

(No Model.)

2 Sheets—Sheet 1.

L. F. BRUCE.

MAGAZINE FOR BREECH LOADING FIRE ARMS.

No. 462,298.

Patented Nov. 3, 1891.

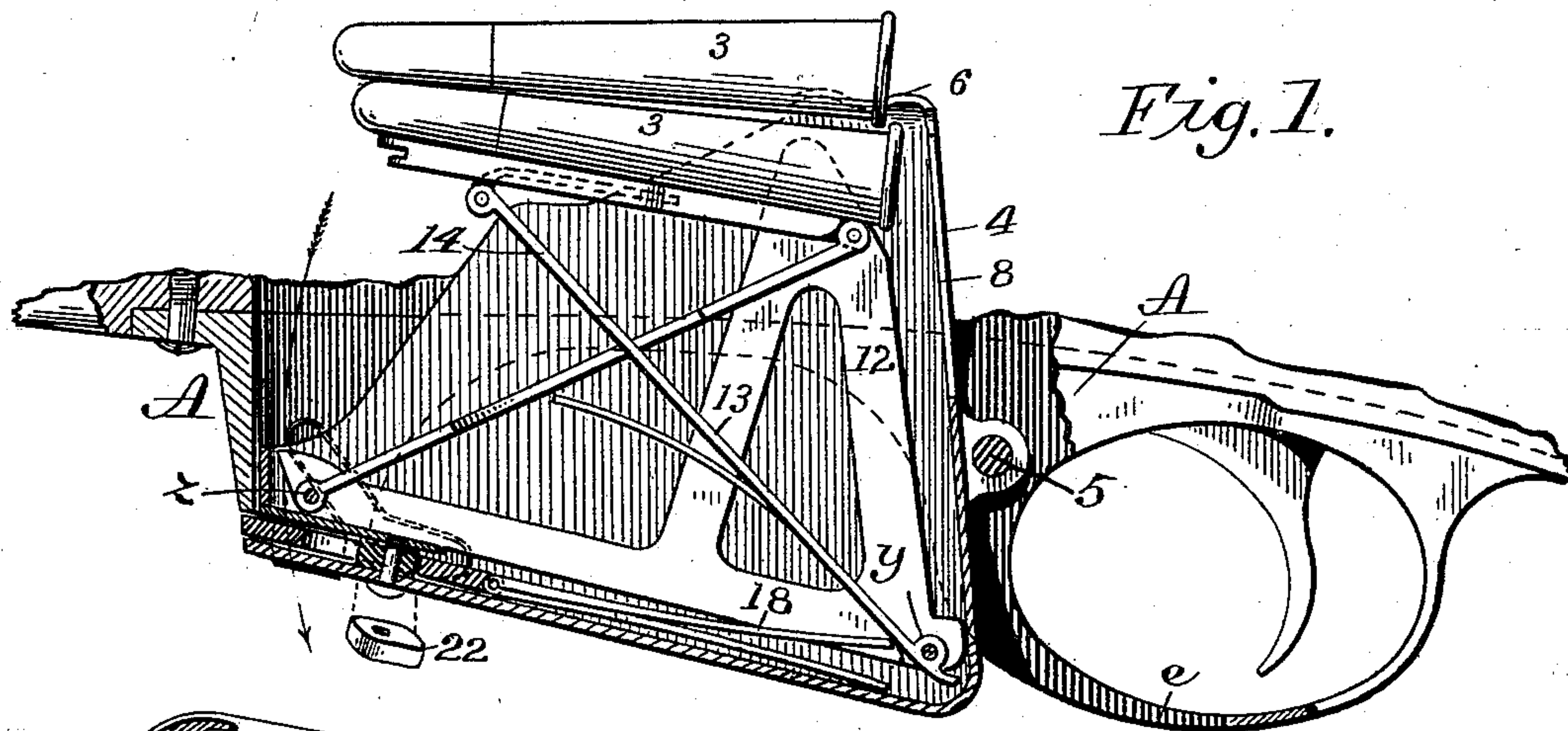


Fig. 1.

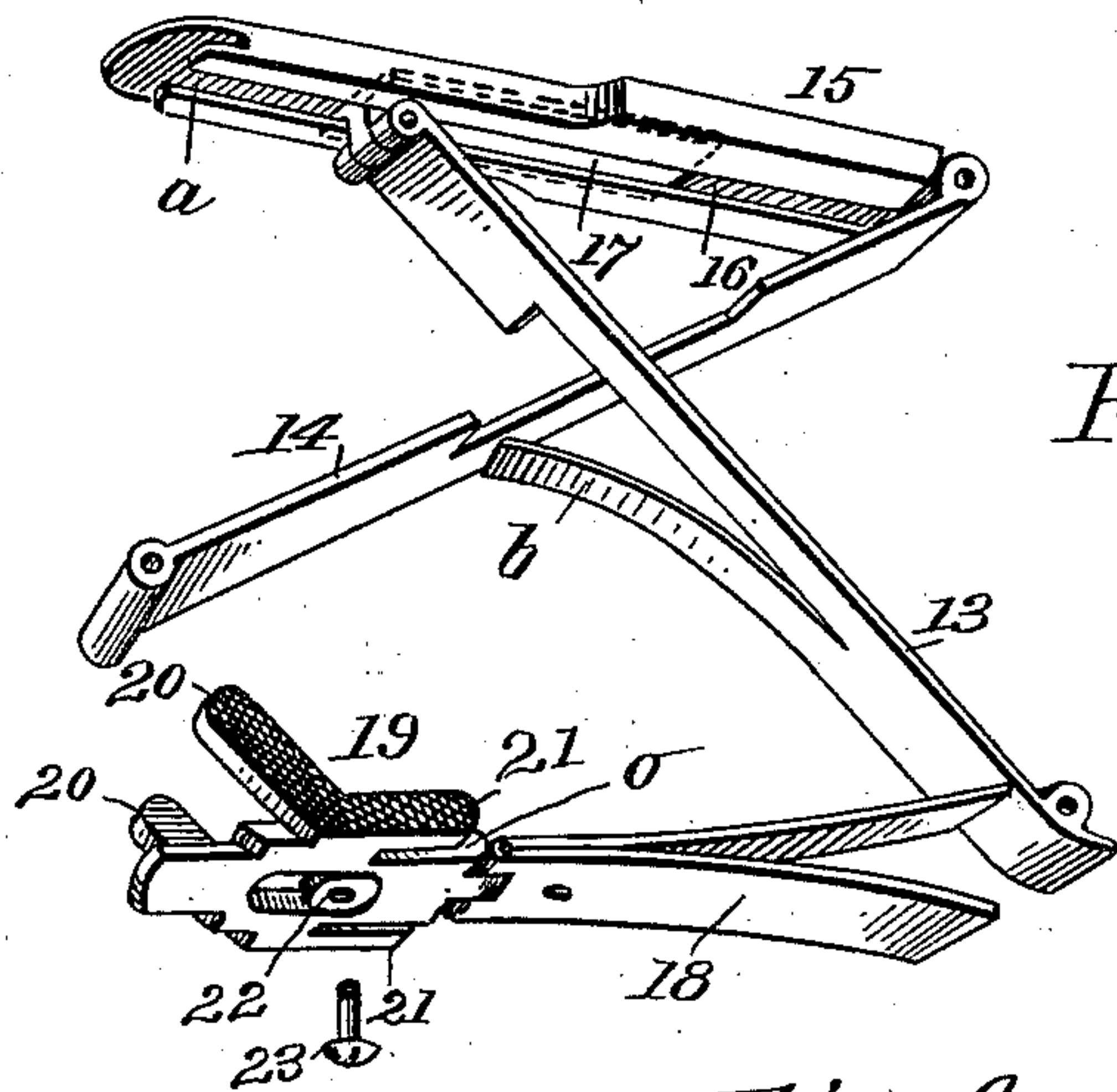


Fig. 2.

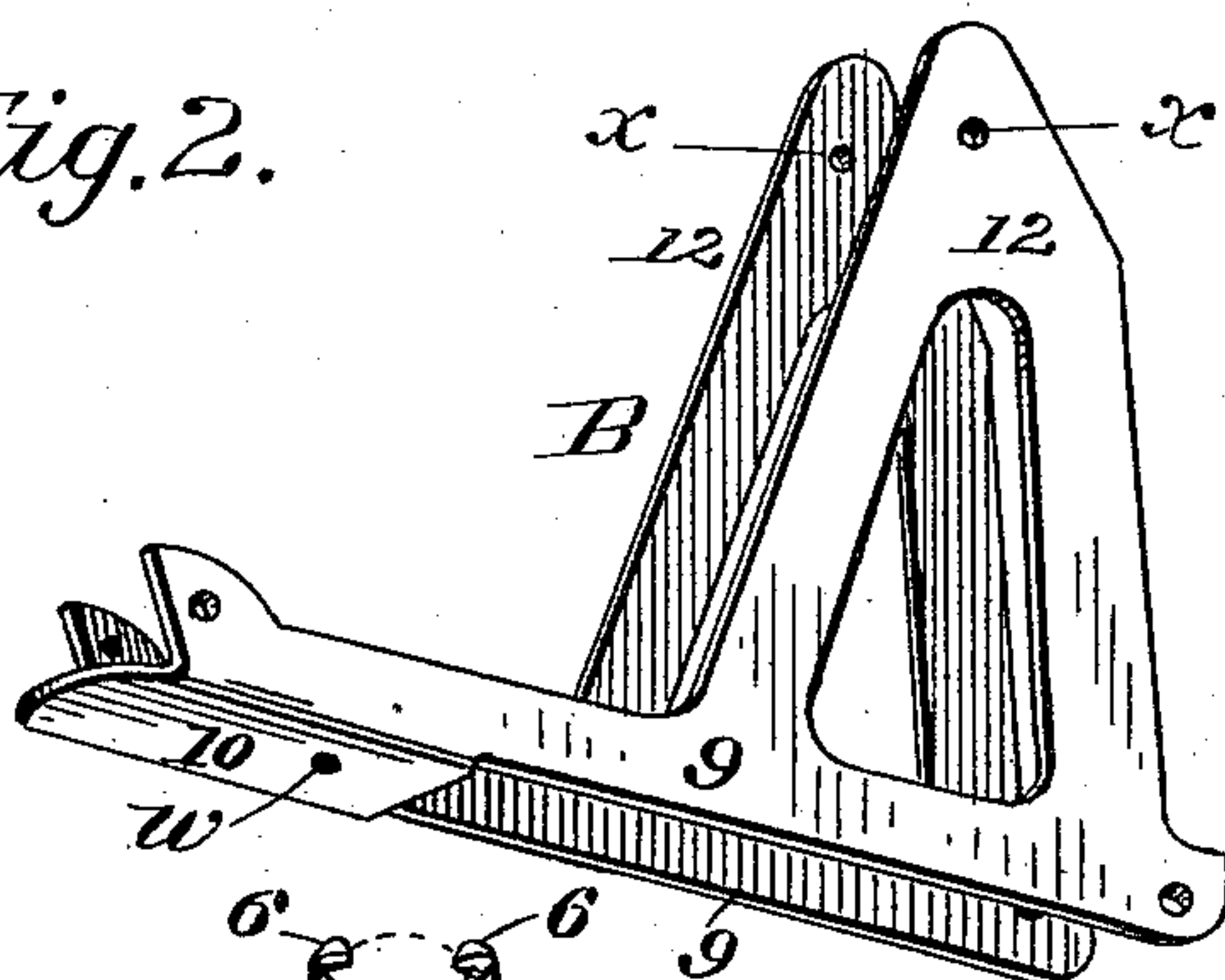


Fig. 3.

Fig. 4.

Fig. 5.

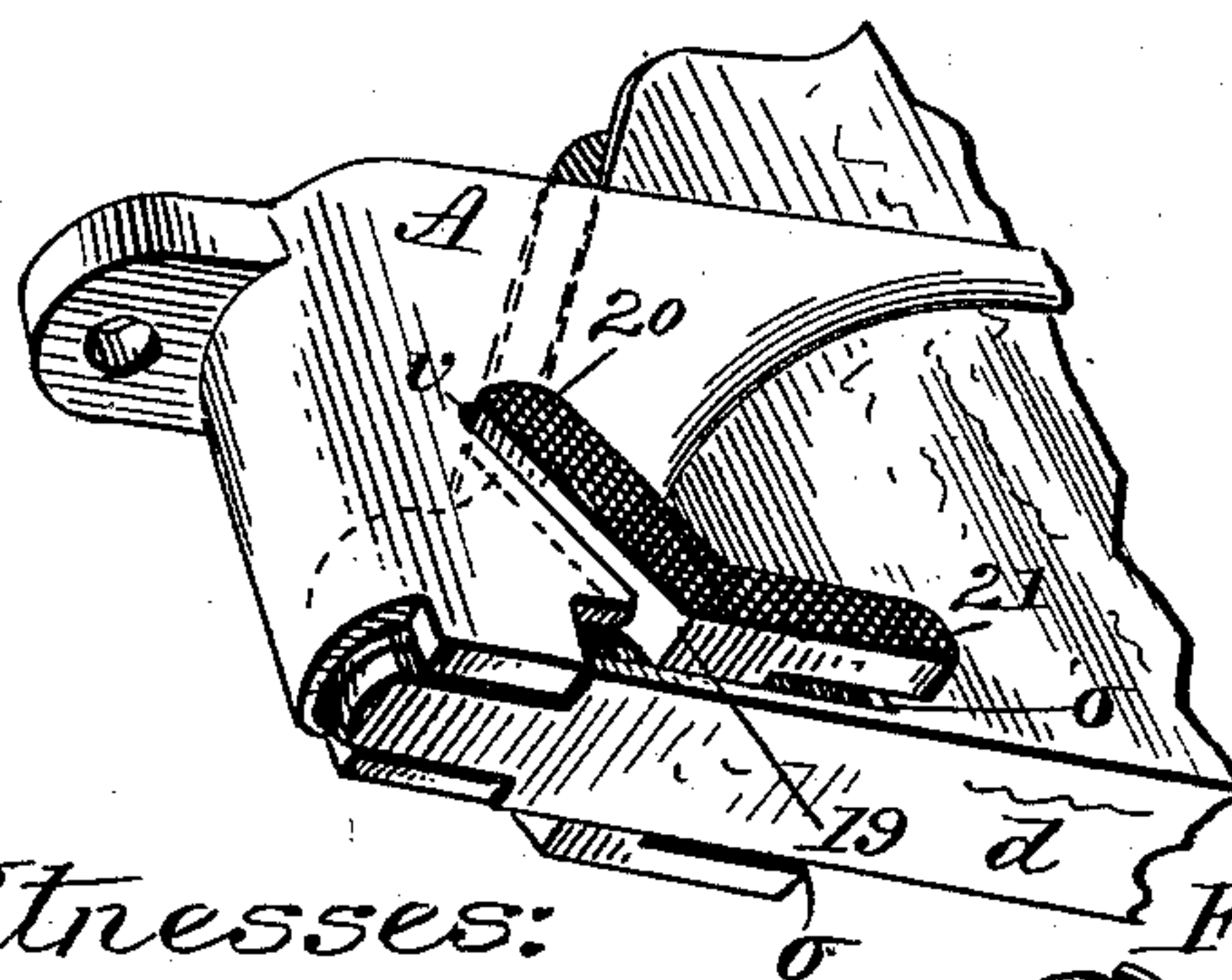


Fig. 6.

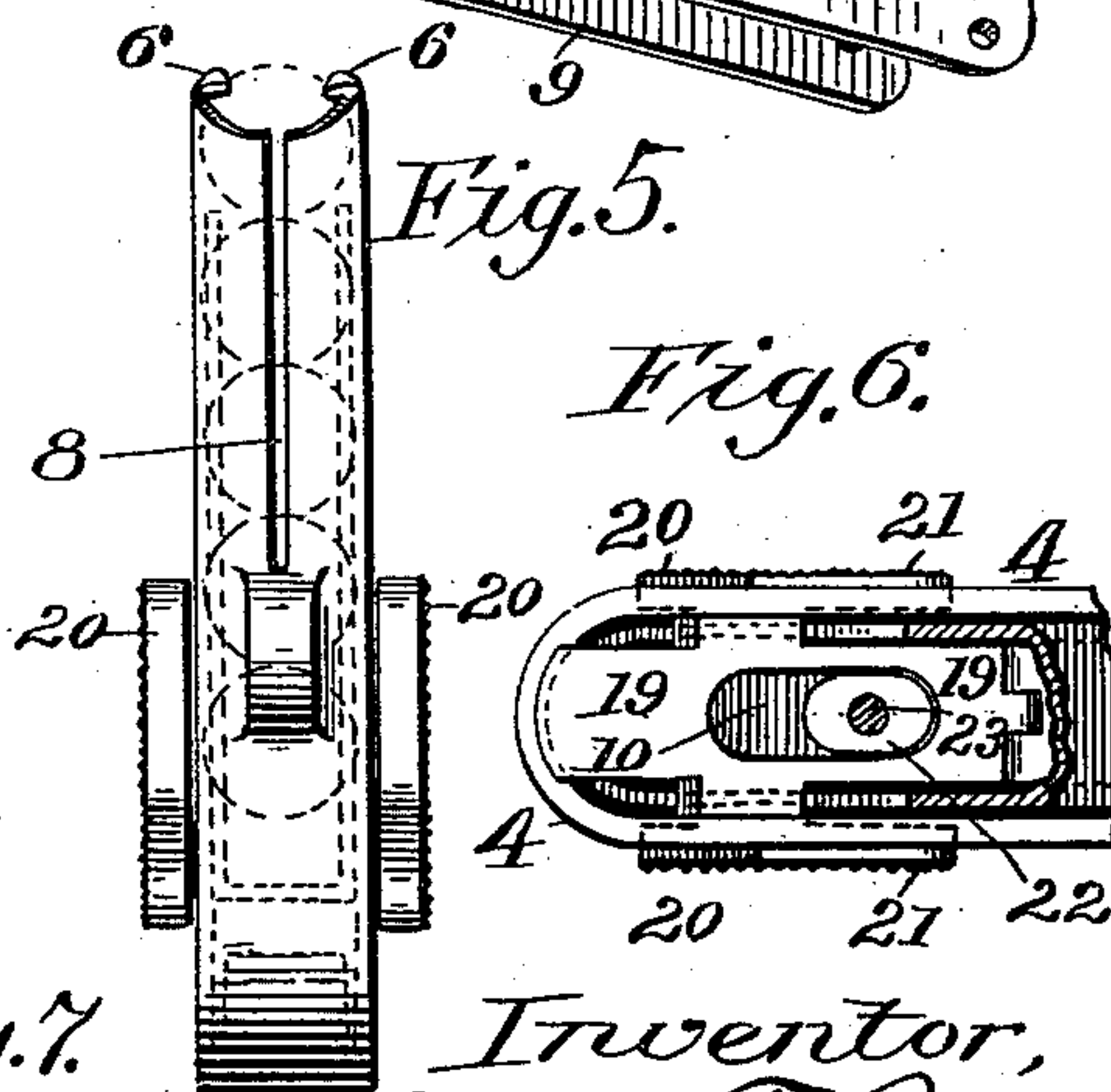
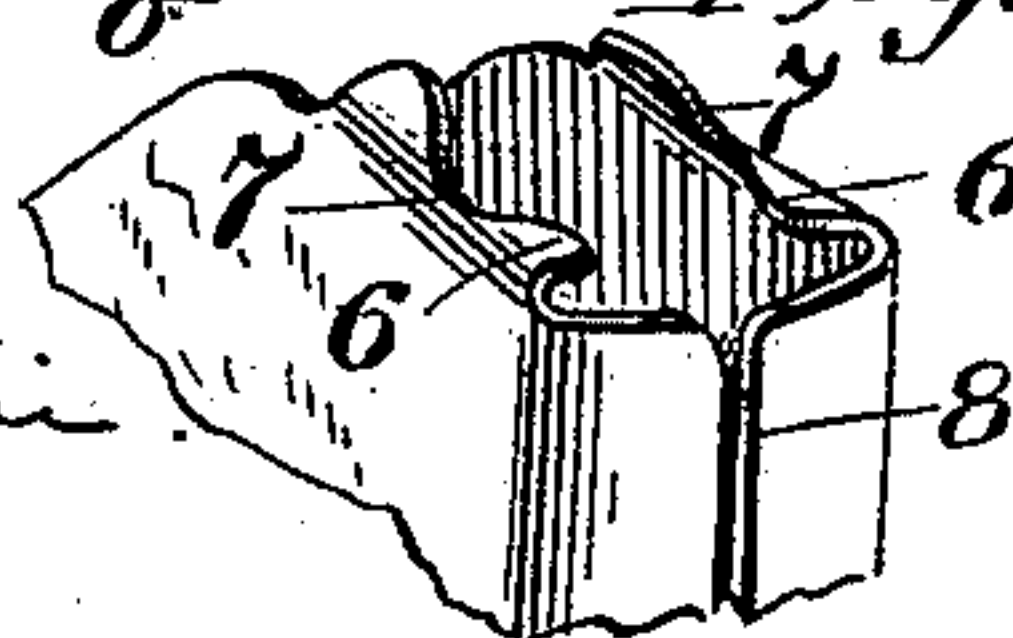


Fig. 7.

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(No Model.)

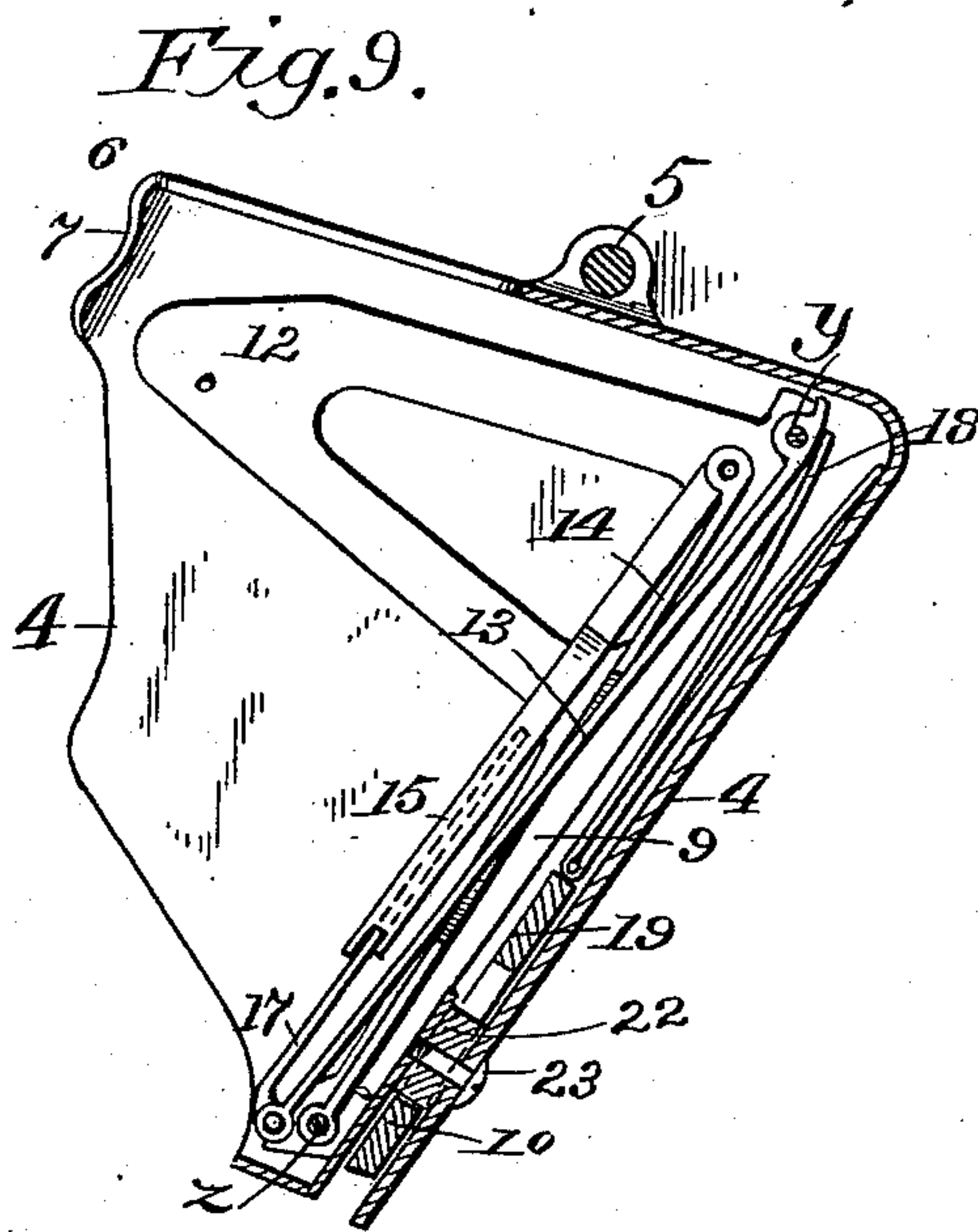
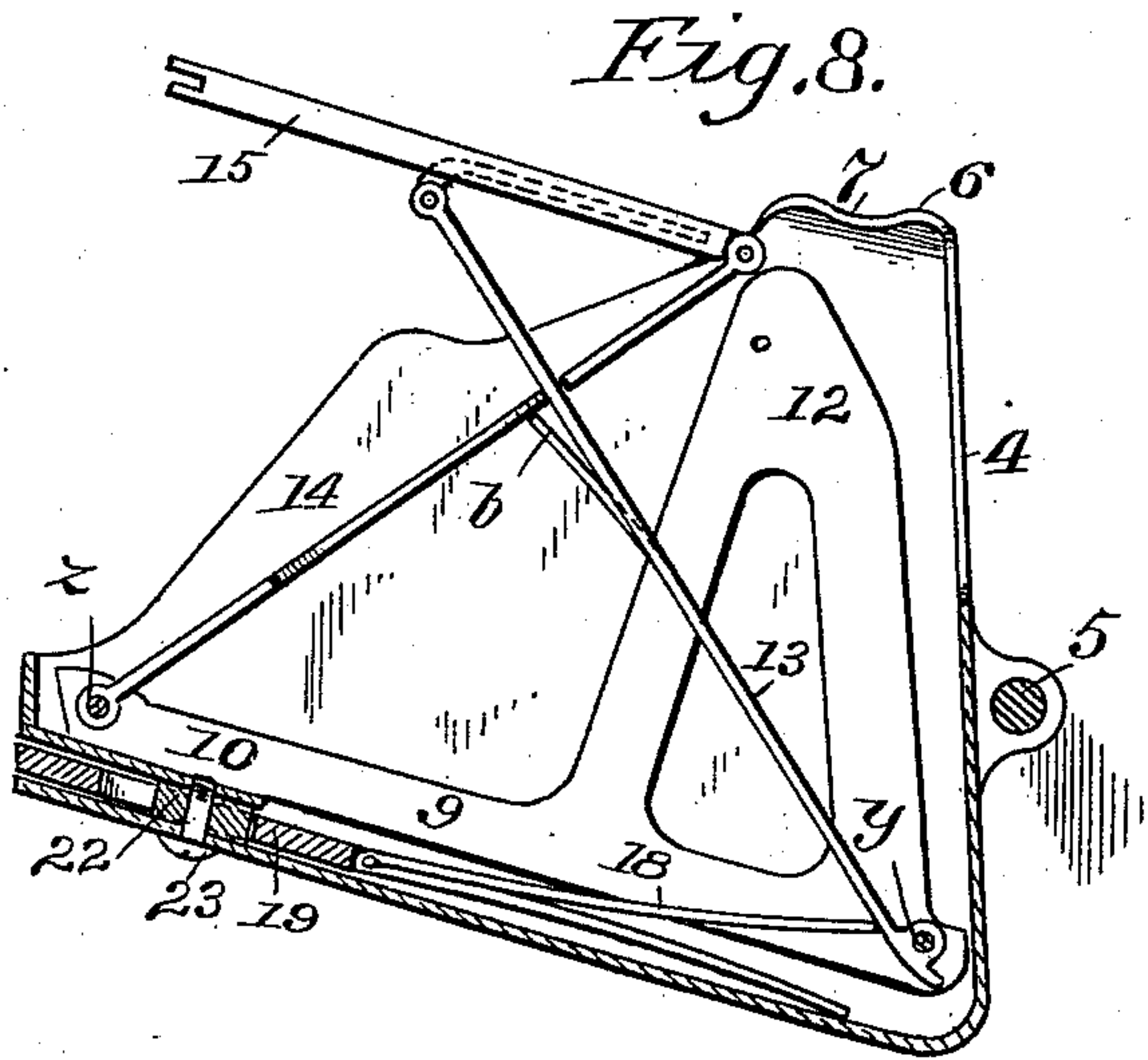
2 Sheets—Sheet 2.

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MAGAZINE FOR BREECH LOADING FIRE ARMS.

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UNITED STATES PATENT OFFICE.

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MAGAZINE FOR BREECH-LOADING FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 462,298, dated November 3, 1891.

Application filed August 25, 1890. Serial No. 362,992. (No model.)

To all whom it may concern:

Be it known that I, LUCIEN F. BRUCE, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Magazines for Breech-Loading Fire-Arms, of which the following is a specification.

This invention relates to magazines for fire-arms, and particularly to that class thereof termed "pocket-magazines," the object being to improve the construction of the magazine in respect to the case, the catch devices for holding the magazine in operative position under the arm, the cartridge-lifting devices and means for operating the same, and other detail parts, all hereinafter fully described, and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation, partly in section, of a portion of the under side of the receiver of a magazine fire-arm, of the guard, and of the trigger thereof, having applied thereto a magazine embodying my improvements, this figure showing the magazine-case in vertical section and the devices in the interior thereof in side elevation, two cartridges being shown in the magazine, one of which is lifted nearly out thereof. Fig. 2 is a perspective view of the cartridge-lifting devices of the magazine and other detail parts hereinafter fully described. Fig. 3 is a perspective view of another detail part of the magazine, hereinafter described. Fig. 4 is a perspective view of a portion of the receiver of the arm and of one end of the magazine, illustrating the engagement of the devices on the magazine, which retain the swinging end of the latter in engagement with said receiver. Fig. 5 is an edge view of the magazine or that edge by which it is pivoted to the arm. Fig. 6 is a plan view of the under edge of the forward end of the magazine, partly in section. Fig. 7 is a perspective view of the upper rear end of the magazine-case. Fig. 8 is a vertical section of the magazine, showing the cartridge-elevating devices thereof in side view and the cartridge-table thereof in its extreme upper position. Fig. 9 is a similar view of the magazine to Fig. 8, but showing one end of the magazine swung downward and the cartridge-elevating devices thereof folded to-

gether in the bottom thereof and consequently the cartridge-table in its lowest position.

In the drawings, A indicates the guard-frame of a fire-arm, which in practice is secured on the under side of the arm under the receiver thereof and has a slot through it, as shown, in which, as well as in a slot through the receiver in the rear of the barrel, the magazine 4 has an operative position, as shown in Fig. 1. The guard *e* at the rear end of said frame A has its forward edge slotted, as shown, to permit the magazine to swing downwardly and rearwardly, one corner thereof entering said slot, the magazine being pivoted to the guard-frame at 5, whereby it is permitted to swing from the position it occupies when the gun is using cartridges therefrom or the positions shown in Figs. 1 and 8 about to the position shown in Fig. 9, which is the one the magazine takes when swung downward to be loaded. The said magazine 4 is constructed of substantially the form shown in the drawings, preferably of sheet-steel—that is to say, of sufficient width between its inner walls to receive cartridges in the positions shown in Fig. 1, of proper length to accommodate said cartridges, and sufficient height when in operative position in the arm to bring the upper cartridge of the group therein (the cartridges being indicated by 3) substantially on a line with the bore of the barrel.

The relative positions of the heads of the cartridges in the magazine are indicated in dotted lines in Fig. 5, the head of the upper cartridge being brought into engagement by the action of the magazine-spring, below described, with the inturned lips 6 on the upper edge of the magazine, whereby the cartridges are prevented from any upward movement, excepting as the cartridges are removed one by one by the action of the mechanism of the gun, which, as is well known, engages with the uppermost portion of the head of the upper cartridge, driving it endwise toward the barrel of the arm. Such movement of the upper cartridge in the magazine construction herein shown carries the head of the cartridge to the wider portion 7 of the upper edge of the magazine, through which the head is allowed to pass upwardly with comparative ease, since the edges of the rim of the car-

tridge-head have but a slight contact with said part 7 of the magazine, and should the head be slightly larger than said opening 7 the provision in the magazine-case of the vertical slot 8 in the rear edge thereof permits the case to open slightly, thereby removing any obstacle to the passage of such a cartridge out of the upper edge of the magazine.

As is well known by persons familiar with the general operation of magazines of the class herein described, upon the removal, as aforesaid, of the upper one of a group of cartridges therein those therebelow are lifted up by the magazine-spring and are removed one by one by firing the gun until the contents of the magazine are exhausted.

An internal metallic frame B, made preferably of sheet-steel and consisting of horizontal base portions 9, united at one end by a transverse part 10, has extending upwardly from said parts 9 two cartridge-guides 12. (See Fig. 3.) Said frame B is fixed in the interior of the magazine-case in the position shown in Fig. 1, and is therein secured by suitable rivets with the said cartridge-guides 12 lying closely against the inner opposite walls of the magazine, as indicated in dotted lines in Fig. 5. The opening between said cartridge-guides 12 is such as to permit the cartridges when the magazine is filled to lie therebetween, the heads of the cartridges, however, projecting beyond the rear edges of said guides, as shown in Fig. 1, and being caused to engage with the rear edges of said guides when placed in the magazine, thereby causing them to take and retain proper positions one above the other in the magazine, and to be held against any endwise movement therein, except as they shall be lifted up and removed one by one, as aforesaid. Said metallic frame B is secured within the magazine, as aforesaid, by rivets passing through the upper ends thereof at or about x , Fig. 3, and through the adjoining sides of the magazine-case; also, said frame is additionally secured within the magazine by pins y and z , Figs. 1, 8, and 9, to which operative parts of the magazine are pivoted, as below described, which preferably pass through the side walls of the magazine, thereby contributing to the more secure connection of the frame B therewith.

The cartridge-elevating devices of the magazine are constructed and arranged as follows: To the end that they may consist of such an organization of operative members as shall, as far as possible, obviate the tendency to breakage so common in devices for this purpose heretofore employed in magazines of this class, and, furthermore, to so construct said elevating devices that they are collapsed or rendered inactive when the magazine is to be charged and are made active or caused to exert the requisite lifting force against the cartridges after they are placed in the magazine and are required to be brought into position one by one to be fired. Said cartridge-

elevating devices consist of a lever 13, pivoted at y between the rear ends of said frame B, and of a lever 14, pivoted at the opposite end of the base of said frame at z , said levers being substantially alike and made preferably of steel are made about one-half as wide for a certain distance between their ends as they are at the latter, in order that they may be crossed, as shown, and not possess, when so arranged, a combined width exceeding that of the space between the uprights 12 of said frame B, since said levers have a vertical movement in said space. To the upper end of said lever 14 is pivoted by one end thereof the cartridge-table 15. This cartridge-table has a longitudinal chamber 16 within it extending from end to end thereof, in the under wall of which is a longitudinal slot a , and in said chamber is placed a freely-sliding plate 17, having a stud thereon projecting through said slot a , to which the upper end of said lever 13 is pivotally connected. The portion b of the lever 13, partially cut therefrom to reduce its width, as aforesaid, is left to extend toward the under side of the lever 14 to constitute a brace to serve to lift and support that lever when lever 13 swings upward and to cause both levers to coact more uniformly in support of the cartridge-table and the cartridges thereon, the lower extremity of lever 13 extending beyond its pivot y for a purpose below set forth. The said levers and cartridge-table are caused to be brought to the opened or distended positions (shown in Figs. 1, 2, and 8) by the action of the two-leaved spring 18, the lower leaf of which bears upon the base of the magazine-case, as shown, and its upper leaf engages with the under side of said lever 13 between said pivot y and the center of the magazine. Said spring 18 may, if desired, be fixed in the position shown in Fig. 1, whereby it shall act constantly against that part of said lever 13 with which it is there shown to be engaged, thereby constantly acting to lift up the levers 13 and 14 and the cartridge-table; but it is preferable that said spring 18 be movable longitudinally in the bottom of the magazine, as below described, in order that its point of engagement with said lever 13 may be alternately to one and then to the other side of the pivot-point y of said lever, so that the cartridge-lifting devices may, by sliding said spring under said lever, cause its bearing-point to be shifted from that shown in Fig. 1 to that shown in Fig. 9, whereby said spring is caused to act on that part of the lever 13 to the rearward of said pivot y and cause the levers 13 and 14 to be folded, and with the cartridge-table 15 dropped downward to the position shown in Fig. 9, thereby retiring all of the cartridge-elevating devices into the base of the magazine and leaving the latter perfectly free for the introduction of a charge of cartridges thereinto, thus obviating, as has heretofore been the case, all spring resistance to such introduction. It is obvious that the

lever might be the sliding part instead of the spring to effect the same result and without departing from the invention.

The above-described plate 17, which is connected to upper end of lever 13, provides a sliding connection for the latter with the cartridge-table 15, which permits of the proper upward and downward movements of the cartridge-elevating devices above described, said plate, when said elevating devices are folded together in the base of the magazine, taking the position shown in Fig. 9, and when said devices are fully distended in an empty magazine said plate takes the position shown in dotted lines in Fig. 8.

As above set forth, the magazine is pivoted by its rear edge to the guard-frame A of the arm for the purpose stated, and consequently catch devices are applied to the forward or swinging end of the magazine for the purpose of holding up said last-named end to the position shown in Fig. 1, and said catch devices are automatic in their operation—that is to say, said devices have normally a sufficiently firm engagement with the forward end of the guard-frame to cause the magazine when charged to be held up under all conditions of service; but the devices which act to hold it up will yield or retract in response to a pull downward on the swinging end of the magazine with a force somewhat in excess of the weight of said swinging end and the magazine charge and permit the magazine to swing downward to be loaded, after which it is again swung upward, and when brought to its uppermost position the catch devices become fully re-engaged with the guard-frame and hold the magazine as before. The said spring 18, which acts on the lever 13 to distend said cartridge-elevating devices, is connected with said catch devices and acts also to hold them in proper engagement with the guard-frame, as below described, thus serving a double purpose, and the result of the movement of said spring in detaching and attaching the magazine, as aforesaid, is to cause it to act on said lever 13 each side of its pivot-point, as above set forth, whereby when the magazine is in position to be charged the said elevating devices are in a collapsed state in the bottom of the magazine, and when the magazine is in a position to deliver cartridges to be fired said devices act against the cartridges to lift them, and said distending and collapsing movements of said devices are effected by the said movements of the magazine catch devices. Said spring 18 is preferably rigidly connected by its forward end to the rear end of a sliding catch-block 19 by a rivet or other suitable means, said block being located between the bottom *d* of the magazine and the adjoining transverse part 10 of the frame B and having a sliding motion therebetween. Said block 19 is provided with two inclined arms 20, each having a longitudinal extension 21, said arms and extensions being rigidly attached to or form-

ing parts of the catch-block, and said arms and extensions project laterally through openings in the opposite sides of the magazine-case, as shown in Fig. 4, and slots *o* are formed between said extensions and the edge of the block to permit of the free rearward movement of said block without encountering the sides of the magazine when its inclined arms 20 become disengaged from their receiving-slots *v* in the sides of the forward end of the guard-frame A. The said catch-block is held in proper position relative to the outer sides of the magazine, so that its sliding movements may be in the requisite right line by a steady-block 22, (see Figs. 1 and 2,) located in a slot in the base of the catch-block, said steady-block being held in position by a screw 23, which passes through the base of the magazine and said block 22 and enters a screw-hole at *n*, Fig. 3, in the part 10 of the frame B. Said block 22 also regulates the degree of the sliding movement of the catch-block 19. The outer surfaces of said inclined arms 20 and extensions 21 are checkered or roughened, as shown, for convenience in grasping without slipping to operate the catch devices, and said outer surfaces are in practice arranged to project very little, if any, beyond the surface of the forward end of the guard-frame A, in order that they may not present any protuberance which would be likely in handling the arm to be brought into contact with anything which may inadvertently press against the catch-block and cause the forward end of the magazine to be swung downwardly and expose the cartridges to be dropped therefrom. Figs. 1, 8, and 9 illustrate the said magazine catch devices in their operative positions in the magazine, and Fig. 4 illustrates the operative relation of the inclined arms 20 of the catch-block 19, with their engaging slots *v* in the sides of the forward end of the guard-frame of the arm. Figs. 1 and 8 illustrate the position of the spring 18 relative to the lever 13 when the catch-block 19 is in engagement with the said slots of the guard-frame, as shown in Fig. 4, whereby it is seen that when the catch-block is so engaged said spring 18 is actively operating against lever 13 to lift it and its connected cartridge-elevating devices. Fig. 9 illustrates the rearward position of the catch-block, or that which it occupies when its arms 20 are detached from said slots in the guard-frame, and when the catch-block is in this position the end of spring 18, which engages with said lever 13, is moved rearwardly beyond the pivot *y*, thus causing said spring to act reversely on said lever 13, thereby forcing said lever and its connected parts downwardly to the position shown in said last-named figure.

The relative arrangement of the catch-block on the magazine and the slots *v* in the forward part of the guard-frame A is such that when the forward end of the magazine is swung downward the inclined arms 20 so en-

gage with the lower edges of said slots *v* that the catch-block is forced to retire rearwardly to the position shown in Fig. 9 or far enough to bring the extremities of said arms clear of the guard-frame at the lower ends of said slots, and this retiring movement of said block is imparted to the spring 18 and causes its end, which bears on lever 13, to be carried back of the pivot *y*. The arrow in Fig. 1 indicates the line of movement of the forward end of the magazine when it is swung downward and serves to explain the above-referred-to action of the catch-block consequent upon said movement, for it will be noted that the line of incline of said slots *v* is at an incline to the circular line described by said arrow, and consequently when the end of the magazine is swung downward the inclined arms on the catch-block are forced to retire from the slots *v*, thereby sliding back the catch-block and spring 18, as aforesaid.

When the magazine is closed up, as shown in Figs. 1 and 8, the catch-block and the spring 18 are drawn forward to the position there shown by the re-engagement of the arms 20 with said slots in the guard-frame, and when in this position the tendency of the rearwardly-separated leaves of the spring 18 to spring apart constitutes a constant force, acting to hold the catch-block in engagement with said slot *v* in the guard-arm, whereby, as aforesaid, the magazine is prevented from dropping down under its own weight and that of the cartridge-charge combined, as aforesaid.

The operation of the within-described improvements is as follows: Assuming that the magazine is empty and is locked in its upward position and that the internal mechanism and catch devices thereof occupy the positions shown in Fig. 8, the operator grasps the arms 20 and 21, one or both, between the thumb and fingers and pulls downward. This action swings down the forward end of the magazine and forces the catch-block 19 to slide inwardly and the arms 20 of said block to slide out of the slots *v* in the guard-frame, thereby removing all obstruction to the movement of the magazine to the position thereof shown in Fig. 9. The above-referred-to inwardly-sliding movement of the catch-block causes a like movement of the spring 18, whereby its rear end is carried past the pivot *y* of the lever 13 to and under the lower extremity thereof beyond said pivot, thereby causing said spring to so act on lever 13 as to throw its upper end downward, and thus to compel the cartridge elevating and supporting parts connected therewith to be thrown in a folded position in the base of the magazine, as shown in Fig. 9, thus leaving the part of the magazine above said folded devices free from any obstruction whatever to the introduction of the entire charge of cartridges therefor from a suitable box at one movement or to their introduction one by one by hand, after which the magazine is simply swung back to the position shown in Figs. 1 and 8,

thereby causing the catch-block 19 to have its arms engage with the guard-frame, as aforesaid, whereby it is made to slide forward, carrying with it the spring 18 and bringing the latter to act on lever 13 on the side of the pivot shown in said last-named figures, thereby bringing the cartridge-lifting devices into full action to carry the cartridges upward, as and for the purpose set forth.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a magazine for fire-arms of the class described, a cartridge-table and a supporting-lever therefor, and a spring bearing on the lever, said lever and spring inclosed in the magazine and one of the said parts movable in the magazine relatively to the other, so that the spring may bear on one side of the fulcrum to raise the lever or on the other side to depress it, substantially as described.

2. In a magazine for fire-arms of the class described, cartridge-elevating devices consisting of the following members: a pair of levers pivoted by one end in the magazine near the base thereof and crossing each other, one of said levers having its lower extremity extending beyond its pivot, a spring under said lever movable for engagement therewith on opposite sides of its pivot, and a cartridge-table pivotally connected to the upper end of one of said levers and extending over and further supported by said spring-engaged lever, combined and operating substantially as set forth.

3. In a magazine for fire-arms, a cartridge-supporting lever and a spring bearing against said lever, one of the parts being movable relatively to the other, so that the spring may bear on one or the other side of the fulcrum of the lever and serve to raise or depress the same, substantially as described.

4. In a magazine for fire-arms, a cartridge-table and a supporting-lever therefor, and a spring bearing on the lever, said lever and spring inclosed in the magazine, said spring being movable, so as to bear on the lever at one side or the other of its fulcrum and either raise or depress the same.

5. Cartridge-elevating devices for magazines for fire-arms, consisting of the following members: a pair of levers pivoted by one end in the magazine near the base thereof and crossing each other, a spring under said levers engaging with one thereof, a cartridge-table pivotally connected to the upper end of one of said levers, having a chamber therein, and a plate sliding freely and longitudinally in said chamber, having a pivotal connection with said spring-engaged lever, combined and operating substantially as set forth.

6. In a magazine for fire-arms of the class described, cartridge-elevating devices consisting of the following members: a pair of levers pivoted by one end in the magazine near the base thereof and crossing each other, one of said levers having a brace extending

therefrom and engaging the under side of the opposite lever, a spring under said levers engaging with one thereof, and a cartridge-table pivotally connected to the upper end of one of
5 said levers and extending over and further supported by said spring-engaged lever, combined and operated substantially as set forth.

7. In combination with the guard-frame of a fire-arm having slots in the sides thereof,
10 substantially as described, to receive the arms of a catch-block, a magazine pivoted on said frame, having one end swinging between the slotted sides thereof, a catch-block having a sliding motion in the base of the magazine
15 and having arms thereon entering said slots in the guard-frame, a spring connected to said block, and a cartridge-elevating lever within the magazine with which the free end of said spring engages, substantially as set
20 forth.

8. In combination, the magazine-case, the

frame B, fixed therein and having the transverse base part 10, the catch-block 19, having a sliding movement between the bottom of said case and part 10 and having a slot in
25 the body thereof, and a steady-block 22, secured rigidly in said slot, substantially as set forth.

9. In combination, the magazine-case, the frame B secured therein, having the upright
30 cartridge-guides 12 thereon, and the uniting base part 10, substantially as set forth.

10. The magazine-case having the oppositely-arranged inturned lips 6 on its upper open edge, the wider opening 7, adjoining said
35 lips, and the slot 8 in its rear edge, substantially as set forth.

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