

No. 734,395.

PATENTED JULY 21, 1903.

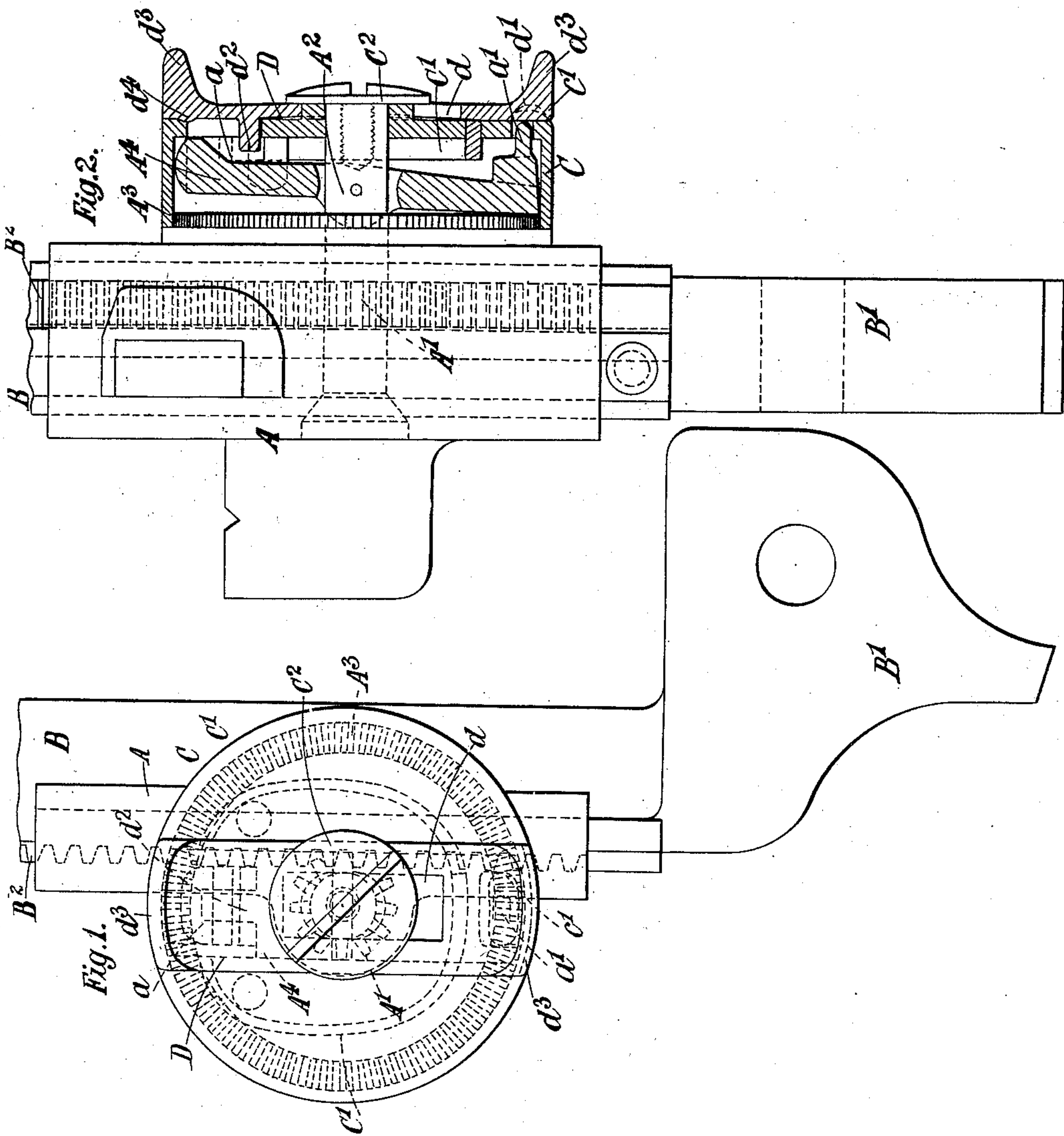
R. BARNES.

SIGHTING APPARATUS FOR ORDNANCE.

APPLICATION FILED APR. 20, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

James L. Norris, Jr.
N. L. Bogan

Inventor

Robert Barnes

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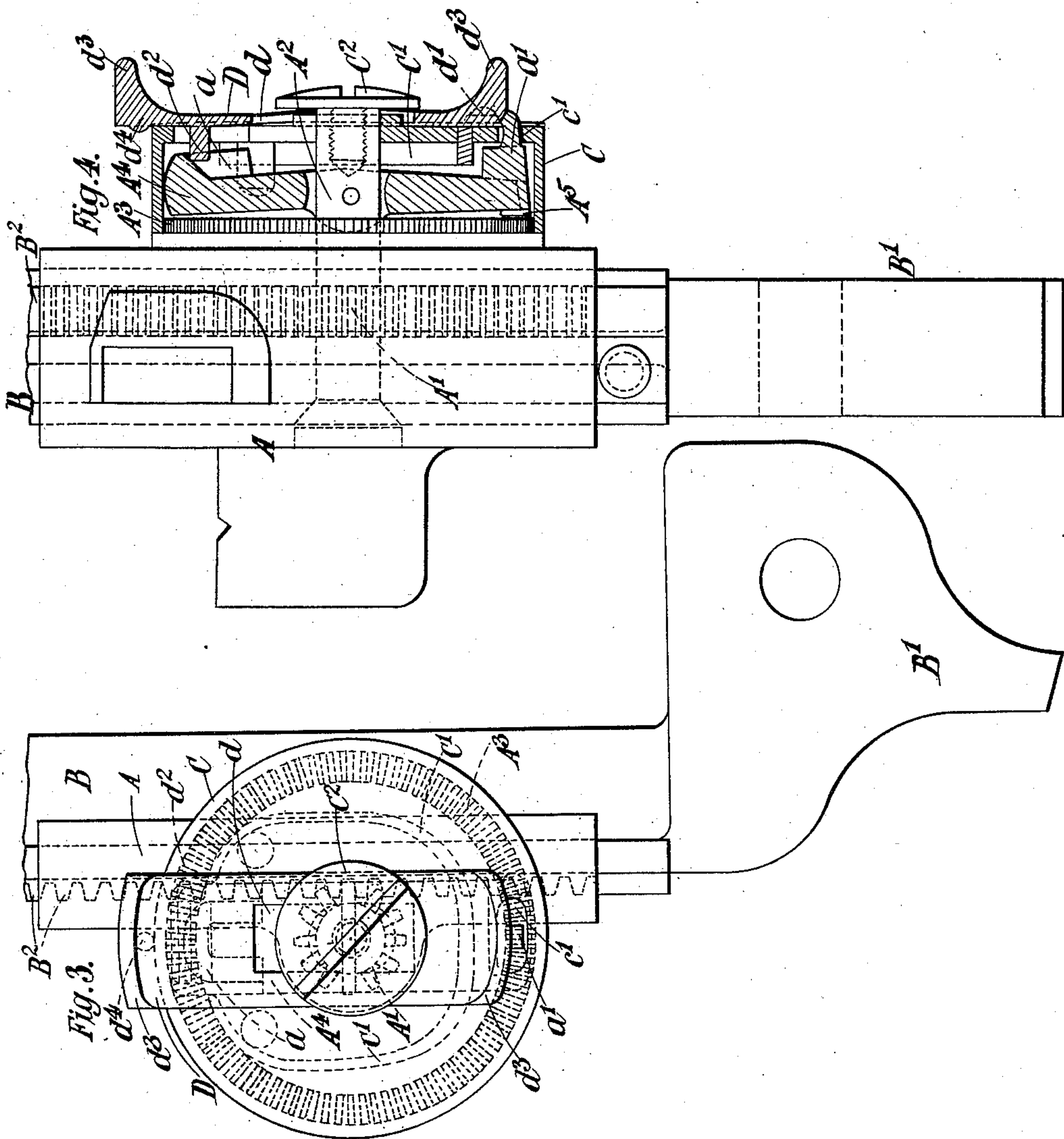
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James L. Morris, Jr.
N. L. Bogan

Inventor
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UNITED STATES PATENT OFFICE.

ROBERT BARNES, OF BEXLEY HEATH, ENGLAND, ASSIGNOR TO VICKERS
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SIGHTING APPARATUS FOR ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 734,395, dated July 21, 1903.

Application filed April 20, 1903. Serial No. 153,559. (No model.)

To all whom it may concern:

Be it known that I, ROBERT CHARLES BARNES, engineer, a subject of the King of Great Britain, residing at Heathurst, Pelham road, Bexley Heath, in the county of Kent, England, have invented certain new and useful Improvements Relating to Sighting Apparatus for Ordnance, of which the following is a specification.

10 This invention has particular reference to rear or tangent sights of the kind that are generally employed with machine-guns and in which the sight-carriage carrying the sight-
15 ing-leaf is capable of vertical adjustment on the sight-bar for varying the angle of elevation to suit different ranges, this adjustment being effected by the revolution of a pinion mounted on the said sight-carriage and engaging with rack-teeth on the sight-bar. In this
20 construction of tangent sight it is usual to provide a circular series of rack-teeth on the sight-carriage and a rocking pawl on the spindle of the pinion, one portion of which pawl is provided with a number of teeth engaging with
25 the circular series of rack-teeth. A cap is also mounted on the end of said spindle and adapted to be turned by the gunner's fingers to revolve the same for working the pinion and elevating or depressing the sight-carriage.
30 The pawl is normally kept in engagement with the said circular series of rack-teeth by suitable projections, so as to prevent the sight-carriage from being unintentionally shifted on the sight-bar—as, for instance, by the vibra-
35 tion due to the firing of the gun. When, however, the gunner revolves the cap to shift the sight-carriage on the sight-bar, said projections coöperate with the pawl in such manner that it slides over the circular series of rack-
40 teeth against the resistance of a suitable spring, thereby enabling the desired adjustment of the sight-carriage to be effected by the revolution of the said cap and the pinion. The sliding of the pawl over the said circular
45 series of rack-teeth is accompanied with noise, which in some cases is objectionable, and, moreover, if the required adjustment is a large one the time occupied in effecting it is considerable.

50 The chief object of my invention is to provide sights of the above-described kind with

means which will enable large adjustments to be rapidly effected without any objectionable sound, said means being of such a nature that they can, if desired, be applied without diffi- 55
culty to the sights at present in use.

I accomplish my object by providing a device whereby the gunner can readily set the aforesaid pawl into a position of entire disengagement with the aforesaid circular series of 60
rack-teeth, so that the sight-carriage can be rapidly shifted up or down the sight-bar by merely pushing it in the required direction.

In order that the said invention may be clearly understood and readily carried into 65
effect, I will describe the same more fully, with reference to the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 a sectional front elevation, of the sighting ap- 70
paratus intended for use with a Maxim R. C. gun and having my device applied thereto, the parts being shown in the position they occupy when the device is set for enabling the sight-carriage to work in the usual way. 75
Fig. 3 is a side elevation, and Fig. 4 a sectional front elevation, of the said sighting apparatus with the aforesaid device set in position for enabling the sight to be adjusted noiselessly for large angles of elevation. 80

A is the sight-carriage, and B is the sight-bar upon which it slides during adjustment. This sight-bar is of the ordinary well-known construction, having a lug B', by which it is pivotally connected with the gun, and rack- 85
teeth B², with which engages the pinion A' of the spindle A², carried by the sight-carriage.

A³ is the circular series of rack-teeth with which the sight-carriage is usually provided, 90
and A⁴ is the rocking pawl pivoted to the said spindle A², one end of said pawl having teeth A⁵, Fig. 4, to engage with the circular series of rack-teeth A³.

C is the cap, which is mounted loosely on 95
the end of said spindle A².

C' is the usual spring with which said cap is provided on its inner surface and between the free ends of which one end of the pawl lies. 100

The aforesaid device with which the sighting apparatus is provided, as aforesaid, com-

prises in the example illustrated a transversely-sliding piece D, which is slotted at d and attached to the outer face of the cap C by the screw C², employed for securing said cap in place on the spindle A², said screw passing through the aforesaid slot d . The end of the rocking pawl A⁴ remote from the teeth A⁵ is formed with the usual inclined groove or depression a , and the opposite end of said pawl is provided with a projection a' , which lies in a hole c' in the cap C. The end of the sliding piece adjacent to the said projection a' has a recess d' therein and the end of said sliding piece adjacent to the inclined groove or depression a is formed with an inwardly-projecting pin d^2 , that engages with said depression a . The sliding piece is also furnished with lugs or finger-pieces d^3 d^3 at its ends for enabling it to be readily shifted into either of its extreme positions. d^4 is a protuberance on the under side of the sliding piece, which protuberance operates to retain the latter in either of its positions, the resiliency of the sliding piece enabling said protuberance to move over the face of the cap without undue impediment and yet with sufficient friction to insure that the sliding piece shall not become unintentionally shifted. When the sliding piece is shifted into the position represented in Figs. 1 and 2, the end of the pawl bearing the teeth A⁵ is depressed by the sliding piece D acting on the projection a' of the pawl, whereby the said teeth on the latter are caused to engage with the circular series of teeth A³. The turning of the cap C then enables the adjustment of the sight-carriage A to be effected in the usual manner through the intervention of the spring C', the projection d^2 , and the inclined depression a . When the said sliding piece is shifted into the position represented by Figs. 2 and 3, the projection d^2 operates to depress the adjacent end of the pawl, the opposite end thereof being permitted to rise by reason of the hole c' being uncovered by the said sliding piece and the projection a' permitted to protrude there-through. The teeth A⁵ of the pawl then lie out of engagement with the circular series of teeth A³, and consequently when the cap C is revolved it does so without the restraining effect due to the traveling of the teeth A⁵ of the pawl over the teeth A³. Consequently the adjustment can be effected directly and also noiselessly and rapidly by the revolution of the pinion A' in engagement with the rack-teeth B².

I am aware that it has before been proposed to effect large adjustments of sights of this kind by throwing the aforesaid pinion A' out of gear with the rack-teeth on the sight-bar; but it will be seen from the foregoing description that I accomplish my object without disengaging the pinion from the rack, these parts remaining at all times in gear with each other.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In sighting apparatus of the kind hereinbefore set forth, the combination with the sight-carriage, the actuating-spindle thereof, the spring-controlled toothed rocking pawl, the circular series of rack-teeth on the sight-carriage and the rotary cap; of means for setting said rocking pawl into a position of disengagement with the circular series of rack-teeth for the purpose specified.

2. In sighting apparatus of the kind hereinbefore set forth, the combination with the sight-carriage, the actuating-spindle, the spring-controlled toothed rocking pawl, the circular series of rack-teeth on the sight-carriage and the rotary cap; of a sliding piece carried by said cap, a projection on said sliding piece engaging with an inclined depression at one end of said pawl, and a projection on the opposite end of said pawl which is controlled by the movement of said sliding piece substantially as and for the purpose specified.

3. In sighting apparatus of the kind hereinbefore set forth, the combination with the sight-carriage the actuating-spindle, the spring-controlled toothed rocking pawl, the circular series of rack-teeth on the sight-carriage, and the rotary cap; of a slotted sliding piece carried by and moving rectilinearly on said cap, a projection near one end of said sliding piece engaging with an inclined depression at one end of said pawl, a projection on the opposite end of said pawl which is controlled by said sliding piece, thumb-pieces at the ends of said sliding piece and a protuberance on the under side of the sliding piece for locking it in its extreme positions substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 7th day of April, 1903.

ROBERT BARNES.

Witnesses:

HENRY KING,
ALFRED PEAKS.