

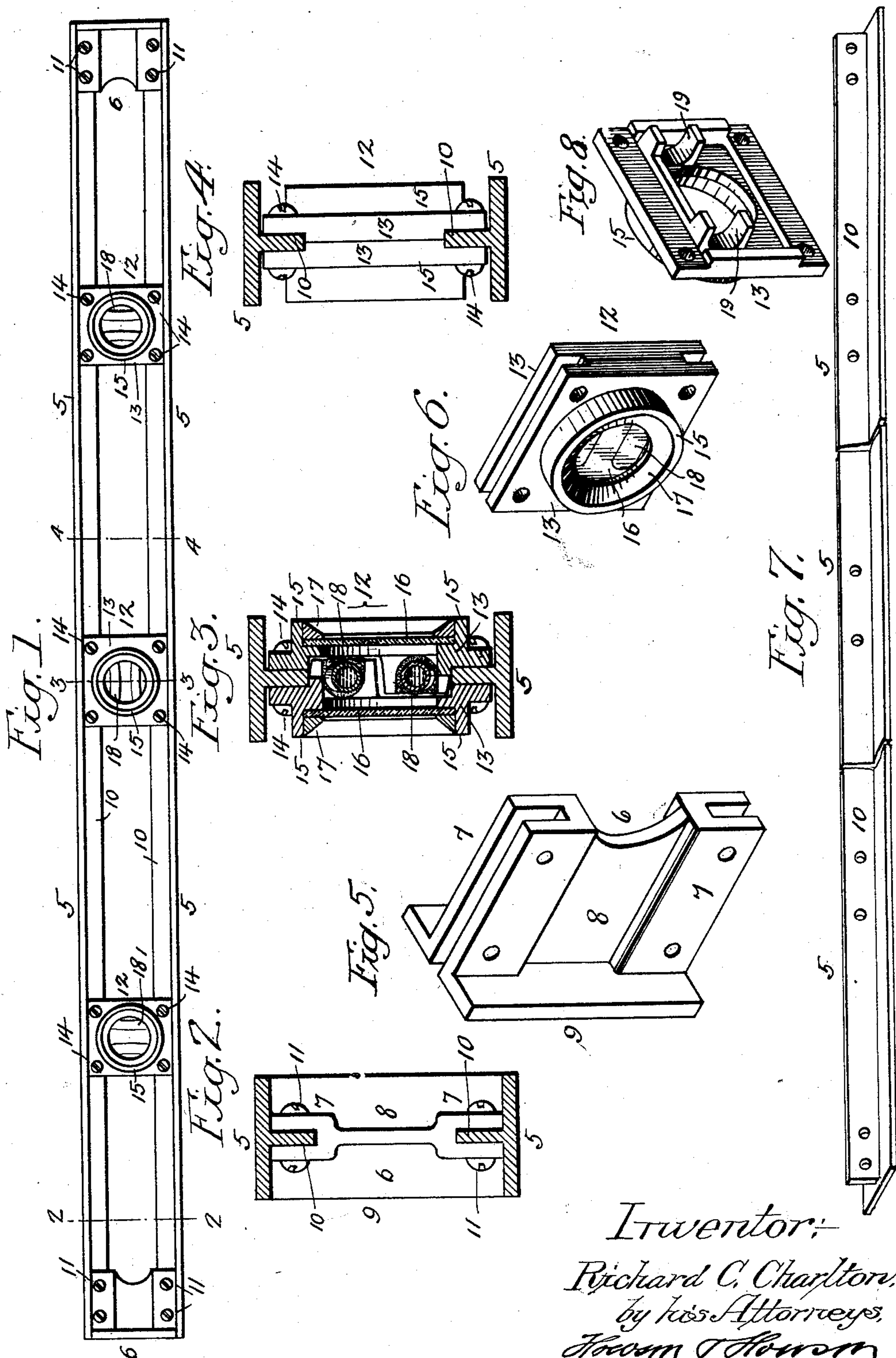
Oct. 7, 1930.

R. C. CHARLTON

1,777,429

LEVEL

Filed Dec. 8, 1926



Inventor:  
Richard C. Charlton,  
by his Attorneys,  
Hosmer & Hosmer



# UNITED STATES PATENT OFFICE

RICHARD C. CHARLTON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HENRY DISSTON & SONS, INCORPORATED, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

## LEVEL

Application filed December 8, 1926. Serial No. 153,337.

The object of my invention is to make a level of metal, especially aluminum, so that it will be light in weight and yet substantial, and in which the space within the frame is open with exception at the points where the spirit glass holders are located. The invention also relates to certain details of construction hereinafter described.

In the accompanying drawings:

Fig. 1 is a side view of my improved level;  
Fig. 2 is a transverse sectional view on the line 2—2, Fig. 1;

Fig. 3 is a transverse sectional view on the line 3—3, Fig. 1;

Fig. 4 is a transverse sectional view on the line 4—4, Fig. 1;

Fig. 5 is a detached perspective view of one of the end connecting members;

Fig. 6 is a detached perspective view of one of the spirit glass holders;

Fig. 7 is a detached view of one of the longitudinal side frames of the level; and

Fig. 8 is a detached perspective view of one-half of a spirit glass holder.

The two longitudinal members 5—5 of the frame are T-shaped in cross-section and are connected together at their ends by members 6—6 of the shape shown in Fig. 5. Each of the end members has a channel portion 7 connected by a web 8 and a flange 9 the same width as the longitudinal members 5.

The web portion 10 of the sections 5 extend into the channels of the portion 6 and through the flanged portion 9 thereof, while the bodies of the longitudinal members 5 extend over the flange 9 so as to provide unbroken leveling surfaces throughout the length of the level.

The end members are connected to the longitudinal members by screws or rivets 11 which pass through the channeled portions and into the webs as shown in Fig. 2.

The spirit tube holders are made as shown in Figs. 3 and 6. Each holder 12 is made in two sections 13—13, which are shaped to fit the webs 10 of the longitudinal members as shown in Fig. 8, and are secured thereto by transverse screws 14 or other fastening means.

Each section 13 has a deep circular flange 15, and located within the flange is a sight-

glass 16 held by a ring 17 secured to the flange of the holder in any suitable manner. Each section has recessed projections 19 for the reception of spirit tubes 18.

The ends of the tubes are embedded in plaster of Paris located in recesses of the projections 19 of the sections of the holder. The projections 19 of one section overlap those of the other section, as shown in Fig. 3, so that the tubes are on the same line.

In the central holder are two spirit tubes in the present instance, arranged longitudinally of the level, and in each end holder are two spirit tubes arranged transversely. The middle tubes are level tubes while the end tubes are plumb tubes. While two tubes are shown, the holders may be provided with single tubes. The level may be provided with level tubes only, or with plumb tubes only, as desired.

The entire level is preferably made of aluminum. The tube holders are formed of pressed or cast aluminum alloy, and the frame may be of extruded aluminum alloy.

In some instances the tube-holders may be made in a single piece in place of the two sections shown.

I claim:—

1. The combination in a level, of an open frame consisting of longitudinal members T-shaped in cross-section; end members having a flange, a web, and enlarged channeled portions, the foot of the T of each of the longitudinal members being secured in the channels of the channeled portions of the end members; and a spirit tube holder located between the two longitudinal members and secured thereto.

2. The combination in a level of an open frame, made of two metallic longitudinal members T-shaped in cross section and end members, each end member being channeled to receive the webs of the longitudinal members and having a flange of the same width as the longitudinal members, and a spirit tube holder secured directly to the webs of the longitudinal members and forming the sole connection between the two longitudinal members at a point between the end members.

RICHARD C. CHARLTON.