Fig. 7<sup>2</sup>.

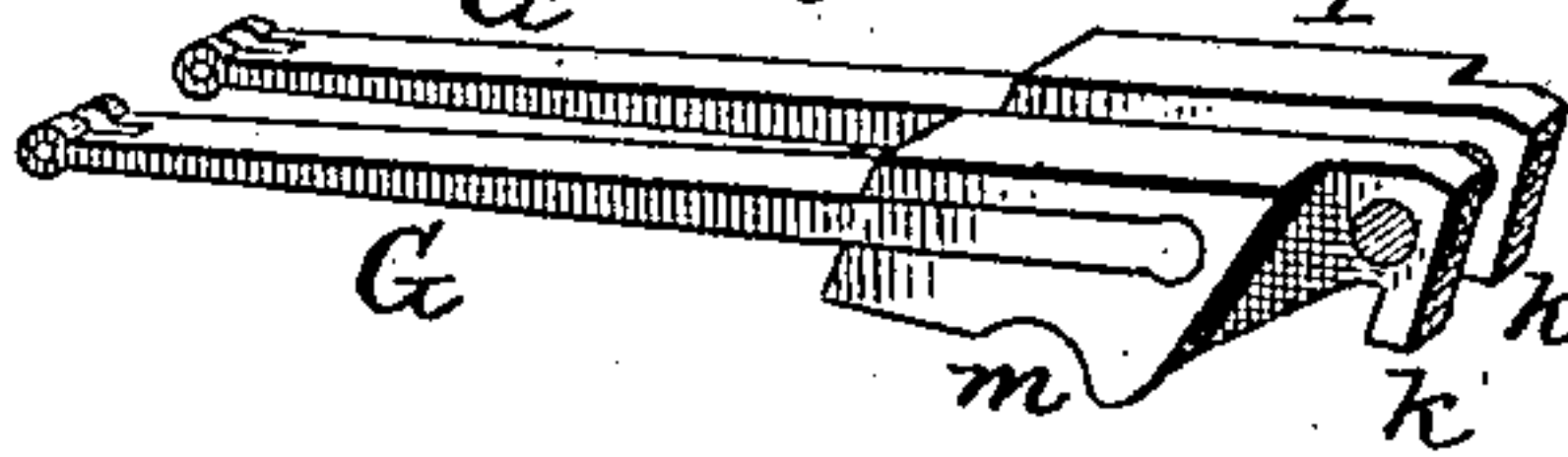


Fig. 8.

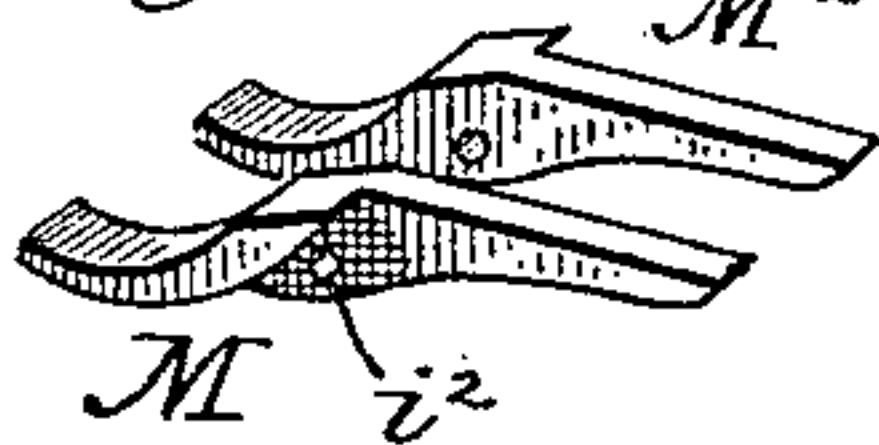


Fig. 9.

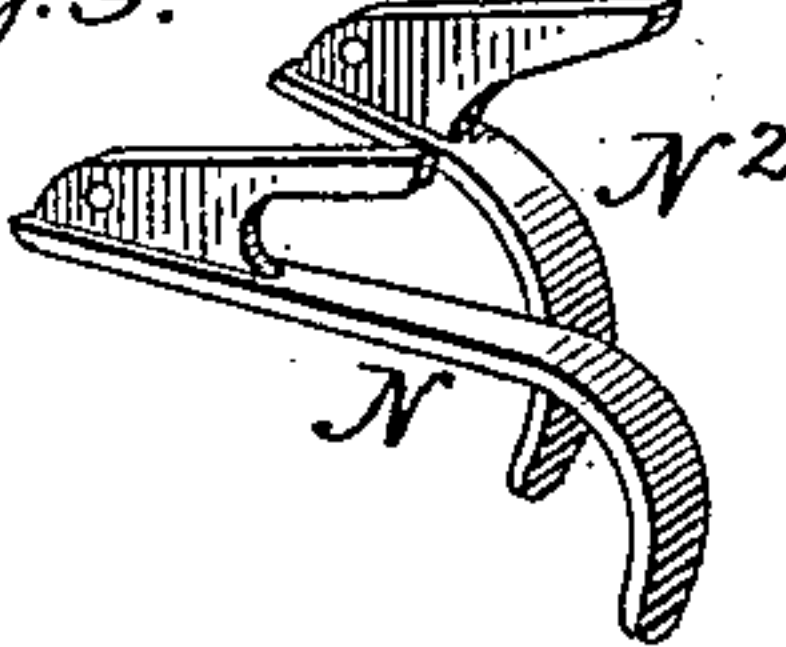
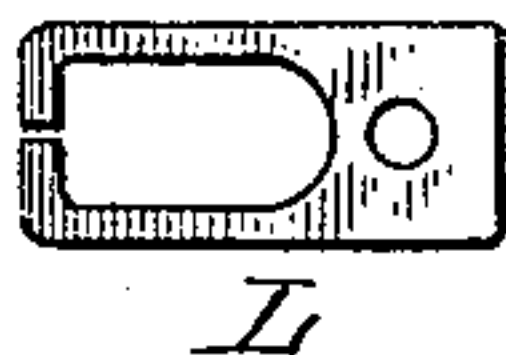


Fig. 10.



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# UNITED STATES PATENT OFFICE.

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## SAFETY-LOCK FOR FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 451,191, dated April 28, 1891.

Application filed April 11, 1890. Serial No. 347,508. (Model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. WHITNEY, a citizen of the United States, and a resident of Florence, in the State of Massachusetts, formerly of East Brookfield, Massachusetts, have invented a new and useful Improvement in Safety Fire-Arms, of which the following is a specification.

This invention is additional to my improvement in breech-loading fire-arms, patented September 2, 1884, by United States Letters Patent No. 304,480; and it consists in certain novel combinations of peculiarly-constructed parts, as hereinafter set forth and claimed.

The present improvement as a whole, in common with said previous improvement, is preferably embodied in a "hammerless" double-barreled breech-loader, but may be embodied wholly or in part in other styles of small-arms. The hammers, as in the preferred arrangement set forth in said Letters Patent No. 304,480, are always at cock, except at the moment of firing, while the mainsprings normally have no tension whatever on them. The mainsprings are put in tension by pressing upward a "tension-lever," as it is hereinafter termed, which is pressed home by the shooter's firing-hand when the gun is brought to the shoulder. Upon releasing this lever after firing, the hammers are automatically cocked, and in case the gun is not fired the springs automatically become passive as soon as the lever is released by opening the hand. The common object thus aimed at in the two inventions is to render the gun absolutely safe against accidental discharge.

The distinguishing objects of the present invention are, first, to simplify the construction of the mainsprings proper and by the same means to reduce the work of the tension-lever; secondly, to provide for the employment of a small and simple cocking-spring out of contact with the mainsprings proper; thirdly, to adapt a single "sear-spring" to hold down a pair of triggers and to keep a pair of sears in place and to adapt such spring to be attached by a single screw; fourthly, to relieve the sear-spring from strain, so that a very light spring suffices, and, fifthly, to provide for the attachment of all the working parts of the lock and safety device to a detachable trig-

ger-plate, so as to facilitate assembling the parts and also taking the gun apart to clean it.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 of the drawings is a side view of a mid-length portion of an improved safety fire-arm illustrating this invention. Fig. 2 is a like view of the same portion, with the stock in longitudinal section, showing the movable parts in their normal position of rest, as in Fig. 1. Fig. 3 is another sectional side view of the same portion, showing the movable parts in full lines as they appear when the gun is ready to be fired, and representing by dotted lines the movements incident to pulling the near trigger. Fig. 4 is an elevation of the improved lock and safety device detached, with the trigger-plate and the front end of the tension-lever in section and with dotted outlines of the other division of the metallic "action" of the gun as separated with the lock and safety device from the stock. Fig. 5 is a top view of both divisions of the action as represented in Fig. 4 with those portions above the section-line 5 5 broken away. Fig. 6 is a top view of the lock and safety device with the hammers, mainsprings, and connections broken away and removed to expose to view the cocking-spring, sears, and sear-spring. Fig. 7 is a perspective view of the improved mainsprings and their rocker detached. Fig. 7\* is a like view of the same with a divided or two-part rocker. Fig. 8 is a perspective view of the sears detached. Fig. 9 is a perspective view of the triggers detached, and Fig. 10 is a top view of the sear-spring detached.

Figs. 4 to 10, inclusive, are enlarged one diameter from Figs. 1 to 3, and like letters refer to like parts in all the figures.

The particular fire-arm represented by the drawings is a double-barreled breech-loading shotgun.

The main portion A of the wooden stock (shown in Figs. 1 to 3 and hereinafter termed the "stock") terminates at front in a pair of cheeks z, Fig. 1, at the respective sides of the lock-space, and is rigidly connected with the metallic breech-piece B by top and bottom tangs y x, formed, respectively, on said breech-piece and on the rear end of a trigger-



plate C, and by tang-screws  $w$   $v$ , said trigger-plate being rigidly connected with said breech-piece at its front end by a screw  $u$ . (Shown in dotted lines in Fig. 2.)

5 The barrels D have a wooden stock-tang E attached to them at bottom and at its rear end are loosely hinged to the front end of a forward extension of said breech-piece B by a suitable joint comprising a transverse pivot  
10  $t$ , their tilting movement being limited by a stop projection  $s$ , Figs. 4 and 5, in a customary way. A recess  $r$ , Fig. 5, in said extension of the breech-piece receives a hook-rib united with the rear ends of the barrels at bottom,  
15 and when the breech is closed it is automatically secured by a suitable fastening F, which is preferably located at the top of the breech-piece and comprises a locking-spring  $q$ , Fig. 4, and an unfastening thumb-lever  $p$ . The  
20 breech-piece B is further provided with suitable spring-retracted firing-pins  $o$ , Fig. 5, and the remainder of the action of the gun is carried by said trigger-plate C. Consequently by removing said screws  $w$ ,  $v$ , and  $u$ , Fig. 2,  
25 or by removing the tang-screws and loosening said screw  $u$ , the entire action may be quickly and easily withdrawn endwise from the stock and then separated, as illustrated by Fig. 4.

The present invention relates exclusively  
30 to said trigger-plate C and the parts carried thereby, and further reference to the drawings will be mainly confined to Figs. 4 to 10, inclusive, where these parts are segregated, except for the operation of the safety device,  
35 as illustrated by Figs. 1 to 3.

The mainsprings G, Figs. 4, 5, 7, and 7<sup>x</sup>, are of a peculiarly simple straight form, having transverse cylindrical enlargements at their respective ends, those at their smaller ends  
40 being milled and drilled to form hinge-joints connecting the springs with short links G<sup>2</sup>, Fig. 4, that connect in like manner with short crank-arms on the hubs of the hammers H, as heretofore. The rear ends of the main-  
45 springs are tightly fitted into lateral recesses in a "rocker" I or I<sup>2</sup>, which is pivoted at its rear end by a transverse pivotal screw  $n$  and is constructed with a curved recess at bottom in its front portion to form the "cam-wedge"  
50  $m$  to coact with the anti-friction roller  $l$ , with which a short crank-arm at the front end of the tension-lever J terminates. Said pivotal screw  $n$  is located as high as possible with reference to the cam-wedge portion of the  
55 rocker, so that when the springs are put in tension, as illustrated by Fig. 3, the rocker will swing forward as the springs bend, and thus reduce the work of the lever and also present the cam-wedge  $m$  in a more effective  
60 position to coact with the roller  $l$ . The rocker I<sup>2</sup>, Fig. 7<sup>x</sup>, is made in two parts, one for each spring, and individual mainsprings may obviously be so pivoted.

A single cocking-spring K, of a small and  
65 simple pattern, as shown in Figs. 4 and 6, coacts with a flange  $k$  on the rear end of the

rocker I or I<sup>2</sup> at bottom, so as to act on both mainsprings through the rocker. Acting through the mainsprings G and links G<sup>2</sup>, the cocking-spring restores the hammers H auto- 70 matically to their normal cocked position, and, acting through the cam-wedge  $m$  of the rocker and the anti-friction roller  $l$ , it simultaneously restores the tension-lever J to its normal position. (Represented in Figs. 1, 2, 75 and 4.)

A single flat sear-spring L, Figs. 4, 5, 6, and 10, (shown detached by the figure last named,) coacts with the lever ends of a pair of sears M M<sup>2</sup> (shown detached by Fig. 8) and there- 80 through on the lever-arms of a pair of triggers N N<sup>2</sup>. (Shown detached by Fig. 9.) The combination is illustrated by Figs. 4 and 6. The tops of said lever ends of the sears are normally flush with the top of the trigger- 85 plate C, which is made deep enough and suitably recessed for the purpose. The flat sear-spring is thus adapted to rest normally on the top of the trigger-plate and is attached thereto by a single vertical screw  $j$  at its rear 90 end, which is closed. Its other end is divided longitudinally and recessed so as to render its respective limbs of L shape. They are thus adapted to cross the respective sears at a given effective point, as shown in Fig. 6, 95 and the spring may be stamped complete from sheet-steel. The sears M M<sup>2</sup> are pivoted by a transverse pin  $i$  and the triggers N N<sup>2</sup> by a transverse pin  $h$ , and the pivot-holes in the former are located by means of downward 100 extensions  $i^2$ , Fig. 8, of the respective sears, so as to be below a straight line drawn rearwardly from the front end of either sear or from either hammer-notch to the front end of the sear-spring when the mainsprings G are 105 in tension. (Compare Figs. 3 and 4.) Consequently the strain of the mainsprings on the upwardly-projecting hammers H, acting through the sears so pivoted, tends to depress the lever ends of the sears, instead of 110 subjecting the sear-spring L to added strain, as heretofore, and the sear-spring may hence be very light without risk of failure. The guard O is screwed fast to the bottom of the trigger-plate C at its front end, and is conveniently 115 fastened at its rear end by the extremity of said screw  $j$ , as shown in Fig. 4. Farther back the cocking-spring K is attached to the top of the trigger-plate by another vertical screw  $g$ . Between these points the trigger-plate is pro- 120 vided with a contracted and depressed waist, which is embraced by the bifurcated front end of the tension-lever J and receives its transverse pivotal screw  $f$ , Fig. 4. A parallel pivotal screw  $e$ , Fig. 4, confines the anti-fric- 125 tion roller  $l$  between the extremities of the bifurcated portion of the tension-lever which constitutes its said lever-arm. The rear end of the tension-lever is preferably provided with a sector-arm  $d$ , which guards its free ex- 130 tremity, and is accommodated by a slot  $d^2$  in the undertang  $x$  and a recess  $d^3$ , Fig. 2, in the



stock A. The movement of the tension-lever is limited by a stop-pin *c* at the extremity of the sector-arm *d*, and by abutments *b* on the uprights of the trigger-plate, between which the rocker *I* is pivoted. Either one of these stop provisions may be omitted, and other like modifications will suggest themselves to those skilled in the art.

The trigger-plate has a pair of longitudinal recesses fitted to the sears *M M*<sup>2</sup>, the lever-arms of the triggers *N N*<sup>2</sup>, and the hubs of the hammers *H*, as shown in Figs. 4 to 6, and at the front ends of said recesses it forms three strong lugs, between which the hammers are effectively pivoted by a transverse pivotal screw *a*, Fig. 4. At the front extremity of the trigger-plate there is a flat attaching end having a drill-hole *u*<sup>2</sup>, Figs. 4 to 6, to receive said screw *u*, Fig. 2, and suitably shaped to form a rigid joint in connection with a milled seat fitted thereto in the bottom of the breech-piece *B*, and the tang *x* of the trigger-plate is provided with a countersunk hole *v*<sup>2</sup> to coact with said tang-screw *v*, Fig. 2, and with a tapped hole *w*<sup>2</sup> to coact with said tang-screw *w*, Fig. 2.

The trigger-plate *C* and breech-piece *B*, held together as shown in Figs. 4 and 5, are applied endwise to the stock *A*, and when the cheeks *z* are in place and the tangs *y* and *x* are in their seats the screws *w*, *v*, and *u* are inserted, the barrels, if detached, are applied, and the gun is then ready for use. It is loaded in customary manner, and the breech is closed and automatically secured by the breech-fastening *F*, as aforesaid, without in any manner affecting the lock. The hammers *H* remain at cock and the mainsprings *G* free from tension, as represented in Figs. 1 and 2, until the tension-lever *J* is pressed home, as illustrated by Fig. 3. This is readily done by the firing-hand of the shooter as the gun is brought to the shoulder. When either trigger is then touched, the corresponding sear is tripped, and the corresponding hammer is projected against the firing-pin *o* in line therewith by the freed mainspring, as represented by dotted lines at *N G H* in Fig. 3. When the tension-lever is freed by opening the hand after firing either or both barrels, it is automatically returned to its normal position and the displaced hammer or hammers recocked by the cocking-spring *K*, Fig. 4, as before described.

Details which have not been specified may be of any approved description, and I do not limit my respective claims to particular mechanical details, except as therein expressly stated.

Having thus described a gun embodying my said improvement, I claim as my inven-

tion and desire to patent under this specification—

1. An improved safety fire-arm having a pivoted hammer or pair of hammers, a normally-passive mainspring coupled to each hammer, a rocker in which the rear end of each mainspring is rigidly held, having an elevated pivot at its rear end parallel to that of the hammer or hammers, and a tension-lever coacting with said rocker to put the mainspring or mainsprings in tension preparatory to firing.

2. The combination, in a safety fire-arm, of a hammer or pair of hammers, a normally-passive mainspring coupled to each hammer, a rocker in which the rear end of each mainspring is rigidly held, having a pivot parallel to that of the hammer or hammers, a tension-lever coacting with said rocker, and a cocking-spring also coacting with the same to automatically recock the hammer or hammers and to restore said tension-lever to its normal position of rest, substantially as hereinbefore specified.

3. The combination, with a pair of hammers and a pair of triggers, of a pair of sears having lever ends in one and the same horizontal plane overlying the lever-arms of the triggers and a flat sear-spring having limbs which cross the respective lever ends of the sears, substantially as hereinbefore specified.

4. In combination with a trigger-plate and an upwardly-projecting hammer or hammers pivoted to its upper side, a substantially horizontal sear or pair of sears engaging with the hammers at their front extremities and having rearwardly-projecting lever ends, a sear-spring above said lever ends, and a sear-pivot which is parallel with that of the hammer or hammers and below a straight line drawn rearwardly from the front end of either sear to the front end of the sear-spring, substantially as shown and described.

5. In combination with the main stock terminating in front in a pair of wooden cheeks at the respective sides of the lock-space and with the breech-piece having the top tang united therewith and with the tang-screws *w v* and screw *u*, the trigger-plate having the bottom tang formed thereon, together with suitable projections on its upper side, and recessed and slotted, as shown, the tension-lever, mainspring-rocker, hammers, sears, and triggers pivoted to said trigger-plate, and the cocking-spring, sear-spring, and trigger-guard attached thereto, substantially as hereinbefore specified.

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Witnesses:

A. G. HILL,

T. T. CARTWRIGHT.