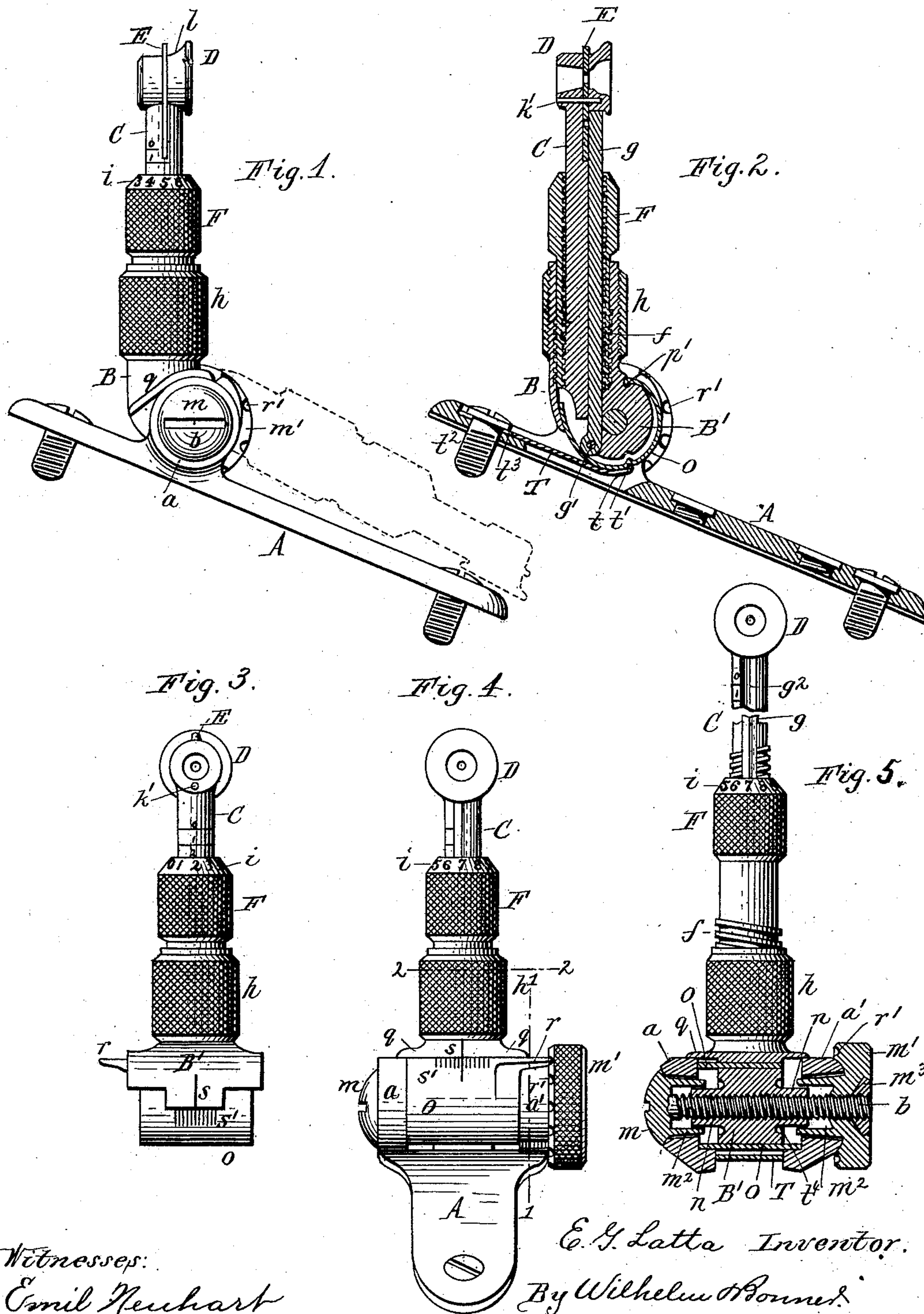


3 Sheets—Sheet 1.

No. 507,278.

Patented Oct. 24, 1893.



Witnesses:
Emil Neuhart
Theo. L. Popp.

E. G. Latta Inventor.
By Wilhelm H. Bonner.

Attorneys.

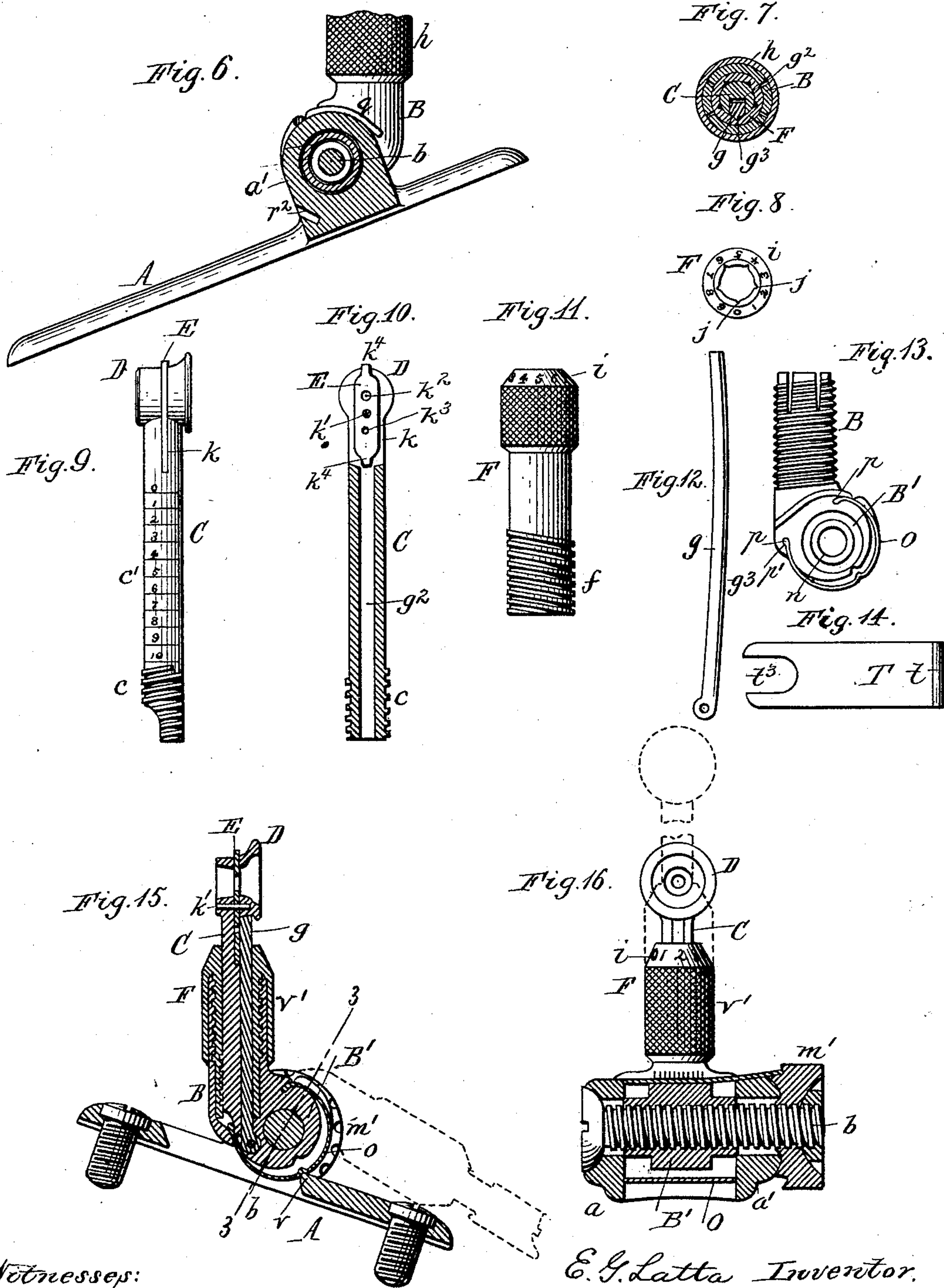
(No Model.)

3 Sheets—Sheet 2.

E. G. LATTA.
SIGHT FOR FIREARMS.

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(No Model.)

3 Sheets—Sheet 3.

E. G. LATTA.
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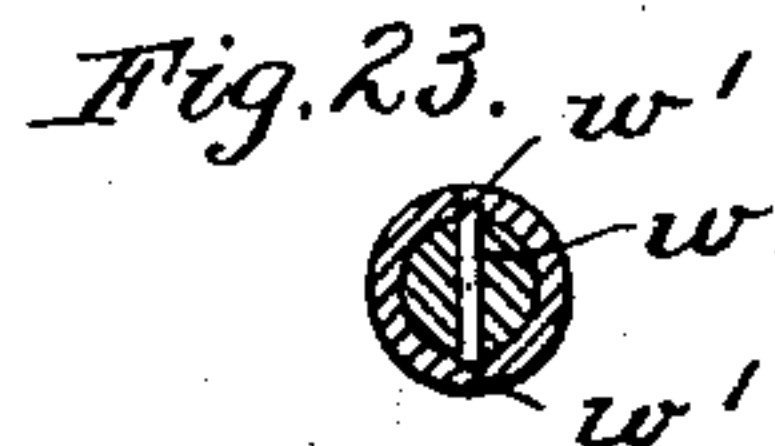
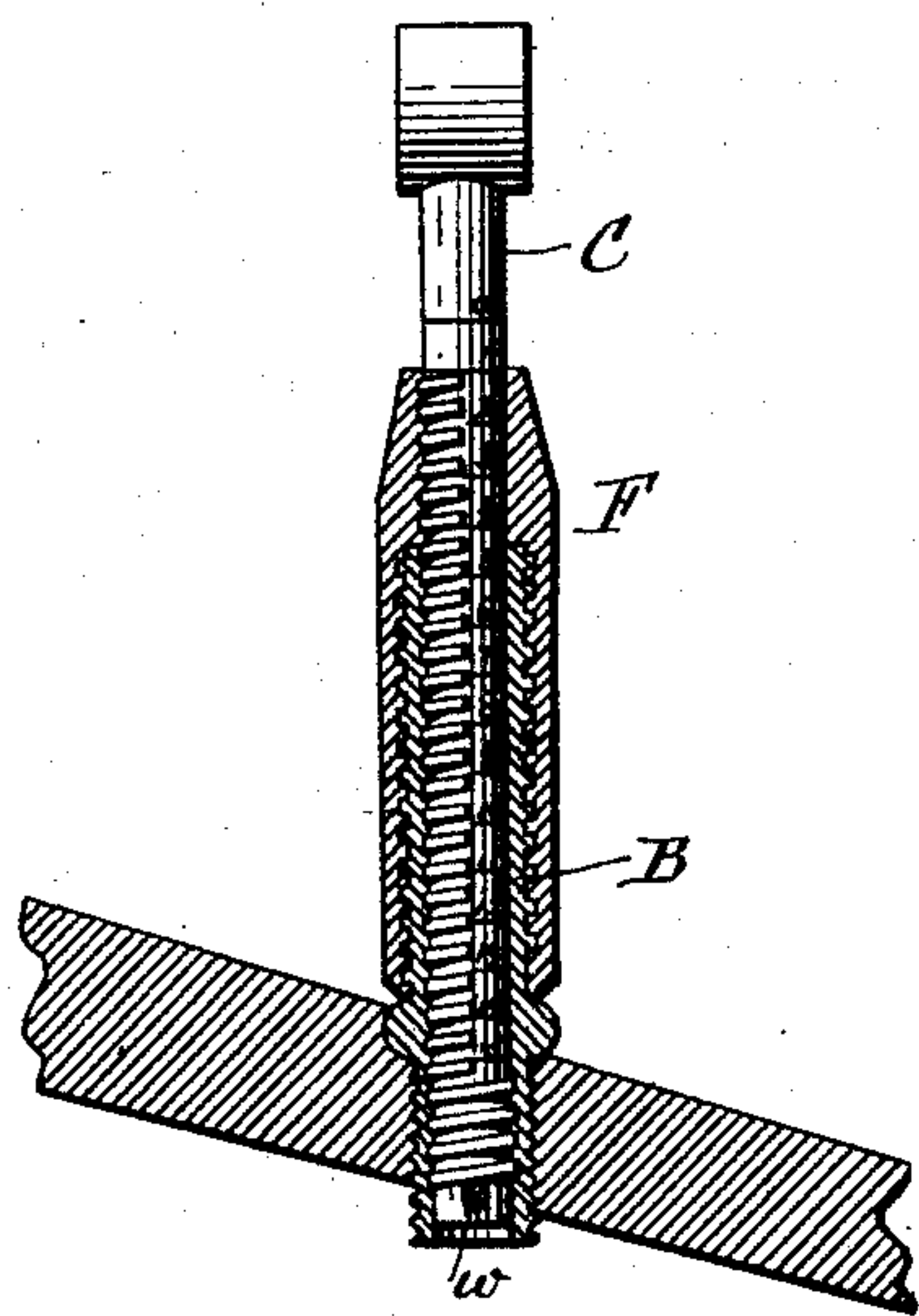
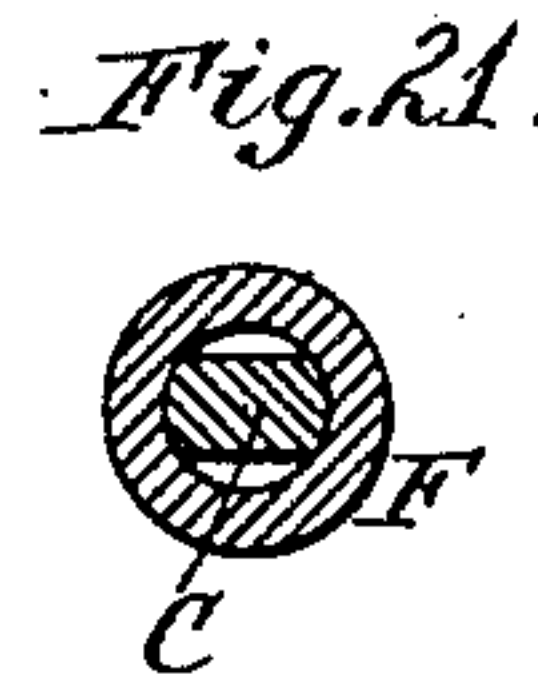
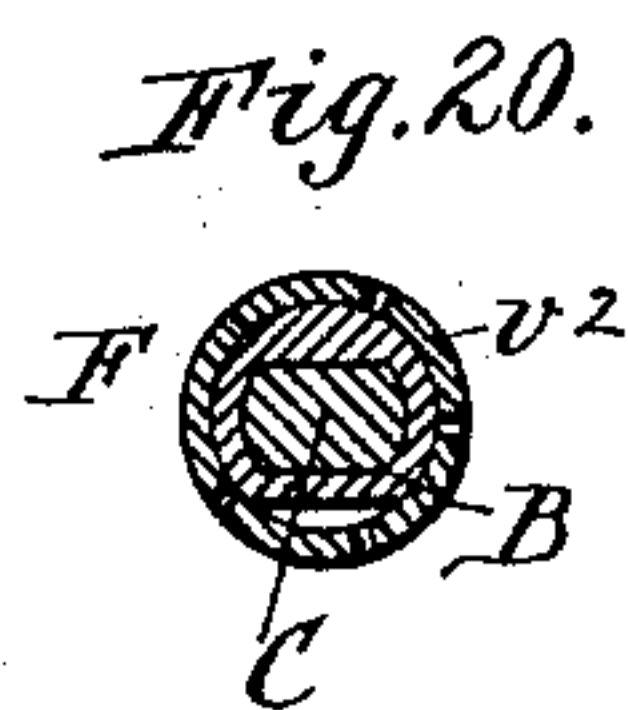
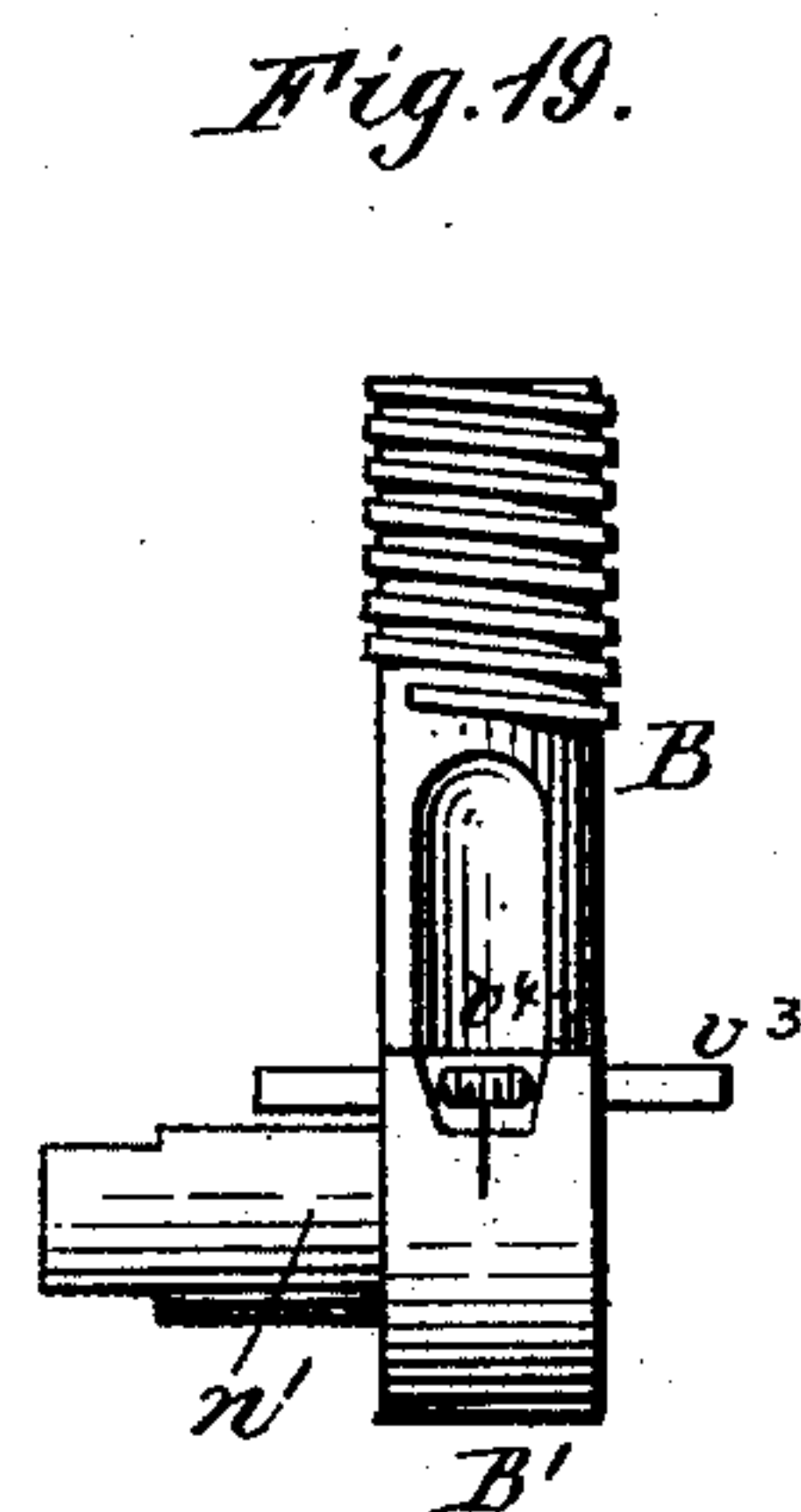
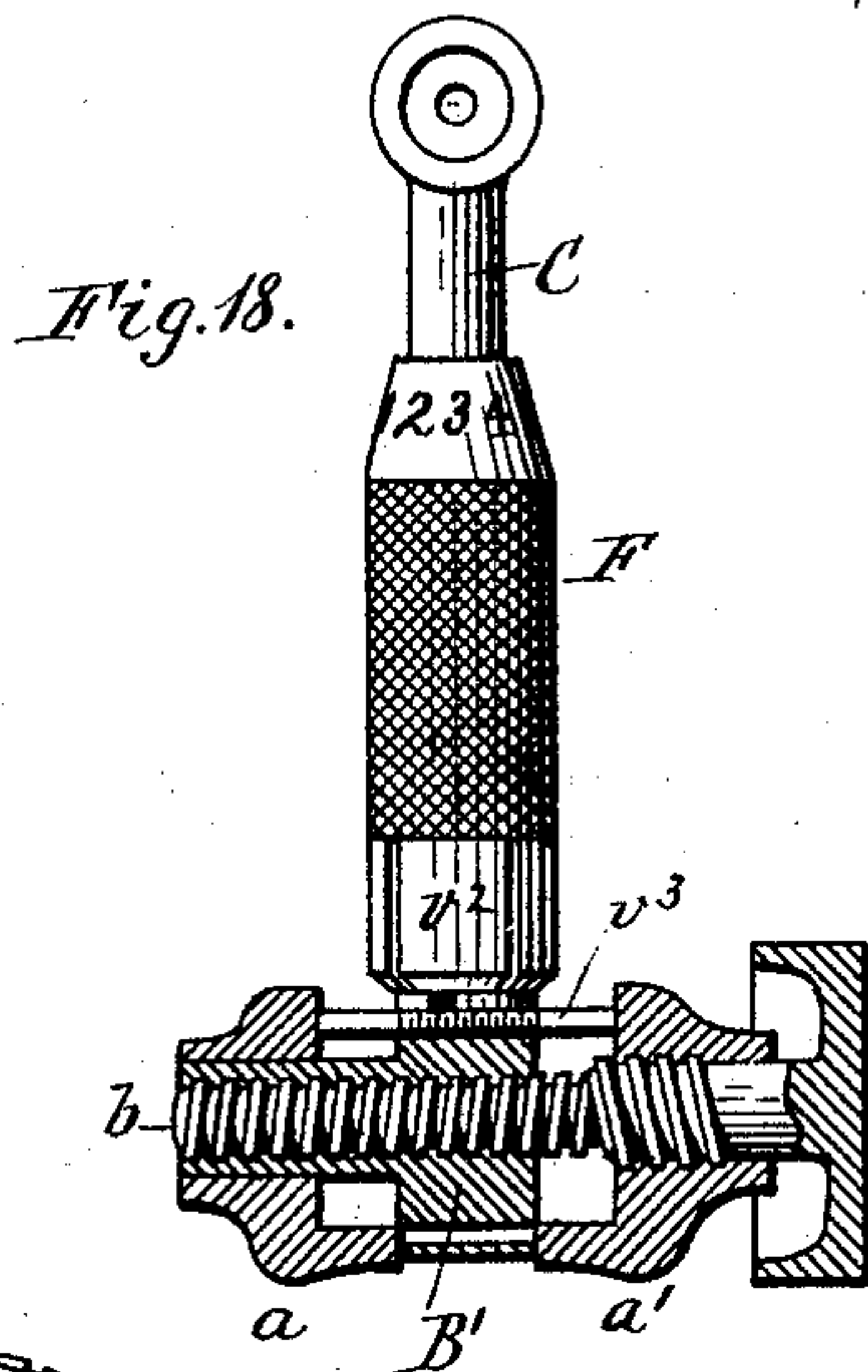
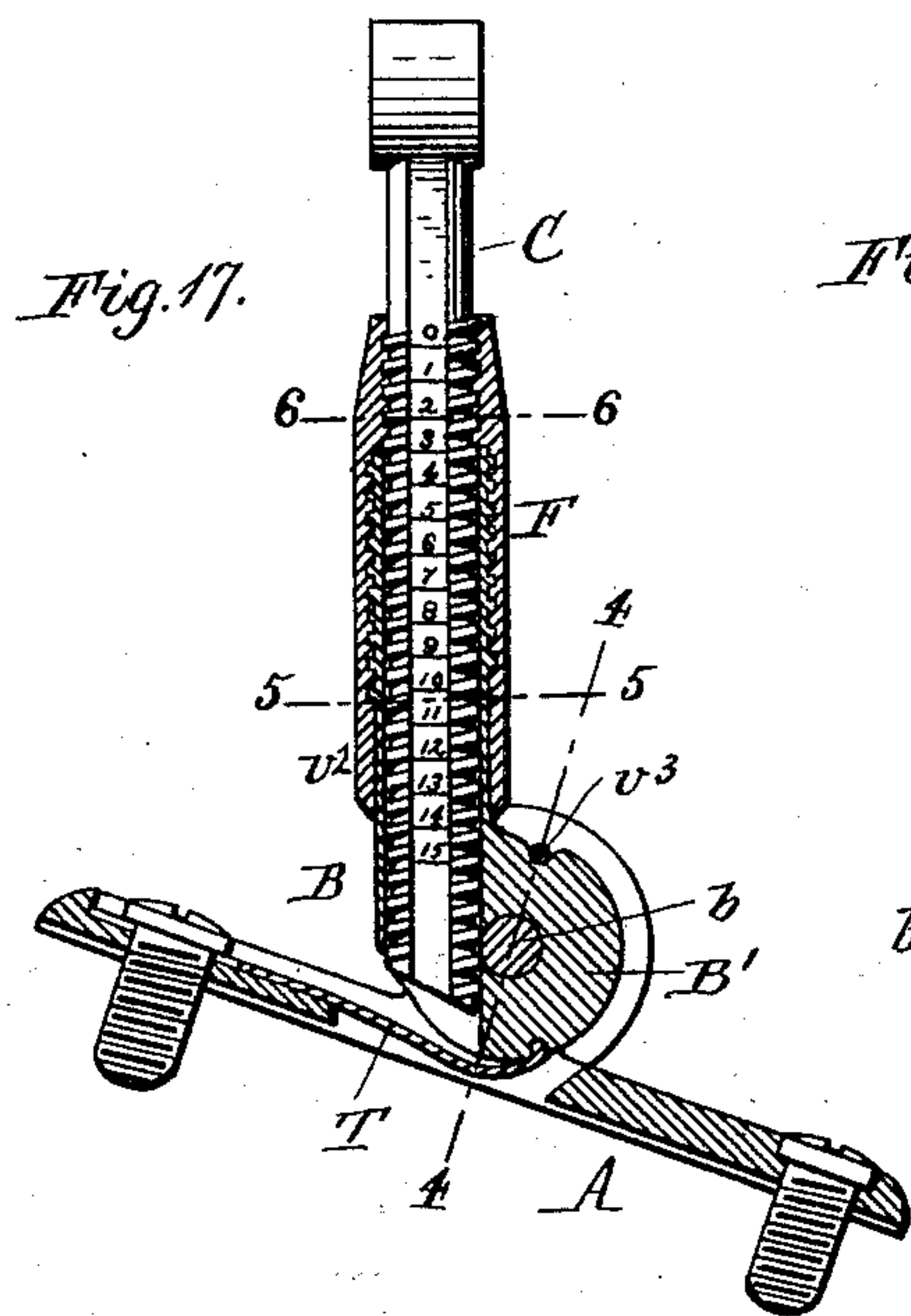
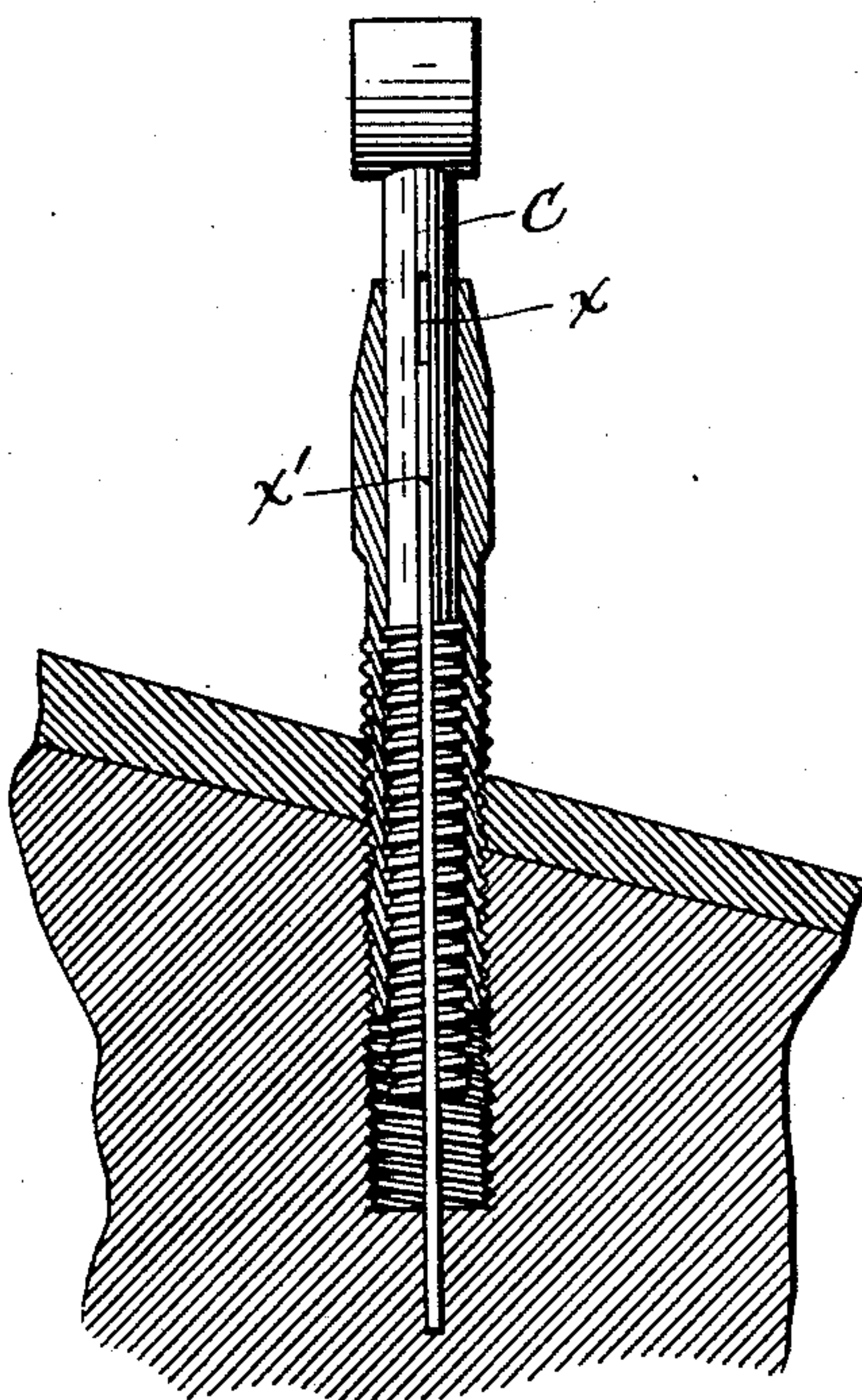


Fig. 24.



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UNITED STATES PATENT OFFICE.

EMMIT G. LATTA, OF FRIENDSHIP, NEW YORK, ASSIGNOR TO WILLIAM LYMAN, OF MIDDLEFIELD, CONNECTICUT.

SIGHT FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 507,278, dated October 24, 1893.

Application filed July 27, 1891. Renewed August 24, 1893. Serial No. 483,984. (No model.)

To all whom it may concern:

Be it known that I, EMMIT G. LATTA, a citizen of the United States, residing at Friendship, in the county of Allegany and State of New York, have invented a new and useful Improvement in Sights for Firearms, of which the following is a specification.

This invention has more particular reference to rear sights for fire arms which may be folded down against the fire arm when not in use and which are capable of being adjusted to any desired elevation as well as laterally, to allow for the deflection of the bullet caused by the wind.

My invention has the objects to construct a sight of this character which can be quickly and accurately set at any desired elevation and secured against accidental displacement and which may be approximately adjusted by the sense of feeling; also to improve the construction of the folding joint of the sight and combine therewith an efficient wind gage; also to adapt the base plate of the sight to fire arms of different construction; and finally to improve the sight in other respects.

In the accompanying drawings consisting of three sheets:—Figure 1 is a side elevation of my improved sight, showing the same at its lowest elevation. Fig. 2 is a vertical longitudinal section of the sight. Fig. 3 is a front elevation thereof, detached from its base. Fig. 4 is a rear elevation thereof. Fig. 5 is a sectional elevation of the sight at right angles to Fig. 2, showing the sight-post or carrier elevated nearly to its highest position. Fig. 6 is a vertical cross section in line 1—1, Fig. 4. Fig. 7 is a cross section in line 2—2, Fig. 4. Fig. 8 is a top plan view of the adjusting sleeve. Fig. 9 is a detached side elevation of the post or carrier. Fig. 10 is a vertical section of the post or carrier. Fig. 11 is a detached side elevation of the adjusting sleeve. Fig. 12 is a similar view of the spring feather or spline. Fig. 13 is a detached side elevation of the folding socket with the cover applied thereto. Fig. 14 is a top plan view of the stop of the sight. Fig. 15 is a vertical section of a modified construction of the sight. Fig. 16 is a cross section of said modification in line 3—3, Fig. 15. Fig. 17 is a vertical section of another modified construction of the sight. Fig. 18 is a cross section thereof in

line 4—4, Fig. 17. Fig. 19 is a detached rear elevation of the folding socket of the last mentioned modification. Figs. 20 and 21 are cross sections, in lines 5—5 and 6—6, Fig. 17, respectively. Fig. 22 is a vertical section of another modified construction. Fig. 23 is a cross section in line 7—7, Fig. 22. Fig. 24 is a vertical section of still another modification.

Like letters of reference refer to like parts in the several figures.

A is the base of the sight secured to the upper side of the fire arm and B is the folding socket pivoted between upright ears a a' of the base by a horizontal bolt b . The socket is formed at its lower end with an off-set or laterally projecting lug B' through which the pivot bolt b passes.

C is the vertically adjustable sight post or carrier having at its upper end a horizontal hood D provided with a sight aperture; E is an eye piece arranged in said hood and F is an adjusting sleeve whereby the carrier is raised and lowered. The adjusting sleeve is fitted with its lower portion in the socket B and is provided with an external screw thread f which engages with an internal thread in the socket.

The carrier C consists of a cylindrical bar arranged in the adjusting sleeve F and having its lower portion provided with an external screw thread c which engages with an internal thread in the adjusting sleeve extending from end to end of the latter. The portion of the carrier above its screw thread is reduced slightly and formed with a vertical series of graduations c' which are preferably numbered from 1 to 10, as represented in Fig. 9.

g is a spring-feather or spline secured at its lower end within the socket B by a transverse pin g' and seated in a longitudinal groove g^2 formed in the rear side of the carrier C, as clearly represented in Figs. 2, 5 and 7. This spline permits the carrier to move vertically in the adjusting sleeve but prevents the same from turning therein. The engaging screw threads of the adjusting sleeve and the folding socket are preferably left hand threads, while the engaging threads of the carrier and the adjusting sleeve are right hand threads and double, or of quicker pitch, than said left

hand threads, so that upon turning the adjusting sleeve backwardly or toward the left, the sleeve enters the socket and the carrier is at the same time caused to move downward in the sleeve, the quicker thread on the carrier causing the latter to enter the sleeve about twice as far as the sleeve enters the socket. The upper portion of the adjusting sleeve is enlarged and milled to facilitate turning it. The threads of the several parts are preferably of square cross section to afford a smooth bearing for the unthreaded portions of the sleeve and the carrier.

h is a lock nut surrounding the upper threaded part of the socket B and whereby the adjusting sleeve is held against turning after adjustment. The socket B is split and preferably tapered upward slightly, as shown in Fig. 13, to reliably clamp the adjusting sleeve in the socket upon tightening the lock nut.

The spline g is preferably elastic and curved slightly so that the same is straightened upon inserting it in the groove of the carrier. The spline thus acts as a spring which bears with its upper end against the rear side of the carrier bar and presses the same forwardly against the inner front wall of the adjusting sleeve, thereby taking up any looseness of the carrier, holding the same against lateral displacement and obviating irregular shooting.

The upper end of the adjusting sleeve is conical or beveled and bears an annular series of divisions or graduations i which are preferably numbered from 0 to 9. The pitch or speed of the respective threads of the socket B, adjusting sleeve F and carrier C, is so proportioned that one complete turn of the adjusting sleeve causes the carrier to move a tenth part of an inch, each graduation of the scale of the carrier denoting one tenth part of an inch, less the movement of the sleeve, so that each graduation above the sleeve indicates an actual elevation of the carrier equal to one-tenth of an inch. Every one-tenth turn of the adjusting sleeve, or in other words, a turn from one graduation of the sleeve to the next with reference to the scale on the carrier, causes the carrier to be raised or lowered a one-hundredth part of an inch, and for every one-hundredth part of an inch that the carrier is raised, when shooting at a range of one hundred yards with the sights one yard apart, the elevation at which the shot strikes the target or other object is changed one inch.

The adjusting sleeve F is preferably provided in its bore with five internal grooves j arranged equidistant in the upper part of the sleeve and the spring-feather or spline g is formed with a rib or projection g^3 which engages with one of said grooves, the spring spline acting as a detent which restrains the sleeve at every one fifth ($\frac{1}{5}$) turn thereof. The sides of the grooves and of the rib of the spline are inclined, so that the spline springs into and out of the groove of the sleeve with facility. The spring spline offers a slight

resistance which locks the sleeve at every fifth part of a turn, such resistance being easily felt by the marksman and enabling him to determine the position of the sleeve without looking at it. This is an important advantage as it enables a marksman to quickly adjust the sight to any desired elevation approximately without removing his eyes from a moving object. If desired, the adjusting sleeve may be locked at intermediate points, less than one-fifth of a rotation, by means of the lock nut h .

When in its lowest position the hood of the carrier should rest against the upper end of the spring spline, and the latter should be of such a length as to permit the sight to be lowered to the proper elevation for the shortest range for which the fire arm is to be used.

In adjusting the sight, the lock nut h is first loosened and upon completing the adjustment the nut is again tightened to clamp the sleeve against accidental displacement. This lock nut is of especial importance in the higher adjustments of the carrier, as it rigidly locks the sleeve in its socket laterally as well as vertically. By offsetting the socket, or locating its pivot on one side thereof, the lower end of the carrier may descend below the pivot, thus increasing its range of adjustment.

In assembling the parts, the spring spline g is secured in the socket B and the lock nut h is placed over the socket by compressing the split upper end of the socket sufficiently for this purpose. The adjusting sleeve F is then started in the socket and the carrier started in the sleeve with the spring spline in the groove of the carrier. The carrier and the adjusting sleeve are threaded externally only for a short distance from their lower ends, so that when the fire arm is used at short and mid range the threaded parts are concealed from view.

The eye piece E is arranged in a vertical slot k formed in the hood D and pivoted centrally in said slot by a horizontal pin k' . The eye piece is provided on opposite sides of its pivot with sight apertures k^2 k^3 of different sizes and both smaller than the aperture in the hood, so that upon reversing the eye piece, or giving it a half turn, either the small or the large aperture may be brought into coincidence with the hood. The eye piece is formed at opposite ends with studs or projections k^4 , the lower one of which springs into the upper end of the spline groove g^2 , so as to hold the eye piece in place. The front portion of the hood is contracted to form a ridge or shoulder l behind which the upper stud of the eye piece stands and whereby it is hidden from view. The lower stud of the eye piece is readily released for reversing the eye piece by pressing the upper stud laterally. If the light is poor it is sometimes desirable to use the large aperture in the hood. This may be done by giving the eye piece a quarter turn, so that neither of its

apertures registers with the hood. This arrangement affords three different-sized sight apertures. It is easily manipulated and free from projections which are visible in firing.

5 The wind gage or mechanism for adjusting the sight laterally is constructed as follows: The pivot bolt b is screw threaded and turns in a threaded opening in the lug B' of the socket B . The openings in the ears $a a'$ of the base are larger than the screw bolt and the head and nut $m m'$ of the latter are formed on their inner sides with tubular extensions $m^2 m^2$ which are loosely fitted in the openings of said ears. The contiguous faces 10 of the ears $a a'$ and the head and nut $m m'$ are preferably made conical.

m^3 is a check nut applied to the screw bolt b and bearing against the outer face of the nut m' .

20 The construction just described permits the bearings of the screw bolt b to be readily adjusted, so that in case the base plate A should be sprung in securing it to an arm for which it is not accurately fitted, the bearings 25 can be aligned to prevent binding of the screw bolt. This construction also enables any wear to be conveniently taken up.

The lug of the socket B is provided on opposite sides with cylindrical projections or 30 guides n which fit in the tubular extensions of the head and nut of the screw bolt b , as clearly shown in Fig. 5. The guides n afford a long bearing for the lug B' on the bolt, which steadies the sight laterally and to a great extent prevents back-lash upon the bolt.

35 O is a curved or nearly circular cover applied to the lug of the folding socket B between the ears $a a'$ of the base. This cover is preferably constructed of a strip of spring 40 steel having its ends enlarged or thickened transversely, as shown at p , and seated in transverse slots p' formed in the front and rear sides of the lug and having enlarged openings at their inner ends for receiving 45 the enlarged ends of the cover. These slots and their enlargements extend to the sides of the lug, so that the enlarged ends of the cover may be slid laterally into the slots of the lug before pivoting the latter between 50 the ears of the base and thereby interlock the cover with the lug. The lug is formed on its upper side with curved laterally projecting wings or shields q which overlap the ears of the base and close the joint between 55 the latter and the contiguous edges of the cover O .

r is a spring finger or detent projecting laterally from the cover O and engaging with one of an annular series of notches or recesses r' formed on the inner side of the nut 60 of the screw bolt b , as clearly represented in Figs. 1, 2 and 4. This spring finger is preferably formed integral with the cover by cutting a slit near the edge of the cover, as 65 shown in Fig. 4.

The lug of the socket B has a central line or mark s and the cover O is provided both

on its front and rear sides with a graduated scale s' for use in conjunction with the mark 70 on the socket. The pivot bolt b is free to be turned in its bearings, but is held against lengthwise movement therein. Upon turning the pivot bolt in one or the other direction, the lug B' with the socket B and other superposed parts of the sight, are caused to 75 move laterally on the bolt. The cover, being held against sidewise movement by the ears $a a'$ of the base A , does not partake in this movement, but the lug slides laterally upon the cover. The mark upon the socket B thus 80 traverses the scale of the cover in adjusting the sight laterally and indicates the amount of wind allowance.

The spring finger r may be used as an indicator in connection with the notches in the 85 nut of the pivot bolt b and by engagement with said nut it also causes the bolt to turn in its bearings upon folding the sight, whereby wear and looseness of the threaded portions of the bolt and lug are obviated. 90

r^2 is a slot or recess formed in the rear side of the ear a' for receiving the spring finger r of the cover when the sight is folded.

By providing the folding socket with a scale both on its front and rear sides, the sight may 95 be accurately adjusted for windage in its folded as well as in its raised position.

T is a stop secured to the base underneath the folding socket and whereby the sight is locked in a raised or unfolded position. This 100 stop consists of a flat spring having a lip or upward projection t at its free rear end which enters a transverse groove t' in the under side of the cover O . The stop is adjustably attached to the base by a set screw t^2 passing 105 through a slot or notch t^3 in the front portion of the spring. Upon folding the sight, the lip of the stop is deflected out of the groove in the cover O , while upon raising the sight, the lip automatically interlocks with said 110 groove and holds the sight in position. In adjusting the stop, the sight is raised to the desired angle, the stop is shifted to bring its lip in coincidence with the groove of the cover by loosening its set screw and the latter is 115 then again tightened. The adjustable stop permits the sight to be fitted to gun stocks of different curvature.

The lug of the socket B is provided in opposite sides around its cylindrical projections 120 n with annular grooves or depressions t^4 which receive the inner ends of the tubular extensions of the head and nut $m m'$ when the sight is shifted laterally in either direction nearly to the limit of its movement. When the 125 sight is adjusted laterally out of center, the guide on that side of the lug toward which the sight is shifted, enters the adjacent tubular extension, while, when the sight stands in the center or nearly so, both guides are supported in the tubular extensions in the head 130 and nut, thereby affording a long bearing for the lug.

The base A consists of a metallic plate of

concavo-convex cross section and provided at its front end with a hole for a fastening screw. In order to adapt the base to standard arms of different manufacture, the rear portion of the base is provided with a series of screw holes arranged at certain predetermined distances from the front screw hole. All of these rear holes are plugged with dummy screws or rivets except the one whose position is adapted to the fire arm to which the sight is to be applied and through which the rear screw passes. The heads of the dummy screws or rivets are rendered smooth and flush with the surface of the base before the latter is finished, thus giving the base the appearance of having but two screw holes. When rivets are used as plugs, they are removed by punching from the inside, and when screws are employed, the same may be provided with nicks for receiving a screw-driver.

In the construction represented in Figs. 1 to 14 of the drawings, the rear screw is in the rearmost hole of the base, but in case the fire arm should require the screw to be placed in one of the other rear holes, the rearmost plug may be left in the base or the rear portion of the base may be cut off closely to the hole used; in either case the base is left smooth and presents the appearance of being designed for the fire arm to which it is applied.

The modification of the sight illustrated in Figs. 15 and 16, is a less expensive construction than that shown in Figs. 1 to 14 and is more especially designed for short range fire arms. In this modified form, the base is not applicable to arms of different manufacture. The folding sight has a stationary stop v formed integral with the base. The pivot screw b is larger than in the first described construction and its head and nut have no tubular extensions. The sight carrier and the adjusting sleeve are shorter and the latter is formed with an outer auxiliary milled sleeve or collar v' for turning it.

In Figs. 17 to 21, is shown a still cheaper construction for general use on fire arms in which the screw holes of the base are properly spaced to fit the arm. In this modification, the spline is omitted and the carrier is constructed with flattened sides and fits in the correspondingly shaped bore of the socket, as shown in Fig. 20. The bore of the socket is smooth while the upper portion of the socket is externally threaded. The adjusting sleeve is threaded internally and applied to the outer threaded portion of the socket instead of being screwed into it, as in the first mentioned construction. The upper portion of the adjusting sleeve is reduced internally and provided with a female thread which engages with the external thread of the carrier, as shown in Fig. 17, the engaging threads of the socket and the sleeve and of the sleeve and the carrier being respectively right and left hand threads, as in the previous constructions. The flat sides of the carrier prevent the same from turning in the socket,

while permitting it to move vertically, as in the construction in which a spline is employed. The lower portion of the adjusting sleeve is split, as shown in Figs. 18 and 20, to form springs or elastic tongues v^2 , so that in turning the adjusting sleeves, its tongues spring over the square or angular edges v^5 of the flat sided socket and offer a slight resistance, thus enabling the position of the sleeve to be determined by the sense of feeling, as before described with reference to the construction in which the spring spline is employed. The cover O is in this case replaced by a transverse pin v^3 secured in a horizontal opening in the lower portion of the socket and the pin has a scale which is visible through an opening v^4 in the side of the socket and used in connection with a center mark on the socket. The lip of the adjustable stop rests directly in a notch in the under side of the lug. The pivot screw has right and left hand threads, as shown in Fig. 18, one of which engages in the ear of the base A and the other in the lug of the socket B . Instead of providing the lug with two guide projections, it has but one long guide n' which fits in the opening of the other ear of the base.

In Fig. 22, a non-folding sight is shown embodying my improvements for changing the elevation of the sight but having no means for adjusting the same laterally for windage. In this construction, the stationary socket is screwed into a threaded opening in the tang of the stock. The adjusting sleeve is constructed as in Figs. 17 to 20, being provided with an internal thread which engages with an external thread on the socket. The carrier is cylindrical and free to move vertically but is held against turning by a transverse pin w secured thereto and entering longitudinal grooves w' formed in opposite sides of the bore of the socket, as shown in Fig. 23.

The modification shown in Fig. 24, is a still cheaper construction which is applicable to fire arms which permit of a socket being formed directly in the stock. A hole is bored through the tang into the wooden stock and the adjusting sleeve is screwed into the socket. The threaded carrier is formed with a central longitudinal slot x which receives an upright spline x' which is driven into the bottom of the socket and projects upwardly into the slot of the carrier, so as to hold the latter against turning and yet allow it to move vertically in the adjusting sleeve.

While the screw threads of the socket, adjusting sleeve and carrier are preferably right and left, they are not necessarily so, but may be differential threads and, if desired, both sets of threads may be equal instead of one quicker than the other, the important feature of my improved adjusting device consisting in connecting the carrier with the socket by an adjusting sleeve having two screw threads, one engaging with the socket and the other with the carrier. This construction not only affords a quicker and larger range of adjust-

ment than a construction in which the adjusting sleeve is held against vertical movement and has but a single screw thread, but it permits of a more ready assemblage and disconnection of the parts of the sight.

I claim as my invention—

1. In a sight for fire arms, the combination with a supporting socket, of a vertically movable carrier or sight post and an adjusting sleeve having screw threads engaging respectively with the socket and the sight carrier, substantially as set forth.

2. In a sight for fire arms, the combination with a supporting socket and a sight post or carrier, of an adjusting sleeve connecting the socket and the carrier and having right and left hand screw threads engaging with corresponding threads on the socket and carrier, substantially as set forth.

3. In a sight for fire arms, the combination with a supporting socket and an adjusting sleeve applied to said socket and vertically movable thereon, of a sight post or carrier held against turning in said sleeve but capable of moving vertically therein, substantially as set forth.

4. In a sight for fire arms, the combination with a supporting socket and an adjusting sleeve vertically movable thereon, of a sight post or carrier vertically movable in said adjusting sleeve, and a spline or key arranged in the socket whereby the carrier is held against turning in the sleeve, substantially as set forth.

5. In a sight for fire arms, the combination with a supporting socket and an adjusting sleeve vertically movable thereon, of a sight post or carrier vertically movable in said adjusting sleeve, and a spring bar or spline interposed between the carrier and the adjusting sleeve, substantially as set forth.

6. In a sight for fire arms, the combination with a supporting socket and an adjusting sleeve applied to said socket and vertically movable thereon, of a sight-post or carrier held against turning in said sleeve but capable of moving vertically thereon, and a clamping nut whereby the parts are locked together, substantially as set forth.

7. The combination with the supporting socket, split at its upper portion, of the adjusting sleeve arranged in said socket, a clamping nut applied to the split portion of the socket, and a carrier arranged in said sleeve, substantially as set forth.

8. In a sight for fire arms, the combination with the sight post and the supporting socket, of the adjusting sleeve arranged in the socket and having its bore provided with grooves or recesses, and a spring spline or detent engaging with the grooves of the adjusting sleeve, substantially as set forth.

9. In a sight for fire arms, the combination with the supporting socket, of the adjusting sleeve having internal grooves or recesses, a sight post or carrier arranged in the adjust-

ing sleeve and having a longitudinal feather-way and a springspline or feather seated in the feather-way of the carrier and adapted to engage with the grooves of the adjusting sleeve, substantially as set forth.

10. In a sight for fire arms, the combination with a folding socket having a lateral or offset lug for the passage of its pivot, of a vertically movable carrier connected with said socket, substantially as set forth.

11. In a sight for fire arms, the combination with the carrier having a sight aperture and an upright slot, of an eye piece pivoted in the slot of the carrier and having different sized apertures adapted to register with the aperture of the carrier, substantially as set forth.

12. In a sight for fire arms, the combination with the carrier provided with a slotted hood having its front portion reduced to form a ridge or shoulder, of an eye piece pivoted in the slot of the hood and projecting above the reduced portion of the hood, substantially as set forth.

13. In a sight for fire arms, the combination with the carrier provided with a slotted hood and below said hood with a groove or recess, of a reversible eye piece pivoted centrally in the slot of the hood and provided at its ends with lugs or projections adapted to interlock with the recess of the carrier, substantially as set forth.

14. In a folding gun sight, the combination with a base having ears and a pivot connecting said ears, of a support mounted on said pivot and having a laterally projecting bearing or extension also arranged on said pivot, and a carrier or sight post attached to said support, substantially as set forth.

15. In a sight for fire arms, the combination with a base having ears or lugs and a pivot connecting the same, of a laterally adjustable carrier support mounted upon said pivot and having lateral extensions or projections which are guided in the ears of the base, substantially as set forth.

16. In a sight for fire arms, the combination with a base having ears or lugs provided with conical or tapering openings, of adjustable bearings seated in said openings, a pivot screw supported in said bearings and a carrier support mounted upon said pivot screw between said bearings, substantially as set forth.

17. In a sight for fire arms, the combination with the base having ears, of tubular bearings arranged on the inner sides of said ears, a pivot bolt connecting said ears, and a laterally adjustable carrier support mounted upon said pivot bolt and having cylindrical projections guided in said tubular bearings, substantially as set forth.

18. In a sight for fire arms, the combination with the base having ears and a pivot screw connecting said ears, of a folding carrier support made laterally adjustable on said pivot screw, and a cover applied to the carrier support between the ears of the base and adapt-

ed to fold with the carrier support, but held against moving laterally with the carrier support by the ears of the base, substantially as set forth.

5 19. In a sight for fire arms, the combination with the base having ears, of a carrier support pivoted between said ears, and a spring cover applied to the carrier support and having its ends removably attached thereto, substantially as set forth.

10 20. In a sight for fire arms, the combination with the base having ears, of a carrier support pivoted between said ears and having transverse slots provided with enlargements, and a cover applied to the carrier support
15 between the ears of the base and having enlarged or thickened ends seated in the enlargements of said slots, substantially as set forth.

20 21. In a sight for fire arms, the combination with the base, the pivot screw and the folding carrier support made laterally adjustable on the pivot screw, and scales or indicators arranged both on the front and rear sides of

the folding carrier support, substantially as 25 set forth.

22. In a sight for fire arms, the combination with the base and the pivot screw, of the folding carrier support, and the finger or detent attached to the folding carrier support and
30 engaging with the pivot screw, substantially as set forth.

23. In a sight for fire arms, the combination with the base and the folding carrier support pivoted to the base, of a stop whereby the
35 folding carrier support is held in position, said stop being provided at its front end with a slot which engages with a set screw passing through the base whereby the stop is adjustably secured to the base, substantially as set
40 forth.

Witness my hand this 11th day of July, 1891.

EMMIT G. LATTA.

Witnesses:

FRED H. RICE,
HENRY T. KLEE.