

(No Model.)

2 Sheets—Sheet 1.

P. MAUSER.
DETACHABLE MAGAZINE FOR FIRE ARMS.

No. 383,895.

Patented June 5, 1888.

Fig. 1.

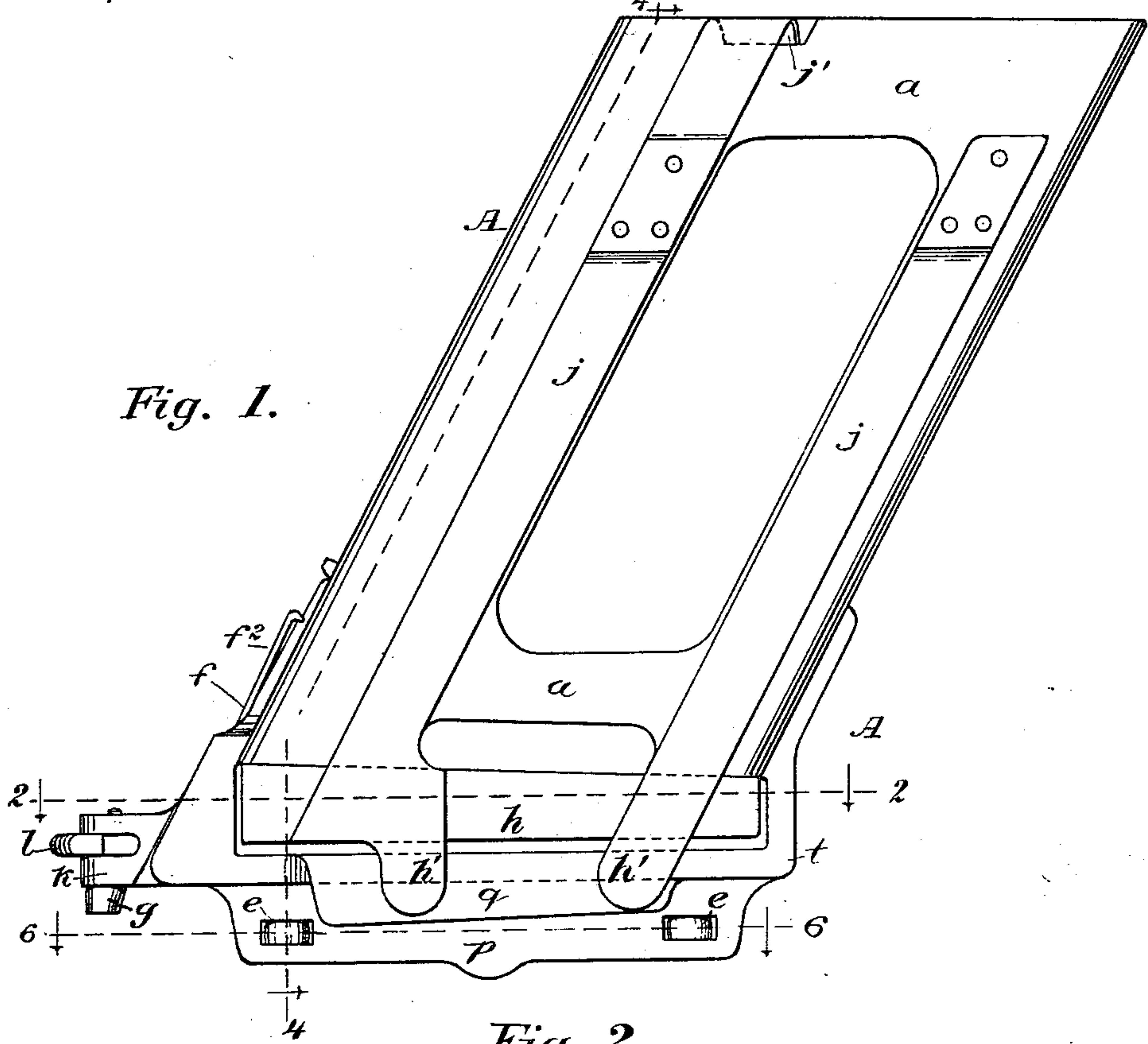


Fig. 2.

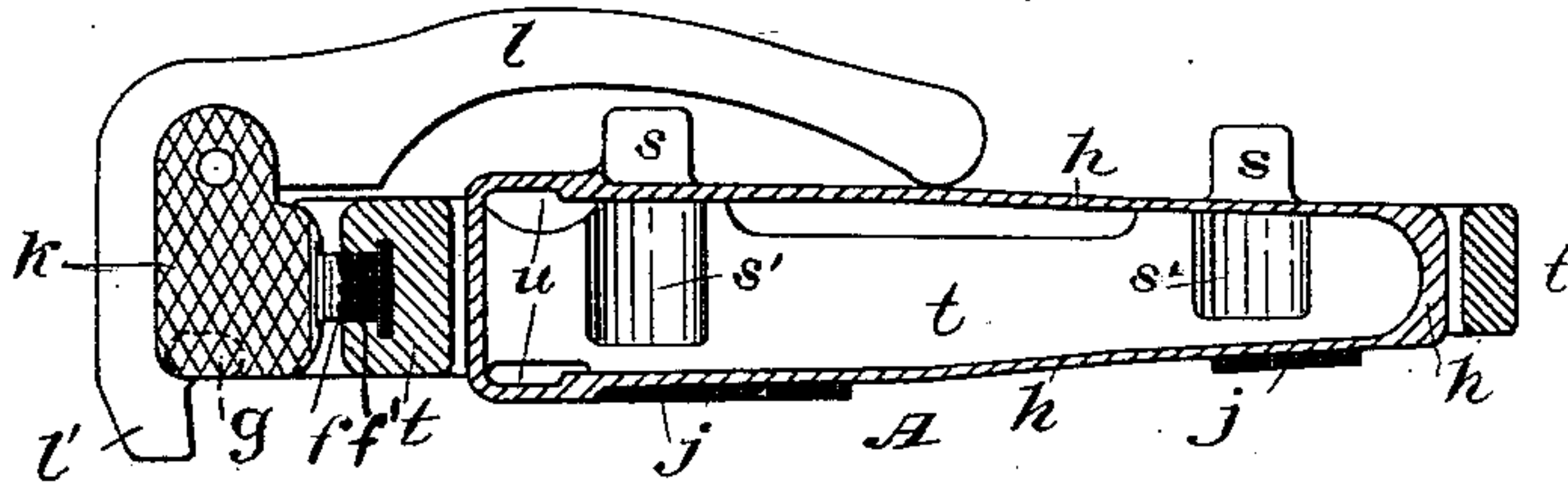
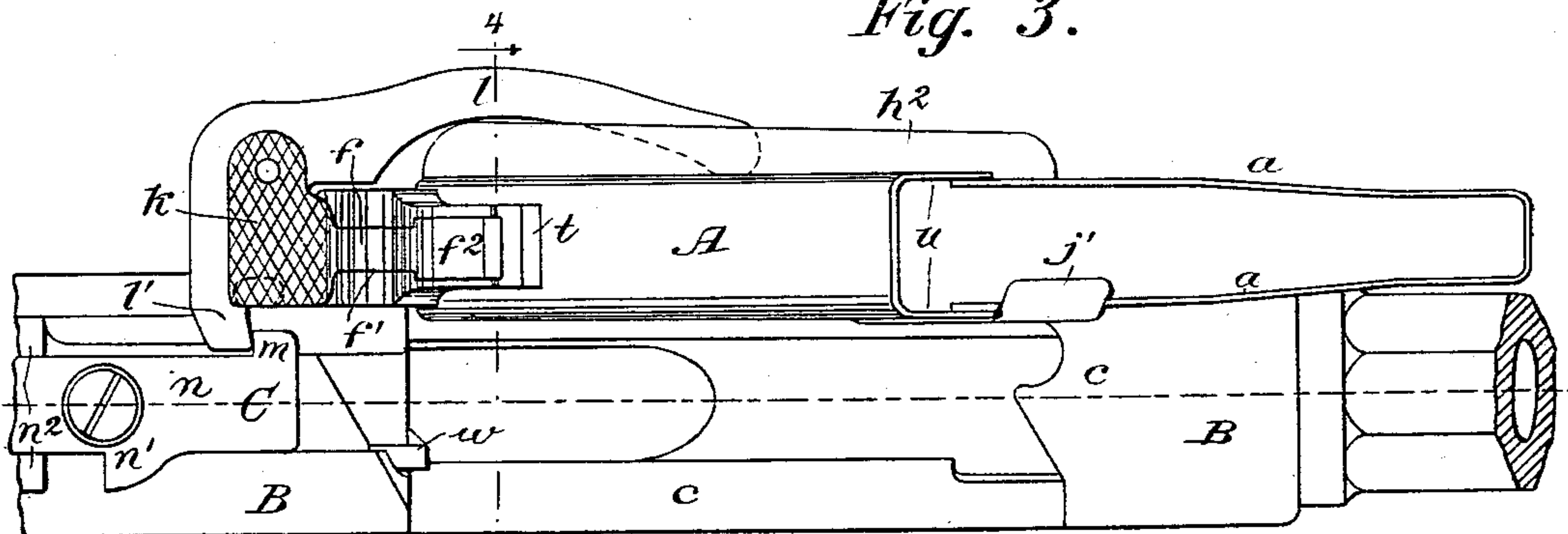


Fig. 3.



Witnesses:

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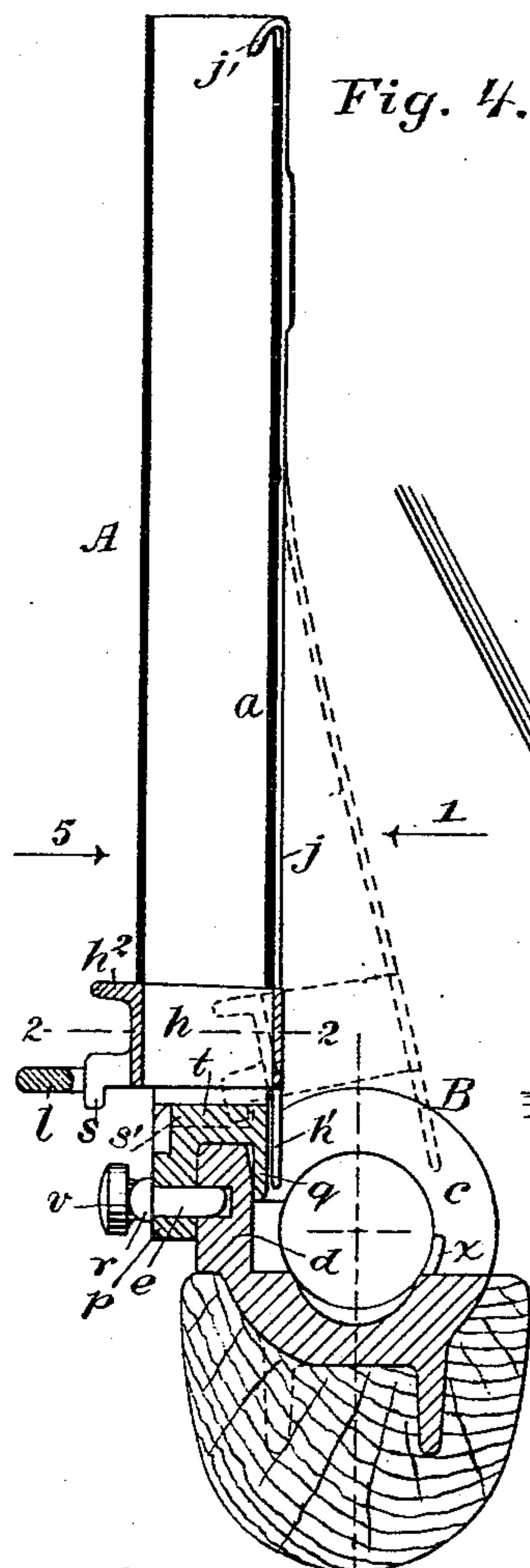


Fig. 4.

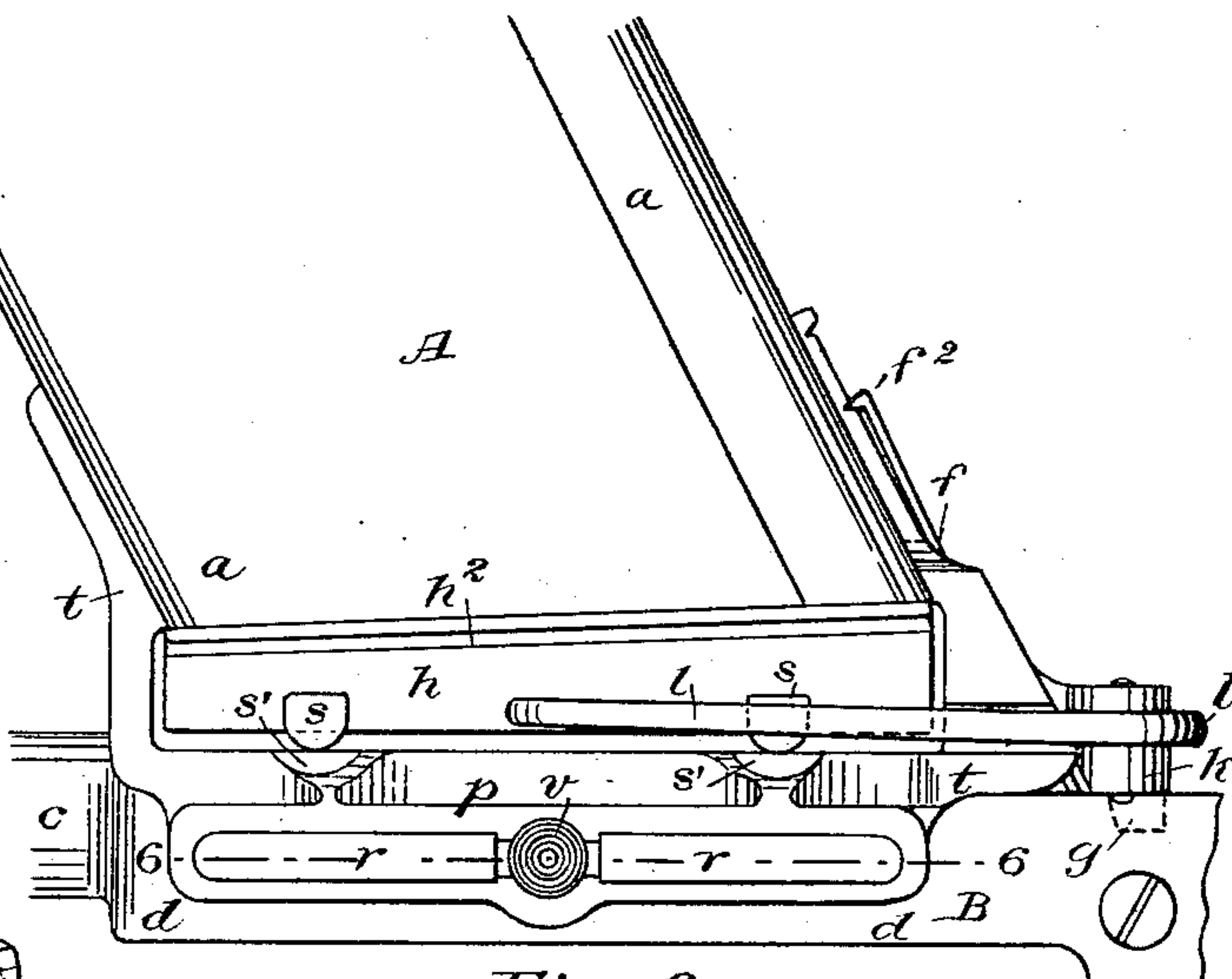


Fig. 5.

Fig. 6.

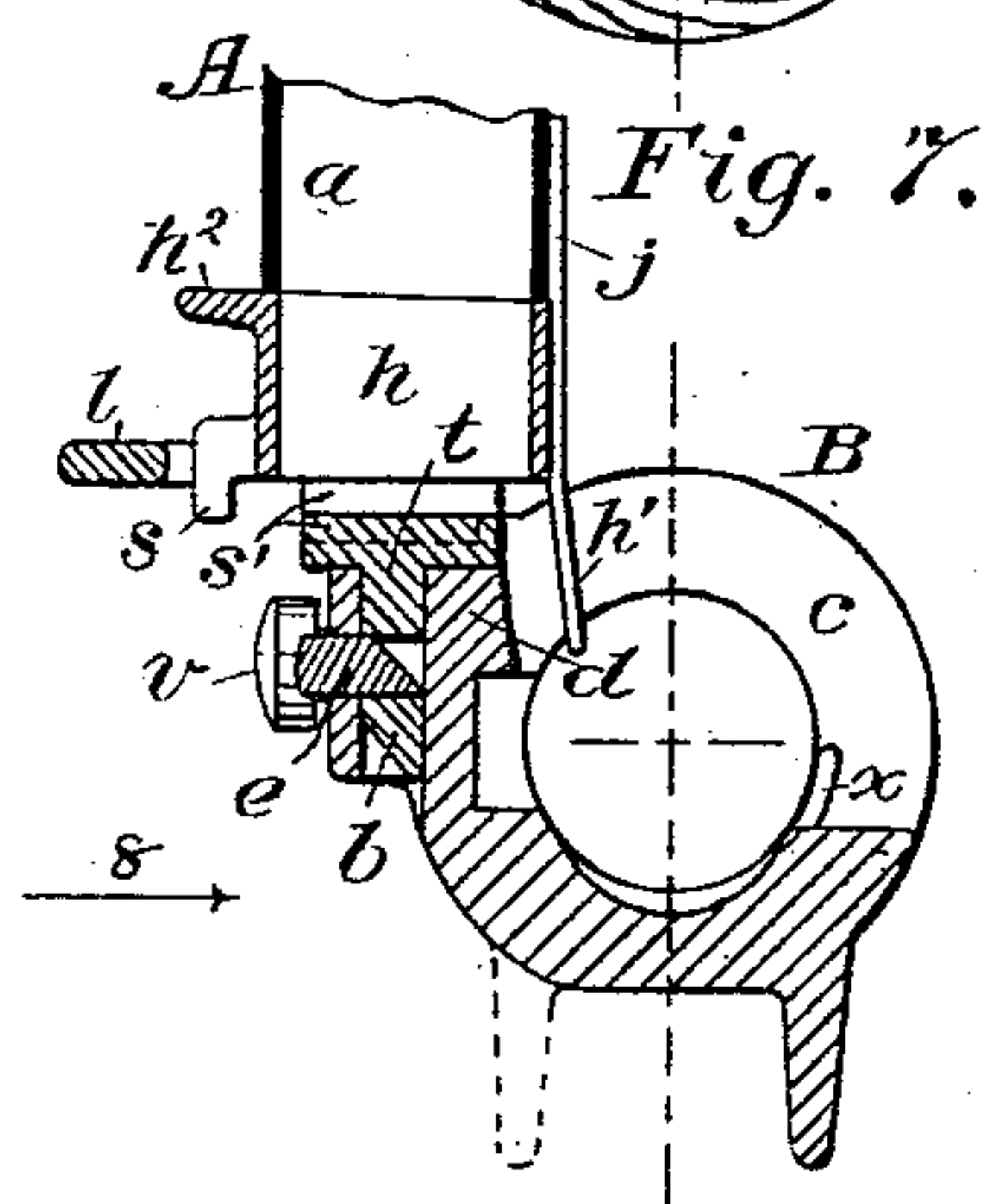
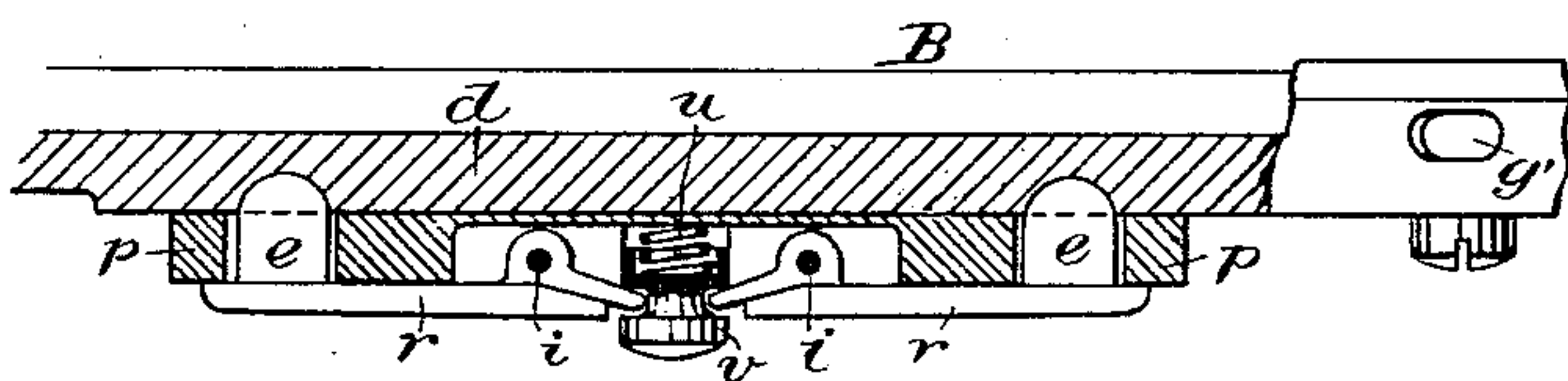


Fig. 7.

Fig. 8.

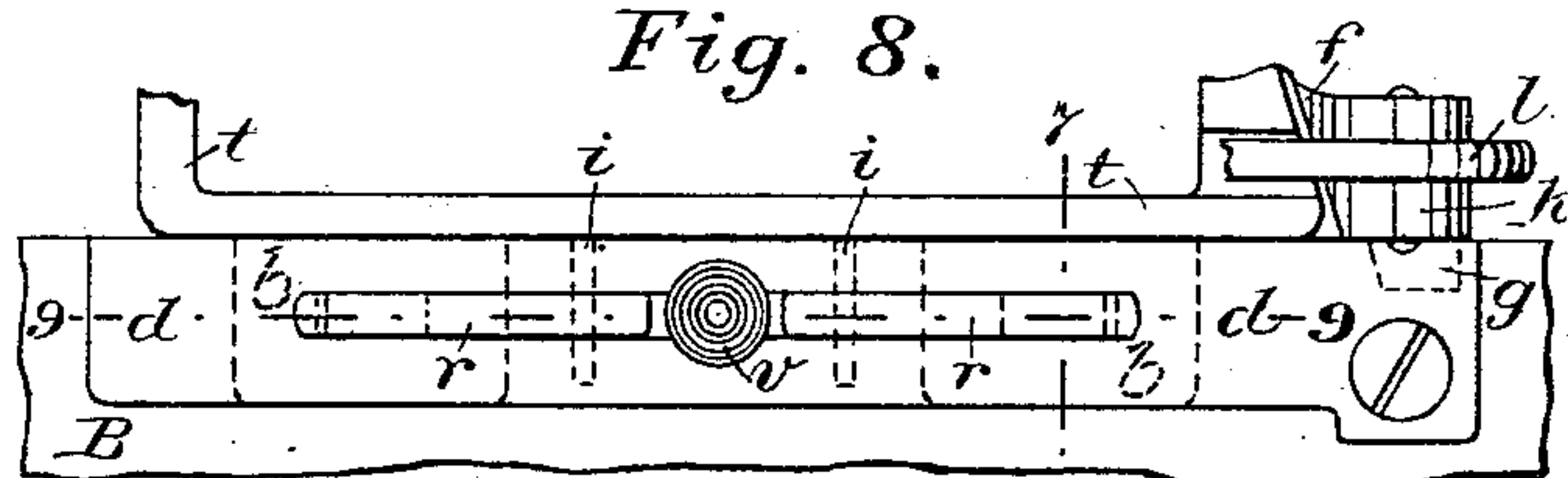
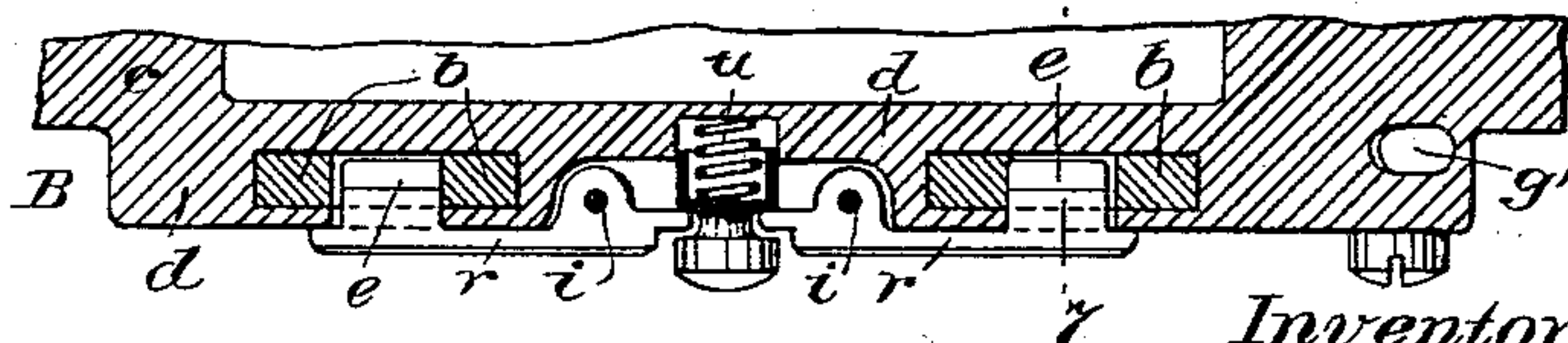


Fig. 9.



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UNITED STATES PATENT OFFICE.

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DETACHABLE MAGAZINE FOR FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 383,895, dated June 5, 1888.

Application filed December 23, 1887. Serial No. 258,818. (No model.)

To all whom it may concern:

Be it known that I, PAUL MAUSER, a subject of the King of Württemberg, German Empire, and a resident of Oberndorf-on-the-Neckar, in the Kingdom of Württemberg, German Empire, have invented certain new and useful Improvements in Detachable Magazines for Fire-Arms, of which the following is a specification.

10 This invention relates to magazines for breech-loading fire-arms, and especially to detachable magazines applicable to breech-loading arms of the class known as "bolt-guns."

15 Prior to my invention a magazine has been applied to a breech-loading gun having a pivoted or swinging breech-block, the magazine being removable, and when in place standing above the breech of the gun, and being constructed to automatically deliver one cartridge at a time to be fed into the barrel of the gun, the cartridges being delivered from its bottom end and passing from the magazine sidewise into the breech of the gun to the position from which they are pushed forward into the barrel. The magazine in said gun is in the form of a flat case having a width sufficient to hold a single cartridge and inclined upwardly from its base toward the front in such manner that the projecting rim at the base of each cartridge rests on the top of the next cartridge beneath at a point in front of the expanded rim of the latter.

30 My present invention relates to magazines of this character, its objects being to improve, cheapen, and simplify the construction of the magazine and the means of attaching it to the breech of the fire-arm, and to adapt such a magazine to be used with a bolt-gun.

35 In the accompanying drawings I have shown my invention as applied to the well-known Mauser gun; but it may be used with any other construction of gun having a longitudinally-sliding breech block or bolt without other alteration than any competent gunsmith will readily comprehend.

40 My invention may be in part applied also to breech-loading guns of other kinds, or those wherein the breech-block, instead of being constructed as a longitudinally-sliding bolt, is made to slide up and down or crosswise, or is pivoted and swings in either direction.

In the drawings, Figure 1 is a side elevation of my improved magazine detached from the gun and viewed from the right. Fig. 2 is a horizontal section thereof, cut in the plane of the line 2 2 in Fig. 1. Fig. 3 is a plan view of the magazine applied to the gun, only the breech portion of the latter being shown. Fig. 4 is a vertical transverse section through the gun in the plane of the line 4 4 in Fig. 3, and a vertical and oblique section through the magazine in the planes denoted by the line 4 4 in Fig. 1. Fig. 5 is a side elevation of the magazine applied to the gun, viewed from the left; and Fig. 6 is a fragmentary horizontal section cut in the planes of the lines 6 6 in Figs. 1 and 4. The remaining views illustrate a modified construction, of which Fig. 7 is a transverse section answering to Fig. 4, Fig. 8 is a fragmentary side elevation answering to Fig. 5, and Fig. 9 is a fragmentary horizontal section answering to Fig. 6.

I will first describe the construction shown in Figs. 1 to 6.

Let A designate the gun or fire-arm, and B the magazine. The gun here shown is the ordinary Mauser bolt-gun, which is so well known as to need no description. It is very slightly altered, as will be described hereinafter. The magazine is constructed with a light sheet-metal box, *a*, and a strong metallic frame or base, *t*, fixed to the bottom end of the box, and provided with means for attaching it to the gun. The box *a* is inclined forward, as shown in Fig. 1, is of a cross section suited to the shape and size of the cartridges to be used, so as to hold only one cartridge in its width, and is shorter from front to rear, measured along a line perpendicular to its front and rear outlines, than the length of the cartridges to be used, so that the cartridges are compelled to lie horizontally, and are prevented from falling into an oblique position perpendicular to the front and rear sides of the box. The angle of inclination shown is given only as an example, and may be varied according to the different sizes or shapes of cartridges that are to be used. The box *a* is open at the top, and is to be filled with cartridges by pushing them in one at a time at its open top. A hooked spring, *j*, is provided, (see Fig. 4,) with its inclined end projecting

into the upper part of the box, in position to prevent the falling out of the cartridges in case the magazine should be turned upside down. The bottom of the box *a* is closed by means of the base-frame *t*. The box holds a suitable number of cartridges—say, eight or ten, for example—which are guided by grooves *u u*, Fig. 3, which engage the projecting rims at the base of the cartridges, while the front ends of the bullets rest against the inclined front wall of the box and slide over the same as they are fed downward. The cartridges descend by their own weight, no spring being provided for forcing them down.

At the bottom end of the box *a* the magazine is constructed with a carrier, *h*. (Shown best in Figs. 1 and 4.) This carrier consists of a rectangular frame consisting of longitudinal side walls and transverse ends walls, (shown in cross-section in Fig. 2,) and is mounted to move laterally from a position in line with the box *a* to a position nearly over the axis of the gun-barrel at the breech. The former position is shown in full lines in Fig. 4, and the latter position in dotted lines. The carrier may be mounted in various ways in order to enable it to perform this movement. The preferred method of mounting consists of two flat springs, *j j*, Fig. 1, which are fastened at their upper ends to the side of the box *a*, lie normally close against the box, and are fastened near their lower ends to the carrier *h*. The carrier is open at top and bottom, and is of a height sufficient to hold only a single cartridge. When it is swung out to the position shown in dotted lines in Fig. 4, it carries the lowermost cartridge in the magazine to a position over the opening in the breech, and the cartridge drops into this opening in position to be pushed forward into the barrel by the loading movement of the sliding bolt. In order to prevent the cartridge falling away from the gun and to guide it properly into place in the breech, the carrier is provided with downwardly-projecting fingers *h' h'*, which may be constructed as prolongations of the springs *j j*. The carrier is provided with a flange, *h²*, Figs. 3 and 4, which, when the carrier is swung out, stands in position to prevent the descent of the remaining cartridges in the magazine, one of which would otherwise fall into the way of the carrier and would either block its return or the cartridge would escape at the left-hand side. Upon the return of the carrier to its normal position the cartridges in the magazine fall by their own weight, the lowermost one dropping into the carrier, ready to be fed to the breech the next time the carrier is moved out.

I will now describe the means by which the carrier is automatically thrown out to feed the cartridges to the breech at the proper time relatively to the movement of the sliding bolt or other loading mechanism. An elbow-lever, *l*, is arranged with one arm projecting to the left of the magazine, and the other arm projecting in rear thereof toward the center of

the gun. This lever is pivoted to the foot *k* of a sliding block, *f*, which block is constructed to slide obliquely in a dovetailed groove in the rear portion, *f'*, of the base-frame *t*, as shown in Figs. 1 and 2. When in the position shown in Fig. 1, the end of the long arm of the lever *l* touches the left-hand side of the carrier *h*, (see Fig. 2,) and the end *l'* of the short arm of the lever projects into the path of a shoulder, *m*, formed on the bolt *C* of the gun. (See Fig. 3.) As the bolt is drawn back, its shoulder *m* strikes the end *l'* of the lever *l* and displaces this lever sufficiently far so that the end of its longer arm pushes the carrier *h* far enough to the right to bring it to the position shown in dotted lines in Fig. 4. On the forward stroke of the bolt the shoulder *m* releases the lever *l*, and the latter is permitted to return to its normal position. To accomplish this it is essential that a spring or springs be applied either to the lever *l* or to the carrier *h*. I prefer to apply them to the carrier, and in the construction described the resilience of the flat springs *j j*, by which the carrier is mounted, serves to return the carrier to its normal position, and consequently to press back the lever *l*.

The construction of the bolt *C* is slightly modified, as shown in Fig. 3. Instead of the round check-plate heretofore used, a rectangular one (lettered *n*) is employed. The shoulder *m*, just referred to, is constructed as a nose formed on this plate, and the plate is also formed with a nose, *n'*, on the opposite side, which serves to check the back-stroke of the bolt by abutting against a corresponding projection, *n²*, formed on the chamber *c* of the breech. The shoulder *m* strikes the arm *l'* a little before the completion of the back-stroke of the bolt, and during the completion of the stroke the movement of the shoulder *m* displaces the lever *l*, in the manner already described, thereby swinging the carrier *h* to the right, so that the cartridge contained in the carrier is caused to drop down into the cartridge-rest of the chamber *c*. Thereupon, on the forward stroke of the bolt *C*, the cartridge is pushed into the barrel of the gun, and during this movement the lever *l* is released and the carrier *h* returns to its place. After firing the gun, the empty shell is pulled back by the extractor *w*, which is carried, as usual, at the front end of the bolt, and the shell is thrown out of the gun during the back-stroke of the bolt and prior to the striking of the lever *l* by the shoulder *m*, so that the cartridge-chamber is emptied before the next cartridge can drop into it from the carrier. This operation continues during the successive movements of the bolt and until all the cartridges in the magazine have been used. The magazine is then to be refilled with cartridges by pressing them in at the top of the box *a*; or it may be disconnected from the gun and another magazine previously filled with cartridges applied to the gun in its place.

The carrier *h* is provided with stops to pre-

vent its being swung out too far. These consist of hooked lugs *s*, Figs. 2 and 4, on the left side of the carrier *h*, which, as the carrier is swung outward, move in grooves *s'*, Figs. 2 and 5, formed in the base-frame *t*, and which strike the abrupt ends of these grooves when the carrier reaches its extreme position, as shown by dotted lines in Fig. 4. The opening in the bottom of the carrier *h* is made wider than the opening at the bottom of the box *a*, to facilitate the dropping out of the cartridges.

It is desirable to be able to use the gun as a hand-loader while the magazine remains attached to it. To this end it is necessary to throw out of gear the automatic mechanism for feeding the cartridges from the magazine to the gun. This I accomplish as follows: I have already referred to the fact that the block *k*, to which the lever *l* is pivoted, is attached to a slide, *f*, which works in a groove, *f'*, formed obliquely in the rear side of the frame *t*. When the lever *l* is in its normal position, as shown in Fig. 1, this block *k* is held down in place by means of a leaf spring, *f²*, the free end of which carries a spur or tooth which enters the lower one of two notches. (Shown in Fig. 1.) When it is desired to throw the magazine-feed out of action, this spring *f²* is disengaged from the lower notch and the blocks *k* and *f* are slid upwardly until the spring engages with the upper notch, which retains the blocks in this upper position, as shown in dotted lines in Fig. 5. When thus elevated, the arm *l'* of the lever *l* stands above the shoulder *m* on the bolt *C*, so that this shoulder moves freely under the lever and the latter is not tilted. Thus the magazine may be kept full of cartridges in case of an emergency requiring rapid firing of the gun, and the gun may meanwhile be used as an ordinary hand-loader, and when it is desired to use it again as a magazine-gun the self-feeding mechanism may be instantly brought into action by pulling down the block *k*. When this block is down in its normal position, a spur or lug, *g*, on its under side enters a socket, *g'*, Fig. 6, formed in the gun to coincide with it, as shown in dotted lines in Fig. 5, and serves to steady the block *k* and relieve it of strains due to the sudden striking of the shoulder *m* against the lever *l*. The fastening devices by which the magazine is united to the gun are also thus relieved of much of the strain due to the blow of the shoulder on the bolt against the elbow-lever.

It is preferable to mill out the cartridge-rest in the chamber *c* a little deeper in the rear than in front, and also to form a short shield, *x*, at the front of the chamber *c*, Figs. 3, 4, and 7, in order that the cartridge, after being dropped out of the carrier *h*, shall assume the correct position.

I will now describe the preferred construction of fastening devices for uniting the magazine to the gun. The bottom of the base-frame *t* is formed with two longitudinal flanges, *p* and *q*, the former being on the left and the latter on the right hand side, and both projecting

downwardly. (See Figs. 1 and 4.) The magazine is attached to the left wall, *d*, of the chamber *c* of the gun, as shown in Fig. 4, and when in place this wall *d* is embraced between the flanges *p* and *q*. The wall *d* is made thicker than usual, and is shaped to fit the frame *t* and its flanges *p* and *q*. The magazine is fastened in place by means of two locking-bolts or latches, *e e*, the ends of which enter recesses or sockets in the wall *d*, as best shown in Fig. 4, and which are arranged to move through openings in the flange *p*, Figs. 1 and 4, and are formed on the ends of levers *r r*, which extend along the flange *p*, as best shown in Figs. 5 and 6, being fulcrumed on pins *i i* in recesses in said flange, as shown in Fig. 6. The latches *e e* are operated by a push-button, *v*, which is pressed out by a coiled spring, *u*, Fig. 6, and is formed with an annular groove, into which project the shorter arms of the levers *r r*, so that by pressing in on this push-button the latches *e e* are retracted and no longer engage the wall *d*, whereupon the magazine may be disconnected from the gun. The spring *u*, which is confined in a bored socket in the flange *p*, acts to keep the latches *e e* pressed into engagement with their sockets in the wall *d*.

The fastening device thus described may be variously modified. One example of a modification thereof is shown in Figs. 7, 8, and 9, wherein the construction of the fastening is reversed, the latches *e e* being applied to the gun, and the sockets which they engage being formed in some part of the magazine. The bottom of the frame *t* is formed with two tenons, *b b*, which tenons have cross-slots formed in them, which, when the magazine is in place, are entered by the latches *e e*. The wall *d* of the gun is thickened, and is formed with mortises to receive the tenons *b b*. The latches *e e*, levers *r r*, fulcrum-pins *i i*, push-button *v*, and spring *u* are constructed in substantially the same manner as before described, except that they are carried by the wall *d* of the gun, instead of by the magazine. By pressing on the push-piece *v* the latches *e e* are retracted, so that the magazine may be lifted out. To insert the magazine, it is not necessary to press the push-piece, since the ends of the tenons *b b* and latches *e e* are beveled, as shown in Fig. 7.

My invention may be modified in various ways without departing from its essential features. For example, the magazine need not be made removable from the gun. Some different mode of mounting the carrier *h* may be adopted; also, some different means may be applied for exerting a retractile force against the carrier to return it to its normal position after it has dropped its cartridge into the chamber *c*, and other means may be provided for throwing the magazine-feed out of action.

I claim as my invention the following defined improvements in magazines for repeating fire-arms and in magazine-guns, substantially as hereinbefore specified—namely:

1. A magazine consisting of a box constructed

to hold a succession of cartridges one above another, in combination with a carrier consisting of a frame having open top and bottom arranged at the bottom of said box, adapted to hold a single cartridge, and mounted to move laterally from a position coinciding with the bottom of said box to a position to one side thereof and over the receiving-chamber of the gun.

2. A magazine consisting of a box constructed to hold a succession of cartridges one above another, in combination with a carrier consisting of a frame having open top and bottom arranged at the bottom of said box, adapted to hold a single cartridge, and mounted to move laterally from a position coinciding with the bottom of said box to a position sufficiently to one side thereof to permit a cartridge to drop from the carrier, and formed with a flange on its upper side arranged in position to uphold the remaining cartridges in the box while the carrier is moved out.

3. A magazine consisting of a box constructed to hold a succession of cartridges one above another, in combination with a carrier consisting of a frame having open top and bottom arranged at the bottom of said box, adapted to hold a single cartridge, and mounted to move laterally from a position coinciding with the bottom of said box to a position sufficiently to one side thereof to permit a cartridge to drop from the carrier, and abutting-stops on the box and carrier, respectively, adapted to limit the outward movement of the carrier.

4. A magazine consisting of a box constructed to hold a succession of cartridges one above another, in combination with a carrier consisting of a frame having open top and bottom arranged at the bottom end of said box, adapted to hold a single cartridge, and mounted to move laterally from a position coinciding with the bottom of said box to a position to one side thereof, and over the receiving-chamber of the gun, and guiding-fingers projecting downward from the said carrier and adapted to direct the cartridge into place as it falls therefrom.

5. A magazine consisting of a box constructed to hold a succession of cartridges one above another, in combination with a carrier arranged at the bottom of said box, adapted to hold a single cartridge and to move laterally from a position coinciding with the bottom of said box to a position to one side thereof, and over the receiving-chamber of the gun, and a retracting-spring acting against said carrier and tending to press said carrier into position coinciding with said box.

6. A magazine consisting of a box constructed to hold a succession of cartridges one above another, in combination with a carrier arranged at the bottom of said box, adapted to hold a single cartridge and to move laterally from a position coinciding with the bottom of said box to a position to one side thereof, and flat springs fastened to the side of said box and to said carrier and serving to support the latter in its movement.

7. A magazine consisting of a box constructed to hold a succession of cartridges one above another and of a carrier at the bottom of said box and mounted to move laterally to one side thereof, in combination with a lever for moving said carrier, arranged with one arm against said carrier and with the other arm in position to be encountered and displaced by some moving part of the gun.

8. A magazine consisting of a box for holding cartridges and a carrier mounted to move laterally from a position in coincidence with said box to a position at one side thereof, in combination with a lever for moving said carrier, arranged in position to be encountered and displaced by some moving part of the gun, and a block to which said lever is pivoted, connected movably to said magazine and arranged relatively to the gun in such manner that it may be moved to bring said lever out of engagement with the said moving part of the gun.

9. The combination, with a bolt-gun, of a magazine constructed with a laterally-movable carrier, a lever for moving said carrier, arranged in position to be encountered and displaced by the movement of the bolt of the gun, and a movable block to which said lever is pivoted, adapted to be moved so as to bring said lever out of engagement with the bolt.

10. The combination, with a bolt-gun constructed with a shoulder, *m*, on its bolt, of a magazine constructed with a laterally-moving carrier, an elbow-lever, *l*, for moving said carrier, arranged with its arm *l'* in position to be encountered by said shoulder *m* during the backward movement of the bolt and constructed to be displaced upwardly at will out of the path of said shoulder, whereby the automatic feed for said magazine may be thrown out of action.

11. The combination, with a gun, of a magazine constructed with a laterally-moving carrier, a lever for moving said carrier, arranged in position to be encountered and displaced by some moving part of the gun, a sliding block to which said lever is pivoted, constructed to be moved so as to carry said lever out of action, and a spring-catch for retaining said block in either position.

12. The combination, with a bolt-gun, of a magazine constructed with a laterally-moving carrier, a lever for moving said carrier, a block to which said lever is pivoted, and a spur projecting from said block and entering a socket in the gun.

13. The combination, with a gun, of a magazine consisting of a box constructed to hold a succession of cartridges one above another, a carrier at the bottom of said box mounted to move laterally to one side thereof and over the receiver of the gun, and a base-frame fixed to the bottom of said box and extending beneath said carrier, and reciprocal fastening devices on the gun and on said base-frame, respectively, for removably attaching the magazine to the gun.

14. The combination, with a gun and a detachable magazine, of reciprocal fastening devices on said gun and magazine, respectively, consisting of a projection on the one part entering a socket in the other, and a spring-latch on the one part projecting into said socket and adapted to engage a recess in the projection on the other part which enters said socket.

15. The combination, with a gun and a detachable magazine, of reciprocal fastening devices consisting of a recess in the one part, a laterally-moving latch, *e*, adapted to enter said recess, a lever carrying said latch and pivoted to the other part, a push-button engaging the opposite arm of said lever, and a spring acting to protrude said push-button and to keep said latch pressed into engagement with its recess.

16. The combination, with a gun and a detachable magazine, of reciprocal fastening devices consisting of two recesses in the one part, two latches projecting into said recesses through coinciding openings in the other part, two levers carrying said latches on their outer arms and arranged with their inner arms projecting toward one another, a push-button arranged between and engaging said inner arms, and a spring acting to protrude said push-button.

17. The combination, with a gun having a wall, *d*, formed at one side of the cartridge-

chamber, of a detachable magazine having its base-frame *t* constructed with flanges *p* and *q*, projecting downwardly on opposite sides and adapted to embrace said wall between them, and spring-latches carried by the one part and entering recesses in the other.

18. The combination, with a gun having a wall, *d*, formed at one side of the cartridge-chamber, of a detachable magazine having its base-frame *t* constructed with flanges *p* and *q*, projecting downwardly and adapted to embrace said wall between them, spring-latches *e e*, projecting through openings in the flange *p* and entering recesses in said wall *d*, levers *r r*, pivoted to said flange *p*, a push-button, *v*, engaging said levers, and a spring, *u*, acting against said push-button.

19. A magazine consisting of a box, *a*, a base-frame, *t*, fixed thereto and extending beneath the open bottom of the box, a carrier, *h*, mounted to move laterally beneath the bottom of said box and within said frame, and stops for limiting the movement of said carrier, consisting of hooked projections *s* thereon working in grooves *s'* in said base-frame.

This specification signed by me this 23d day of September, 1887.

PAUL MAUSER.

Witnesses:

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