

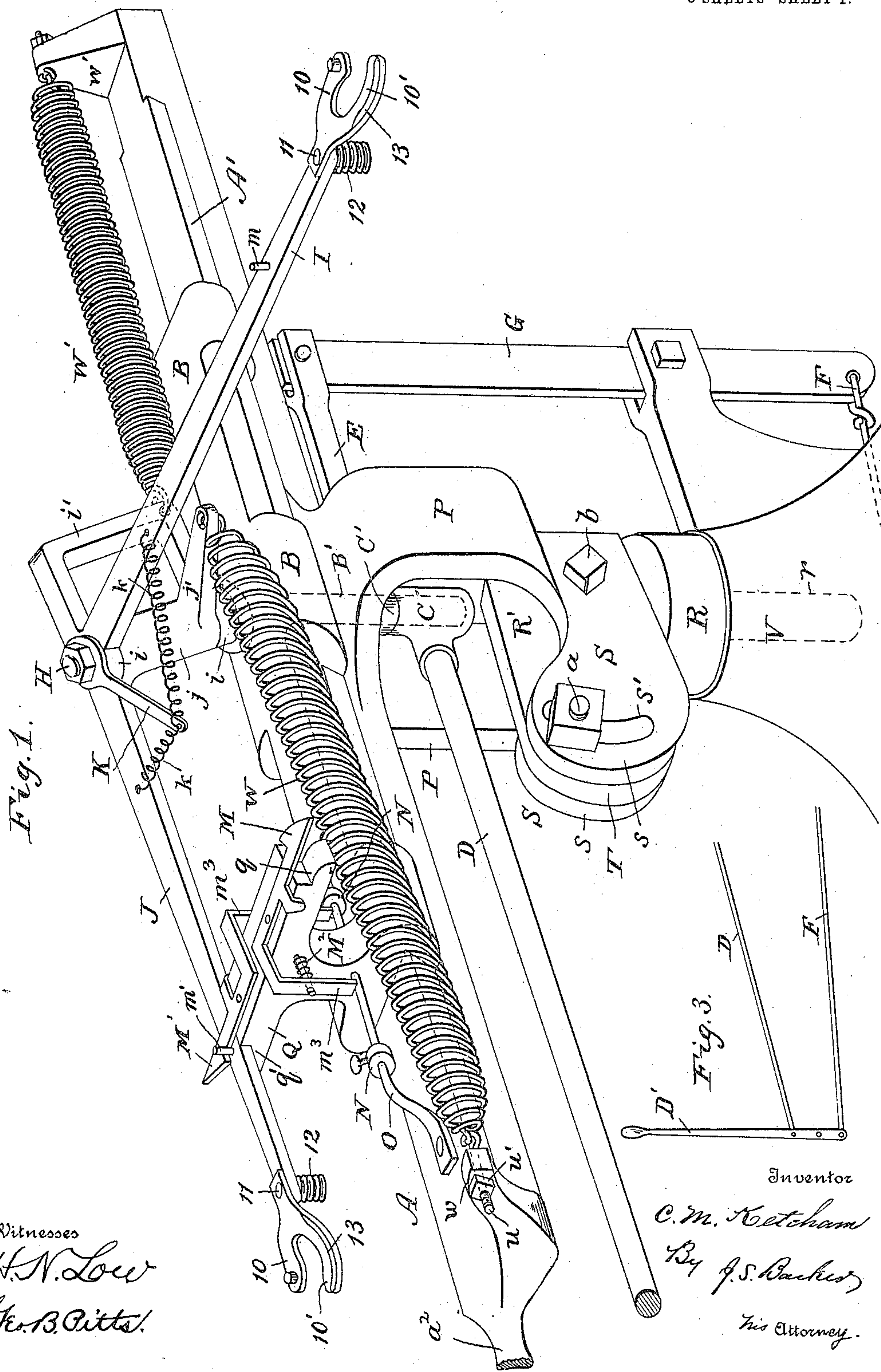
No. 822,741.

PATENTED JUNE 5, 1906.

C. M. KETCHAM.  
TARGET TRAP.

APPLICATION FILED MAY 5, 1904

3 SHEETS—SHEET 1.



Witnesses  
H. N. Low  
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Inventor  
C. M. Ketcham  
By J. S. Barker,  
His Attorney.

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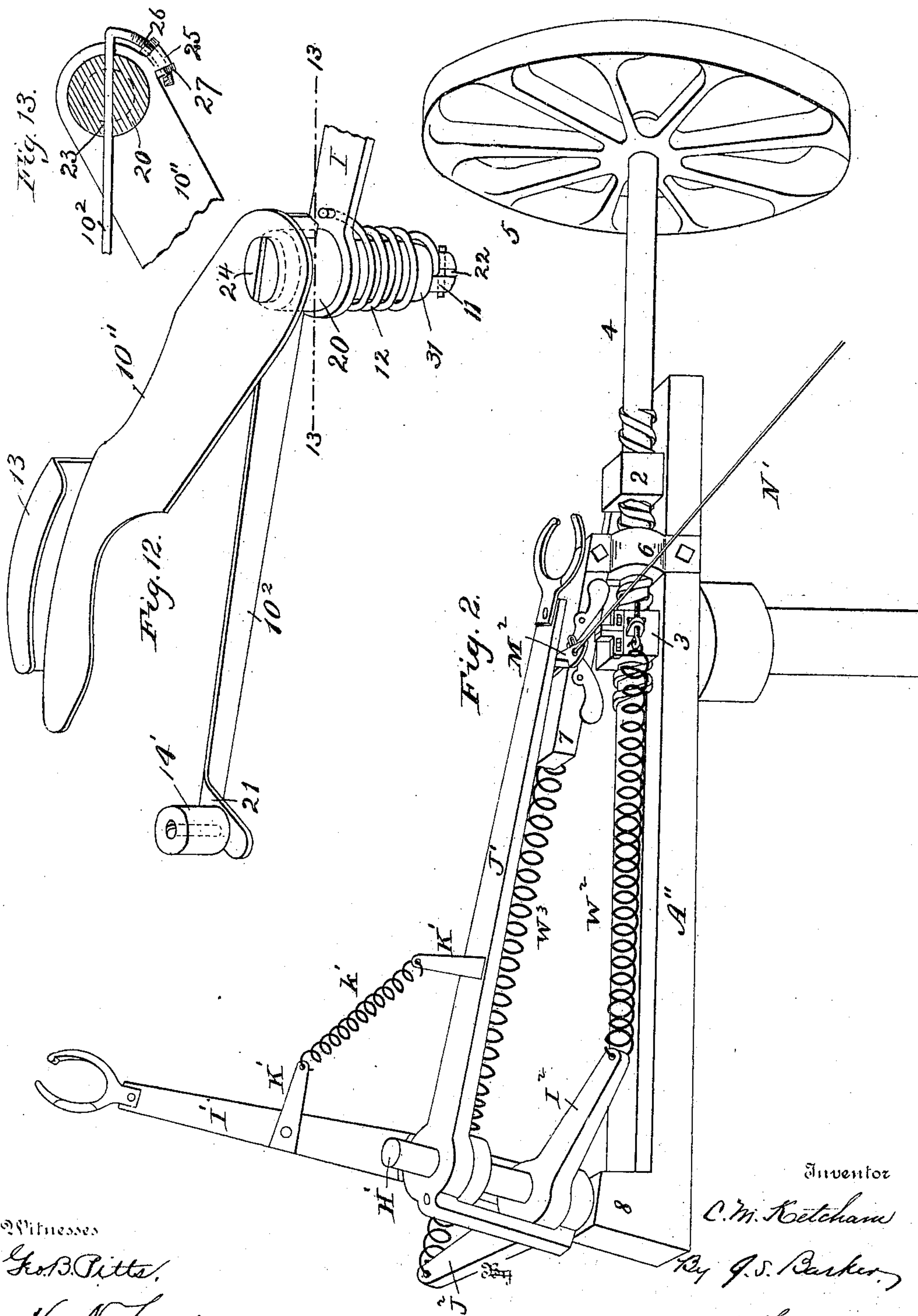
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3 SHEETS—SHEET 2.



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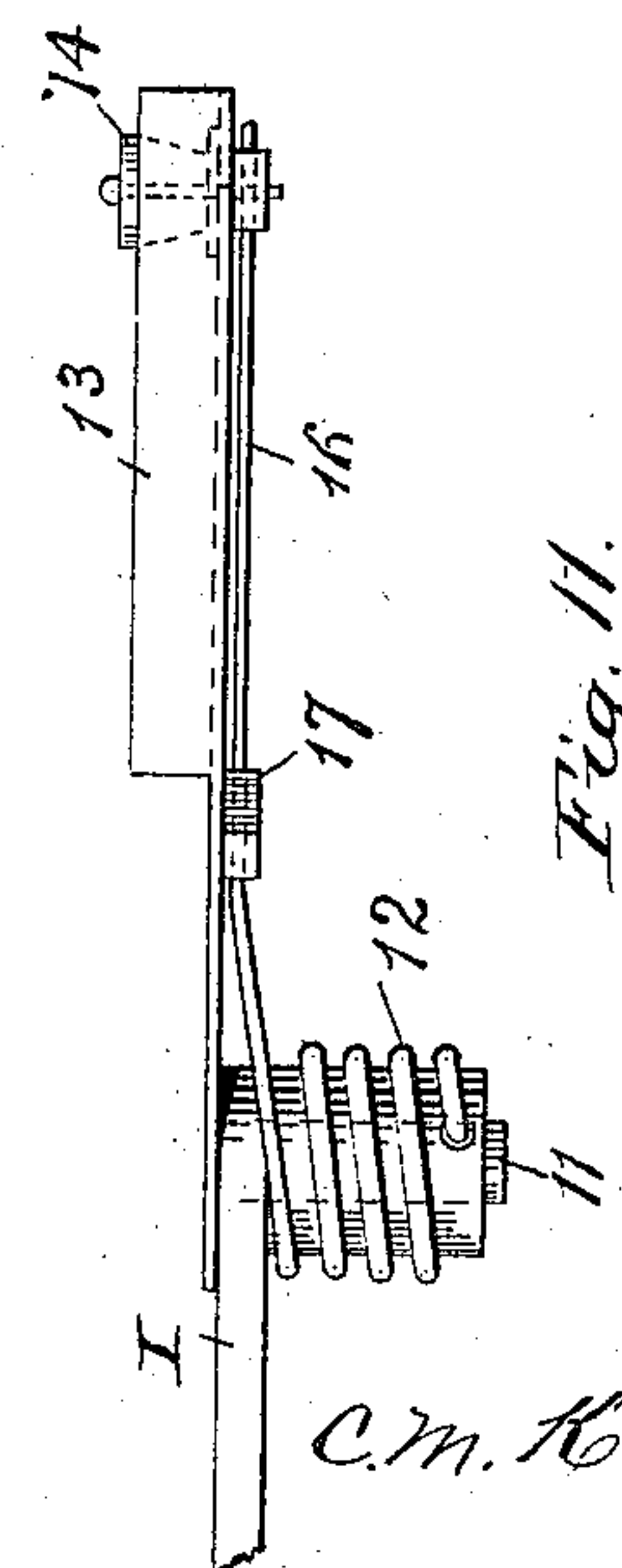
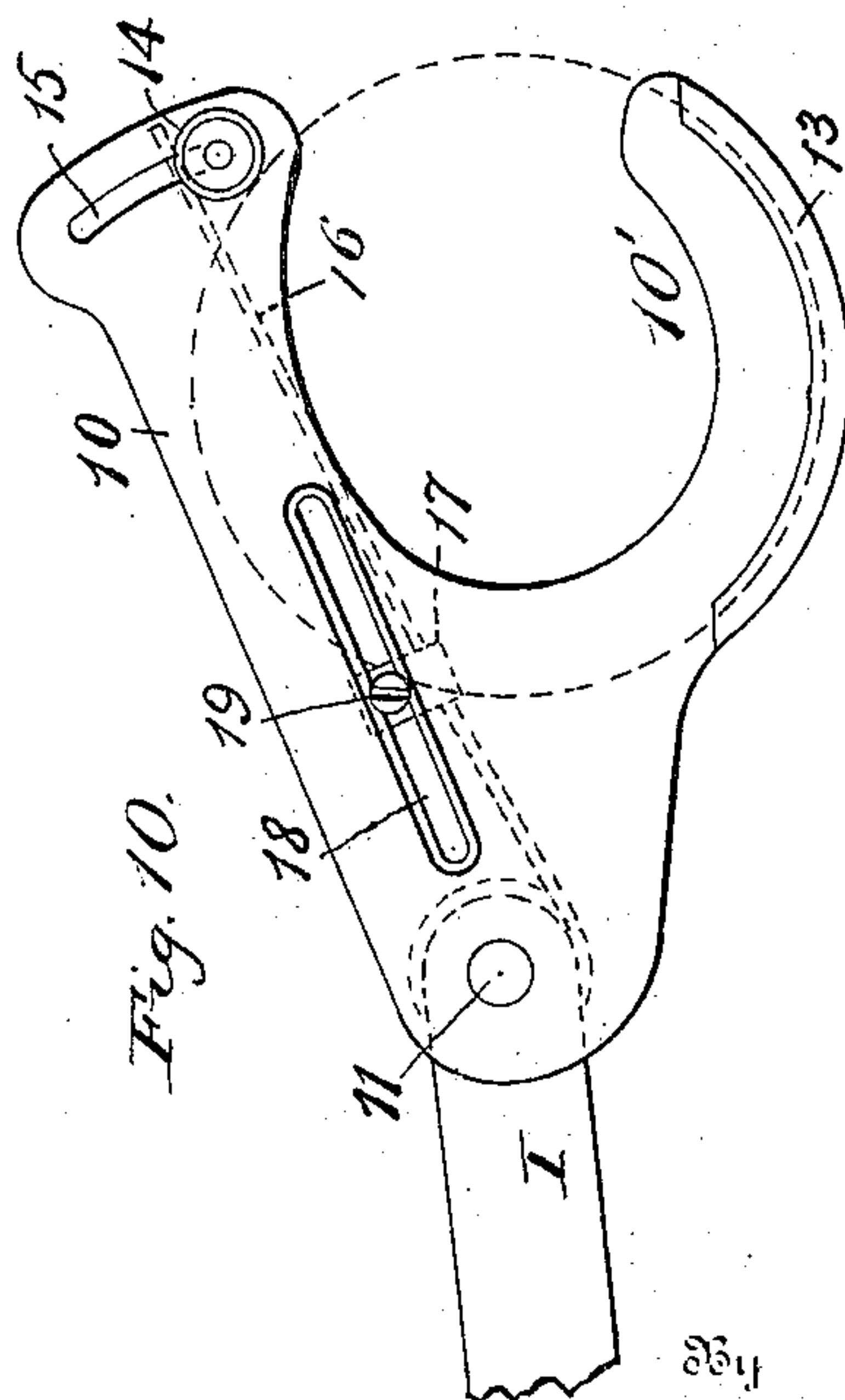
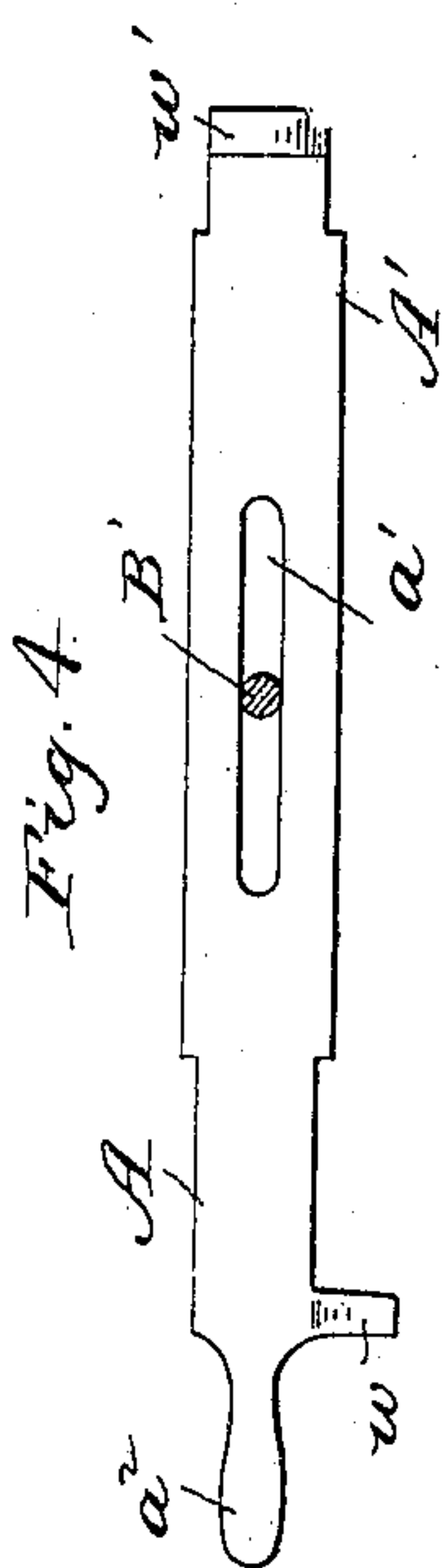
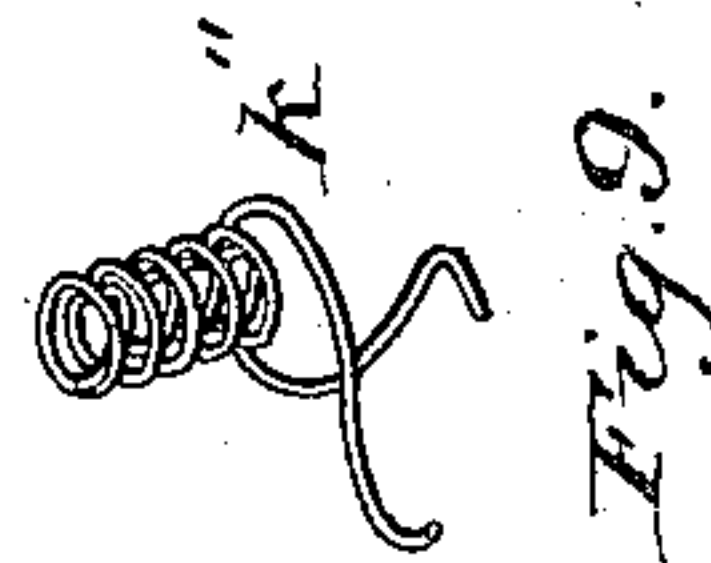
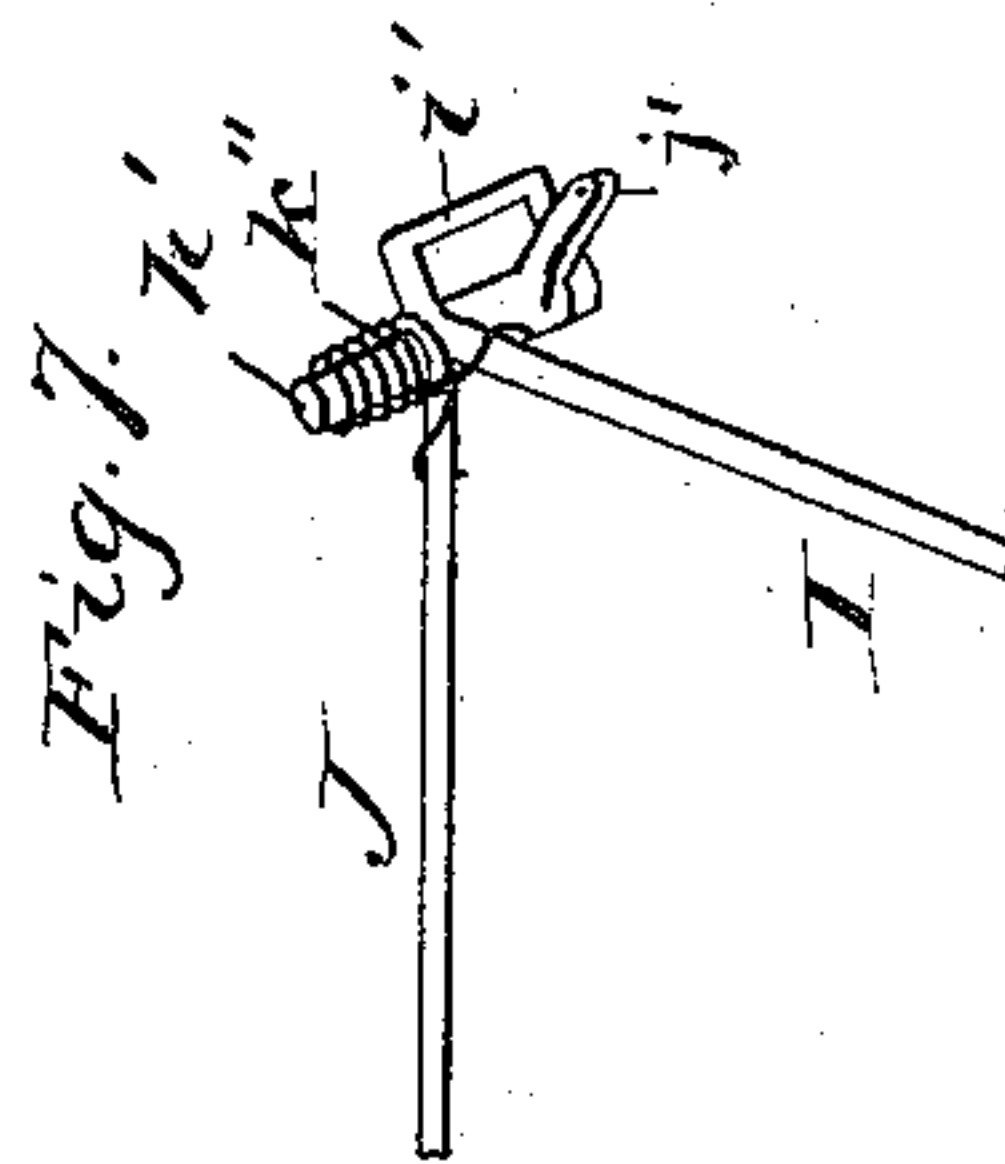
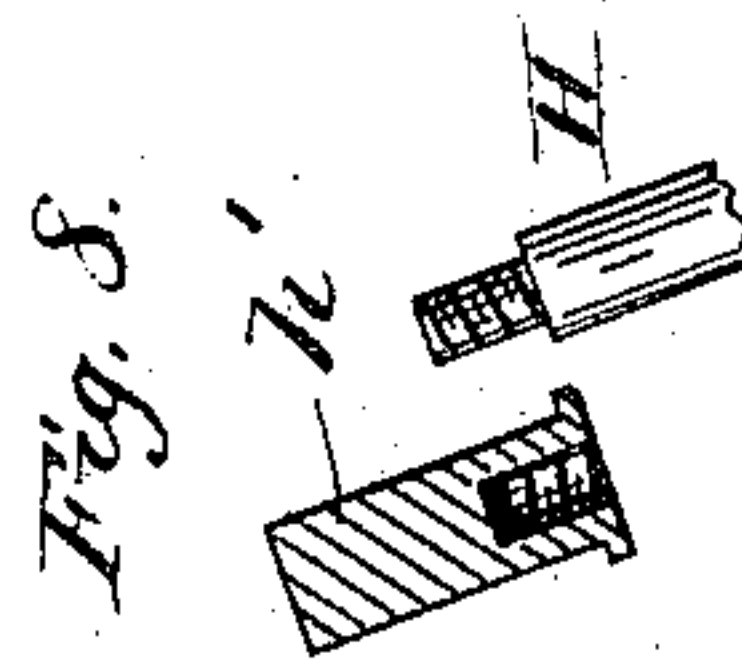
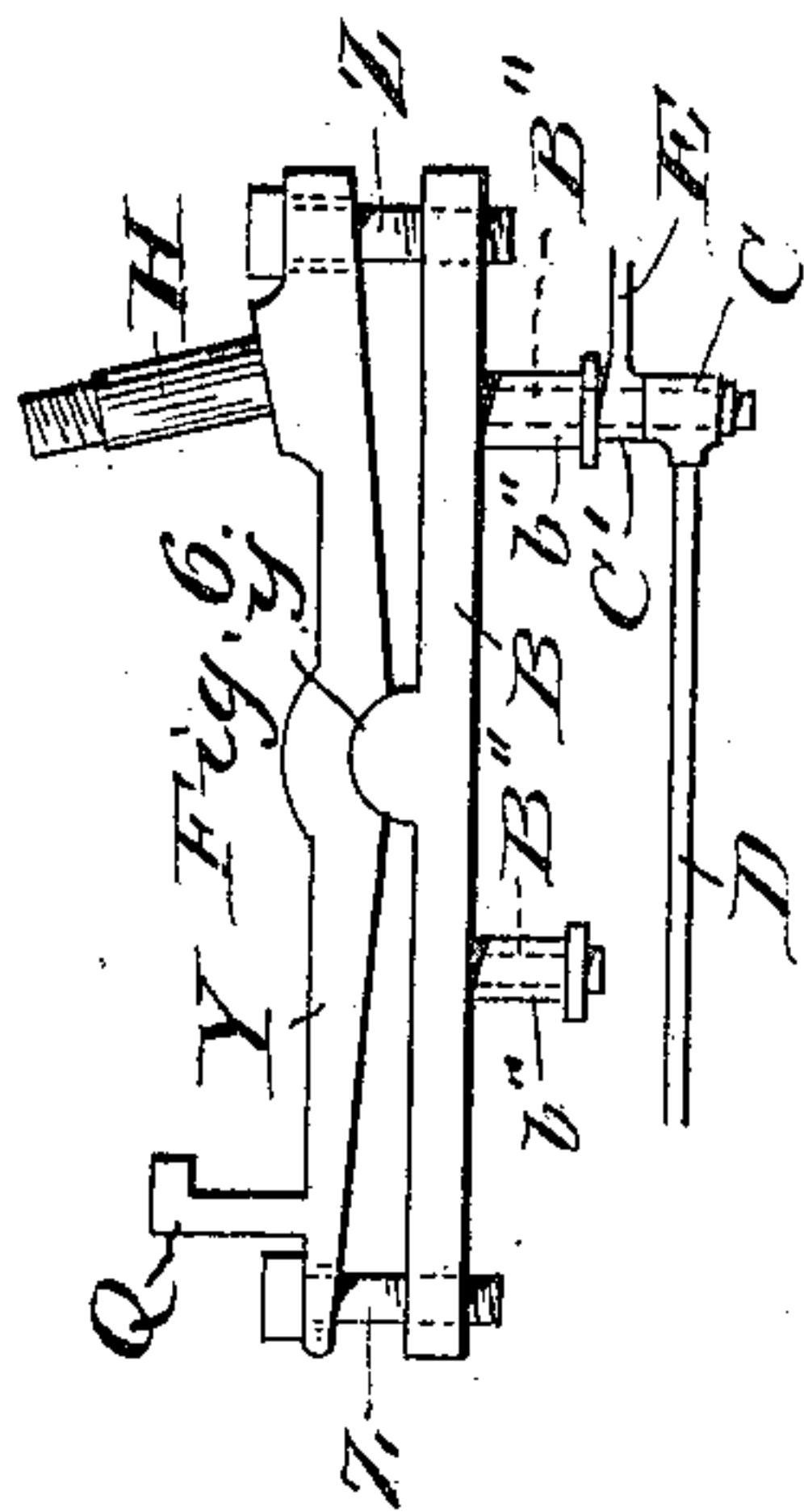
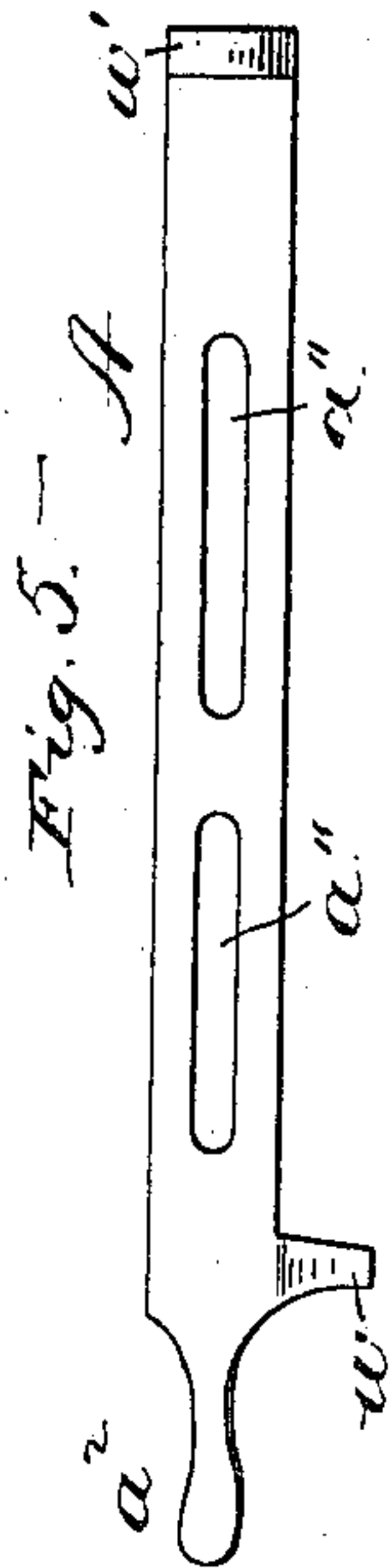
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3 SHEETS—SHEET 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

CASSIUS M. KETCHAM, OF CARTHAGE, MISSOURI.

## TARGET-TRAP.

No. 822,741.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed May 5, 1904. Serial No. 206,509.

*To all whom it may concern:*

Be it known that I, CASSIUS M. KETCHAM, a citizen of the United States, residing at Carthage, in the county of Jasper and State of Missouri, have invented a new and useful Target-Trap, of which the following is a specification.

My invention relates to target-traps for firing or throwing clay pigeons and other targets, and has for its object to produce a machine of this character that is adapted to throw the targets rapidly and in different directions.

It consists, among other things, of a target-trap having two firing-arms arranged to throw the targets into the air in different directions; of a target-trap having two firing-arms arranged to successively throw the targets; of a target-trap having two firing-arms and means combined therewith for putting one arm under tension or in condition for firing the target and simultaneously putting the other arm into an inactive condition, and a target-trap having two firing-arms and means for setting one arm on the trigger the moment the other arm is released from the trigger to fire its target. These and other features that will be hereinafter pointed out constitute the improvements that I have invented and devised.

That my invention may be the better understood I have illustrated several forms thereof, though I do not mean to be understood as limiting my invention to the specific details of construction and arrangement shown, except in so far as such details are specifically claimed by me.

In the accompanying drawings, Figure 1 is a perspective view of a target-trap embodying many of the preferred features of my invention. Fig. 2 is a perspective view of another form of the invention. Fig. 3 is a detail view of the operating-handle and connecting-rods used in connection with the form of trap shown in Fig. 1. Fig. 4 is a top plan view of the bed of the trap shown in Fig. 1. Fig. 5 is a plan view of a bed embodying different features of construction from that shown in Fig. 4. Fig. 6 is a side elevation of a sliding frame adapted for use in connection with the bed shown in Fig. 5 and provided with an adjustable support for the throwing-arms. Figs. 7, 8, and 9 are detail views of parts used in connection with the throwing-arms. Fig. 10 is a plan view

of a holder for the targets. Fig. 11 is a side elevation of the parts shown in Fig. 10. Fig. 12 is a perspective view of another form of target-holder. Fig. 13 is a section taken on the line 13 13 of Fig. 12.

I will first describe that form of my invention illustrated in Fig. 1. The trap is mounted upon a base V of any usual or approved construction. On the upper end of the base is a rotatable head or block R, from which depends a pivot-pin *r*, entering a socket formed therefor in the base, and to this head the bed or track A of the trap is connected, preferably, by means of a pivot-bolt *b*. For reasons that will hereinafter appear I prefer that the connection between the bed A and the rotatable head R should be of the form illustrated in Fig. 1—that is to say, from each edge of the central portion of the bed there is a narrow, curved, depending wall or flange P, that expands at its lower end into a plate S of eccentric shape. The plates S are parallel with each other, and between them is situated a plate-like extension R', rising from the rotatable head R. A horizontal pivot-bolt *b* passes through and unites the plates R' and S. The outer ends *s* of the plates S are expanded, and in them are formed curved slots *s'*. Through these slots and a suitable aperture in that portion T of the plate R' of the rotatable head that is situated between the parts *s* passes a clamping-bolt *a*. By thus mounting the bed it is possible to adjust it to any desirable extent horizontally by turning the head R and vertically or at an angle to the horizon by rocking the head upon the pivot *b*. The set-bolt *a* is used to secure the parts in the position of vertical adjustment to which they may be set.

The bed A is provided with a longitudinally-disposed dovetail track or guideway A', upon which is mounted the sliding frame or bar B. Upon this frame are mounted the throwing-arms, the trigger mechanism, and other operative parts of the trap. The bed A is provided with a longitudinal aperture *a'*, through which extends a pin B', depending from the sliding frame or bar B and extending into the housing formed by the two curved plates or flanges P, depending from the edges of the bed. Mounted upon the pin B' are two collars C C', to which are connected, respectively, the operating-rods D and E. The rod D is connected directly



with a hand-lever D', while the rod E is connected with such hand-lever through intermediate connections consisting of a lever G and a connecting-link F. By these means the sliding frame or bar B may be moved along the bed A for purposes that will hereinafter appear. The guideway for the sliding frame carrying the throwing-arms may be formed by a plurality of slots  $a''$ , formed in the bed A, as indicated in Fig. 5, through which pass the depending pins B'', carried by the sliding frame. Loose collars or anti-friction-rollers  $b''$  may be mounted on the pins B'' to reduce friction as the frame is moved.

H represents a pin rising from the sliding frame and serving as the support upon which the throwing or firing arms I and J are mounted and about which they turn. These arms are so mounted that they not only stand in angular relations to each other, as clearly indicated in Fig. 1, but they also move in different arcs and deliver their targets at different angles, though in the same general direction. The pin upon which the throwing-arms are mounted may be rigid with the sliding frame, as in the Fig. 1 construction, or it may be adjustable relative thereto, as in the Fig. 6 construction. This latter arrangement for some reasons I consider the more desirable, as it permits the angle of the axis about which the throwing-arms turn to be varied and easily adjusted. As illustrated in this view, the sliding frame is formed of two main parts—the lower supporting member B, and an upper adjustable member Y, carrying the pin H. The member Y rests upon a fulcrum or bearing  $y$ , carried by the part B, and upon which it is free to rock. The adjustment of the member Y is effected by means of the screws Z.

In order to give a rigid mounting to both of the throwing-arms when mounted upon the same support and at the same time to provide attachments for the main operating-springs, I prefer to construct the arms as follows: The arm I is provided with a pair of collar-like bearings  $i$ , widely separated and connected by a yoke-like piece  $i'$ . The collars  $i$  engage with the pin H, respectively, near its opposite ends, and the yoke-like piece  $i'$  serves as an attachment for one end of a strong coiled spring W', that serves as the firing-spring for this arm I, the opposite end of the spring being secured to a post  $w'$  at one end of the bed A. The other throwing-arm J is provided with an elongated bearing in the form of a sleeve  $j$ , that encircles the pin or shaft H and is of a length to fit between the collar-like bearings  $i$  for the throwing-arm I. An arm  $j'$  extends laterally from the bearing  $j$  and serves as the attachment for the strong firing-spring W, that operates the arm J, the opposite end of the spring being secured to the arm  $w$ , extending from the

bed A. If found desirable, the ends of the springs W and W', that are connected with the stationary supports, may be made adjustable to vary the tension of the springs, and for this purpose a screw-threaded rod  $u$ , extending through the stationary support for the spring and provided with a hook or other means of attachment to the spring, is employed, a nut  $u'$ , engaging with the screw-threaded rod, serving as the means for adjusting the latter.

Q designates a standard rising from one end of the sliding frame or bar B and serving as a support for the triggers and also furnishing bearings or rests  $q$   $q'$  for the throwing-arms I and J, respectively, when the latter are in position to be held by the triggers and under the stress of their firing-springs. The trigger for the firing-arm I is designated M and that for the firing-arm J, M', and these triggers are arranged to engage, respectively, with pins  $m$   $m'$ , carried by the said arms. Springs M<sup>2</sup> bear against the triggers and hold them in position to catch over the pins  $m$   $m'$ , and thus hold the arms whenever the latter are moved, so as to rest in the seats  $q$   $q'$  in the standard Q.

In Fig. 1 the arm J is represented as being in position ready for firing, its spring W being under tension, and the trigger M' holding it, while the arm I is inactive, occupying a position away from its seat  $q$  in the standard Q and its spring being relaxed. If now the trigger M' be tripped, the spring will turn the arm, and thus cause the target to be thrown.

It will be observed that the stationary supports for the springs W W' are at opposite ends of the bed upon which the frame B slides, and it therefore follows that if such frame be moved along the bed longitudinally one spring will be tightened as it is moved in one direction, the other spring being relaxed, and when the frame is moved in the opposite direction a reverse operation will take place. Supposing it be desired to fire a target from the arm J, the following operations will take place: First, the arm will be swung around until it comes into its seat  $q'$  in the standard Q, where it will be held by the trigger M'. The frame or sliding bar B will then be moved upon the bed by means of the hand-lever D' and the mechanism connecting it with the bed in a direction away from the spring-support  $w$ , resulting in putting the spring W under tension. The trigger is then tripped, allowing the spring to swing the arm and throw the target. After the target from the arm J has been thrown the arm I will be set, it being moved into its seat  $q$  and there held by the trigger M. The sliding frame will then be moved in a rearward direction—that is, toward the spring-support  $w$ —thus putting the spring W' under tension and relaxing the spring W. After the spring W', which is connected with the arm I, has been given



sufficient tension the trigger M may be manipulated and the arm I released to throw its target. I prefer to provide means for automatically setting each arm simultaneously with the releasing of the other arm. To secure this, I connect the two arms I and J by means of a spring  $k$ , so that when one is swung to discharge a target the spring  $k$  is put under tension and draws the opposite arm into its seat, where it may be held by its trigger. In order that the spring may effectively act upon the arms, I connect it at a point intermediate its ends with a lever or arm K, loosely mounted upon the stud or pin H.

In Figs. 7 and 9 I have shown a form of spring  $k''$  different from that illustrated in Fig. 1, though arranged to operate in the same manner as such spring. The spring  $k''$  is coiled about an elongated nut  $h'$ , that is mounted upon the end of the post H, on which the throwing-arms are supported. It will be understood that the triggers may be operated manually, if desired; but I prefer to provide means whereby they may be automatically tripped at the moment the firing-springs are given the proper amount of tension. To permit this, I extend the ends  $m^3$  of the triggers so that they will come into engagement with adjustable stops N, mounted upon a suitable support O, carried by the bed A. As the frame is slid in one direction the arm  $m^3$  of one of the triggers comes into contact with the stop at the moment one of the firing-springs has been put under the proper amount of tension, such engagement of the trigger and stop operating to release the throwing-arm. As the frame is moved in the opposite direction the other trigger is operated. One end—that which I term the “rear” end—of the bed A is preferably formed into a handle  $a^2$ , by means of which the bed may be turned upon its vertical axis  $r$  and also rocked upon its horizontal support  $b$ . By arranging the stud or pin to which the shifting means D and E for the sliding frame B are connected as nearly as may be over the vertical axis  $r$  for the apparatus I reduce to a minimum the strain upon the parts when vertical and horizontal adjustments are made. It will be understood that these adjustments are not great in extent and are made for the purpose of causing the targets to fly in somewhat different directions. It will be seen that the employment of two arms arranged as shown insures that the targets discharged by them, respectively, shall fly in different directions, the advantage of which is apparent.

In the apparatus that I have described the springs for the two throwing-arms are put under tension by moving the frame carrying the arms. This, however, is not a necessary feature of my invention, as will be apparent from an examination of that form of invention illustrated in Fig. 2. Here the post or pin H', on which the firing or throwing arms

I' J' are mounted, is arranged at one end of the bed A''. The trigger mechanism (indicated generally by M<sup>2</sup>) is mounted upon a support 7, which in turn is carried by a bearing or standard 6, rising from the bed. The trigger is arranged to be manually operated, a cord N' being represented as attached thereto for this purpose. The firing or throwing arms are provided, respectively, with relatively short arms or levers I<sup>2</sup> J<sup>2</sup>, to which are secured the ends of the heavy firing-springs W<sup>2</sup> W<sup>3</sup>, that serve to give motion to the arms, and thereby throw the targets. The arms are connected by a relatively weak setting-spring  $k'$ , that operates to automatically set one arm when the other is turned to discharge the target. This spring is attached to the ends of the arms K', extending out from the throwing-arms, these arms performing the function of the loosely-mounted arm K of the form of invention shown in Fig. 1. The springs W<sup>2</sup> W<sup>3</sup> are connected at their rear ends to longitudinally-movable supports consisting of nuts 2 and 3, supported upon oppositely-screw-threaded portions of a shaft 4, supported in bearings 6 and 8 above the bed A''. The shaft is provided with a wheel 5, by which it is manipulated. With this description of this form of my invention its operation may be understood. Upon turning the shaft in one direction one of the nuts 2 or 3 will be moved backward and the other forward, thereby putting one spring under tension and loosening the other. The throwing-arm of the spring that is to be put under tension is turned so as to be held by the trigger M<sup>2</sup> before the rotation of the shaft is begun. After the spring has been sufficiently tightened the trigger will be operated and the arm released. The movement of the arm to throw the target operates, through the spring  $k'$ , to set the other arm into engagement with the trigger, after which the wheel and shaft should be turned in the opposite direction to put the spring of that arm under tension and simultaneously relieve the other spring.

It will be observed that in both forms of my invention there is formed a target-trap having two firing-arms, which arms are arranged to act alternately and also to fire or throw the targets in different directions. There are also combined with these arms means for setting the operating mechanism of that arm which is held by the trigger and relieving the operating mechanism of the other arm and that also in both mechanisms there are means for automatically setting the arms in position to be locked or held by the trigger.

I have not illustrated in that form of my invention shown in Fig. 2 any means for adjusting horizontally and vertically the bed A'', but ordinarily I employ such means. In both forms of the invention I prefer that the support upon which the throwing-arms are mounted should be slightly inclined relative



to the top face of the bed A'' in order that the targets shall be discharged upward when the bed is set horizontally.

The carriers or holders for the targets arranged at the ends of the arms I J may be of any preferred construction. I prefer that the holder should be connected with the end of the arm by a pivotal joint 11 and spring 12, the latter tending to hold the carrier in a certain definite relation to the arm under normal conditions, but permitting it to yield as the target is being discharged in a well-known manner. The support or carrier shown in Figs. 10 and 11 is provided with two holding-fingers 10 10', the latter of which is provided with a curved flange 13 to form a pocket in which the edge of the target rests, while the former carries a spring-held yielding bearing-roller 14, the stem or support of which is movable in a slot 15, formed in the arm 10. A spring 16 holds the roller 14 in the position indicated in Fig. 10 of the drawings—that is, in engagement with the edge of the target that is opposite the portion seated in the pocket formed by the flange 13. I prefer that the spring 16 should be a straight continuation of the coiled spring 12, that serves to unite the carrier or target-holder with the arm I. This spring has a bearing in an adjustable block 17 intermediate its coiled portion and the end that engages with the roller 14. This block 17, which constitutes a bearing for the spring, is adjustable in a longitudinally-disposed slot 18, formed in the arm 10 of the holder, and is held in any position to which it may be adjusted by a set-screw 19. It will be evident that by moving the bearing 17 toward the outer end of the arm 10, and hence toward the roller 14, the effective length of the spring 16 will be shortened, and consequently the spring stiffened, while the reverse movement has the opposite effect of weakening the spring.

In Figs. 12 and 13 there is illustrated another form of target carrier or holder which for some purposes I prefer. The pin 11, that forms the pivotal connection with the throwing-arm I, extends through a bearing 31 at the end of the arm and carries at its upper end a flat plate, arm, or finger 10'', formed with the flange 13, that constitutes a rest or pocket for the edge of the target. The spring 12 is coiled about the bearing 31 and has one end connected with the pin 11, which is slotted at 22 for that purpose, and has its other end connected with the throwing-arm I, thus holding the carrier yieldingly in its proper relation to the throwing-arm. The roller 14', that bears against the edge of the target opposite the edge in the flange 13, is supported above a shelf or bearing 21, formed at the end of a yielding or elastic arm or finger 10<sup>2</sup>, the inner end of which is mounted in a slot 23, formed in an enlarged head or portion 20 of the pin 11. The enlarged part 20 of the pin

is disposed above the arm I and has its extreme end portion reduced somewhat to form a bearing 24 for the arm 10'', on which the arm is free to turn. I make the arm or plate 10'' of the carrier adjustable relative to the elastic arm 10<sup>2</sup>, and as a ready means for securing this result I form these parts as follows: The flat arm 10'' is formed with a depending perforated lug 25, through which passes the end 26 of the elastic arm 10<sup>2</sup>. (See Fig. 13.) The part 26 of the elastic arm is screw-threaded and upon it are mounted the adjusting and set nuts 27. It will be seen that one of the arms of the target-carrier is fixed relative to the pivot that unites it with the throwing-arm, while the other is adjustable relative thereto and is provided with adjusting means that unite it with the pivot of the holder or carrier.

What I claim is—

1. In a target-trap, a pair of firing or throwing arms both mounted on the same axis and arranged to turn thereon one in one direction and the other in the opposite when moving to deliver their targets, whereby the targets from both arms are thrown in the same general direction (as away from the marksman) but at different angles, and means for operating the arms, substantially as set forth.
2. In a target-trap, a pair of firing or throwing arms both mounted in the same axis, and means for operating the said arms alternately, that is, for causing one to assume the inactive position when the other is being set for firing and vice versa, substantially as set forth.
3. In a target-trap, the combination of two firing or throwing arms, means for operating the said arms, and means for simultaneously putting one arm in condition for operation and rendering the other inactive and vice versa, substantially as set forth.
4. In a target-trap, the combination of two firing or throwing arms arranged to operate alternately, a trigger mechanism for releasing the arms, and means operated by the arm that is moving to throw the target to simultaneously bring the other arm into engagement with the trigger mechanism, substantially as set forth.
5. In a target-trap, the combination of a pair of firing or throwing arms mounted upon a common axis, means for causing one arm to turn in one direction about its axis to throw its target and the other arm to turn in the opposite direction to throw its target, and trigger mechanism controlling the arms, substantially as set forth.
6. In target-trap, the combination of a pair of firing or throwing arms, springs connected therewith for operating the arms, and means for simultaneously putting the spring of one arm under tension and relaxing that of the other arm and vice versa, substantially as set forth.
7. In a target-trap, the combination of a



pair of throwing-arms, springs for giving motion to the arms to throw the targets, each spring being connected at one end with a longitudinally-movable support and at the other end with a fixed support, and means for moving the longitudinally-movable supports of the springs in opposite directions relative to their fixed supports, whereby as one spring is put under tension the other is relaxed, and a trigger mechanism for folding the throwing-arm while its spring is being put under tension, substantially as set forth.

8. In a target-trap, the combination of a pair of throwing-arms, a longitudinally-movable support upon which the arms are mounted, springs for moving the arms each connected at one end with one arm and at its opposite end with a stationary support, and means for moving longitudinally the support that carries the arms, whereby when it is moved in one direction one spring is put under tension and the other relaxed and when moved in the opposite direction the latter spring is put under tension and the former relaxed, substantially as set forth.

9. In a target-trap, the combination of a bed, a supporting-frame movable longitudinally upon the said bed, a pair of throwing-arms mounted upon the movable frame, a pair of springs each connected at one end with a stationary support carried by the bed, such supports being on opposite sides of the support for the arms, and the springs extending toward each other and being connected with the arms, means for longitudinally moving the supporting-frame between the stationary supports for the springs, and a trigger mechanism, substantially as set forth.

10. In a target-trap, the combination of a bed provided with a longitudinal track or way, a movable frame mounted upon said track, a pair of throwing-arms pivotally mounted upon said movable frame, springs for operating the throwing-arms, the springs being connected to fixed supports between which the frame moves, whereby one of them is put under tension when the frame is moved in one direction and the other under tension when moved in the opposite direction, means for moving the frame upon the bed, and a trigger mechanism carried by the said frame and arranged to hold the arms as their springs are being put under tension, substantially as set forth.

11. In a target-trap, the combination of a bed having supports for springs near its opposite ends, a frame movable longitudinally upon the bed between the said spring-supports, a pair of throwing-arms mounted upon a common axis on the said frame and arranged to turn about the same in opposite directions when moving to deliver their targets, springs for moving the throwing-arms each connected respectively with one of the stationary supports on the bed and at its

other end with one of the throwing-arms, means for moving the frame longitudinally of the bed, whereby one of the springs is put under tension as the frame is moved in one direction and the other spring is put under tension as it is moved in the opposite direction, and a trigger mechanism for the arms, substantially as set forth.

12. In a target-trap, the combination of a pair of throwing-arms mounted upon a common axis and arranged to move about the same in opposite directions when moving to deliver the targets, springs for operating the arms, a standard provided with seats in which the throwing-arms are adapted to rest, and a trigger mechanism provided with catch devices for retaining the arms when in their aforesaid seats, substantially as set forth.

13. In a target-trap, the combination of a movable frame, a pair of throwing-arms mounted thereupon, springs for operating the throwing-arms, means for moving the frame to put one spring under tension as it is moved in one direction and the opposite spring as it is moved in the opposite direction, a trigger mechanism for the arms comprising an independent catch for each arm, carried by the frame, and stationary tripping devices by which the catch members of the trigger mechanism are operated as the frame reaches the respective limits of its movements, substantially as set forth.

14. In a target-trap, the combination of a pair of throwing-arms mounted upon a common axis and arranged to move about the same in opposite directions to throw the targets, means for operating the arms, a trigger mechanism, and a connection between the two arms, whereby when one arm is moved to throw its target it moves, through such connection, the opposite arm into engagement with the trigger mechanism, substantially as set forth.

15. In a target-trap, the combination of a pair of throwing-arms mounted upon a common axis and arranged to move about the same in opposite directions to throw the targets, means for operating the arms, a trigger mechanism for the arms, and a connection between the two arms comprising a spring, whereby when one arm is moved to throw its target it moves, through such connection, the opposite arm into engagement with the trigger mechanism, substantially as set forth.

16. In a target-trap, the combination of a bed provided with a longitudinal track, a frame movable thereupon, a throwing-arm supported upon the frame, a spring for operating the arm, a hand-lever, and connections between the hand-lever and the frame for reciprocating the same in order, by movement of the frame, to put the spring that operates the throwing-arm under tension, substantially as set forth.



17. In a target-trap, the combination of a base, a bed supported upon the base, the bed being adjustable about both vertical and horizontal axes and formed with a longitudinal slot through it, a frame longitudinally movable upon the bed and provided with a pin extending through the longitudinal slot in the bed, a throwing-arm mounted on the said frame, a spring for operating the arm, and means for moving the frame connected with the said pin that extends through the slot in the bed, such connection being approximately in axial line with the vertical pivot of the bed when the frame is in its mid-position, substantially as set forth.

18. In a target-trap, the combination with a movable arm, of a carrier for the target pivotally supported at the end of the arm, comprising a yielding bearing arranged to be held against the edge of the target, and a single spring having a portion connecting the arm and the target-carrier and arranged to hold the latter yieldingly in a definite position with reference to the arm, and another portion connected with the bearing and operating to hold it yieldingly against the edge of the target, substantially as set forth.

19. In a target-trap, the combination with a movable arm, of a carrier for the target connected with the arm by a pivot-pin, a yielding bearing adapted to be held against the target when placed in the carrier, and a spring connected at one end with the arm and having a coiled portion surrounding the pivot uniting the arm with the carrier and having its other end extended and connected with the carrier and also with the bearing and arranged to hold the latter in position to engage the edge of the target, substantially as set forth.

20. A carrier for flying targets having a pair of target-supporting fingers, one provided with a stationary rest for the target and the other with a yielding bearing, a spring extending substantially parallel with one of the arms of the carrier and connected at its outer end with the said yielding bear-

ing, a bearing-block adjustable lengthwise of the spring, and means for securing the bearing-block to the arm in different positions, whereby the effective length of the spring may be varied, substantially as set forth.

21. In a target-trap, the combination with a throwing-arm, of a carrier for the target pivotally connected with the arm and a spring for yieldingly holding the carrier in a definite relation to the throwing-arm, the carrier comprising a flat arm provided with a seat for the edge of the target, a bearing-roller for engaging with the edge of the target opposite the seat in the flat arm, and an elastic arm for holding the bearing-roller against the edge of the target disposed at an acute angle to the said flat arm, substantially as set forth.

22. A holder for flying targets comprising a pair of arms or fingers between which the target is held, one being yielding, a pivotal support for the holder, and means for positively adjusting, and for holding after adjustment, the said arms or fingers relative to each other, whereby the normal positions of the target-engaging parts of the arms or fingers may be varied with reference to each other, substantially as set forth.

23. In a target-trap, the combination of a throwing-arm, a post about which the arm turns, a pivotal supporting member for the said post, and screws for adjusting the post-supporting member, substantially as set forth.

24. In a target-trap, the combination of a throwing-arm, a post about which the arm turns, and a supporting-frame for carrying the post consisting of a longitudinally-movable member and an adjustable member directly carrying the post, and means for varying the inclination of the adjustable member relative to the longitudinally-movable member, substantially as set forth.

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Witnesses:

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