

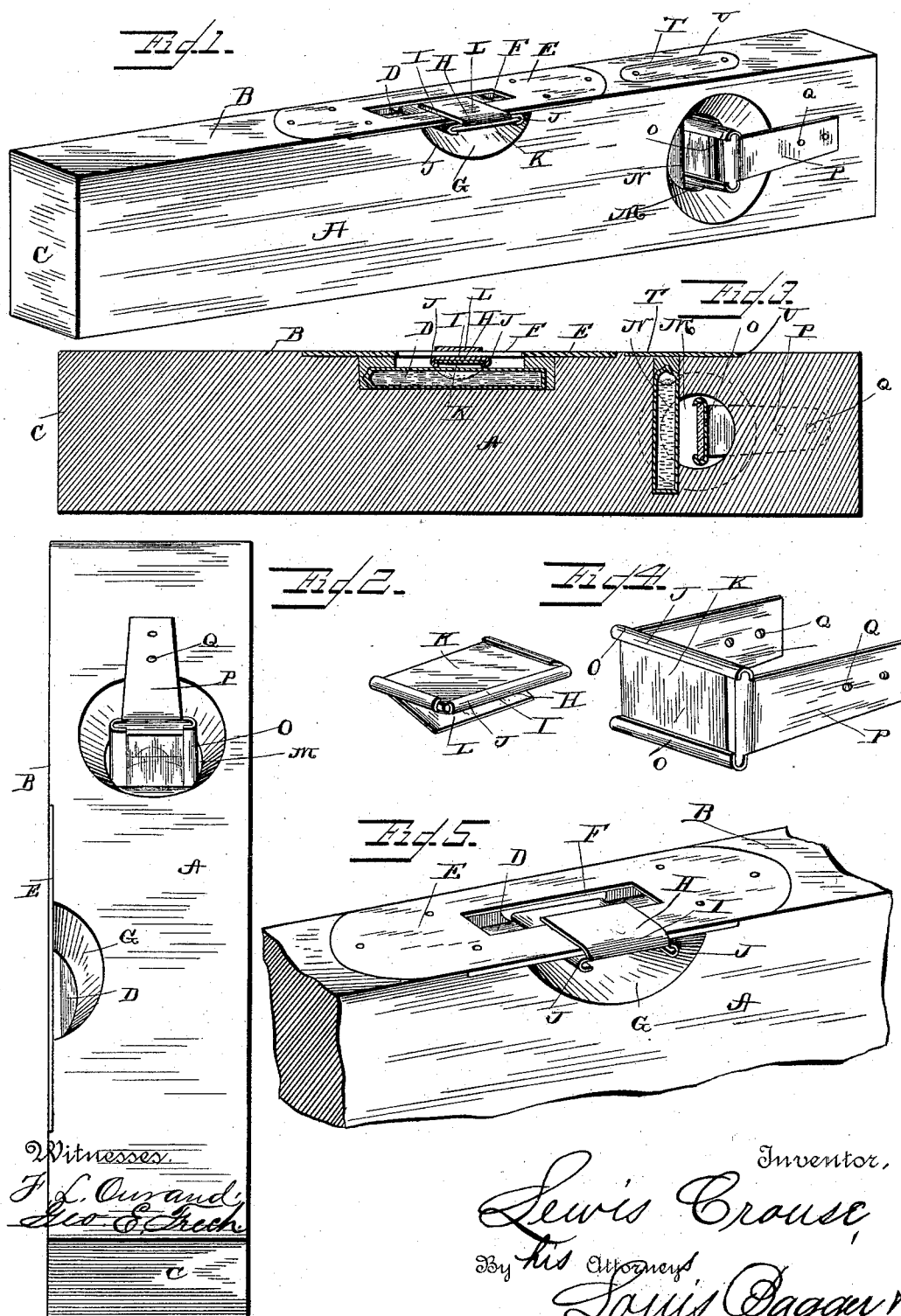
(No Model.)

L. CROUSE.

REFLECTOR FOR SPIRIT LEVELS.

No. 385,597.

Patented July 3, 1888.



# UNITED STATES PATENT OFFICE.

LEWIS CROUSE, OF THREE MILE BAY, NEW YORK.

## REFLECTOR FOR SPIRIT-LEVELS.

SPECIFICATION forming part of Letters Patent No. 385,597, dated July 3, 1888.

Application filed September 9, 1887. Serial No. 249,214. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS CROUSE, a citizen of the United States, and a resident of Three Mile Bay, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Reflectors for Spirit-Levels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of a spirit-level provided with my new and improved reflector for spirit-levels. Fig. 2 is a perspective view showing the bar used as a plumb, with the reflector arranged or secured over the plumb-level. Fig. 3 is a central longitudinal sectional view. Fig. 4 is a detail view of the removable reflector for the main level, and Fig. 5 is a detail view showing the said removable reflector in operative position over the main level.

The same letters of reference indicate corresponding parts in all the figures.

My invention relates to spirit-levels; and it consists in reflectors which can readily and in a few moments be placed in operative position on a spirit-level bar, the said reflectors being adapted to be secured over above both the main level and the plumb-level, which is placed in the mortise transversely of the bar, near one end of the same, and by the use of which, when the leveling-bar is held above the head for leveling or plumbing, the position of the air-bubble can be clearly seen in the reflector by looking up, thus dispensing with the necessity of standing upon something to look at the bubble itself, as was formerly necessary, this device being exceedingly accurate in operation, and my invention will be hereinafter fully described and claimed.

Referring to the several parts by letter, A indicates the ordinary leveling-bar which is employed by carpenters for leveling and plumbing, having the straight edges and ends B C, and in the central part of the upper edge of this bar A is secured a bulb or tube, D, of the usual form, above which is secured a plate, E, as usual, this plate having the usual central

longitudinal opening, F, through which the spirit-level is viewed when the leveling-bar is at or below the level of the head when in use. On each side of this central main spirit-level the edges of the bar A are recessed with a curved recess, G G, so that the bubble in the tube D can be seen from the side when the leveling-bar is held on the level of the eyes.

H indicates my new and improved reflector, which is constructed with the metal flanged frame I, the lower side of which has the edge flanges, J, bent down over it on three sides or from three edges of the metal plate which forms the body of said frame, and in this flanged frame I is held a small mirror, K, and in the form of reflector for use over the main central spirit-level of the leveling-bar the stem or bracket L of the small metal frame is bent back over the flanged portion thereof, as shown, to form a clasp to hold the reflector removably in position on the plate E over the center of the bulb or tube D. My improved reflector is placed in operative position over this central main spirit-level by slipping it on one side of the plate E, with the mirror K facing downward, and when the frame of the reflector has been slipped in position on the plate E the inner portion or half of the mirror will extend in directly over the center of the bulb or tube of the spirit-level, and the reflector will be held firmly in this position by the grip or spring of the clasp L of its frame. The reflector being thus secured in position, it will be seen that in use, when the leveling-bar is held above the level of the head for leveling, the carpenter can, by looking in the small mirror of the reflector, see the precise position of the air-bubble of the tube or bulb D, and can thus get the leveling-bar exactly horizontal without having to mount upon some object to look directly at the bubble itself, as the mirror of the reflector will show when the bubble is exactly in the center of the tube or bulb D as accurately as though one were looking at the bubble itself.

Near the end of the leveling-bar, which may be called its "upper" end, is formed a circular opening, M, in a mortise in the bottom of which is secured, transversely of the bar A and exactly at right angles to the bulb or tube D, a spirit-level, N, and above this level, to

the end of the bar A, is secured the reflector O, which is similar in construction to the reflector before described, except that the metal frame in which the mirror is secured is formed with the two upwardly-extending arms P P, so that when the reflector is placed in position in the end of the leveling-bar, with its mirror directly and squarely over the plumb-level N, as shown, the arms P P will extend up on each side of the upper end of the bar A, where they are secured by the small pins or screws Q Q, as shown, and it will be seen that this reflector can be secured in position on any leveling-bar in a few moments, and can be as readily removed, if desired, although when once secured in position there is no occasion for removing it.

In using the leveling-bar for plumbing the bar is held up against the building, with the end in which the transverse level is placed upward, and it can then be raised to any height, and by looking in the mirror of the reflector the air-bubble can be seen and its location exactly decided, and thus it can be seen when the bubble is in the center of the tube or bulb without mounting on any object, and as accurately as when looking directly at the bubble itself.

In the accompanying drawings I have shown two separate bulbs or spirit-levels secured in the bar—the main level and the transverse or plumb level—and it is most convenient to employ two separate bulbs for convenience in placing them in position, and they are more readily adjusted at exact right angles to one another; but, if preferred, the main and transverse tubes may be constructed integral in one tube, having its upper end bent at right angles to form the plumb-level, as will be readily understood, and the bar can then be properly recessed to place the integral level in its position; or the bar might be formed in two longitudinal sections for convenience in securing the integral tubes in position.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my new and improved reflectors for spirit-levels will be readily understood. It will be seen that my reflectors are simple and cheap in construction, that they can be attached in a few moments in operative position to a leveling-bar of ordinary construction, and that they are exceedingly efficient, convenient, and

accurate in operation. The reflectors can be attached in a few moments, and the one over the main leveling-bulb can be slid off or removed at any time when not in use, although this is not necessary, as it is not in the way. By constructing the reflector O with the two side arms, P P, it can be accurately adjusted to stand at right angles over the bulb N. A metal plate, T, is secured in a slight shallow recess, U, in the edge of the bar A, over the end of the transverse spirit-level, for the purpose of securely holding the said bulb in the opening or recess in which it is inserted.

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

1. A reflector for spirit-levels, consisting of a flanged frame, the mirror secured in said frame, and the bent upper portion forming the clasp adapted to be clamped to the slotted edge plate of an ordinary spirit-level.

2. The combination, with the leveling-bar having the main spirit-level secured in its edge and having the centrally-slotted plate secured over the said spirit-level, of the reflector constructed with the flanged frame, the mirror secured in the said frame, and the bent upper portion forming the clasp, substantially as and for the purpose set forth.

3. The combination, with the leveling-bar having the transverse opening in one of its ends and the spirit-level secured in the recessed bottom part of the said opening, of the reflector consisting of the flanged frame having the two arms, and the mirror secured in the said frame, substantially as and for the purpose set forth.

4. The combination, with the leveling-bar having the transverse opening in one of its ends, the recess or opening communicating with the bottom of the said opening, the spirit-level fitting in the said recess, and the end plate, arranged as described, of the reflector consisting of the flanged frame having the two arms and the mirror secured in the said frame, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

LEWIS CROUSE.

Witnesses:

ADELBERT KINSLEY,  
A. H. WIGGINS.