

No. 701,787.

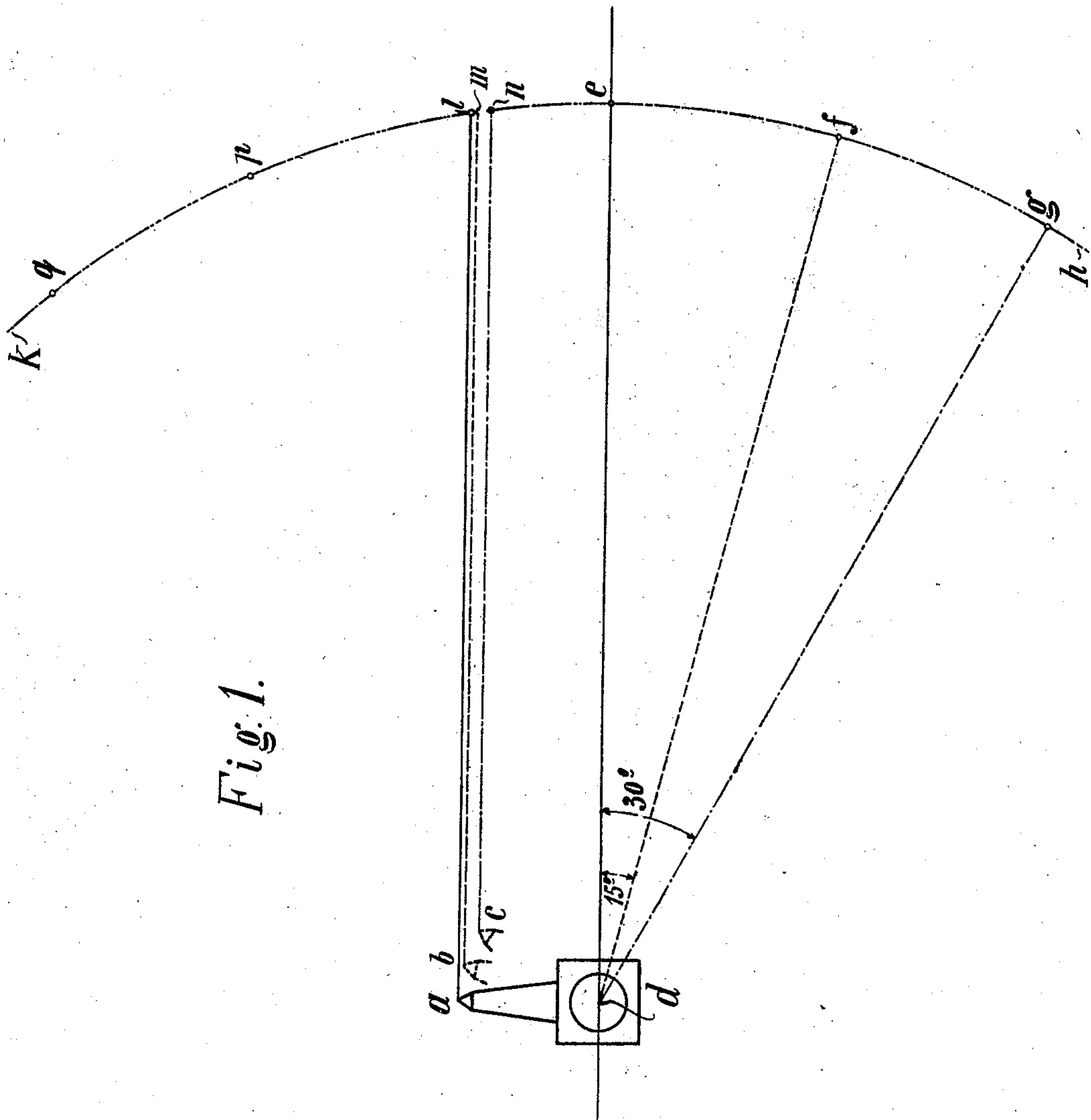
Patented June 3, 1902.

**J. BECKER.
SIGHT FOR GUNS.**

(Application filed Feb. 3, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
H. E. Manning.
Edwin S. Clarkson.

Invented
 Julius Becker,
 By Knight Bros
 attorneys

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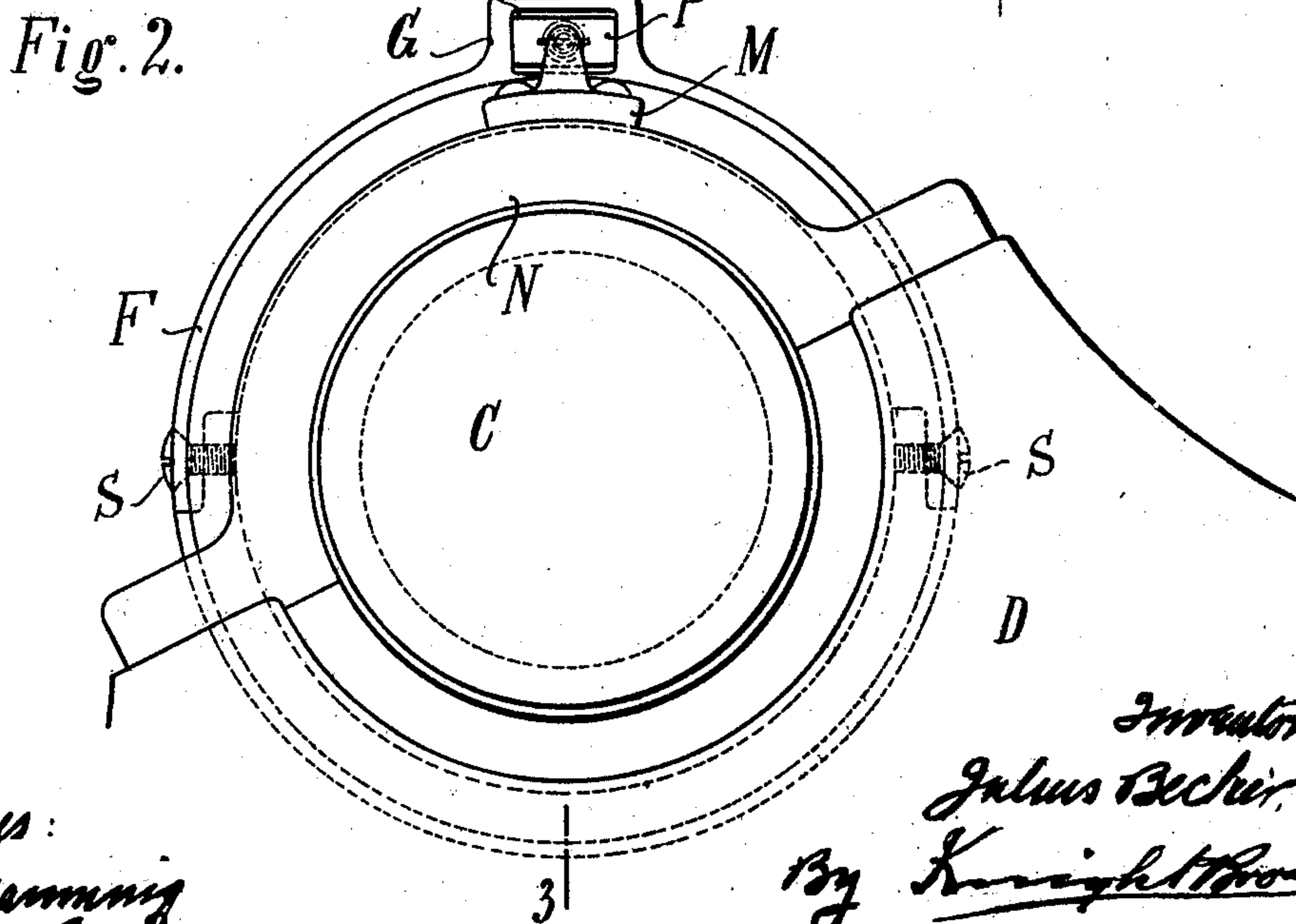
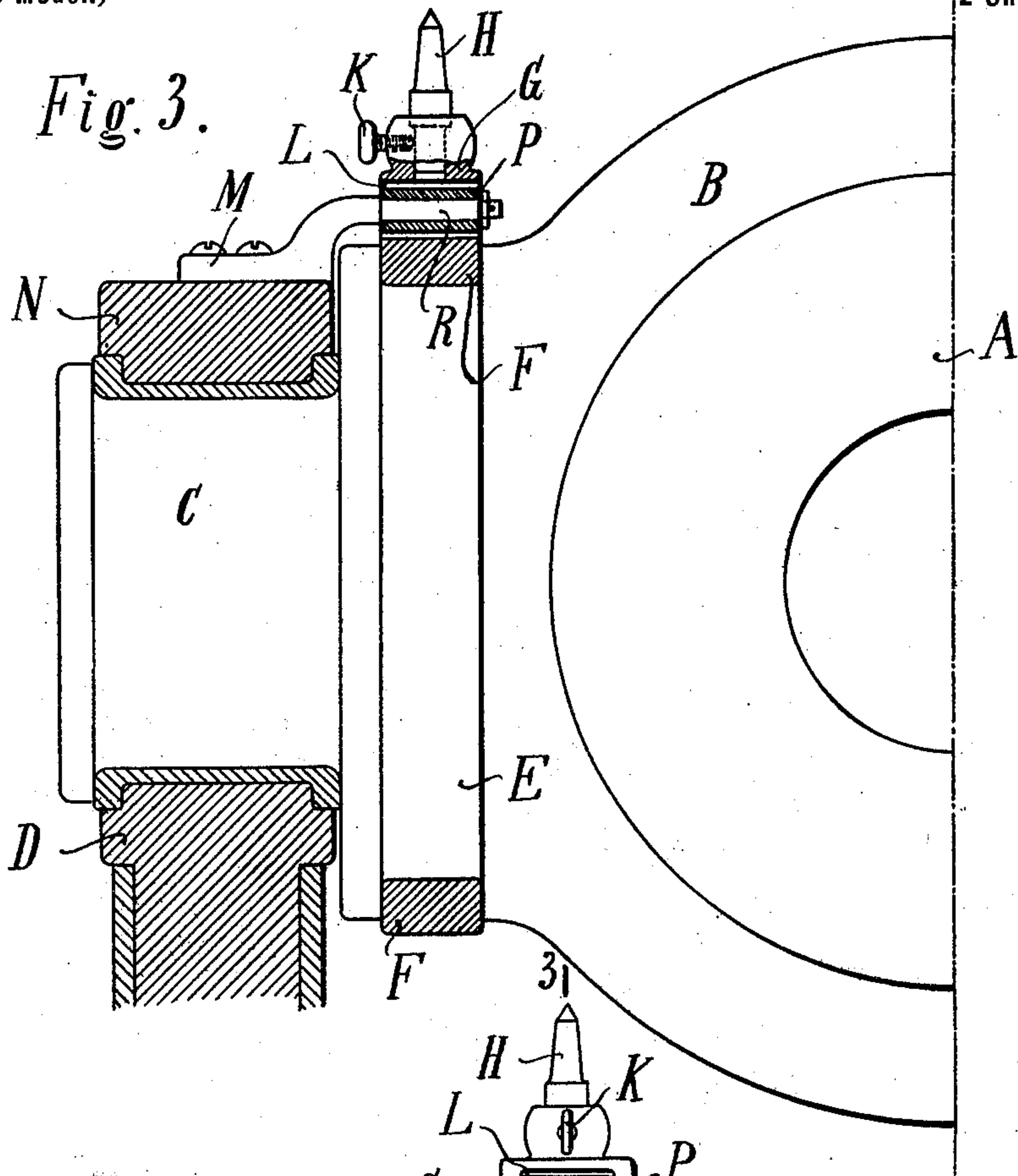
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UNITED STATES PATENT OFFICE.

JULIUS BECKER, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP, OF
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SIGHT FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 701,787, dated June 3, 1902.

Application filed February 3, 1902. Serial No. 92,375. (No model.)

To all whom it may concern:

Be it known that I, JULIUS BECKER, residing at 17 Heinicke Strasse, Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Sights for Guns, of which the following is a specification.

The present invention relates to those guns in which the tangent scale is bent concentric to the trunnions and provided with graduations. Heretofore such guns have in many cases had applied to them a so-called "bar-sight"—that is to say, a sighting device in which the front sight is combined with the scale through the medium of a bar rotatable on the trunnion or when limited space did not admit of this the front sight was rigidly attached to one of the trunnions of the gun or the cradle. This latter arrangement has the disadvantage that in elevating the gun the position of the front sight changes. This requires that the scale be unsymmetrically graduated, as will be understood from the following discussion, in which, for sake of simplicity, it will be assumed that the target is on the same level as the gun—that is to say, that the sighting-line directed upon the target is horizontal.

This discussion will be directed to Figure 1. In said figure, *a* represents the position which the front sight assumes when the gun is in a horizontal direction, and *b* and *c* are positions which the front sight assumes when the elevation of the gun is fifteen degrees and thirty degrees, respectively. The positions of the axis of the bore incident to the above are *d e*, *d f*, and *d g* and the incident sighting-lines *a l*, *b m*, and *c n*, while *h k* represents the arc on which the notch of the rear sight travels. If it is desired to give the gun an elevation of fifteen degrees, the scale is shifted upward through an angle corresponding to this elevation. The size of this angle is now disregarded. Then the breech of the gun is depressed until the sighting-line again coincides with the target—i. e., again lies horizontal—that is to say, takes the position *b m*. If now the scale has been shifted through an arc $lp = ef = 15^\circ$ and the gun has been depressed fifteen degrees, the notch of the rear sight will have returned to the point *l*, not to *m*. In other words, it is not in the position

which it must assume in a horizontal line of sight and with a fifteen-degree elevation of the gun. Hence it follows that to give the gun an elevation of fifteen degrees the scale must be shifted, not through an arc $lp = 15^\circ$, but through an arc represented by $lp - lm$, while to give an elevation of thirty degrees to the gun it must be shifted, not through an arc lq , which is equal to thirty degrees, but $lq - ln$. Now while the arc lq is twice the arc lp and the arc ln greater than $2lm$, hence it follows that the graduation of the scale must be unsymmetrical if the front sight is rigidly connected with one of the trunnions or the cradle; but such a graduation must be separately reckoned from one degree to another and for all of the subdivisions and is also very difficult to be protracted.

The present invention aims to provide an arrangement of front sight for which the graduations of the tangent scale will be uniform. This can be accomplished in the simplest manner by having the point of this sight in the axis of the trunnions; but serious difficulties present themselves to the practical embodiment of such an arrangement, and hence the present invention attains the desired ends by mounting the holder of the front sight independently of the scale either on the gun or upon the cradle in such a manner that it will be rotatable, but not displaceable, about the axis of the trunnions and prevented by a projection on a fixed part of the carriage from partaking of the rotation of the trunnions. In consequence of this arrangement the front sight retains its position during the elevation of the gun, but is free to follow any shifting of the trunnions in their bearings.

The invention is shown in the drawings by way of illustration in combination with a piece of ordnance the gun of which is mounted in a cradle, and in said drawings Fig. 2 shows in side elevation the parts of the gun which come under discussion, and Fig. 3 shows a section on the line 3 3 of Fig. 2.

The gun A is carried by its cradle B, which is mounted through trunnions C in the carriage-walls D in a well-known manner. At the base of that trunnion which is on the same side of the gun as the tangent scale is turned a groove E, in which a ring F is rota-

ably mounted. Said ring is formed of two halves connected by screws S and corresponds in width to the groove E, so that it is not slidable in relation to the axis of the trunnion, but can only turn thereon. Vertically above the trunnion-axis the ring F carries an enlargement G, the upper reduced portion of which is provided with a vertical bore in which the front sight H is secured by a set-screw K. Beneath this bore the enlargement is provided with a slot L. Into this slot projects an arm M, attached to the cover N of the trunnion-bearing, upon the turned end R of which a slide-block P is rotatably arranged. This slide-block bears against the side walls of the slot, but has play in said slot in directions both vertical and parallel to the axis of the trunnion.

It is obvious from the above without further explanation that the front sight will maintain its vertical position notwithstanding any adjustment of the elevation of the gun, yet is free to follow any lateral sliding of the trunnion and similar movements—as, for example, would be caused by wear of the trunnions and bearings. Moreover, the improved arrangement of the front sight secures an advantage over a front sight rigidly secured to the trunnion in that the sighting-line directed on targets which are at the same level as the point of the front sight are the same length for all positions of the scale, and the length is changed very little when the sighting-line is directed on targets which lie higher or lower than the horizontal plane of the point of the front sight.

Having thus described the invention, the following is what is claimed as new therein:

1. In combination with a gun having a tangent scale curved concentric to the trunnions, a front-sight carrier mounted independently of the tangent scale and rotatable about the axis of the trunnion, and an extension secured to a fixed part of the gun-mount in en-

gagement with said front-sight carrier and holding it against rotation with the trunnion, so that the front sight maintains the same position for different elevations of the gun but is free to follow any lateral shifting of the trunnions in their bearings.

2. In combination with a gun having a tangent scale curved concentric to the trunnions, a front-sight carrier consisting of a ring, mounted in a groove in the trunnion independently of the tangent scale and rotatable about the axis of the trunnion; and an extension secured to a fixed part of the gun-mount in engagement with said front-sight carrier and holding it against rotation with the trunnion, so that the front sight maintains the same position for different elevations of the gun but is free to follow any shifting of the trunnions in their bearings.

3. In combination with a gun having a tangent scale curved concentric to the trunnions, a front-sight carrier consisting of a ring, mounted in a groove in the trunnion independently of the tangent scale and rotatable about the axis of the trunnion, and an extension secured to a fixed part of the gun-mount in engagement with said front-sight carrier and holding it against rotation with the trunnion, through the medium of a slide-block, on the end of said arm, and a slot in said carrier into which said block enters, and has play, both vertically and parallel to the trunnion's axis, so that the front sight maintains the same position for different elevations of the gun but is free to follow any shifting of the trunnions in their bearing.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JULIUS BECKER.

Witnesses:

WILLIAM ESSENWEIN,
LAURA LIEBER.