

S. H. BANG.
 DEVICE FOR AUTOMATIC FIRING OF SELF LOADING ARMS.
 APPLICATION FILED APR. 20, 1907.

901,143.

Patented Oct. 13, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

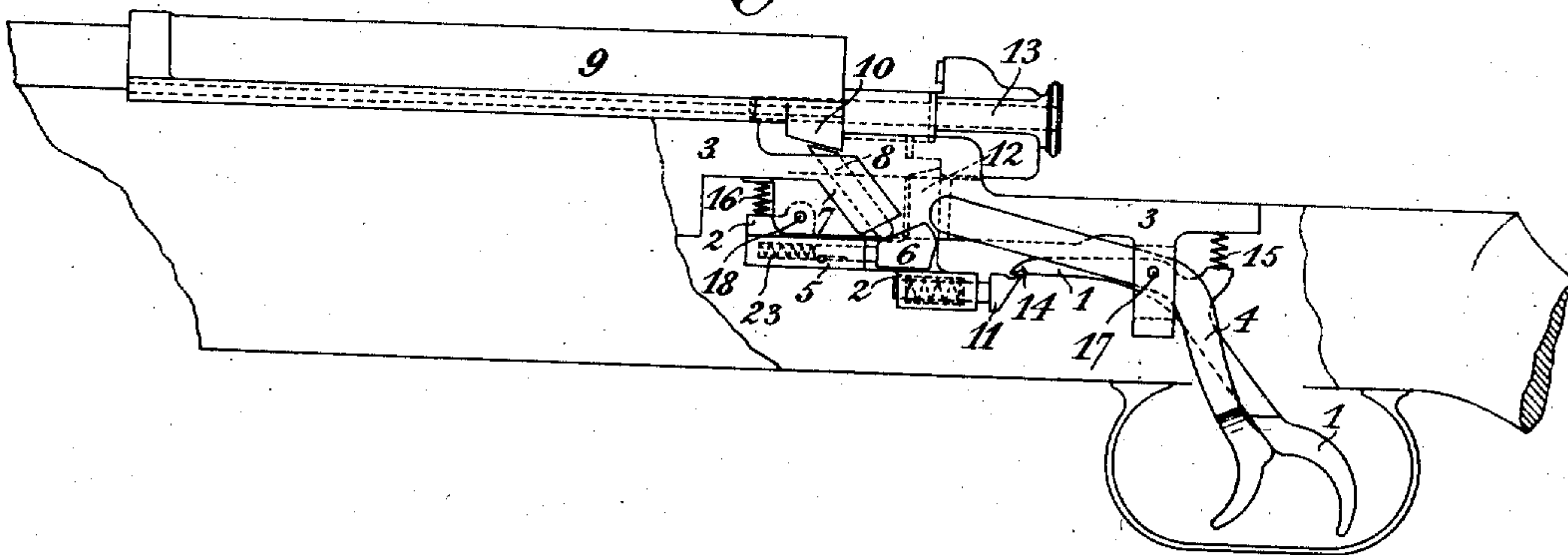


Fig. 2.

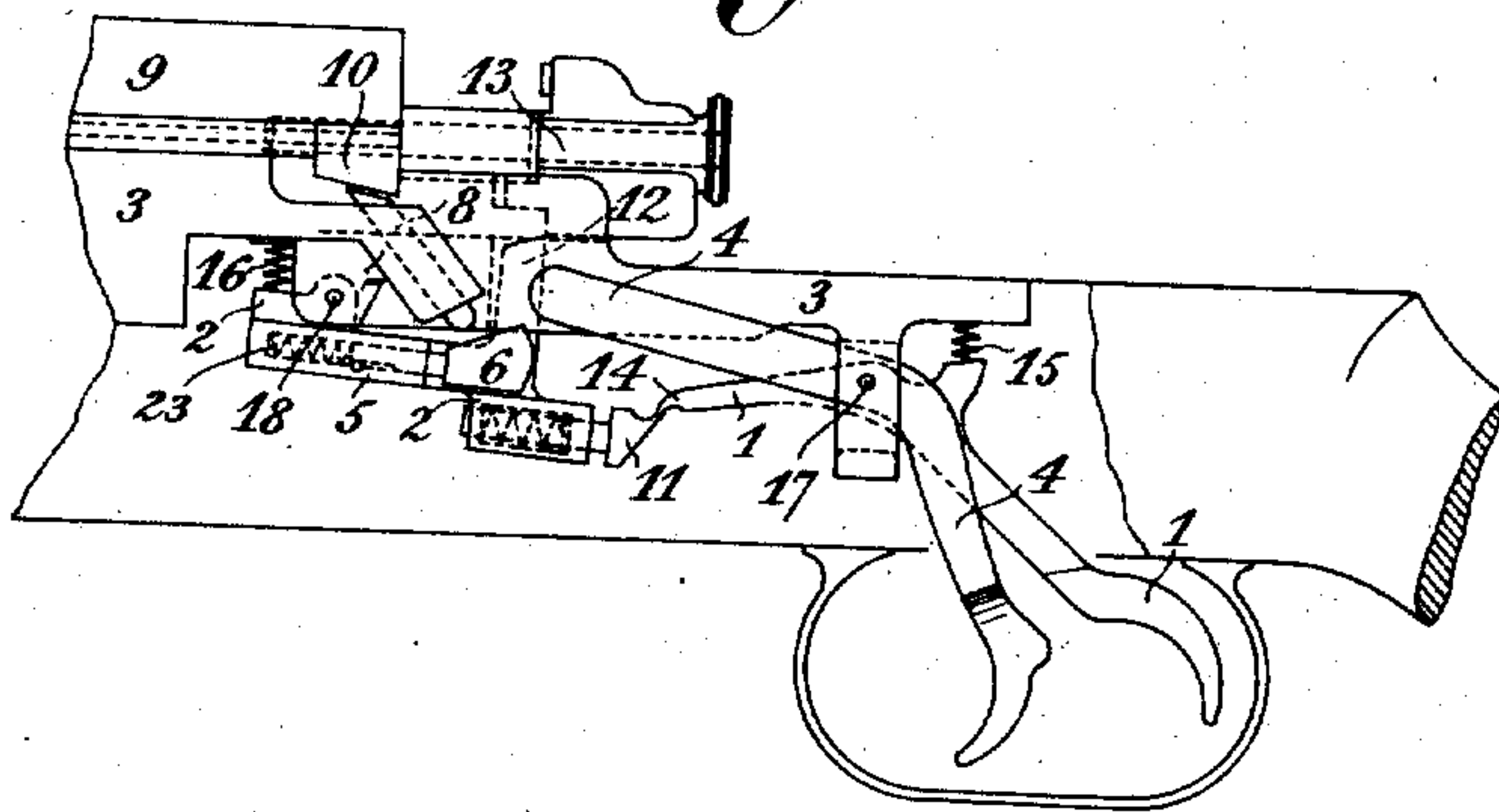
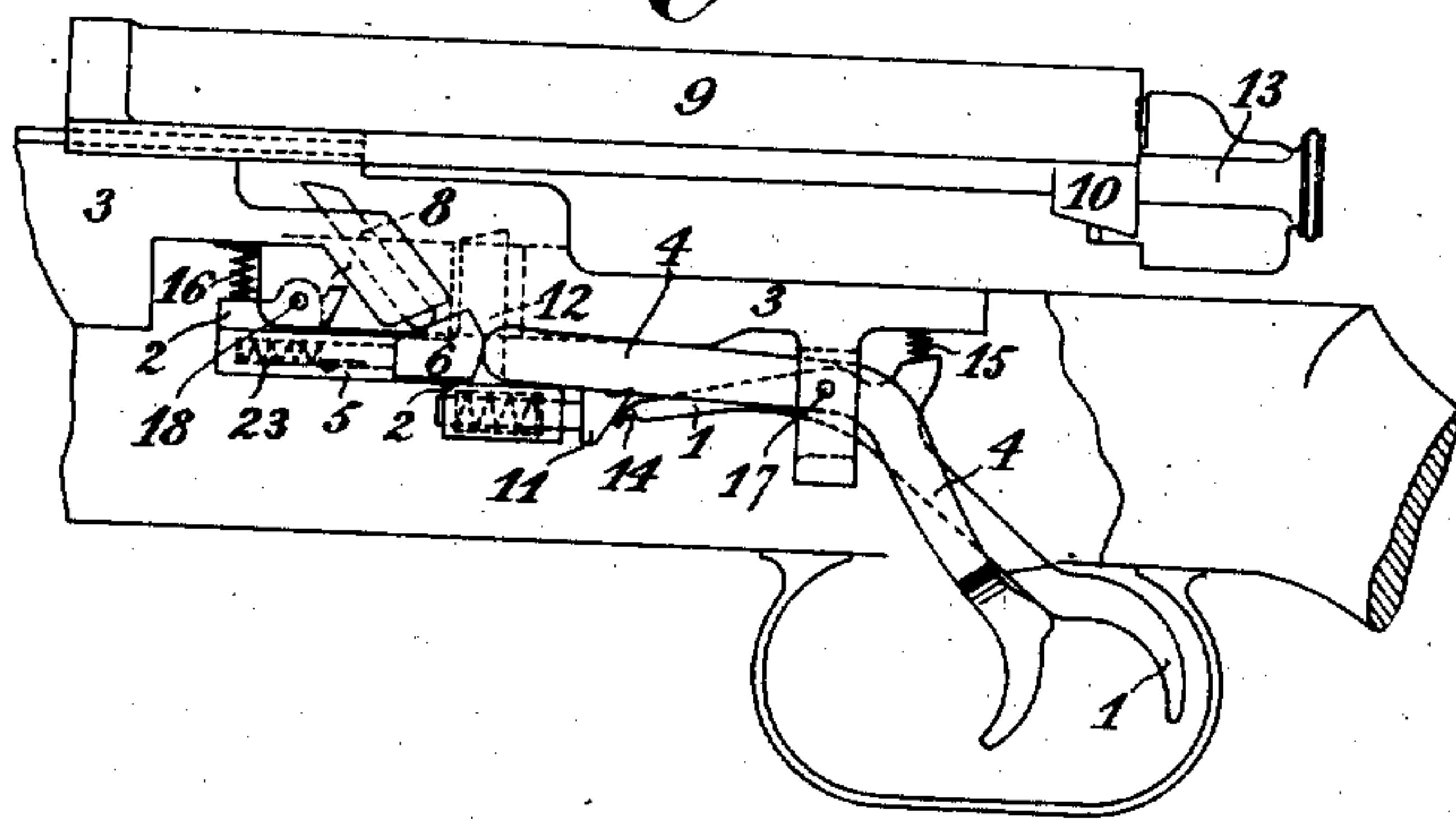


Fig. 3.



WITNESSES:

M. M. Avery

J. P. Davis

INVENTOR
Sören Hansen Bang

BY *Mum Co*

ATTORNEYS

S. H. BANG.
DEVICE FOR AUTOMATIC FIRING OF SELF LOADING ARMS.
APPLICATION FILED APR. 20, 1907.

901,143.

Patented Oct. 13, 1908.

2 SHEETS—SHEET 2.

Fig. 4.

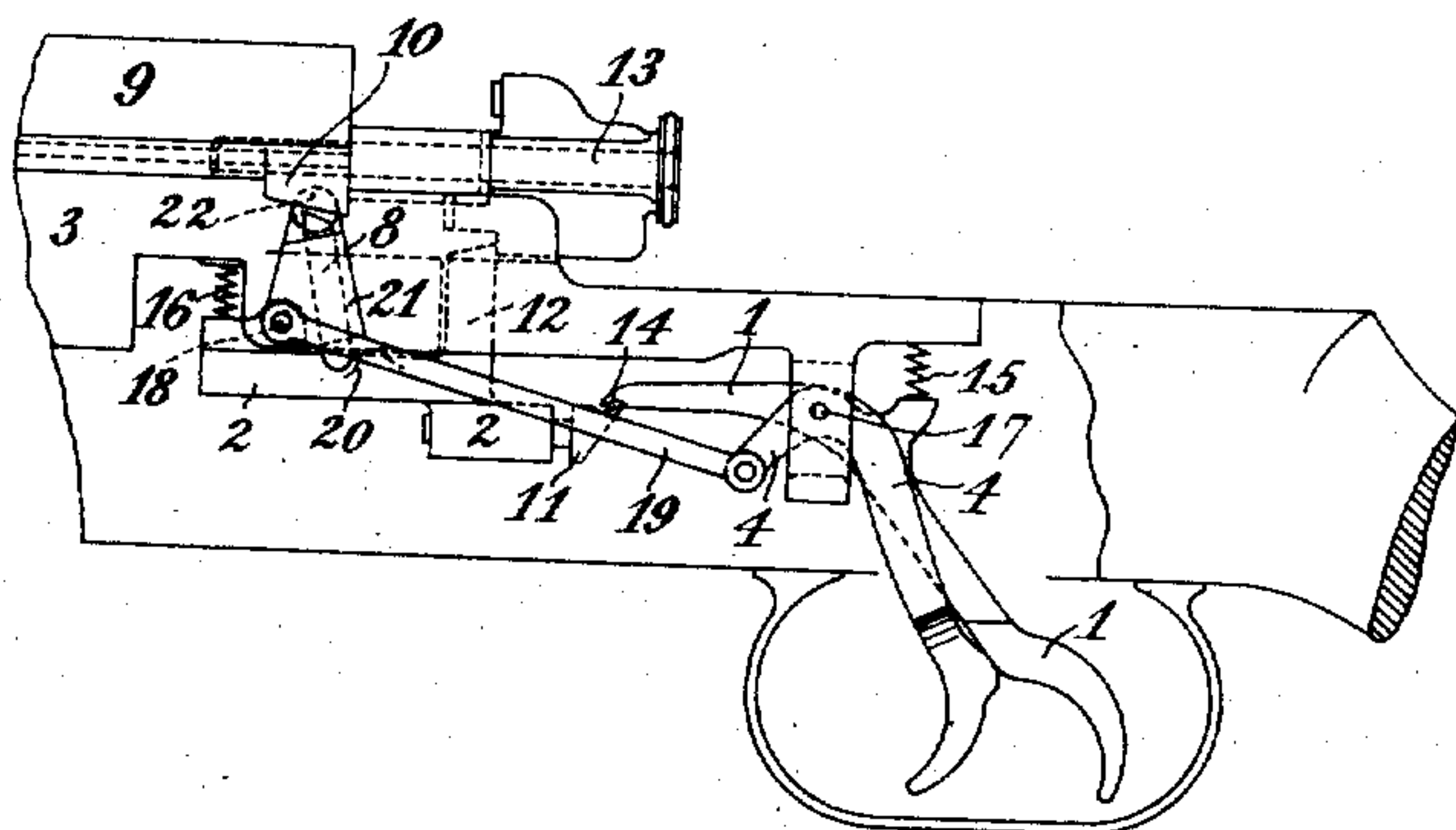
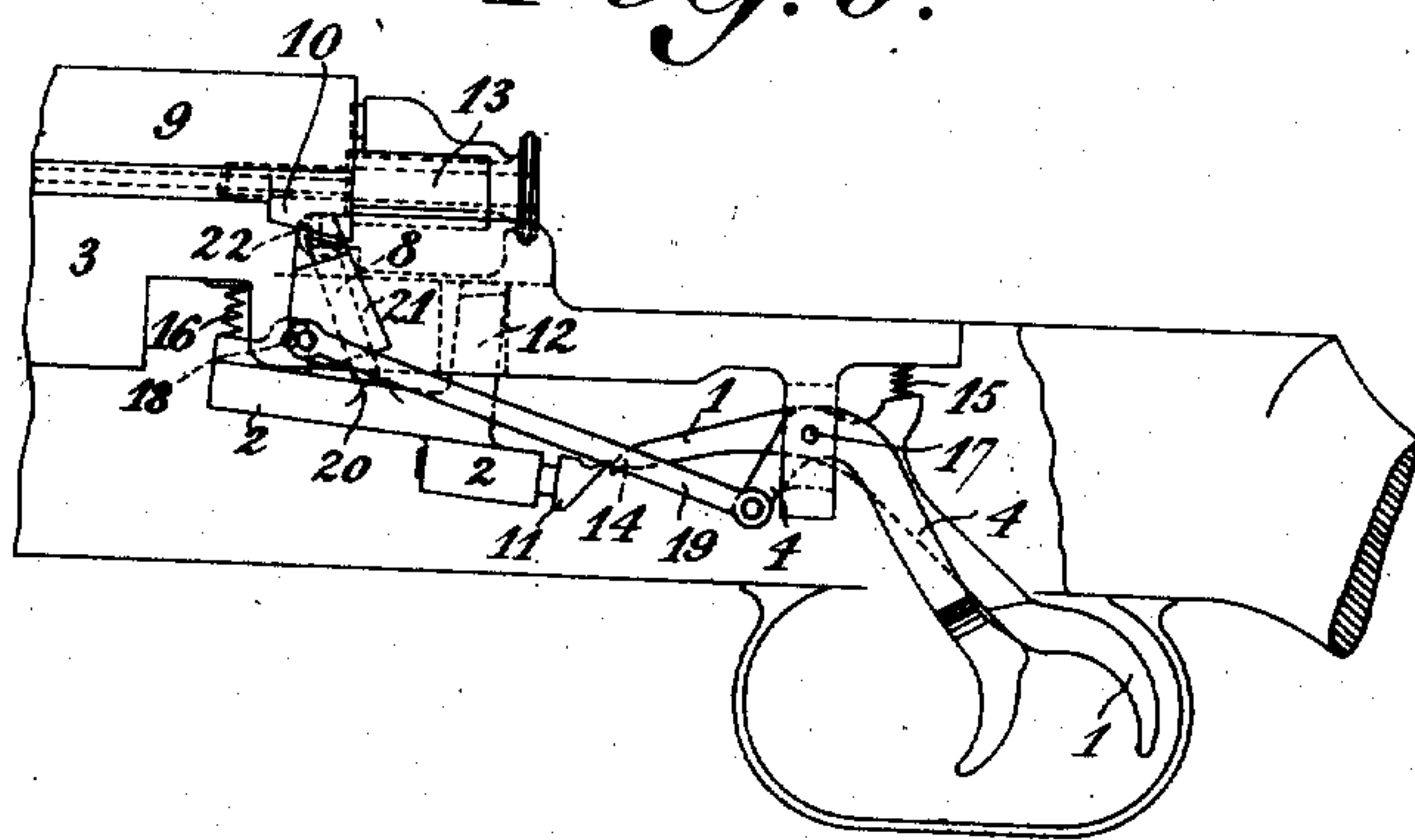


Fig. 5.



WITNESSES:
W. M. Avery
J. P. Davis

INVENTOR
Sören Hansen Bang
BY
Mumma & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

SÖREN HANSEN BANG, OF COPENHAGEN, DENMARK.

DEVICE FOR AUTOMATIC FIRING OF SELF-LOADING ARMS.

No. 901,143.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed April 20, 1907. Serial No. 369,388.

To all whom it may concern:

Be it known that I, SÖREN HANSEN BANG, gun-maker, a subject of Denmark, residing at No. 24 Pehlenschlaegersgade, Copenhagen, Denmark, have invented new and useful Improvements in Devices for Automatic Firing of Self-Loading Arms, of which the following is a specification.

This invention refers to a trigger-mechanism in connection with self-loading fire-arms, by means of which the gun may be made to act either by firing a single shot each time the trigger is pulled, or by firing automatically as long as the trigger is acted upon.

In the drawing the invention is shown as applied to a straight-pull breech mechanism in which the breech block is covered and worked by means of a covering piece, but it might equally well be applied to other types in which the working parts move forwards and backwards.

Only those parts of the mechanism are shown which are essential to illustrate the invention.

Figure 1 shows a sideview of the gun ready for being fired with the breech closed, and cocked, the stock being partly left out. Fig. 2 shows the same sideview but with the trigger-mechanism pulled for the firing of a single shot and showing the position of the parts immediately before the hammer striking. Fig. 3 shows the same sideview but with the trigger-mechanism pulled for automatic firing; the breech-mechanism is shown as entirely open having been pulled back as far as possible. Fig. 4 shows the same sideview with a modified form of the arrangement. The gun is cocked and ready to be fired, and Fig. 5 shows the same sideview with the same arrangement as that of Fig. 4. The triggers are pulled for automatic firing, the hammer has been thrown forward, but the mechanism is still locked.

The trigger-mechanism consists of the trigger 1, the back of which is acted upon by a trigger-spring 15 and the front of which carries a trigger-lever 14. The trigger 1 engages a sear 2. The trigger 1 and the sear 2 turn on pins 17 and 18 fixed in stiffening-pieces in the breech box 3. To the left of the trigger 1 another trigger 4 is arranged, which turns on the pin 17 and which is bent into such a shape that its lower end with the finger-hook reaches down in front of the trigger 1. The sear 2 which is actuated by a spring 16 is provided at its lower and rear

end with a movable nose 11, the cylindrical pin of which is fitted into a hole in the sear in such a manner that it may move forward and backward, being acted upon by a spring which tends to keep it in its rearmost position. On top the sear carries a stud 12 which, when the gun is ready for firing prevents the hammer 13 from striking forward. To the left side of the sear 2 is fixed a body 5 with an axial perforation in which a stud actuated by a spring 23 can move, the part of the stud projecting beyond the body terminating in a head or the wedge-piece 6 with an upper oblique face. The spring 23 forces the pin and the wedge-piece rearwards. The breech box 3 has a projection 7 which being perforated, carries an axially movable stud 8, which is prevented from falling out by means of a pin. The lower end of the stud 8 is rounded off, while its upper end is oblique. The cover piece 9 has at its rear end a shoulder 10, the lower face of which is oblique, corresponding to the upper surface of the stud 8.

The mechanism works as follows: When the gun is ready for firing, the parts are in the position shown in Fig. 1, the rest of the hammer 13 bearing against the stud 12 while the oblique lower face of the shoulder 10 lies against the oblique top of the stud 8 the lower end of which rests against the upper oblique face of the wedge-piece 6. If it is desired to fire one single shot, the trigger 1 is brought into the position shown in Fig. 2. The position of the trigger 4 is not altered by this. In pulling the trigger 1 the sear 2 with the stud 12 moves downward, the hammer 13 being thus released so that it may strike forwards, and the relation between the parts is thus arranged that the nose 14 of the trigger simultaneously releases the sear nose 11 whereby the sear is turned back into its original position by means of the spring, so that the stud 12 is in front of the rest of the hammer when the mechanism having effected its rear movement starts forward to close the breech. On releasing the trigger 1 the trigger-spring 15 will bring it back to its original position, while in passing the sear nose 11 it will force this latter forward. The sear nose 11 will then, actuated by the spring again be brought back beneath the trigger nose. This arrangement for firing has, however, been formerly known. If automatic firing is desired, the trigger 4 is brought into the posi-

tion shown in Fig. 3. The shape of trigger 4 makes it carry trigger 1 back along with it, and the sear 2 is moved downwards in the same way as before thus releasing the hammer and firing one shot. At the same time the front end of the trigger 4 depresses the rounded off rear-end of the wedge-piece 6 whereby this latter is pushed forward, and when the spring 16, after the first shot having been fired has brought the sear back into its normal position, the wedge-piece will force the stud 8 slightly upwards.

When the cover 9, in closing the mechanism, moves forward, the shoulder 10 meets the stud 8 and presses it downwards. This movement of the stud 8 is transferred through the wedge-piece (which is immovable in an axial direction, its rear-end leaning against the trigger 4,) to the sear which is thus turned downwards whereby the stud 12 releases the hammer 13. The latter will consequently again strike forward and another shot is fired immediately after the cover has been brought quite forward and the breech closed. When in consequence of the shot having been fired the mechanism is again opened, the cover slides backwards and the stud 8 is released, so that the sear may again be turned back and the stud place itself in front of the hammer as shown in Fig. 3. At the forward motion of the cover the gun is again fired and this goes on as long as the trigger 4 is held in the position shown in Fig. 3. On the trigger 4 being released the trigger-spring 15 will move both triggers until they get into the position shown in Fig. 1; the wedge-piece 6 will then be carried back by its spring into its original position, and when the stud 8 is forced downwards by the forward movement of the cover it can no longer move the wedge-piece. The gun thus remains cocked and ready for firing.

In the arrangement described above the stud 8, the forcing downwards of which causes the shot to be fired, is located in the channel of a body firmly connected with the breech box 3 while the corresponding wedge-piece 6 is arranged so as to be capable of sliding on the sear 2. Yet there is nothing to prevent the intermediate piece, through which the cover in moving forces the sear downwards being movably fitted to the breech box so that it is brought into such a position that it may enter into action when the trigger 4 is worked, and be again brought back from this position and thereby set out of action when the said trigger is released. In this case that part of the sear which is acted upon by the intermediate piece, (the wedge-piece) must be fixed to the rod. Figs. 4 and 5 show such a form of construction.

The trigger-mechanism for a single shot is exactly as shown in Figs. 1 to 3, the wedge-piece 6 being, however, replaced by a should-

der 20 fixed onto the lefthand side of the sear 2.

The cylindrical stud 8 is fitted into a perforation in the movable piece 21, capable of turning on a pivot 22 having its bearing in the breech frame or receiver. A rod 19 connects the piece 21 to the trigger 4 which is as previously shown, bent in such a way that when pulled it carries the trigger 1 along to the rear.

When the trigger 1 is pulled, a single shot is fired, just as in the form of construction shown in Figs. 1 to 3, the trigger 4 remaining at rest. On pulling the trigger 4, however, into the position shown in Fig. 5, the trigger 1 will also be carried backwards, whereby the hammer, as has been formerly explained, is released and strikes forward, at the same time that the piece 21 together with the stud 8 is turned into the position shown in Fig. 5. The stud 8 will thereby be brought into contact with the shoulder 20, and it will thus act exactly as in the form of construction shown in Figs. 1 to 3. The firing will consequently continue automatically until the trigger 4 is released. The trigger-spring 15 will then bring both triggers back to their original position, whereby the piece 21 is turned back to the position shown in Fig. 4, and on the cover 9 next moving forward the stud 12 will stand in front of the hammer 13. The mechanism will consequently remain locked and cocked.

As mentioned before it is not necessary for using the said arrangement that the breech bolt should be provided with a cover. There is nothing to prevent a shoulder corresponding to the shoulder 10 of the cover being fitted to any other part of the mechanism having a forward and backward movement. Neither will it be necessary that both triggers should be provided with finger-hooks, and it may be easily arranged that only trigger 1 has a finger-hook, while the trigger 4 is connected with the trigger 1 by means of an interlocking mechanism for automatic firing, and again released when single shots are desired.

Having now particularly described and ascertained the nature of this said invention and in what manner the same is to be performed, I declare that what I claim is;

1. In self-loading fire arms, the combination with the breech bolt, and a cover sliding on the breech frame or receiver for protecting and working the breech bolt, the said cover being provided with a shoulder, of a movable stud acted on by the said shoulder on the cover being closed, a sear, a wedge piece having a sliding connection with the sear, and capable when in active position of being acted upon by said movable stud to move the sear, and a trigger for placing said wedge piece in operative position, or setting it out of operation.

2. In self loading fire arms, the combination with the forward and backward movable breech bolt having a shoulder on one of its parts, of a movable stud adapted to be
 5 acted on by said shoulder when the mechanism is being closed, a hammer, a sear provided with a stud for engaging with the hammer, a trigger, and means controlled by
 10 said trigger for transferring the action of the movable stud to said sear to move the latter to release the hammer.

3. In self loading fire arms, the combination with a movable breech bolt provided with a shoulder, a hammer, a sear provided
 15 with means for engaging said hammer, and a trigger for moving the sear for firing a single shot, of a movable device interposed between the breech and the sear and adapted to be engaged and moved by said shoulder,
 20 a second trigger adapted when pulled to carry along with it the trigger for firing single shots, and means controlled by said second trigger for transferring the action of said movable device to said sear to move the
 25 same to release the hammer.

4. In self loading fire arms, the combination with the hammer, the sear provided on its top with a stud for engaging the hammer, and the trigger for acting on the sear to fire
 30 single shots, of a body located at one side of the sear and having an axial perforation, a stud movable in the perforation of said body and having a projecting portion terminating in a wedge piece having an upper oblique
 35 face, a spring for forcing the stud and wedge piece rearwardly, an axially movable stud extending through a perforated projection

on the breech box of the fire arm, and resting at its lower end on the oblique face of the said wedge piece, and a trigger having a
 40 member adapted when the trigger is pulled to engage the wedge piece and press it forwardly against the tension of its spring, thereby moving the axially movable stud slightly upwards, and means for engaging
 45 the upper end of said stud to depress the same and move the sear to release the hammer.

5. In self loading fire arms, the combination with the hammer, the sear for engaging
 50 the hammer, and the trigger for acting on the sear to fire single shots, of an axially movable stud, means for moving the stud axially, and means for causing the stud when moved to act on the sear to move the same to
 55 release the hammer.

6. In self loading fire arms, the combination with the breech mechanism, the hammer, and the spring controlled sear provided with means for engaging the hammer,
 60 of a movable device adapted when in action to transfer its movement to the sear, means for moving said device on the closing of the breech mechanism, a trigger, and means for bringing said movable device into
 65 action when the trigger is pulled.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SÖREN HANSEN BANG.

Witnesses:

P. HOFMAN BANG,
 EMIL MAURITZEN.