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SIGHT FOR FIREARMS

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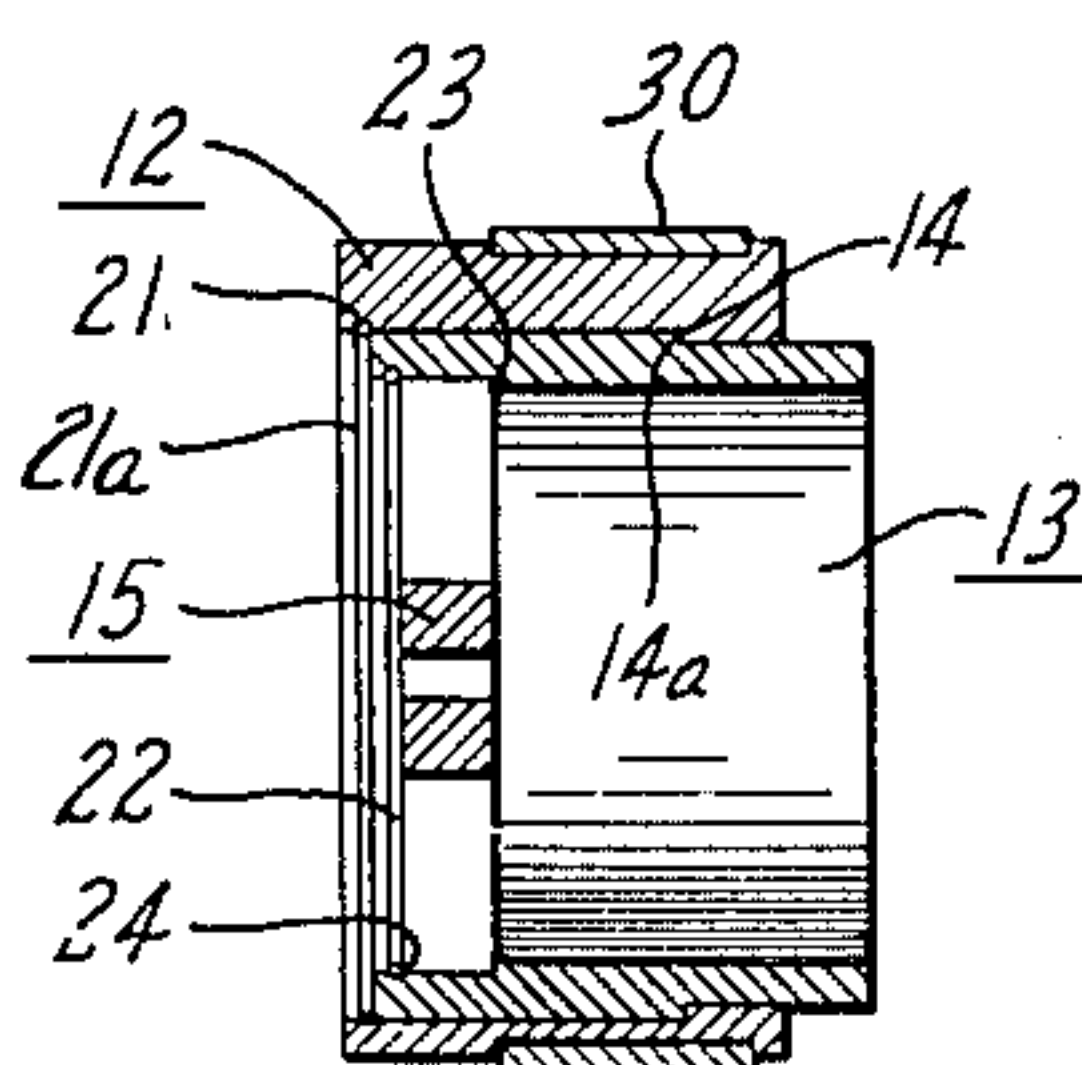
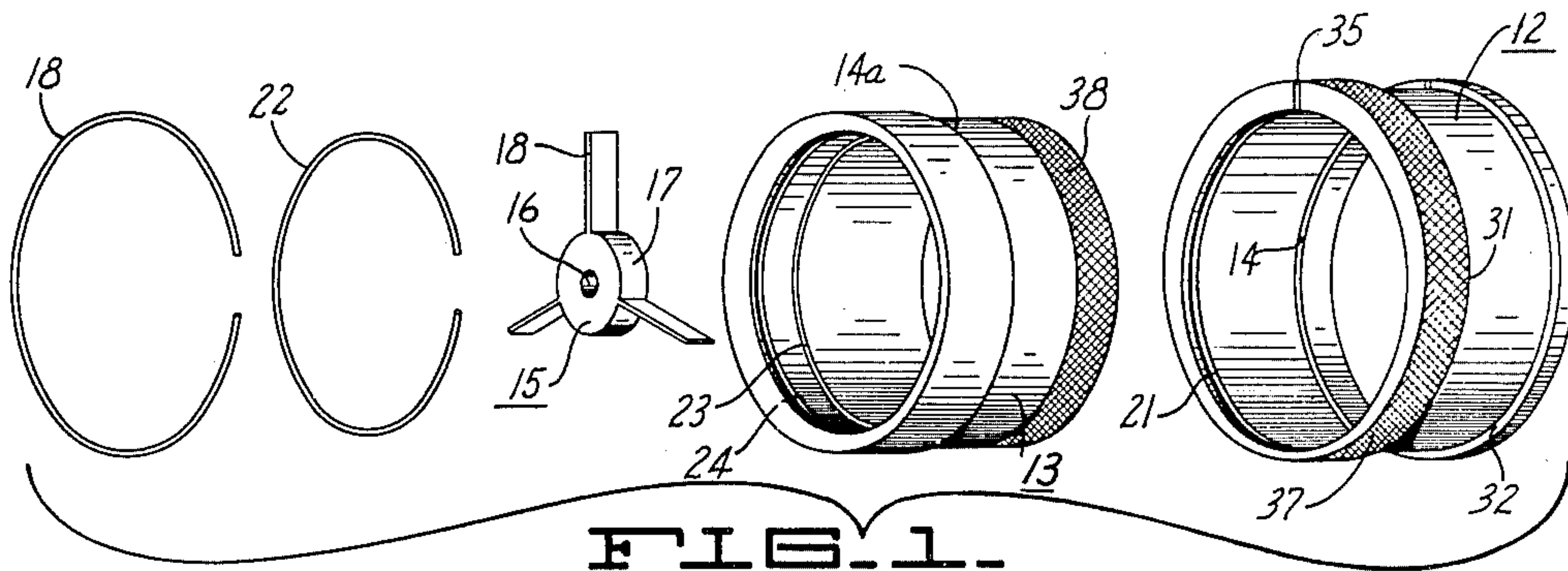


FIG. 2.

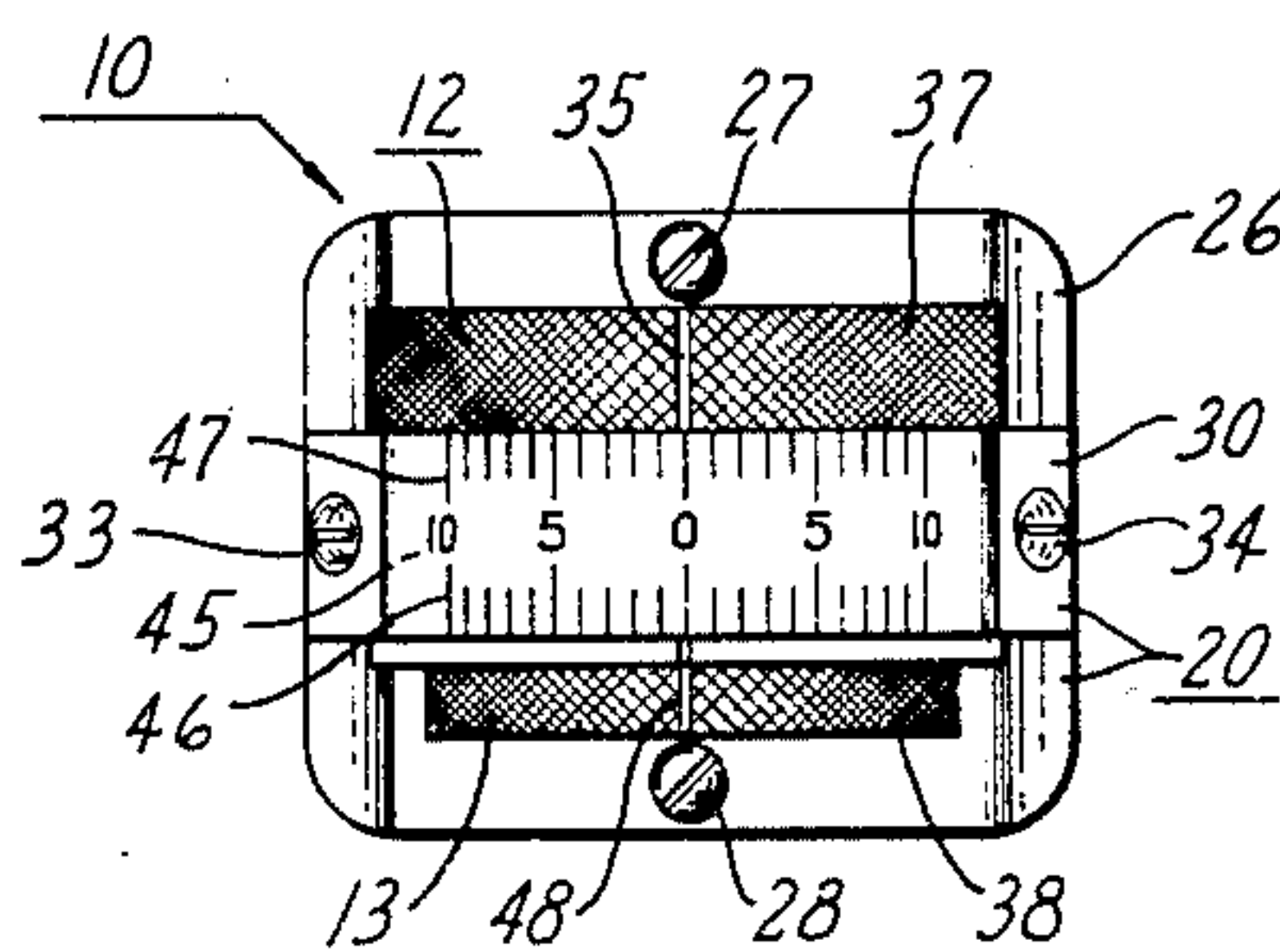


FIG. 3.

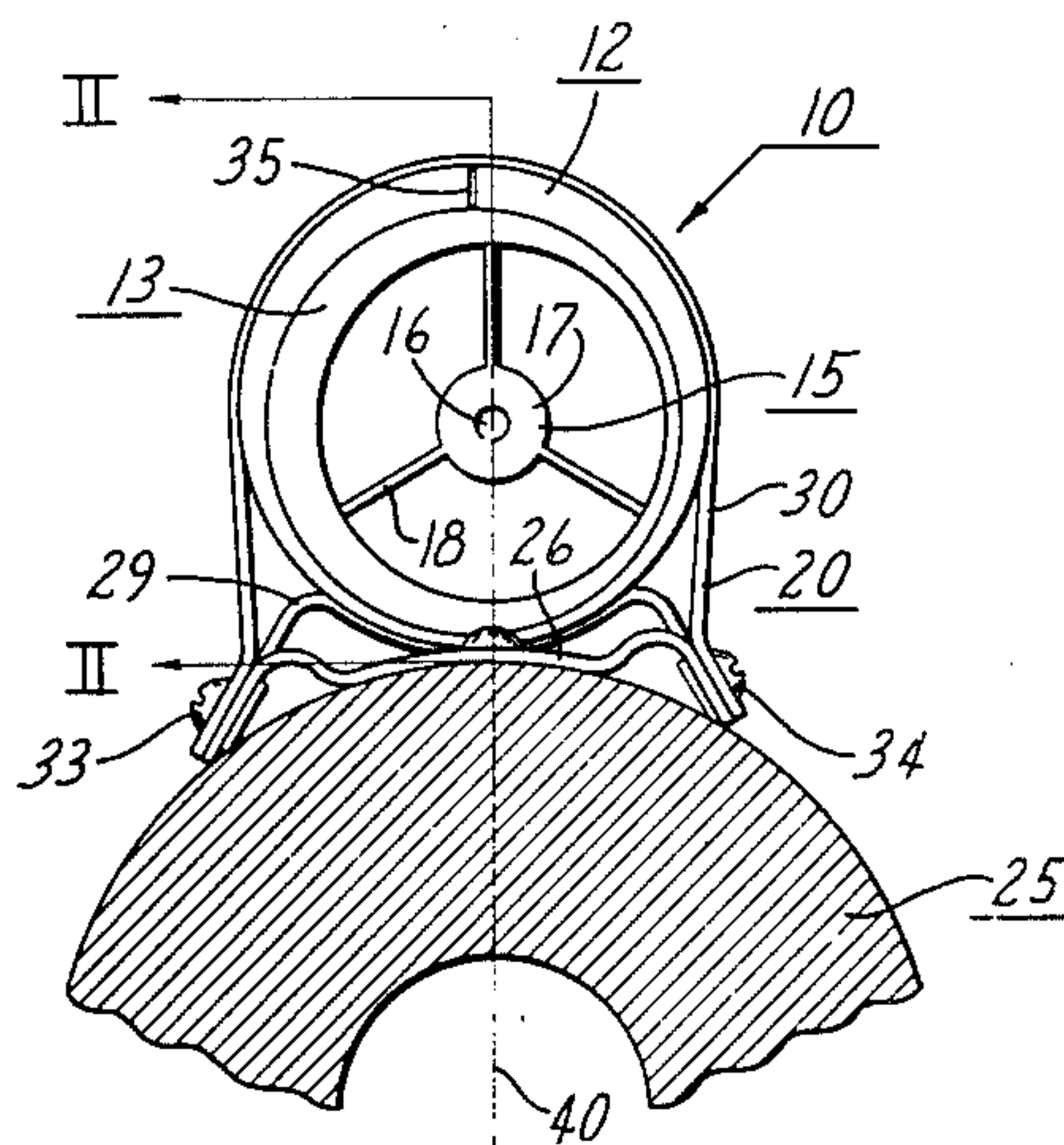


FIG. 4.

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SIGHT FOR FIREARMS

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5 Claims. (Cl. 33—56)

The present invention relates to sights for firearms and particularly concerns an adjustable open field type of sight for rifles and the like.

Open field sights known as ring sights have been used on military aircraft machine guns for tracking moving targets. This type of sight is composed of two or more concentric rings which are so calculated that when a given target is within a certain range, the inner ring encircles the target, however, these sights are mounted in fixed relation to the gun and the elevation and azimuth corrections are left to the judgement of the gunner upon the basis of the relation of the target to the different rings. The sight of the present invention on the other hand, is provided with elevation and azimuth adjustments which, when properly set, makes arbitrary judgement unnecessary.

A peep sight having the above mentioned adjustments is disclosed in U. S. Patent No. 2,456,214, issued to Bryce Poe on December 14, 1948. The sight disclosed in this patent, however, has a conventional peep hole formed in one of the two eccentric adjustments thereby leaving the rifleman "blind" except when the target is within the peep hole.

The present invention, therefore, possesses the advantages of the two illustrative prior art devices without the disadvantages of either.

It is therefore the principal object of applicant's invention to enable adjustment of an open field sight.

It is a further object to suspend the peep hole of a sight within an open area to provide full view of the field.

It is a further object of the invention to provide elevation and azimuth adjustments which are self contained within the sight proper.

It is a more specific object to provide inner and outer eccentric adjustments for a rifle sight wherein the inner circumference of the inner eccentric is concentric with the peep hole of the sight.

Other objects will appear from the following detailed description of a preferred embodiment of the invention, reference being had to the accompanying drawing forming a part of this specification in which:

Fig. 1 is an expanded perspective view of disassembled parts of the sight.

Fig. 2 is a sectional view of the sight, with the mounting removed, as taken on the line II—II of Fig. 4.

Fig. 3 is a plan view of the eccentric adjustments and the sight mounting showing the adjustment calibrations.

Fig. 4 is a rear view showing the sight mounting on the rifle barrel.

Construction and assembly

The sight 10 Fig. 4 is composed of two eccentric cylinders 12 and 13 shown also in Fig. 1, a spider 15 including a sight hole 16, formed in a central ring 17, which is supported concentrically within the inner circumference of cylinder 13 by three spokes 18. The sight is mounted

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upon a rifle barrel 25 by means of a framework or mount 20.

The inner periphery of cylinder 12 has two concentric bores forming a shoulder 14, and the outer periphery of cylinder 13 has two corresponding concentric surfaces which form a shoulder 14a. Cylinder 13 fits within cylinder 12, the stepped surfaces of each cylinder assuming what is generally termed a "slip fit" therebetween. When assembled, as shown in Fig. 2, the shoulder 14a abuts shoulder 14 to restrain rightward movement of cylinder 13 along its axis relative to cylinder 12. A retainer ring 21a fits in a circumferential groove 21 of cylinder 12 and locks the cylinder 13 in the position shown in Fig. 2.

The inner bore of cylinder 13 has two concentric surfaces forming a shoulder 23. The spokes or legs of the spider fit tightly within the larger of the two inner surfaces of cylinder 13 and abut the shoulder 23. When in this position, as shown in Fig. 2, a second retainer ring 22 fits into a circumferential groove 24 of cylinder 13 and locks the spider in the position shown.

The parts thus assembled as shown in Fig. 2 form a self contained unit which is mounted on the rifle barrel by means of the mount 20 (Figs. 3 and 4). The mount is composed of two parts, one comprising a mounting plate 26 (Fig. 3) which is secured to the barrel by screws 27 and 28, and the other part comprising a strap 30 which fits between two shoulders 31 and 32 (Fig. 1) on the outer periphery of cylinder 12. The plate 26 has a formed portion 29 which also fits between the shoulders 31 and 32 of cylinder 12 and thus forms a saddle in which the sight assembly 10 rides. The strap 30 is securely mounted to plate 26 by two screws 33 and 34.

The cylinder 12 (Fig. 1) has a longitudinal slot 35 so that when the screws 33 and 34 are tightened the cylinder 12 springs inwardly and locks the inner cylinder 13 in the position to which it is rotated; concurrently, the pressure of the strap against cylinder 12 locks that cylinder in the position to which it is rotated.

Cylinders 12 and 13 have knurled surfaces 37 and 38 respectively which, when screws 33 and/or 34 are loosened, enable the rifleman to make adjustments for elevation and azimuth correction, and when adjusted the screws are tightened to retain that adjustment.

Mounting and adjustment

It will be noted that the centerline 40 of the bore of the rifle barrel passes through the center of the sight hole 16, but that the mounting plate 26 is slightly off-set from that center line. This is because one eccentric is for the elevation adjustment and the other is for the azimuth adjustment and they are normally out of phase with each other. The amount of the out-of-phase adjustment of the eccentrics is normally 90° with respect to each other and each is normally on a respective horizontal or vertical base line; however, this adjustment may vary between 0° and 90° according to the windage, for example, or the range of fire, requiring appropriate adjustment of the azimuth or elevation eccentrics respectively. It is apparent therefore that the azimuth eccentric is normally on the vertical base line while the elevation eccentric is normally 90° therefrom. The peep hole is thus displaced along the said horizontal base line by an amount equal to one-half of the eccentricity. In order to compensate for this displacement and to bring the peep hole on the vertical centerline of the gun barrel, the sight mounting is horizontally off-set by one-half of the eccentricity. Either eccentric can, obviously, be used for either the elevation or azimuth setting but for purposes of illustration the outer cylinder 12 has been arbitrarily chosen as the azimuth setting member with the eccentric portion thereof on the vertical centerline or vertically upward. In this position, rotation of cylinder 12 clockwise from

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the position shown in Fig. 4 moves the sight hole 16 toward left, causing the gun to shoot to the left of the line of sight. Conversely, counterclockwise rotation of the cylinder 12 will move the sight hole 16 toward the right and cause the gun to shoot to the right.

The inner cylinder 13 has similarly been arbitrarily chosen as the elevation setting member, and its eccentric portion has therefore been set on a horizontal centerline or to the left as shown in Fig. 4. The slot 35 which is cut symmetrically through the eccentric of cylinder 12 is therefore shown displaced from the main vertical centerline 40 by an amount equal to one-half of the eccentricity of cylinder 13. The mounting 20, being shown symmetrical about the axis of cylinder 12, is similarly displaced by half the eccentricity, however, the screws 27 and 28 are shown on the main centerline 40 of the rifle barrel for purposes of accurate location of the mounting. Obviously any modified arrangement of off-setting by half the eccentricity of one of the cylinders could be made without departing from the principle of the invention; for example, the plate 26 could be symmetrical about axis 40 with the strap 30 off-set the amount necessary to displace the cylinder as shown, or the entire sight and mount could be made symmetrical and off-set on the rifle barrel by an amount equal to one-half the eccentricity of one of the cylinders.

Calibrations 45 (Fig. 3) including two scales 46 and 47 are impressed on the strap 30 and each scale is adjacent the opposite ends of the two cylinders 12 and 13. The cylinder 12 has the slot 35 symmetrically located therein for adjustment and locking purposes previously described, and this slot and its displacement from 0 position may be used to indicate the azimuth setting. The cylinder 13 has no slot for construction purposes which would serve as an indicator, consequently an indicia 48 is provided on the knurled portion of cylinder 13 and indicates the displacement of that cylinder from 0 position, thereby representing the elevation adjustment.

I claim:

1. In an open field sight for fire arms, having a mounting fixed to the barrel of a fire arm; the combination of, a first eccentric including two concentric inner bores forming a circular shoulder therebetween, a second eccentric having two concentric outer circumferences forming an outer shoulder located adjacent said circular shoulder, two concentric inner bores within the second eccentric and forming an inner shoulder between said bores, said last-mentioned inner bores and outer cir-

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cumferences being eccentric relative to each other, a sight hole formed concentrically within a central ring, and arms projecting radially from said ring and fitted within one of said inner bores of said second eccentric adjacent the inner shoulder thereof, with means for retaining said arms against said shoulder, and locking means for maintaining the first and second eccentrics in position relative to each other.

2. The sight described in claim 1, having means for releasing said locking means to enable manual adjustment of said first and second eccentrics relative to each other.

3. In an open field sight for fire arms, the combination of a sight hole concentrically located within a ring, arms projecting radially from the center of said ring, an elevation eccentric supporting said arms, and an azimuth eccentric encircling said elevation eccentric, said azimuth and elevation eccentrics being out of phase with respect to each other, a sight mounting embracing said azimuth eccentric and secured to the barrel of a fire arm, said mounting being displaced from a vertical centerline passing through the bore of the barrel and the center of said hole by an amount substantially equal to one half the eccentricity of said elevation eccentric.

4. In an open field sight for fire arms, the combination of a sight hole concentrically located within a ring, an elevation eccentric adjustment carrying said ring, and an azimuth eccentric adjustment mounted for rotation relative to said elevation eccentric, said azimuth and elevation eccentrics being out of phase with respect to each other, a sight mounting fixed to the barrel of a fire arm to maintain the azimuth eccentric in a position displaced horizontally from a vertical line passing through the axis of the barrel and the axis of the sight hole by an amount equal to one half the eccentricity of the elevation eccentric.

5. The sight described in claim 4 having indicia delineated upon the mounting, and an indicator located on the elevation eccentric adjacent said indicia.

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