

No. 798,709.

PATENTED SEPT. 5, 1905.

C. G. SMITH.
SPIRIT LEVEL.

APPLICATION FILED OCT. 1, 1904.

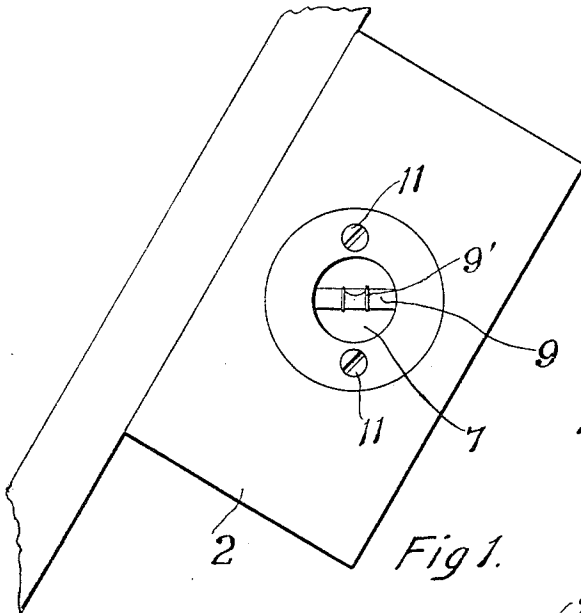


Fig 1.

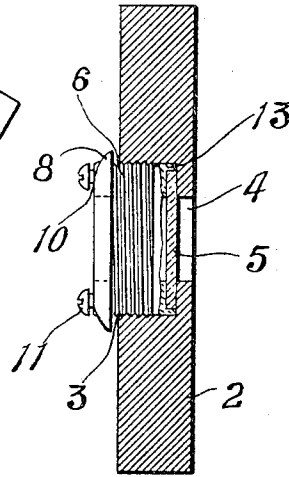


Fig 2.

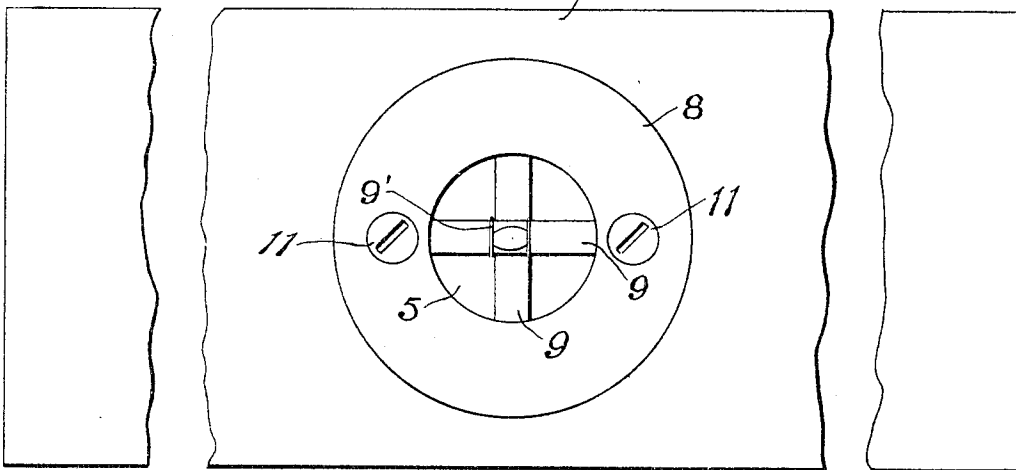


Fig 3.

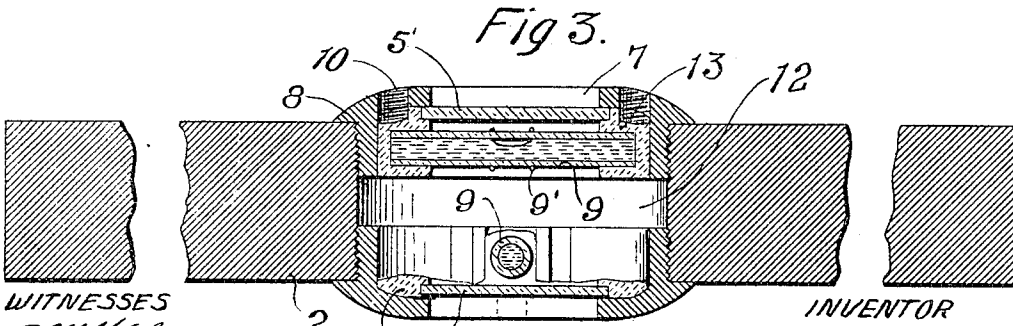


Fig 4.

WITNESSES

A. M. Walstrom

C. Macnamara

INVENTOR

CHARLES G. SMITH

BY *Paul J. Porel*
HIS ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES G. SMITH, OF MINNEAPOLIS, MINNESOTA.

SPIRIT-LEVEL.

No. 798,709.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed October 1, 1904. Serial No. 226,735.

To all whom it may concern:

Be it known that I, CHARLES G. SMITH, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Spirit-Levels, of which the following is a specification.

The object of my invention is to provide a simple inexpensive level and one in which the spirit-tube can be easily and quickly adjusted with respect to the wooden block or frame in which it is mounted.

A further object is to provide a spirit-level adapted for use on inclined or vertical surfaces as well as on a horizontal surface.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view of a level embodying my invention, the device being shown applied to an inclined surface. Fig. 2 is a vertical section of the same. Fig. 3 is a side elevation showing a modified construction of the level. Fig. 4 is a longitudinal section.

In the drawings, 2 represents a wooden block of the usual shape and size employed with spirit-levels, having a recess 3 on one side, extending partially through the block and communicating with a hole 4, that extends through the opposite side and being of less diameter than the recess. A disk 5 is fitted within the recess over the hole 4 and is preferably of ground glass to prevent the sun from shining in the eyes of the person using the tool when it is held between the face and the sun. The recess is interiorly threaded to receive a sleeve 6, that is provided with a central opening 7, and a flange 8, that is adapted to fit the surface of the block and conceal the edge of the recess. Within the sleeve 6 a glass spirit-tube 9 is mounted, extending across the hole 7 and visible therethrough. Rings 9' are provided on each side of the center-mark in the tool to enable the operator to easily center the bubble therein. A disk 5', similar to the one covering the hole 4, but of common glass, is provided over the tube, preventing it from becoming accidentally broken, but allowing it to be easily examined when the instrument is in use. The sleeve 6 is adapted to screw snugly into the recess to allow the proper adjustment of the spirit-tube with respect to the edge of the block. To facilitate the adjustment of the sleeve, I provide threaded

holes 10 on each side of the center thereof to receive machine-screws 11, which may be adjusted in the position shown in Fig. 2 to enable a carpenter or other person to insert a screw-driver between them and readily revolve the sleeve in either direction. When these screws are not in use, they may be turned down against the flange of the sleeve, where there will be no danger of their catching on the clothes of the person using the level or in any way interfering with the work.

In Fig. 4 I have shown a modified construction, which consists in providing a hole 12, extending entirely through the block from side to side, said hole being of the same diameter throughout and having threaded walls at each end, wherein sleeves similar to those above described are screwed. These sleeves are provided with spirit-tubes set in plaster-of-paris or other suitable material, as indicated in Fig. 4, and in mounting them in the sleeves one tube is arranged at right angles to the other, so that when the sleeves are screwed into the block one tube will be parallel with the longitudinal edges of the block and the other tube will be substantially at right angles thereto. This arrangement adapts the device for use both on a horizontal and an inclined or vertical surface. Both sleeves will be provided with the screws 11 to permit their convenient adjustment.

It will be noted that this level is very simple in construction. The threads to receive the sleeve being made in the wood render the use of all bushing and locking sleeves unnecessary, and the manner of mounting the spirit-tubes in the sleeves permits their removal whenever desired, and the convenient adjustment of the device permits the carpenter to set the tube in proper parallel relation with the edges of the block with the use of an ordinary tool.

I claim as my invention—

1. A spirit-level comprising a block having a threaded hole extending through it from one side to the other, an exteriorly-threaded sleeve fitting within said threaded hole and having an external flange to bear upon the surface of the block around said hole, a spirit-tube mounted in said sleeve, said tube being visible through either end of said hole, and a transparent disk through which said tube may be observed, substantially as described.

2. A spirit-level, comprising a block having a circular recess in one side provided with threaded walls, an exteriorly-threaded sleeve fitting within said recess, a spirit-tube mounted

in said sleeve and extending across the opening therethrough, and screws adjustably mounted in the outer end of said sleeve upon each side thereof and adapted to be screwed down
5 against the surface of said sleeve or moved outwardly therefrom, for the purpose specified.

3. A spirit-level comprising a block having a hole extending therethrough from side to side and threaded at each end, exteriorly-threaded
10 sleeves fitting within the ends of said hole and having flanges to bear on the sides of the block around said hole, spirit-tubes mounted in said sleeves, one being visible on one side

of the block and the other on the other side, and one tube being arranged substantially at 15 right angles to the other tube to adapt the level for use on a horizontal and upright surface, substantially as described.

In witness whereof I have hereunto set my hand, this 27th day of September, 1904, at 20 Minneapolis, Minnesota.

CHARLES G. SMITH.

In presence of—

RICHARD PAUL,
C. MACNAMARA.