

No. 684,846.

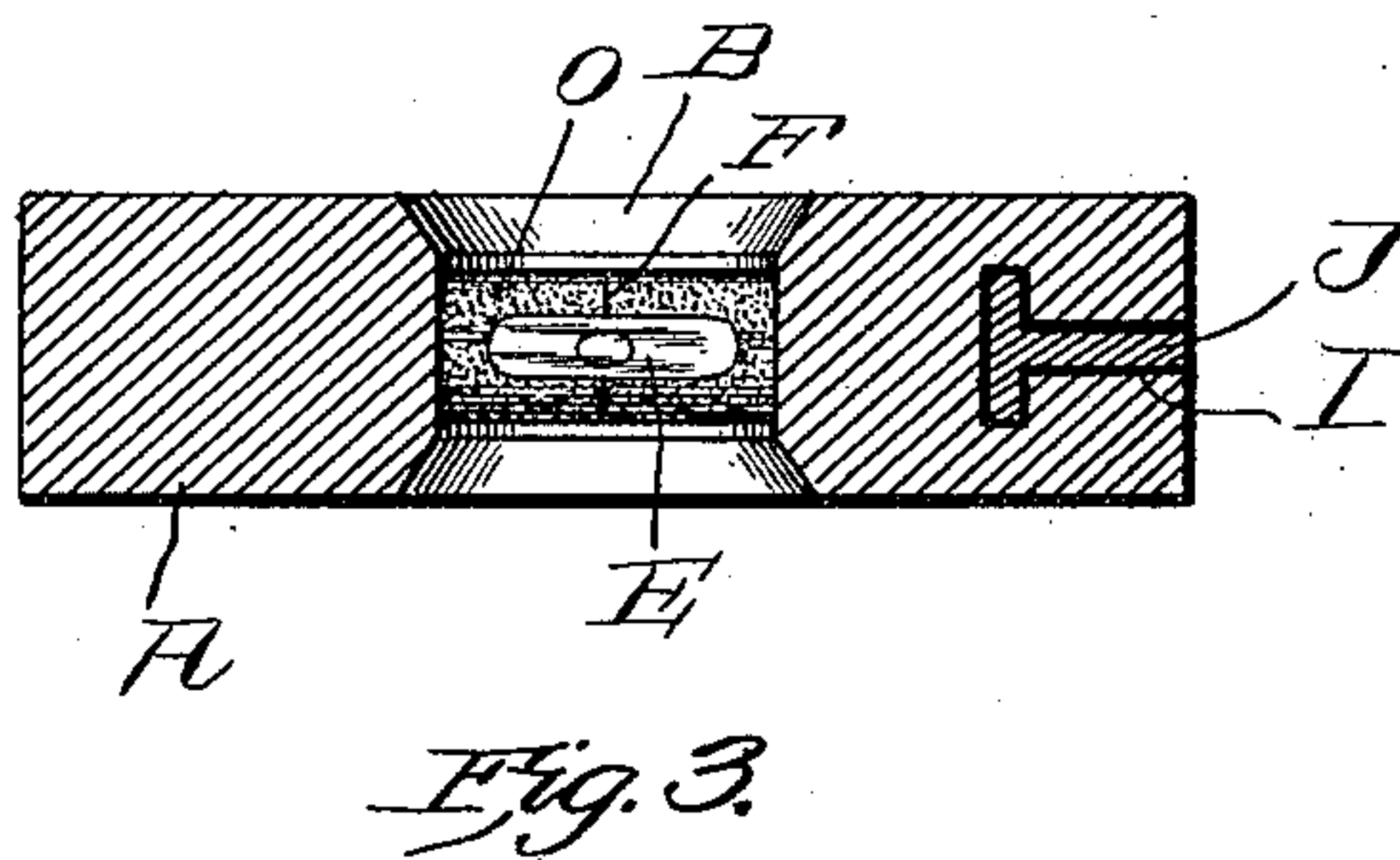
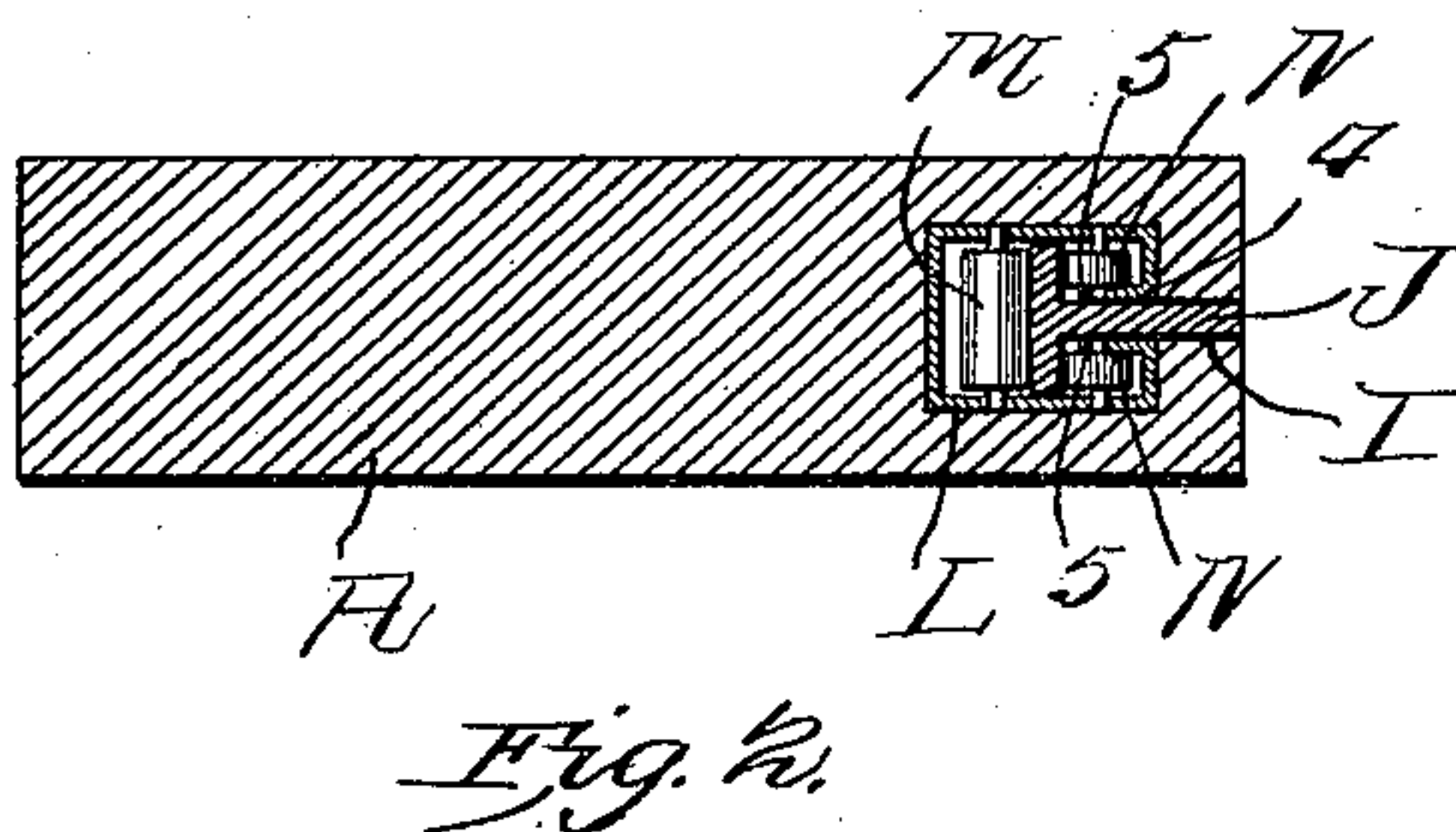
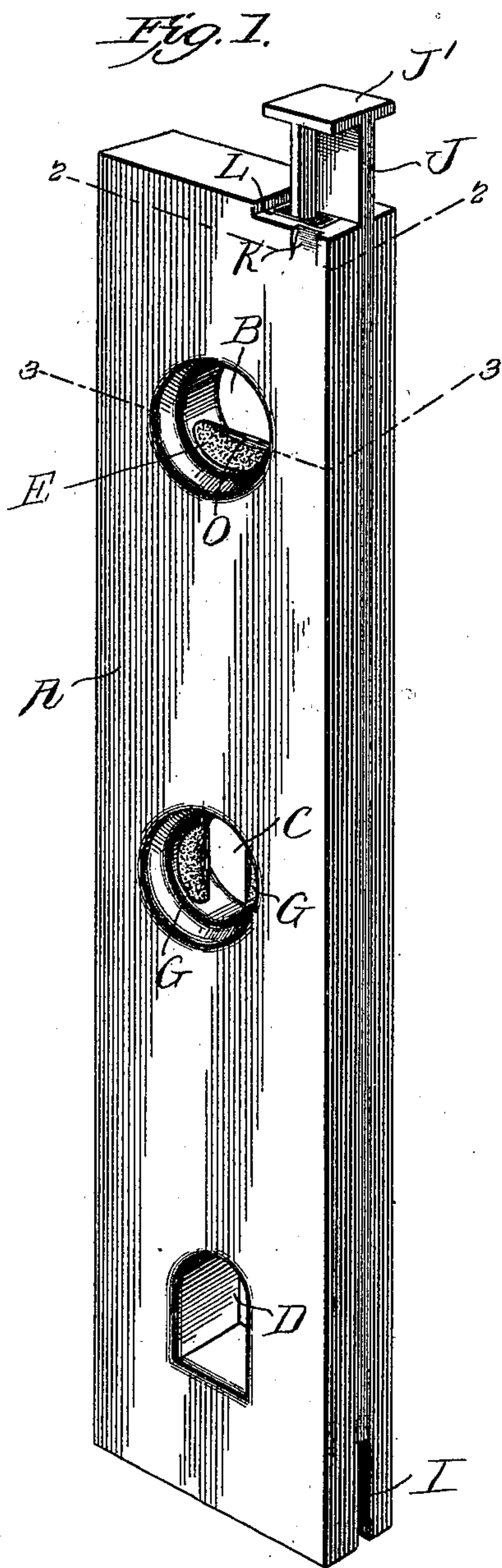
Patented Oct. 22, 1901.

A. J. MOSS.

LEVEL.

(Application filed Apr. 30, 1900.)

(No Model.)



Witnesses

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by

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UNITED STATES PATENT OFFICE.

ALBERT J. MOSS, OF LOS ANGELES, CALIFORNIA.

LEVEL.

SPECIFICATION forming part of Letters Patent No. 684,846, dated October 22, 1901.

Application filed April 30, 1900. Serial No. 14,990. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. MOSS, a citizen of the United States, residing at Los Angeles, county of Los Angeles, State of California, have invented new and useful Improvements in Levels, of which the following is a specification.

This invention relates to instruments of precision, and has for its object to provide an improved level and straight-edge and to have the latter portion of the device adjustable, so as to increase the length thereof, and also foldable, so as to normally lie within the compass of the body of the device. It is further more designed to arrange for the adjustment of the level-indicating mark of the bubble-tube, so that said mark may be readily changed to accord with any irregularities in the body of the device or the mounting of the tube.

With these and other objects in view the present convention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a level embodying the present invention. Figs. 2 and 3 are cross-sectional views taken on the lines 2 2 and 3 3, respectively, of Fig. 1.

Like characters of reference designate corresponding parts in all the figures of the drawings.

Referring to the accompanying drawings, A designates the body of the device, which is preferably formed by an oblong block of wood having the intermediate transverse opening C formed therethrough and the opposite terminal openings B and D, of which the lowermost opening D is designed to receive the weight or bob of a plumb-line should the latter be applied to the device.

Within the uppermost opening B there is situated a bubble-tube E to form a level, said tube being seated in a notch or recess formed in the lower peripheral edge of the opening. Similar tubes G are provided in the middle

opening and arranged at opposite sides thereof and also parallel with the opposite edges of the body, the tube E being parallel with the ends of the body. The outer or exposed side of each bubble-tube is ground or roughened, as indicated at O, or otherwise treated so as to receive a mark from a lead-pencil, so that the level-indicating mark F may be marked upon the ground surface of the tube, whereby the mark may be conveniently removed and replaced in a different location, according to any irregularities of the body of the device. This is an important feature, as the wooden body will absorb moisture, and thereby become irregular in size and shape, wherefore it becomes necessary to adjust the bubble-tube or the level-mark thereon. It is obvious that the tube should remain rigidly fixed to the body, and therefore one of the features of the present invention is to provide for the convenient adjustment of the level-indicating mark upon the bubble-tube, so as to compensate for any irregularities in the other parts of the device.

It will be observed that the ground-glass bubble-tube has an intermediate transparent portion to clearly expose to view the bubble, the ground portion being at opposite sides to receive the index-marks for cooperation with the bubble.

In one longitudinal edge of the body there is provided a slot or groove I, which is substantially T-shaped in cross-section, as plainly shown in Fig. 3 of the drawings, the groove opening outwardly through one end of the body for the slidable reception of a rod J, which is substantially T-shaped in cross-section to correspond with the shape of the groove. The outer end of the metallic straight-edge rod is provided with a flat plate or head J', which projects at the rear or inner edge thereof and at opposite sides, the adjacent end of the body being provided with a recess to receive the head flush with the end of the body when the rod is pushed inwardly to its inner limit, so as to reduce the device to the length of the body. Also a finger-notch K is formed in one or opposite sides of the body and at the open edge of the groove to facilitate engagement of the fingers with the head of the rod in order that the latter may be conveniently drawn out of the groove when

it is desired to extend the straight-edge to a length greater than that of the body. As best indicated in Fig. 1, it will be seen that the outer edge of the rod is flush with the adjacent edge of the body, so as to form a part thereof when pushed into the groove and also to form an exact extension of the said edge when extended to a part or to the entire length thereof.

10 In order that the rod may work smoothly and easily in the groove, it is designed to have the same travel between guide-rollers, which are arranged as shown in Fig. 2 of the drawings. These rollers are mounted in a box or
15 casing L, which is inserted through an enlargement of the open end portion of the groove, so as to embrace the inner flanged edge of the rod. A single roller M is journaled in the back of the casing and extends
20 transversely across the latter and also transversely across the flanged inner edge of the rod, there being a pair of rollers N bearing against the opposite inner side of the flange and at opposite sides of the rod, whereby the
25 flange is embraced between the rollers to render the rod freely slidable. It is designed to have a similar arrangement of rollers at a suitable distance from the rollers shown, so as to bear against separated portions of the rod,
30 and thereby maintain the latter straight and in exact alinement with the adjacent edge of the body when the rod is extended.

It will be observed that the casing L is rectangular in shape and has its front provided
35 with an intermediate longitudinal slot 4, which corresponds to the slot in the edge of the body A, and from opposite edges of the slot extend inwardly-directed flanges 5, in which the inner terminals of the rollers N are
40 journaled.

What is claimed, and desired to be secured by Letters Patent, is—

1. An implement of the character described,

comprising a body having a straight-edge, in which is provided a longitudinal groove opening outwardly through one end thereof and of substantially T shape in cross-section, an adjustable straight-edge rod slidably mounted in the groove and of substantially T shape in cross-section to correspond with the groove, a portion of the back of the groove being enlarged, a roller mounted in the back of the groove and transversely across the outer side of the flanged inner edge of the rod, and a pair of rollers mounted within the enlarged portion of the groove and bearing at the inner side of the flange and at opposite sides of the rod.

2. An implement of the character described, comprising a body having a straight-edge in which is provided a longitudinal substantially T-shaped groove opening outwardly through one end thereof, an adjustable straight-edge rod of substantially T shape in cross-section slidably mounted in the groove, a substantially rectangular box or casing inserted in an enlargement of the open end of the groove, and having a longitudinal slot formed in the front thereof and corresponding to the entrance of the groove in the body of the implement, there being inwardly-directed flanges at opposite sides of the slot, a transverse roller mounted across the rear portion of the box and bearing against the flange of the rod, and a pair of rollers bearing against the opposite side of said flange and mounted between the respective flanges of the casing and the adjacent sides thereof.

In witness that I claim the foregoing I have hereunto subscribed my name this 21st day of April, 1900, at Los Angeles, California.

ALBERT J. MOSS.

Witnesses:

G. E. HARPHAM,

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