(No Model.)

F. SCHIRMACHER.

TRIGGER MECHANISM FOR FIRE ARMS.

No. 360,733. Patented Apr. 5, 1887.

Fig. 1.

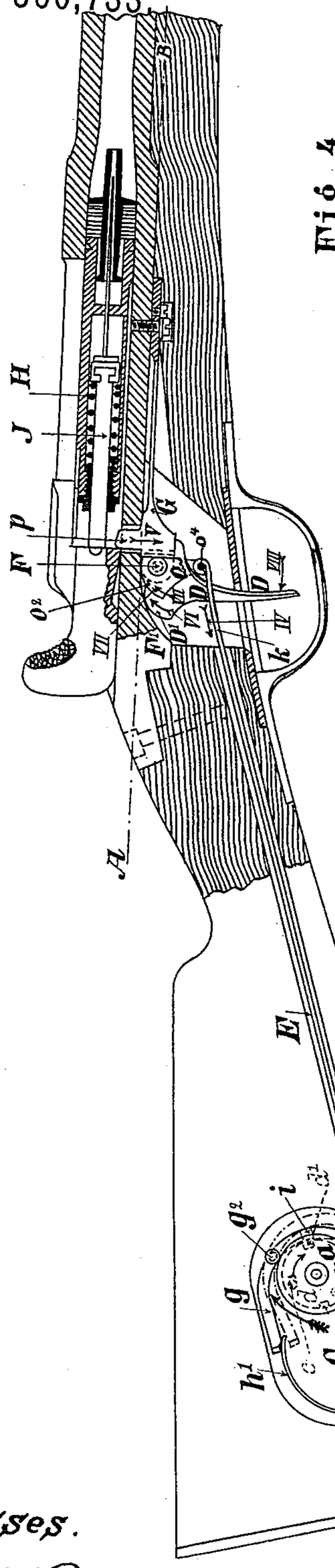


Fig. 4.

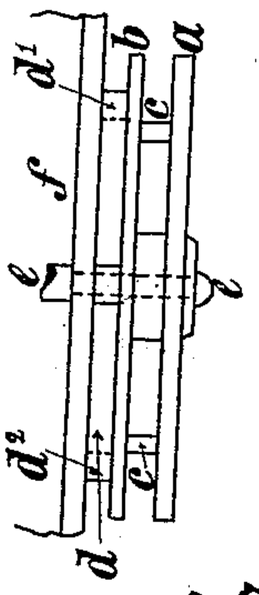


Fig. 3.

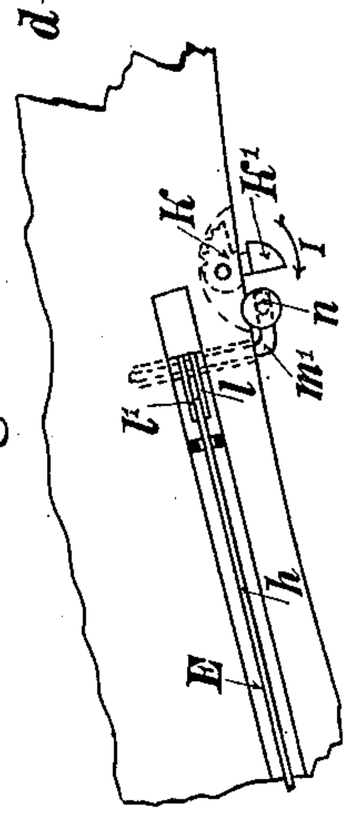
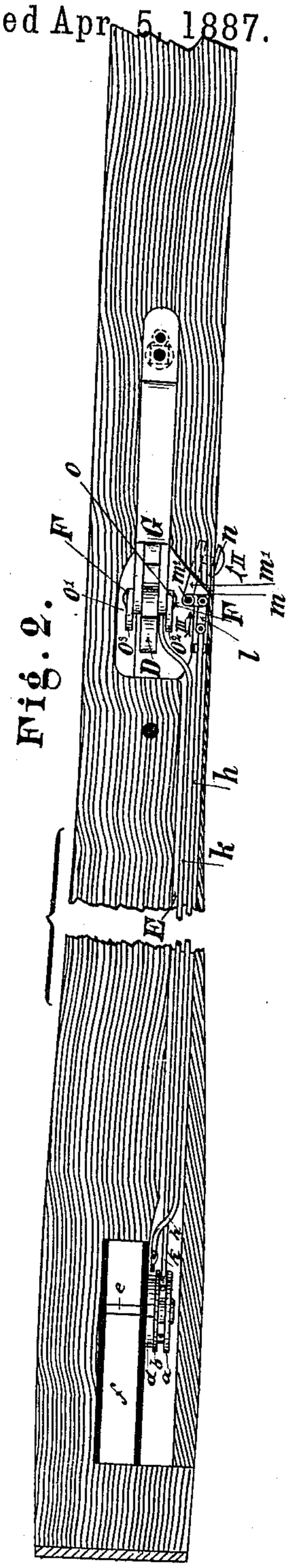


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

FRITZ SCHIRMACHER, OF FORSTHAUS-GÖRITZ, GERMANY.

TRIGGER MECHANISM FOR FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 360,733, dated April 5, 1887.

Application filed July 1, 1886. Renewed February 10, 1887. Serial No. 227,177. (No model.)

To all whom it may concern:

Be it known that I, FRITZ SCHIRMACHER, of Forsthaus-Göritz, Germany, have invented a new and Improved Automatic Trigger for Fire-Arms, of which the following specification is a full, clear, and exact description.

The herein-described invention relates to an automatic trigger for fire-arms, which has for its purpose to enable the soldier, hunter, &c., to aim at an object and to fire without giving special attention to the trigger.

The invention consists of the various improvements hereinafter more fully specified.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section of a breech-loading fire-arm with partial side view of the breech. Fig. 2 is a longitudinal horizontal section of the same on line A B, Fig. 1. Fig. 3 is part of a side view of the breech-loader. Fig. 4 is a detail of the ratchet mechanism on an enlarged scale.

a and *b* are two disks, united together by small studs *c c*. These disks are mounted, together with a third disk, *d*, placed behind and attached to the disk *b*, upon the axis *e* of a a box or case, *f*, within which an ordinary flat spiral spring (not shown in the drawings) is arranged, similar to a watch-spring, acting on said shaft. The disk *d* is fixed upon the axis *e*, and is provided on its periphery with one or more recesses or notches, *d'*, in one of which, at a given moment, the catch or click *i*, fixed to the lever-arm *g'*, will fall, while the joined disks *a* and *b* can turn with it. The latter cannot turn in a reversed way, being prevented by the ordinary catch inside of the box, retaining also the spiral spring. (See small arrow, Fig. 1.)

g and *g'* form a lever, with two branches or arms, having its fulcrum in g^2. A spring, *h'*, attached to the outside of the case *f*, enters with its free end into a recess in the lever-arm *g*, and thus retains by its tension the catch *i* on the lever-arm *g'* in one of the recesses *d'* of the disk *d*. The free end of the lever-arm *g'* is formed as a hook for receiving the curved or hooked end of a rod, *h*. The bent end *k'* of a second rod, *k*, is placed behind one of the studs *c* in the normal position of the bar.

The entire mechanism described heretofore is placed in a recess in the breech and is closed by a flat cover, which corresponds at its outer side with the outer face of the breech. The bars *h* and *k* are placed in a groove, E, made in the wooden part of the breech, reaching from near the butt-end to the gun-lock. The groove is covered in a similar manner.

By means of two united links, *l l'*, Figs. 2 and 3, this bar *h* is attached at its hook-formed forward end to the one end, *m*, of an angle-lever *m m'*, which has its fulcrum upon the pin or stud m^2. The lever-arm *m'* is provided on its free end with a button or knob, *n*, reaching through a hole or slit to the outside of the lock.

The bar *k*, which runs nearly parallel to the bar *h*, and in the same longitudinal groove E, is attached to the lower end of the levers *o o'*—viz., to the stud or bridge o^4—uniting them. The levers *o o'* are placed, together with the trigger, upon a stud, F, around which they can turn. This stud is attached to the end of the trigger-spring G. By forcing the stud F downward the spring will be spanned and the nose *p* withdrawn. It is essential to observe here that the rounded upper part of the trigger slides alongside of the metal face F', which serves also as a stay or butt to it. The upper surfaces, o^2 and o^3, of the levers *o* and *o'* are also rounded, and slide in the same manner along face F'. All three work similar to a cam against their face F', and cause the lowering of the stud F, thereby spanning the spring G and moving the nose *p* downward. As soon as this nose has been lowered sufficiently the mainspring H and the firing pin or needle J become free, and the shot will be fired.

K, Fig. 3, is a safety arrangement, by means of which the arm *m m'* is locked when the part K' is moved in the direction of the arrow I, and is placed under the lever-arm *m'*, when the bar *h* will be locked, and, consequently, the click *i* will be prevented from moving out of the recess *d'* on the disk *d*. The musket or gun can be fired either by hand or by this above-described automatic mechanism.

Before shooting, the spring in the spring-box *f* is wound up, like an ordinary watch-spring by means of a key.

If it is desired to fire the gun in the usual manner, the same is done by moving the trigger D in the direction of the arrow VIII. When it is desired to fire the gun by means of this automatic mechanism, the projection K' is

moved clear of the arm m', and as soon as is desired the button n is moved inward, whereby the bar h is raised and the click i leaves the recess d'. The spring of the spring-box f becomes free and begins to operate, turning the disks a and b in the direction of the larger arrow, when the stud c will act upon the bent end k' of the bar k, moving the same so as to turn the levers o o' in the direction of the arrow IV, when the trigger-spring G, and with the latter the nose p, will be moved downward.

The main or spiral spring H and the firing pin or needle J, which have been retained by the nose p, will then be at liberty to act so as to fire the gun. When, by the rotation of the disk d, the click i comes opposite the next recess in said disk, the spring h', acting upon the lever g, will force the click i into this recess, and thus stop the further action of the spiral spring. At the same time the button n, at the end of the lever m', will be moved outward again, and the mechanism will remain at rest, ready for the next operation, or when the button n is moved inward again.

I claim as my invention—

1. The combination of a spiral spring acting on the shaft e, the disk d, with recesses d' in its periphery, attached to said shaft e and the levers g g', with disk or catch i and spring h', placed in a recess in the breech, the lever h, links l l', and angle-lever m m', pivoted on the stud m^2, placed in a groove, E, in the wooden part of the breech or gunstock, and the pressure-knob n, projecting through the side of the gunstock, and with the trigger mechanism of the gun, the whole being arranged to operate in the manner and for the purpose set forth.

2. The combination of a spiral spring acting on shaft e and disks a b, with studs c, placed in a recess in the breech, the rod k, placed in a groove, E, in the wooden part of the breech or gunstock, and the levers o o', with cam-shaped upper surfaces, o^2 o^3, with trigger D, trigger-spring G, and firing-pin J, substantially as specified.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 15th day of June, 1886.

FRITZ SCHIRMACHER.

Witnesses:

OSCAR SCHIRMACHER,

LOUISE RUDOPH.