No. 704,631. Patented July 15, 1902.

G. S. GOODALE

TARGET.

(Application filed Oct. 17, 1901.)

(No Model.)

Fig. 1.

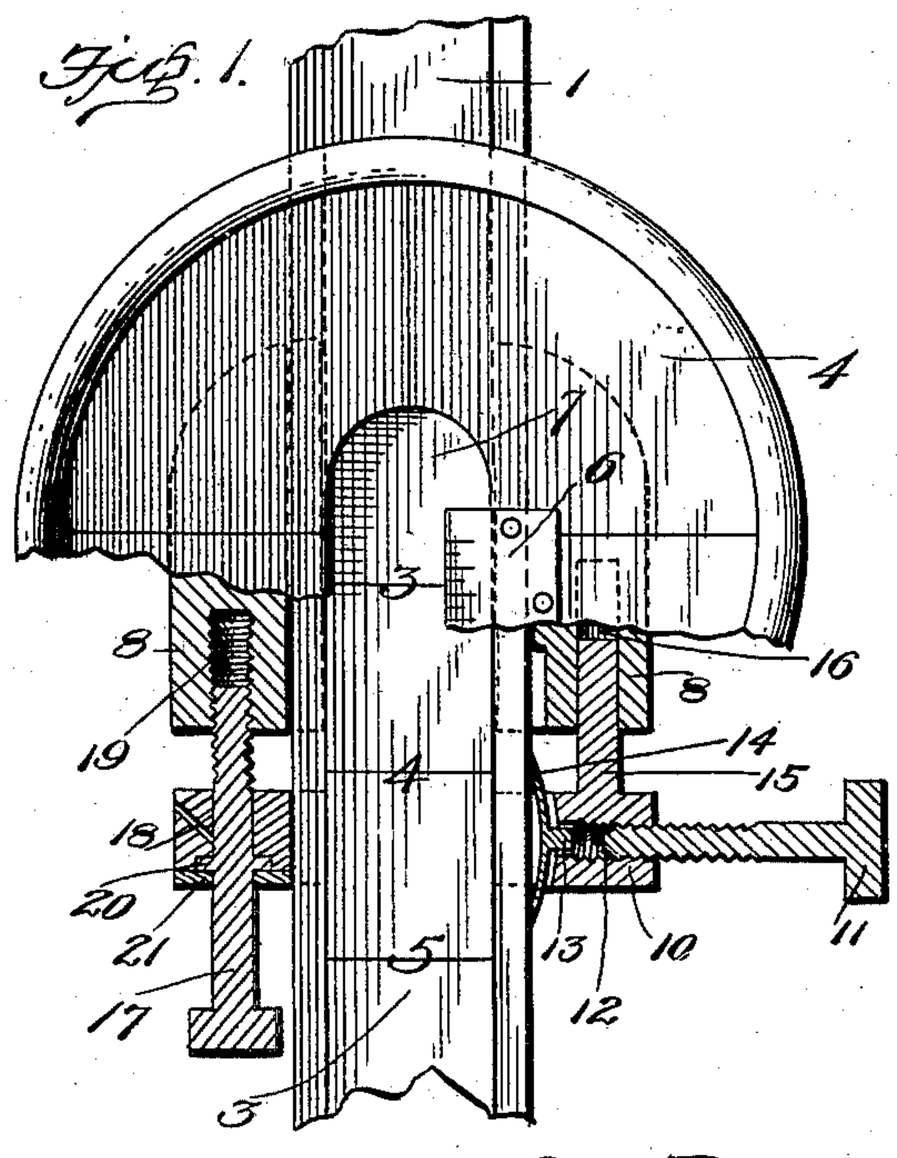


Fig. 2.

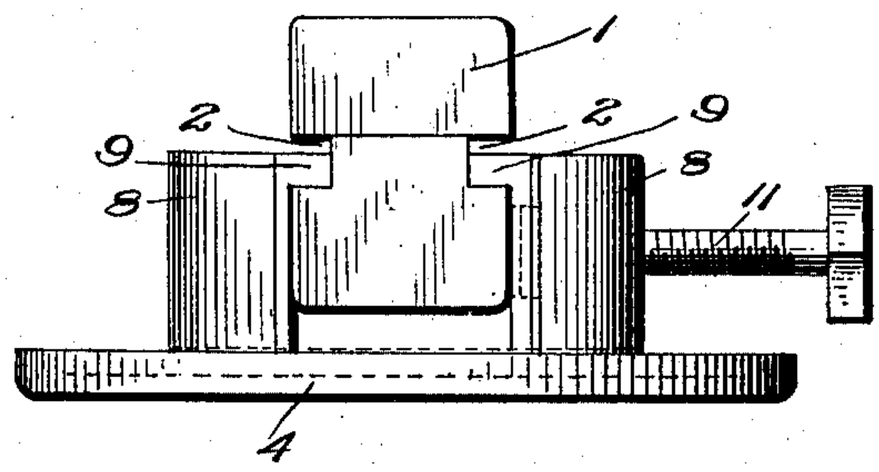


Fig. 3.

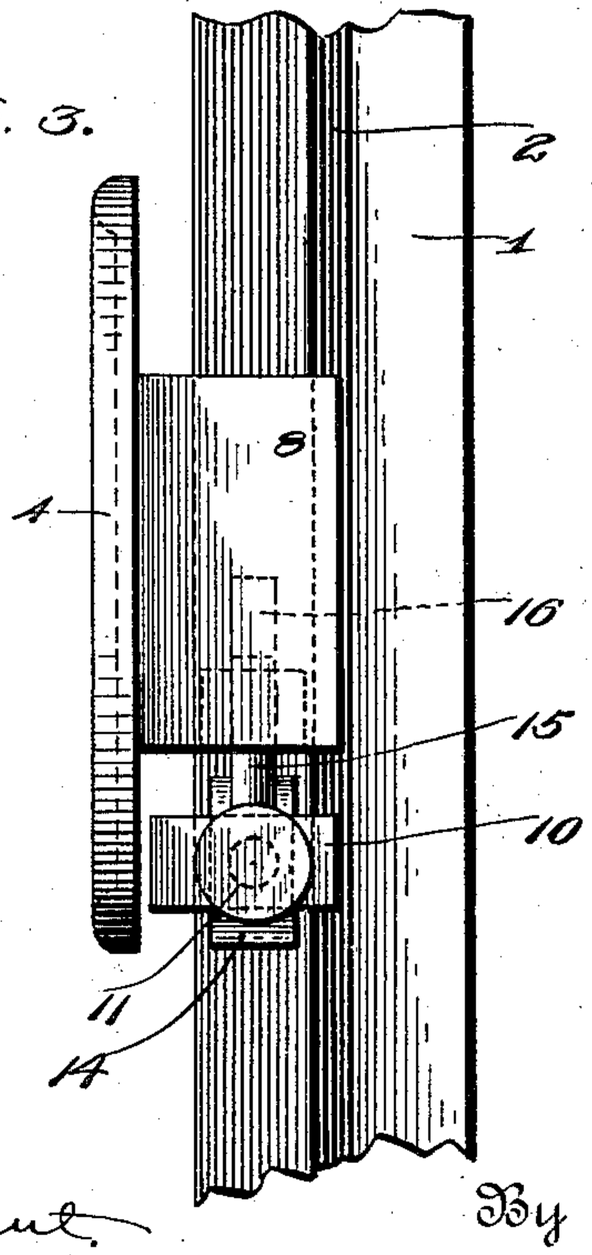
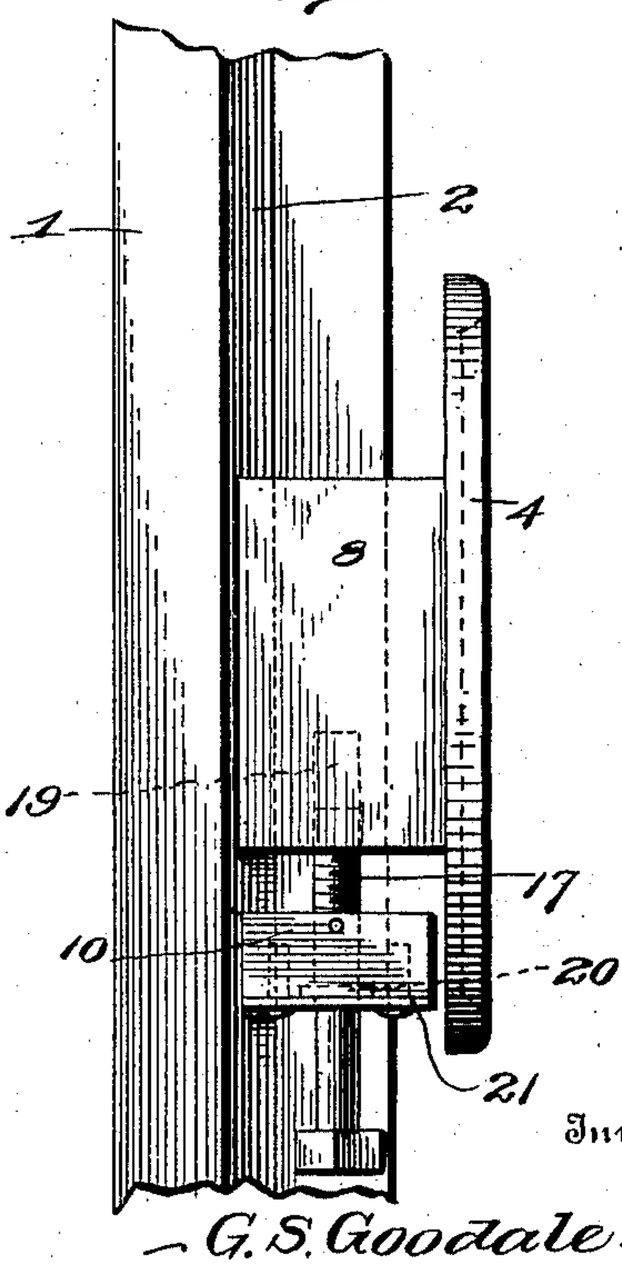


Fig. 4.



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UNITED STATES PATENT OFFICE.

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TARGET.

SPECIFICATION forming part of Letters Patent No. 704,631, dated July 15, 1902.

Application filed October 17, 1901. Serial No. 79,004. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. GOODALE, a citizen of the United States, residing at Houghton, in the county of Houghton and State of Michigan, have invented certain new and useful Improvements in Targets; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to targets, and more particularly to that class used upon civil engineers' leveling-rods.

The object of the invention is to provide a quick-setting target which shall be simple of construction, durable in use, comparatively inexpensive of production, and which may be easily and expeditiously set to exact adjustment.

With these objects in view the invention consists of certain novel features of construction and combination of parts, which will be hereinafter more fully set forth, and particularly defined in the appended claims.

In the accompanying drawings, Figure 1 is a front view, partly in section, illustrating my improved target. Fig. 2 is a top plan view. Figs. 3 and 4 are views taken from the opposite sides.

In the drawings, 1 denotes the leveling-rod, provided with guide-grooves 2 in its sides and a scale 3 on its face. 4 denotes a target-plate which is provided with a scale 6, adapted to coact with the scale 3 through the visual opening 7 in the target-disk. This disk is provided with rearwardly-extending blocks or lugs 8, which have shoulders 9 to engage and slide in the grooves 2 of the leveling-rod.

10 denotes a collar mounted to slide upon the leveling-rod and operatively connected with the target-disk. 11 denotes a set-screw which works through a screw-threaded aperture 12, formed in the collar, and engages a stem 13 of the spring-plate 14, which is adapted to be forced by the screw 11 against the leveling-rod to lock said collar in adjusted position. This collar is provided with an upwardly-extending post or stud 15, which works into a socket 16, formed in one of the blocks or lugs 8, and has a free sliding movement in said socket.

17 denotes an adjusting-screw which works through a smooth aperture 18, formed in the collar, and has its upper screw-threaded end engaging a screw-threaded socket 19, formed in one of the blocks 8. This screw is swiveled to the collar 10 by forming the screw with a fixed collar 20, which is held against longitudinal movement by the plate 21, screwed to the under side of the collar.

In operation when it is desired to adjust the target-disk the screw 11 is loosened and the target-disk is moved upon the leveling-rod to approximately three-eighths of an inch of the desired adjustment. Now by working the screw 17 the target-disk is moved to the exact point of adjustment.

In the vertical adjustment of the target the blocks or lugs 8 are prevented from canting to one side and binding against the rod by reason of the fact that it is guided in a true vertical direction by the stud or post 15, which projects into the socket 16 of one of said blocks.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of the invention will be readily understood without a more extended explanation.

While the preferred form of the invention is as herein described, it will of course be understood that changes in the form, proportion, and the minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with the leveling-rod, of a target-disk provided with blocks or lugs and mounted to slide thereon, one lug having a smooth socket and the other a screw-threaded socket, a collar mounted to slide upon said rod and provided with a stud or post to engage the smooth socket, a set-screw engaged with said collar for clamping it in adjusted position to the leveling-rod, a spring-plate interposed between the leveling-rod and the collar and adapted to be engaged by the set-screw and forced against the leveling-rod, and a screw swiveled to said collar and engaging the screw-threaded socket aforesaid

by means of which said target may be set to exact adjustment after having been set approximately by the movement of the collar upon said rod, substantially as set forth.

2. The combination with a leveling-rod; of a target-disk sliding directly on the rod and provided with lugs, one lug having a smooth socket and the other a screw-threaded socket, a collar sliding upon said rod below the target-disk and provided with an upwardly-extending stud or post to engage the smooth socket, means for locking said collar in adjusted position, and a screw swiveled to said collar and engaging the screw-threaded socket aforesaid, by means of which said target-disk may be set to exact adjustment after having been set approximately by the movement of the collar upon said rod, substantially as set forth.

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

GEO. S. GOODALE.

Witnesses:
S. W. GOODALE,
M. M. SHEA.