

D. KIRKWOOD & H. MORTIMER.

LOCKS FOR FIRE-ARMS.

No. 169,710.

Patented Nov. 9, 1875.

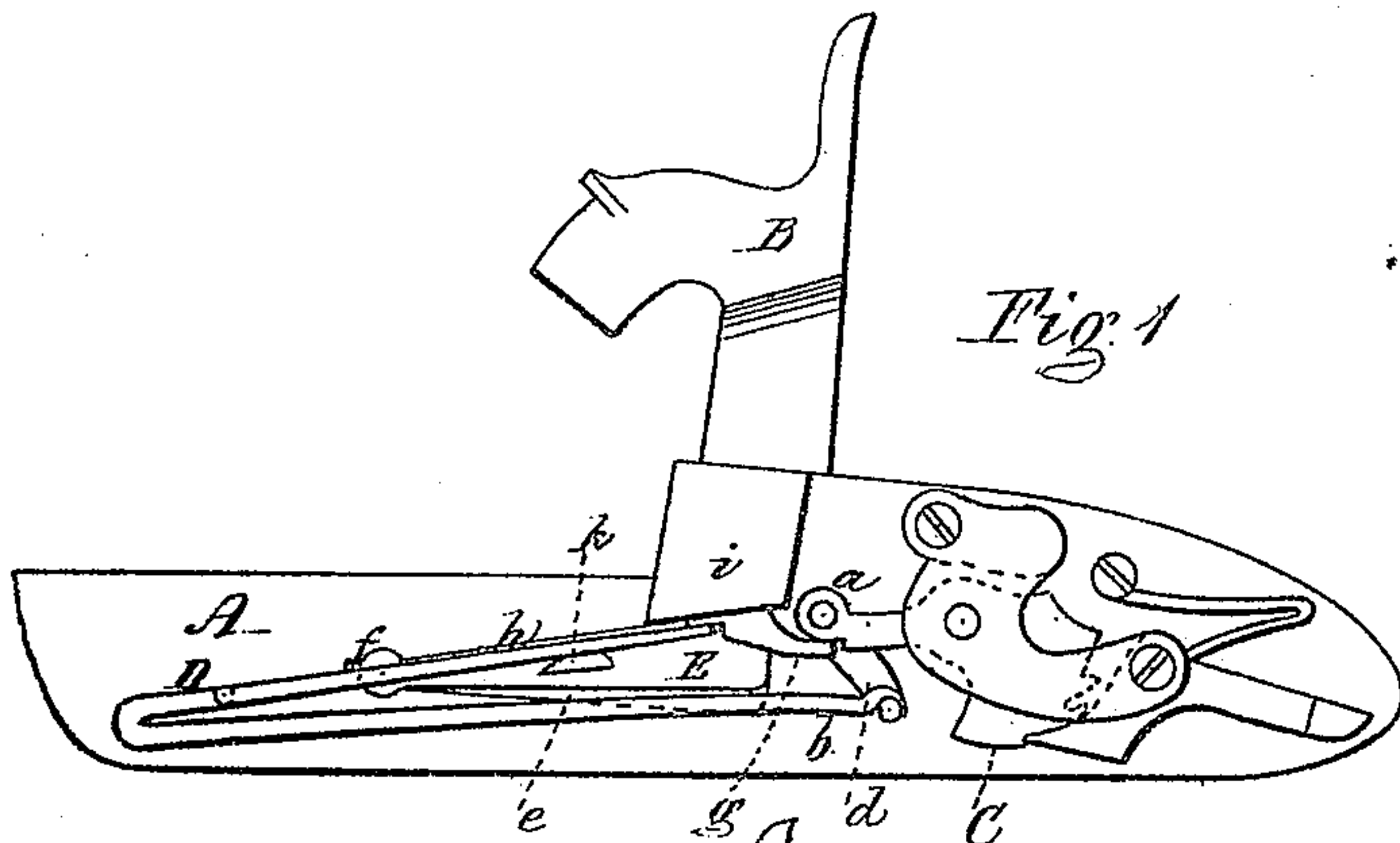


Fig. 1

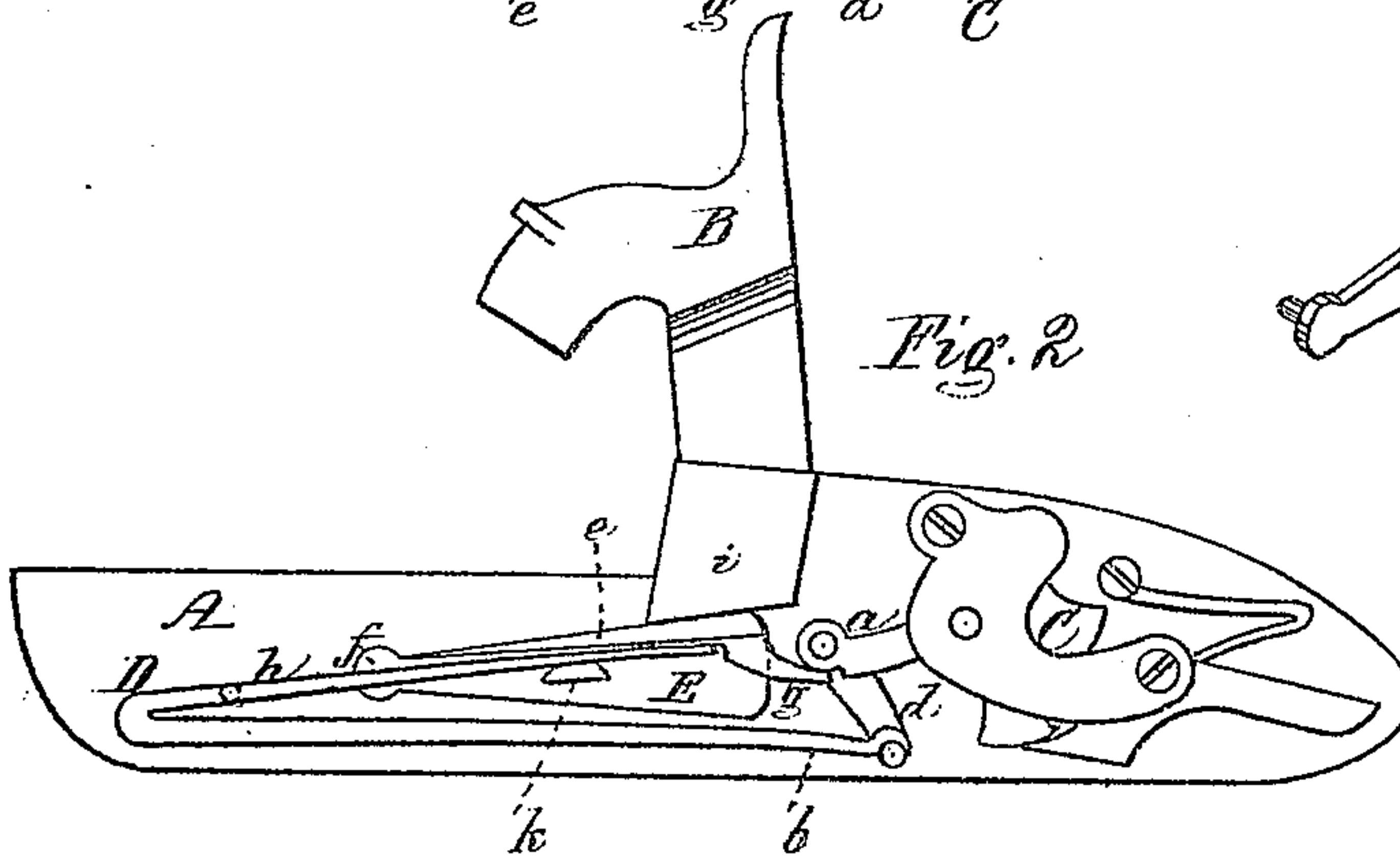


Fig. 2

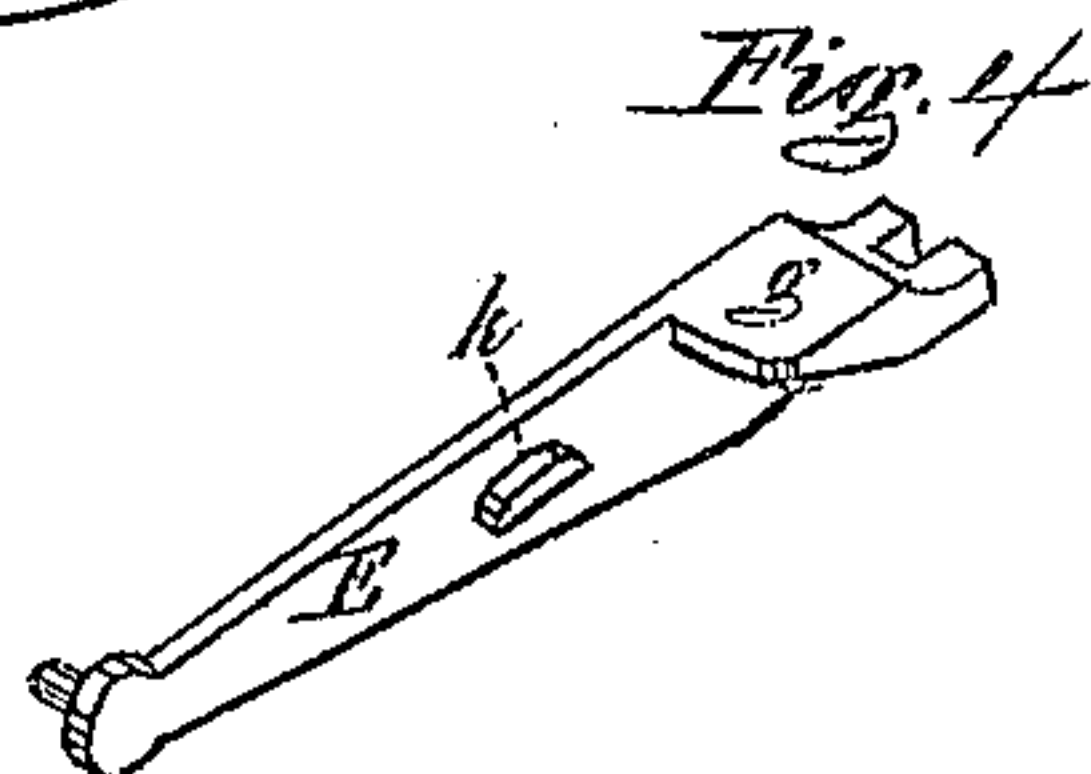


Fig. 4

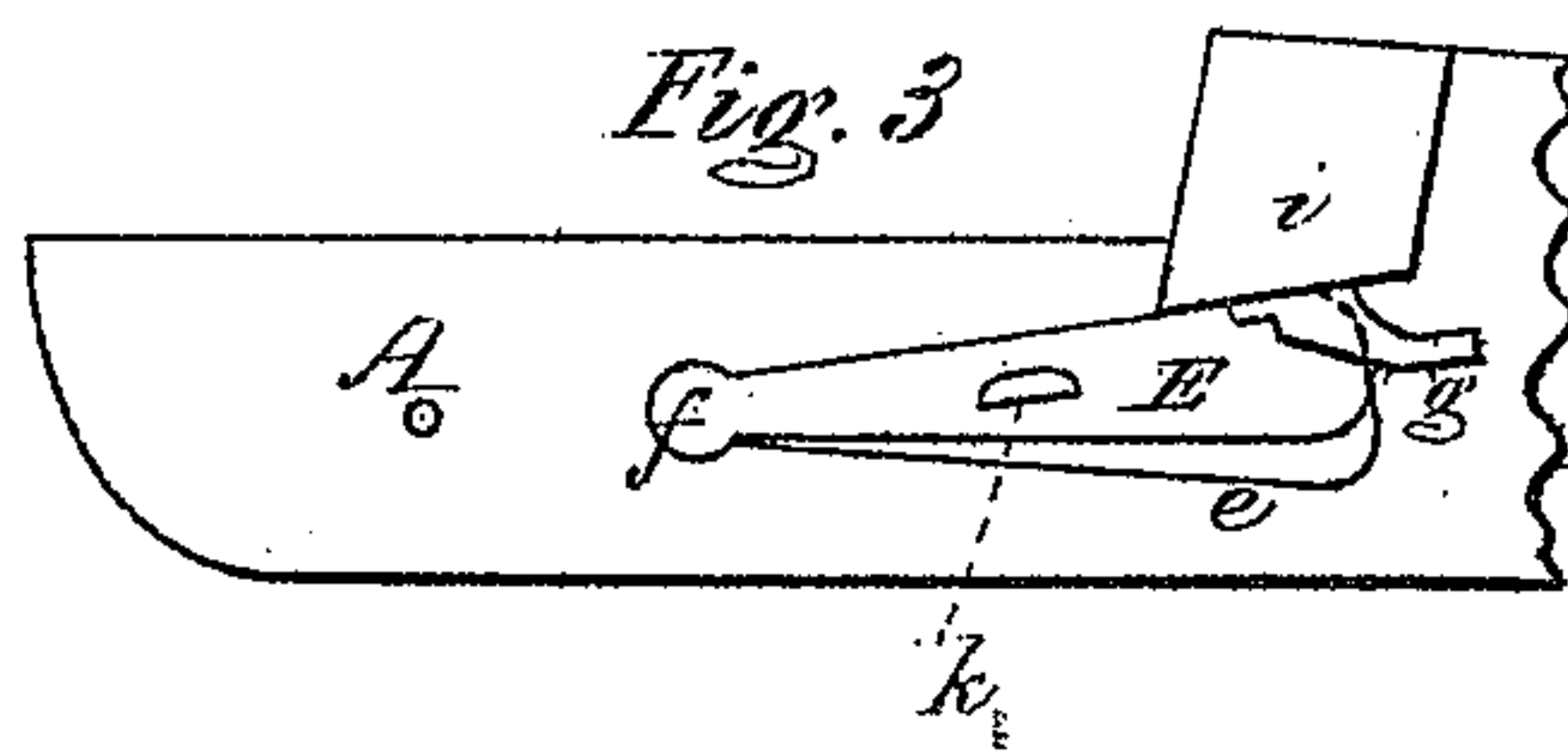


Fig. 3

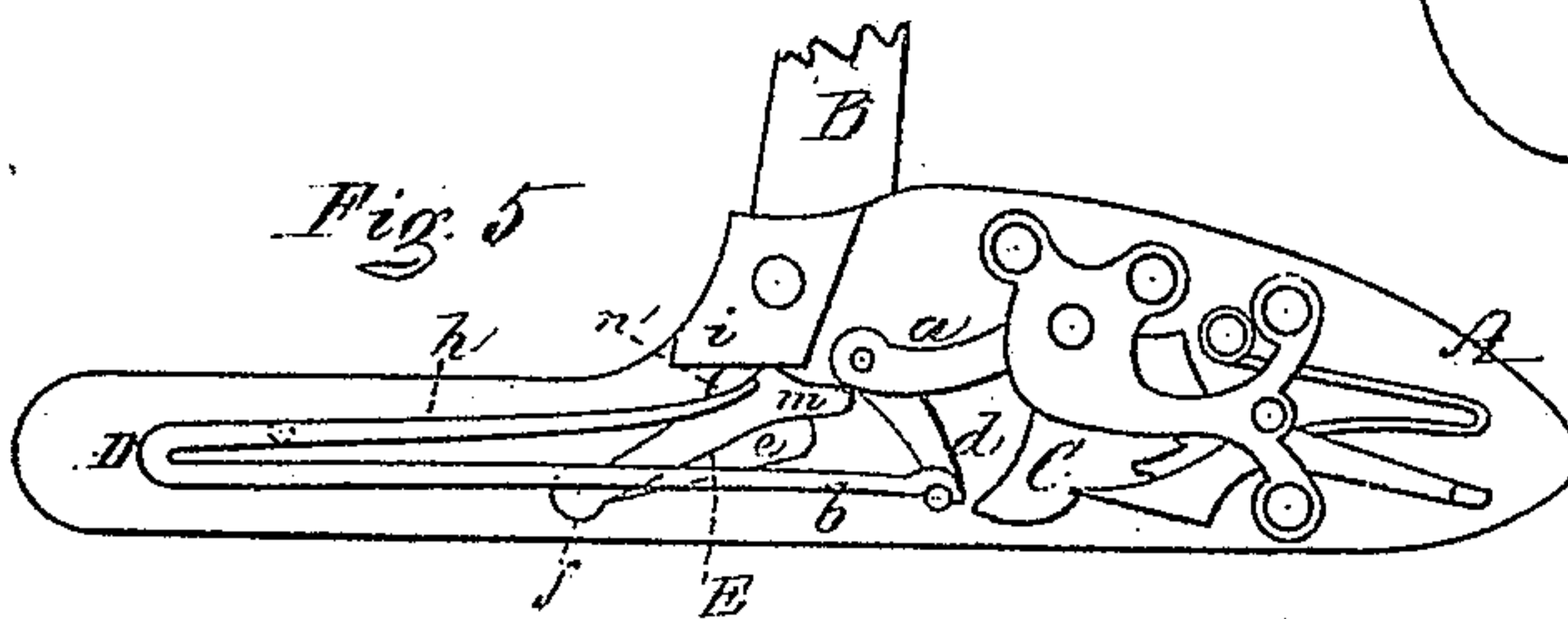


Fig. 5

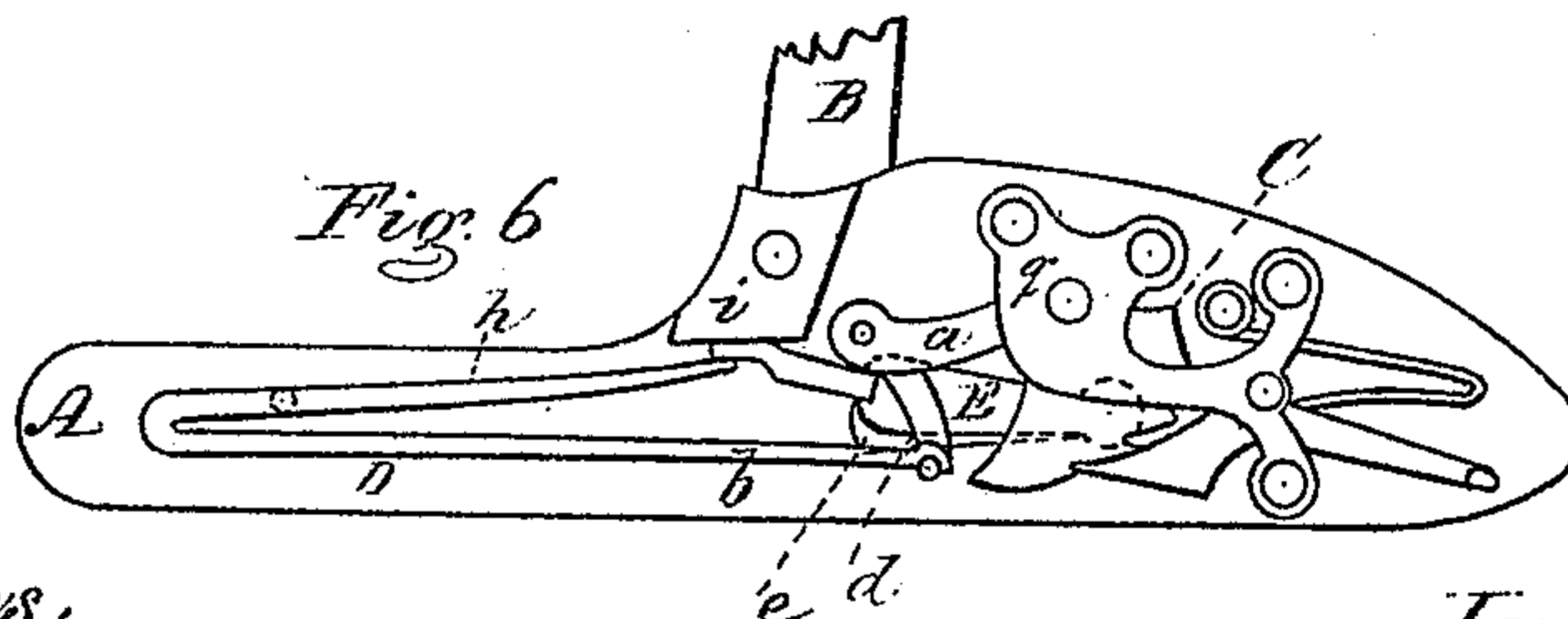


Fig. 6

Witnesses;  
W. J. Cambridge  
J. C. Chapman

Inventors.  
David Kirkwood  
Henry Mortimer  
Per Schemmich & Stearns  
Atty's



# UNITED STATES PATENT OFFICE.

DAVID KIRKWOOD AND HENRY MORTIMER, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN LOCKS FOR FIRE-ARMS.

Specification forming part of Letters Patent No. 169,710, dated November 9, 1875; application filed October 21, 1875.

*To all whom it may concern:*

Be it known that we, DAVID KIRKWOOD and HENRY MORTIMER, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Gun-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of a gun-lock having our improvement applied thereto. Fig. 2 is a similar elevation, showing the position of the parts when the hammer is at the lowest point of its stroke. Fig. 3 is a side elevation of a portion of the lock-plate, the mainspring being removed; Fig. 4, detail in perspective. Figs. 5 and 6 represent modifications of our invention.

The locks of breech-loading shot-guns are sometimes so constructed that the hammer will rebound after striking the firing-pin, so as to allow the latter to be withdrawn by its spring, in order to prevent it from interfering with the dropping or closing of the barrels, which would be the case if the pressure of the hammer on the firing-pin was not relieved after the blow, it being necessary, in guns not provided with a device of this description, to half-cock the hammers before dropping the barrels. The devices heretofore adopted to produce this rebounding of the hammer are, however, objectionable, for the reason that the action of the parts is not always smooth and reliable, the hammer sometimes catching or sticking, which prevents it from rebounding, while the construction does not admit of the alteration of old locks, an almost entirely new one, especially adapted for the purpose, being required; and as the portion of the mainspring which is bent to produce the rebound is of considerable thickness, the remaining portion of the spring must necessarily be of great strength to overcome the resistance offered, and yet give a sufficiently powerful blow to explode the cartridge.

Our invention has for its object to overcome these difficulties; and consists in the employment of an intermediate lever, by which the latter part of the motion of the tumbler on the descent of the hammer is transmitted to the short arm of the mainspring, the reaction of

which produces the desired rebound; this construction insuring certainty and smoothness of action, and admitting of the use of a much lighter mainspring than heretofore, while it also admits of the easy alteration of old locks at a trifling cost.

To enable others skilled in the art to understand and use our invention, we will proceed to describe the manner in which we have carried it out.

In the said drawings, A represents the lock-plate; B, the hammer, and C the tumbler, the arm *a* of which is connected with the long arm *b* of the mainspring D by means of a swivel or link, *d*, in the usual manner. On the inner side of the lock-plate A is formed a recess, *e*, within which is pivoted, at *f*, a lever, E, of such thickness as to lie flush with the surface of the lock-plate when in place. This lever is provided at its outer end with an enlargement or projection, *g*, against the under side of which bears the outer end of the short arm *h* of the mainspring, the tension of which serves to keep the enlarged end *g* firmly up against the stud *i* of the lock-plate. The lever E is provided, at a point intermediate between the pivot *f* and its outer end, with a projection, *k*, which bears against the side of the short arm *h* opposite to that in contact with the projection *g*.

On the descent of the hammer B, and when it has nearly completed its throw, the arm *a* of the tumbler strikes the end *g* of the lever E, the force of the blow thus imparted to the lever serving to depress it into the position seen in Fig. 2, the mainspring being simultaneously rocked on the pin (seen dotted) by which its bent end is secured to the lock-plate. This movement of the lever E causes that portion of the short arm *h* confined between the projections *k g* to be slightly bent, owing to the lever and spring rocking on different centers, and consequently the reaction of this portion of the spring causes the hammer to rebound into the position seen in Fig. 1 the instant after the firing-pin has been struck to explode the cartridge.

The tension produced by the lever E upon the outer portion of the short arm *h* of the mainspring, while it is sufficient to insure the desired rebound, offers much less resistance



to the complete descent of the hammer than where the arm *a* of the tumbler strikes directly against the end of the short *h*, as heretofore, thus admitting of the employment of a lighter spring, while the action of the parts is exceedingly smooth and perfectly reliable, the friction is reduced, and all liability of the hammer catching or sticking when down, so as not to rebound, is entirely avoided.

Furthermore, it will be seen that our improvement can be readily applied to an old lock at a trifling expense, it being only necessary to add the lever *E*, and this lever may be recessed into the lock-plate, as shown, or may lie on its surface; but in the latter case the mainspring would require to be cut away for its accommodation; and, instead of the lever being pivoted to the lock-plate, it may be pivoted to the mainspring, if preferred.

We do not confine ourselves to the exact construction and arrangement of parts above described, as variations may be made without departing from the spirit of our invention; for instance, the projection *k* on the lever *E* may be dispensed with, as seen in Fig. 5. In this case the lever is arranged in a slightly-different position, as shown, while its upper end is provided with an arm, *m*, against which the arm *a* of the tumbler strikes on its descent, the outer end of the short arm *h* of the mainspring being turned upward, and fitting under a projection, *n*, on the lever.

With this construction, when the arm *a* strikes the upper end of the lever *E* and de-

presses it, the projection *n* acts upon the short arm *h*, the reaction of which serves to return the parts to the position shown, and thus causes the hammer to rebound, the whole length of the short arm *h* being employed for this purpose, instead of a portion only, as first described.

In Fig. 6 is represented another modification, in which the position of the lever is reversed, its pivot being in the rear instead of in front of the stud *i* of the lock-plate.

With this arrangement the outer end of the lever *E*, when depressed by the contact of the arm *a* therewith, causes an increased tension or compression of the mainspring when it is rocked on its pin, which insures the desired rebound; and when the lever *E* is arranged in the position seen in Fig. 6, it may be recessed into the lock-plate or into the under surface of the bridle *g*, as preferred.

What we claim as our invention, and desire to secure by Letters Patent, is—

The lever *E*, with or without a projection, *k*, in combination with the mainspring *D*, tumbler *C*, and hammer *B*, operating substantially in the manner and for the purpose set forth.

Witness our hands this 18th day of October, A. D. 1875.

DAVID KIRKWOOD.  
HENRY MORTIMER.

In presence of—

P. E. TESCHEMACHER,  
W. J. CAMBRIDGE.