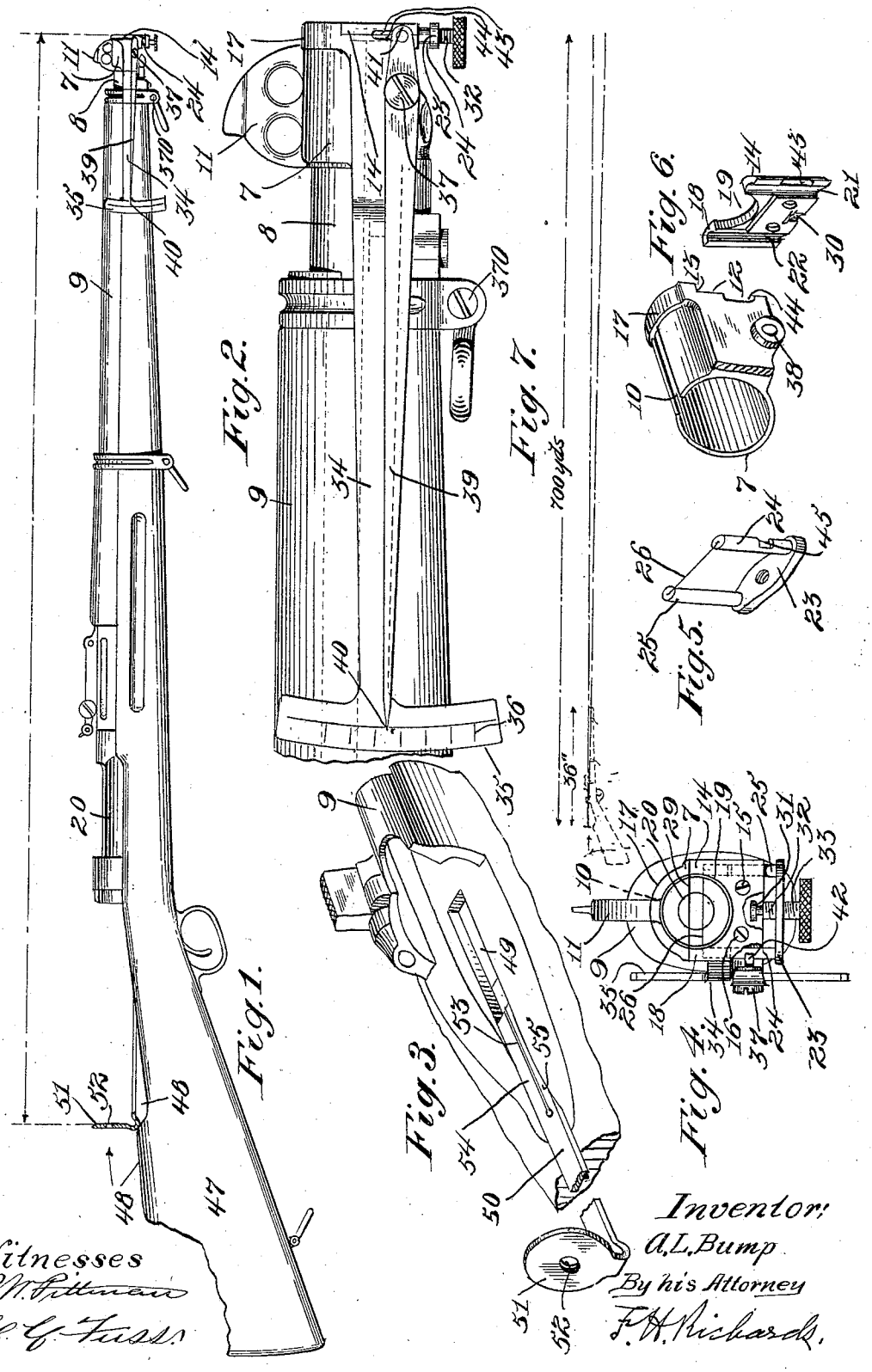
No. 840,904. PATENTED JAN. 8, 1907.

A. L. BUMP.

RANGE DETERMINING DEVICE.

APPLICATION FILED JAN. 30, 1905.



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UNITED STATES PATENT OFFICE.

ARTHUR L. BUMP, OF GOVERNORS ISLAND, NEW YORK.

RANGE-DETERMINING DEVICE.

No. 840,904. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed January 30, 1905. Serial No. 243,188.

To all whom it may concern:

Be it known that I, ARTHUR L. BUMP, a citizen of the United States, residing at Governors Island, in the county of New York and State of New York, have invented certain new and useful Improvements in Range-Determining Devices, of which the following is a specification.

This invention has reference to means for ascertaining through a mechanical medium the distance or range of an object from a point or place of observation, the calculation being deducted with reference to the caliber of the object.

The object of this invention is to provide a range-finding device that is detachably mounted on a gun or firearm and organized to indicate the range or distance removed of the object on which the gun is sighted, which mechanism operates by using the bore of the gun-barrel for the sighting of the object.

An embodiment of the invention in its present form is illustrated on the accompanying sheet of drawings, whereon—

Figure 1 illustrates an elevational view of a firearm with the invention applied. Fig. 2 illustrates an enlarged fragment of said firearm, showing more in detail the construction and application of the device. Fig. 3 illustrates perspectively a portion of the gun-stock, and a sighting device attached thereto. Fig. 4 shows an elevational view of the gaging mechanism. Fig. 5 illustrates perspectively a portion of said mechanism. Fig. 6 illustrates two perspective views of certain other portions of said mechanism, and Fig. 7 is a diagrammatic view.

Similar characters of reference indicate like parts in the figures.

A casing 7, which takes over the shoulder or tenon 8 of the gun 9, is in the present instance provided with a slot 10, so that said casing may pass the "sight" 11. The front face of the casing may be provided with a depression 12, which creates a shoulder 13, and against said shoulder and face there may be located a plate 14, adapted to be removably secured by screws 15 and 16. The upper portion 17 of the front face and the upper portion 18 of the plate 14 are each provided with semicircular recesses 19, (see Fig. 6,) and the opening formed by them is in alinement with the bore 20 of the barrel.

The plate 14 as well as the depression 12 are each provided with ways 21 and 22, respectively, and in said ways is movably mounted a member comprising a base 23, supporting standards 24 and 25, which standards support a linear delicate element, such as a wire 26, which is a mate to a similar wire 29, which in the present instance is held between the top 18 of the plate 14 and the shoulder 13 on the face of the casing 7.

The inner side of the plate 14 and the face of the casing 7 are each provided with a socket 30, which receives the head 31 of a set-screw 32, the shank 33 of which is screw-threaded into the base 23. Upon manipulating said screw 32, which is held in a given position by the head 31, the base 23 and the standards 24 and 25 will have a horizontal movement up or down at will, which will result in the elements 26 and 29, respectively, being separated or drawn closer together, so that when the device is in use the elements or wires may be made to optically touch, for instance, the head and the feet of a man, horse, &c., or the top and the bottom of an object.

Either integral with or secured to the casing 7 is an elongated arm 34, which is provided in the present instance with a segmental extremity 35, which, as shown, may be provided with graduations 36.

Suitably fulcrumed on a bearing—in the present instance in the form of a set-screw 37, threaded into a bearing 38 on the casing 7—is an indicator 39, one feee end 40 of which plays along the graduated segment 35, while the other end 41 in the present instance is provided with a stud 42, which passes through a passage formed by slots 43 and 44, respectively, and takes into a notch 45 in the standard 24. When, therefore, the standards 24 and 25, respectively, are raised or lowered in their ways 21 and 22, respectively, the indicator 30 will be correspondingly actuated. It will be understood in this connection, of course, that the fulcrum of the indicator will be so relatively disposed with respect to both extremities 40 and 41 by precalculation that certain movements of the end 41 will result in certain relative movements of the end 40.

In the present instance the comb of the butt 47 is depressed at 48, and such depression is provided with an elongated slot 49, in which is adapted to slide a member 50, which carries a peep device 51, the opening 52 in said peep device being in alinement with the bore of the barrel 20. The slide 50 may be, as shown, split, as at 53, so that the

legs 54 and 55 thereof, having a tendency to normally spread, will serve to frictionally hold the slide in any desired position. This slide, as is obvious, is removable.

The operation of the range-determining device depends, of course, entirely upon circumstances under consideration; but assuming, as an example, that the object in view is seven hundred yards distant and the full length of the gun from the peep to the end of the barrel is one seven-hundredth of the entire length or range, or thirty-six inches, (see Fig. 7,) and assuming the object to be seventy-seven and fourteen-hundredths inches in height, such object would be gaged to calipered by the elements 26 and 29, when they would be separated to the extent of eleven hundred and two ten-thousandths inches. At this time the pointer would be so swung upon its fulcrum as to cause its free end 40 to travel to a point indicating seven hundred yards on the segmental scale. It will be observed that after the range has been mechanically ascertained the range-determining device may be removed from the tenon of the firearm if the instrument is employed in connection with such an implement.

The description herein given discloses one of the forms into which the invention may be embodied; but within the purview thereof variations of construction and assemblage may be resorted to with propriety.

It will now be observed that when the two elements aforementioned are above and below the object optically and optically touch the top and bottom of said object the pointer or indicator will show on the scale the distance the object is away from the point of observation, the movement of the elements to correspond with the size of the object offering also a movement relatively to the movement of said elements which will cause the indicator to travel to a certain precalculated point or position on the scale, and thus indicating, for instance, a number of miles, yards, or feet, as the case might be.

Having thus described this invention, I claim—

1. A sight device for firearms comprising a sleeve arranged to be slid onto the muzzle of a firearm, a linear sighting element carried by the sleeve in alinement with the bore of the barrel, a second linear sighting element carried by the sleeve and movable therein to and from the other sighting element in parallelism therewith, and means for indicating the movement of the sighting element relative to the other sighting element.

2. The combination in a firearm, of a casing removably attached to the barrel, a cross-wire carried by the casing and extending across in alinement with the bore of the barrel, a second cross-wire mounted on the casing, means for moving one of said cross-wires to and from the other cross-wire, an indicating device connected with the movable cross-wire and arranged to have a corresponding movement, a scale adjacent the indicator for showing the movement of the indicator, the butt of the firearm having a slot at its upper side, and a strip removably mounted in such slotted portion, and having a peep device arranged to register with the bore of the firearm.

3. The combination with the barrel of a firearm of a casing arranged to slide on the end of the barrel and having a socket portion, a cross-wire carried by the casing and extending across in alinement with the bore of the barrel, a thumb-screw having a head at one end located in said socket in the casing, a piece having a threaded aperture engaging said screw, a pair of arms mounted on said piece, the casing having guideways in which said arms are slidably mounted, whereby the rotation of said screw will cause the plate and arms to reciprocate in the casing, a cross-wire carried by said arms and caused to approach and recede from said cross-wire by the rotation of said screw, a pointer pivoted on the casing and having one end engaging said movable member, and a scale arranged adjacent the other extremity of the pointer.

4. The combination with the barrel of a firearm, of a casing removably attached to the barrel, a plate attached to one end portion of the casing, a cross-wire secured by its extremities between the plate and the casing and extending across in alinement the bore of the barrel, the engaging portions of the casing and plate having registering grooves forming channels, a piece having a rod at each end disposed to slide in said channels, the plate and the casing having registering recesses forming a socket with an enlarged bottom portion, said piece having a screw-threaded bore, a thumb-screw working in said bore of the piece and having a head at one end retained in said socket, whereby the turning of the screw will advance the piece and rods, a cross-wire carried by said rods and moved to and from said cross-wire by the turning of the screw, a pointer pivoted on the casing and having a pin at one end engaging a socket portion in one of said rods, whereby the adjustment of the cross-wire will correspondingly move the pointer, and a scale arranged adjacent the other end of the pointer.

5. In a device of the character specified, the combination with a casing having a slot in its upper portion to accommodate the sight of a firearm, said casing having an opening, adapted when the casing is in place, to correspond with the bore of the arm, a depression in the face of said casing, a member located in said depression and having ways, a member having standards movably mounted in said ways, a set-screw associated with said casing and said member whereby the latter may be moved relatively to said casing, an

indicator fulcrumed upon the casing and having its shorter end attached to a standard on the member, a wire carried by said standards, another wire carried between the depression and the member located therein, and a scale for ascertaining the movement of the indicator when the wires are spread apart or moved toward each other by the set-screw.

Signed at Nos. 9 to 15 Murray street, in the city, county, and State of New York, this 28th day of January, 1905.

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