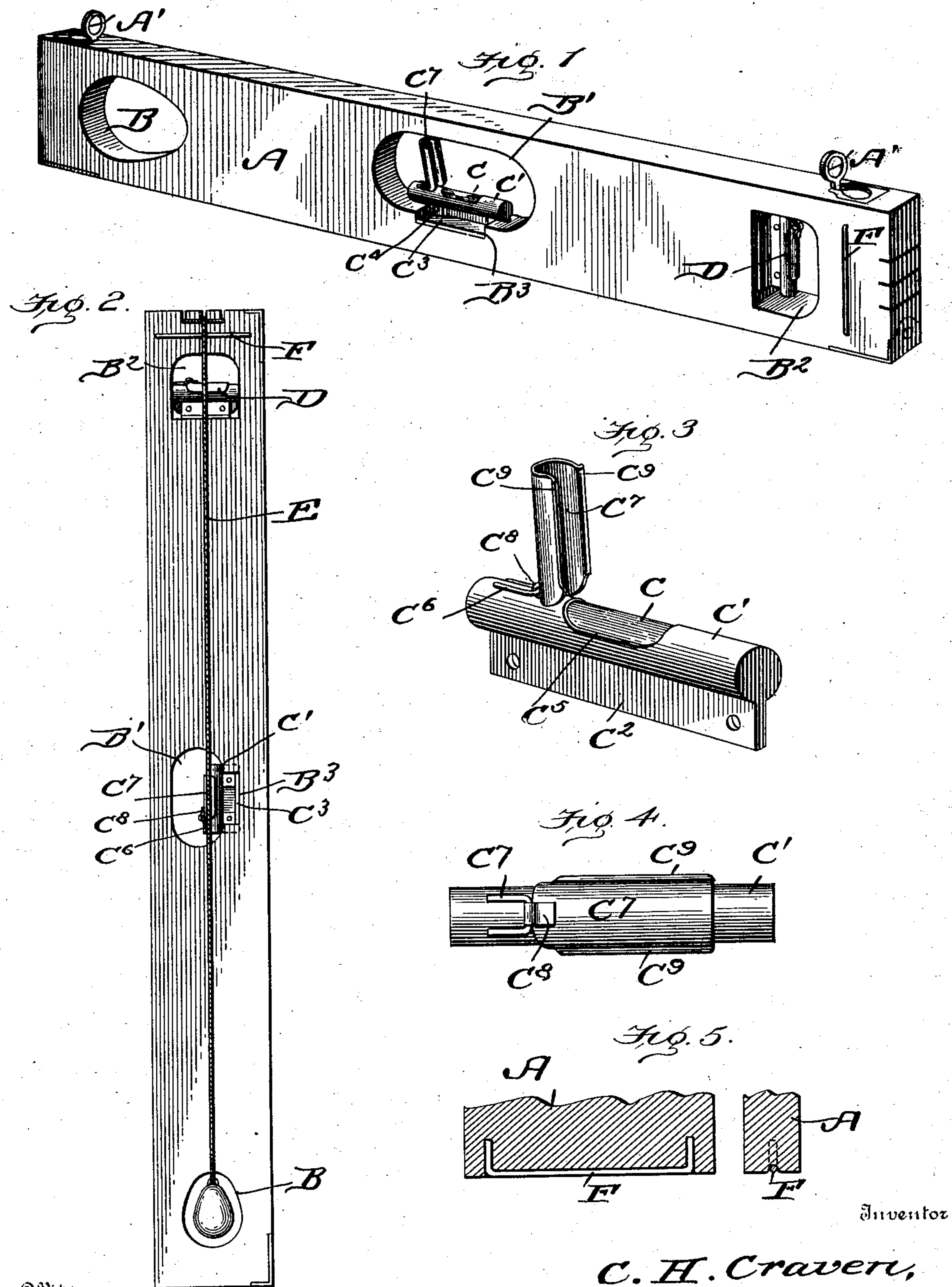


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C. H. CRAVEN.
PLUMB AND LEVEL.
APPLICATION FILED OCT. 28, 1903.

NO MODEL.



Witnesses

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CHARLES H. CRAVEN, OF NEWCASTLE, PENNSYLVANIA.

PLUMB AND LEVEL.

SPECIFICATION forming part of Letters Patent No. 753,551, dated March 1, 1904.

Application filed October 28, 1903. Serial No. 178,894. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. CRAVEN, a citizen of the United States, residing at Newcastle, in the county of Lawrence and State of Pennsylvania, have invented a new and useful Improvement in Plumbs and Levels, of which the following is a specification.

This invention relates especially to a level and plumb-line, the object of the invention being to protect the various parts of the level from injury, such as breakage of the spirit-tube glass, warping of the level, &c.

The invention consists of the novel features of construction and combination of parts hereinafter described, particularly pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of the level. Fig. 2 is an elevation, the level being arranged in a perpendicular position. Fig. 3 is a perspective view of the spirit-tube and shield. Fig. 4 is a plan view of Fig. 3, the shield being in a closed position. Fig. 5 represents fragmentary detail sectional views of an end of the level.

In the drawings, A represents a level of the usual size and having the customary sights A', adapted to fold down on the level in the usual manner.

B represents a pear-shaped opening through which the plumb-bob may be inspected.

At the longitudinal center of the level is formed an oval opening B', in which is longitudinally arranged the spirit-level C.

Adjacent the end of the level opposite the opening B is formed a vertically-arranged opening B², having a straight perpendicular wall, and in this opening is secured a vertically-arranged spirit-level D, similar in construction to that at C, but at right angles to it.

At the end of the level opposite the opening B are formed in the end three parallel slots, in which one end of the plumb-line E may be caught, as shown in Fig. 2. Adjacent this end a staple F is embedded in the sides of the level, the ends of the staple being turned inward, as shown in Fig. 5. The object of this staple is to prevent warping of the wood of which the level is made.

The level is provided with the usual brass corners.

The oval opening B' has its lower wall cut away, forming a rectangular recess B³, opening upwardly into the opening B' and of less length than said opening. The spirit-level is inclosed in a metallic tube C'. This tube is adapted to bear at its ends on the lower wall of the opening B' and has depending from it a rectangular web or blade C², which extends into the recess B³. The web is perforated adjacent each end. In the recess B³ is arranged a plate C³, and this plate has adjacent each end two upwardly-projecting lugs C⁴, and the lugs are arranged in pairs and perforated. The web C² rests between the lugs of each pair and is held in place by suitable bolts or rivets which pass through the lugs and perforations of the web.

On the top of each tube C', adjacent one end of the sight-opening C⁵, formed in the tube, is secured by brazing or other means a U-shaped member C⁶, the bow portion of which is bent upwardly slightly above the top of the tube.

A curved shield C⁷ is shaped to fit over the opening C⁵, lying snugly on the metal tube C'. The rear end of the shield is formed with rounded corners, and to this rear end is secured the ends of a spring-plate C⁸, the intermediate portion being bent around the bow portion of the U-shaped member C⁶. This hinges the shield to the metal tube C'. The shield is formed with longitudinal outwardly-extending flanges C⁹, so that when closed down it can be readily grasped between the thumb and first finger and lifted no matter whether caught at the forward end or adjacent the longitudinal center.

The parts immediately above described are duplicated in connection with the vertically-arranged level, as indicated at D.

It will be noted that I have a shield which will protect the glass of the tube C from dirt and from danger of breakage, which can be readily grasped between the fingers and lifted, and which when raised can be readily pressed down again. Where the plate C⁸ passes around the U-shaped member C⁶ it (the plate) bears on the tube C' and by friction serves to

hold the shield in the position in which it is adjusted. The plate, it will be noted, does not act as a spring.

Having thus fully described my invention,
5 what I claim as new, and desire to protect by Letters Patent, is—

1. A level having a glass spirit-tube, a metallic tube inclosing said spirit-tube, a longitudinally-curved shield adapted to fit over said
10 tube, said shield having its sides curved outward to form flanges, a U-shaped member secured on the metal tube, and a plate bent around the bow portion of said U-shaped member and secured at the ends to one end of
15 the shield.

2. The combination with a spirit-level, a metal tube incasing same, said tube being cut out on the top, a web on the under side of the metal tube, a plate having lugs in pairs, said

web extending between said lugs and adapted 20 to be secured to same, a U-shaped member secured on the tube adjacent the opening and having its bow portion slightly elevated, a plate having its intermediate portion resting between the top of the metal tube and the
25 bow of the U-shaped member, said plate having its ends bent upon themselves, a longitudinally-curved shield adapted to fit over the opening in the metal tube, said shield having its corners at the rear end rounded, the shield
30 being rigidly secured at its rear end to the ends of the plate encircling the bow of the U-shaped member.

CHARLES H. CRAVEN.

Witnesses:

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