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MASON'S LEVELING DEVICE

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Fig. 1

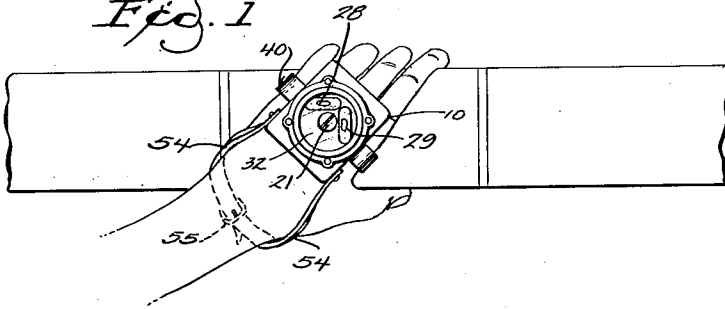


Fig. 4

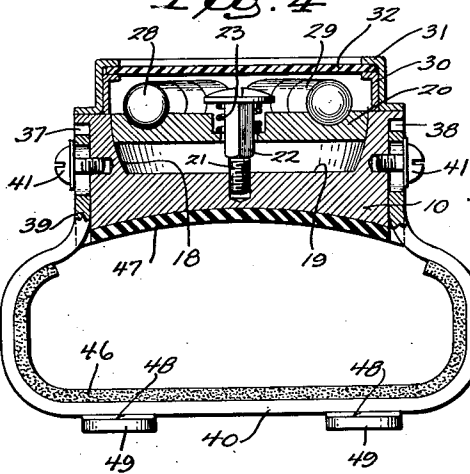


Fig. 2

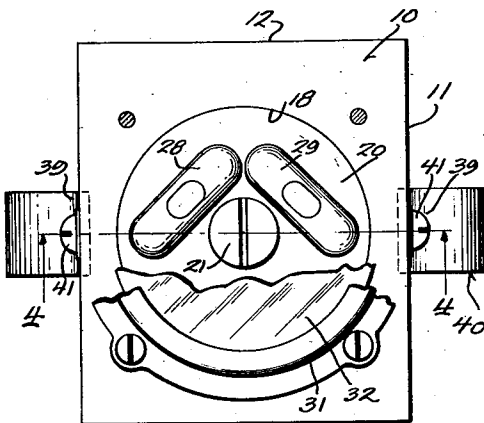
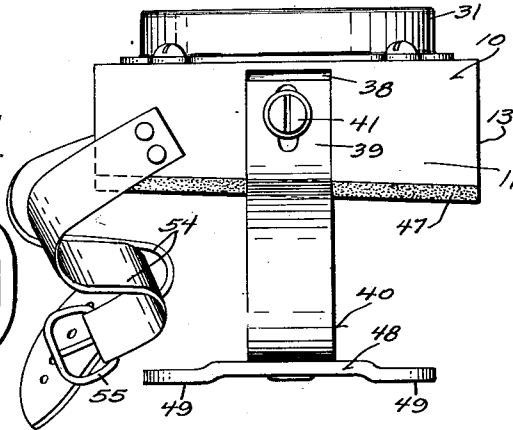


Fig. 3

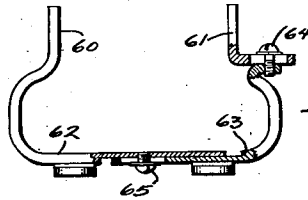


Fig. 5

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MASON'S LEVELING DEVICE

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This invention relates to improvements in hand tools for use by bricklayers, stone masons and the like and particularly to a leveling device to be worn on the bricklayer's or other user's hand.

In laying bricks and the like, it is necessary to use a device such as the well known spirit level and at frequent intervals, to keep each course of brick both horizontal and vertical with the preceding course of brick and particularly at all corners. The frequency of use of the level depends in part on the skill and experience of the workman but even a highly-skilled bricklayer finds it necessary to use a level as often as every course for bricks laid at a corner. Each use of a level takes 1-2 minutes for each five bricks which (considering 800 bricks per man per day as the accepted quota of bricks to be laid) thus amounts to as much as 2 $\frac{3}{4}$ hours per man per day. Reduction in the time required for leveling each course of brick or building blocks as it is laid, both horizontally and vertically, would reduce the time required for laying a day's quota of brick or permit the laying of a greater number of bricks in a given time when maximum speed is desired.

It is difficult to obtain bricklayers' services for jobs requiring less than a day's time and the time consumed in going from a base location to a small job is frequently greater than the time required for actually performing the work. Hence, the time consumed in small jobs is out of proportion to the amount of work actually done, and small jobs are not attractive to the bricklayer and are excessively expensive to the property owner. Amateurs, however, find it difficult to lay bricks properly even when acquainted with the manner in which bricks should be laid and even when equipped with the usual present-day bricklayer's tool.

It is therefore an object of the present invention to provide a level to be used both by skilled and amateur bricklayers and which will substantially reduce the time required for leveling bricks as laid and in both horizontal and vertical directions.

Another object of the invention is to provide a level which can be worn on one hand by a person laying a brick or the like without interfering with the use of that hand for other purposes in laying the bricks or the like.

Another object of the invention is to provide a hand-leveling device with two levels which are for both horizontal leveling and vertical alignment of bricks, building blocks, stone or the like at the same time and in which the several levels are easily and quickly adjusted whenever the leveling device is to be used by a different person than the person for whom such device was originally set.

Objects and advantages other than those above set forth will be apparent from the following description when read in connection with the accompanying drawings in which:

Fig. 1 is a top view of a fragment of a brick wall with the hand of a workman bearing the hand level and in the act of placing a brick.

Fig. 2 is a side elevation of the present leveling device.

Fig. 3 is a top plan view of the present hand leveling device, with a portion of a shield for the level tubes removed.

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Fig. 4 is a vertical sectional view of the hand leveling device, taken on the line 4—4 of Fig. 3 and

Fig. 5 is a side elevation of a portion of the present construction, permitting greater adjustment to the hand of a user.

Generally, the present hand-leveling device comprises a main member which is a substantially rectangular block or frame of a size, in plan, fitting from approximately midway of the back of the hand and to adjacent the last joint of the fingers but of less width than a fully opened hand. The block or frame is preferably of substantial thickness and two opposite sides thereof are severally provided with a groove substantially midway of the length and transversely of the sides of the block or frame and opening to one side thereof. A rigid substantially U-shaped base member which is preferably metallic, has ends extending parallel and fitting into the main member side grooves and such ends are adjustably fastened to the main member whereby the main member and the base member coact in forming a loop through which the workman's hand is to be thrust. The base member is preferably made in several parts for adjustment to fit the hand of any user. The adjacent surfaces of the main and loop members are suitably padded for the user's comfort. Cross-pieces are attached to the base member and preferably extend substantially at right angles thereto and are parallel to the two axes of the main member in one plane to provide faces in a plane for contact with a surface of the brick or stone being laid.

A level mounting means is movably positioned on or in the main member. Such means should be adjustable to parallelism with the two axes of the main member in a plane which is horizontal when the device is used as shown in Fig. 1. A single universally movable support for the mounting is preferable and it is desirable to so relate the main member and the level mount as to avoid involuntary relative movement thereof after the levels are initially or originally adjusted to a particular user of the device.

When the main member is formed as a block, a socket with at least a partial spheric side wall is preferably formed in one side of the block to receive a generally circular disk or frame-like mount for levels, having a spheric peripheral side fitting closely in and frictionally engageable with the spheric socket wall. The disk is adjustably mounted in the socket to bring a disk surface into parallelism with the contact faces of the cross-pieces and such disk surface bears two levels. The levels are set on their mounting or disk with their longitudinal axes at right angles. Tilting of the disk in the socket allows the adjustment of a first level or level unit to indicate horizontal positioning in one direction and adjustment of a second level or level unit to indicate horizontal positioning in the other direction when the cross-pieces are placed on a surface of a brick or the like as shown in Fig. 1.

A removable shield is preferably placed on the main member and includes a transparent material of sufficient strength and toughness to guard the levels and their mount from blows which might break the levels or disturb their adjustment relative to the base member and its cross-pieces. A strap is preferably attached to the two sides of the block for fastening to the hand or wrist of a user and thereby eliminating any effort in holding the main member in place regardless of the looseness of the loop about the hand.

Referring to the drawings by numerals, the reference numeral 10 designates a substantially rectangular block of a length on the side 11 to extend from approximately midway of the back of the hand to adjacent the last joints of the fingers of an average user. The block has an end

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width 12 to extend partially over both the first and the last fingers of the average user's hand and has a thickness 13 sufficient for a socket in one side thereof and for concavely forming the side opposite the socket for substantially fitting the back of a hand when the hand is gripping a brick or otherwise used. The block is preferably made of a light metal or alloy of sufficient hardness to resist ordinary wear.

A socket preferably with a spheric side wall 18 and a planar bottom wall 19 is formed in the block which is sufficient in thickness for securing a socket depth approximately twice the thickness of a disk 20 to be mounted in the socket. The disk, of course, is circular and has a spherical peripheral side on substantially the same radius as the socket so that the disk may be positioned in the socket with its one plane surface substantially parallel with the axes of the block in one plane or in the plane of a surface of the block, even when the disk is not otherwise supported in the block.

The disk 20 has a central aperture which is non-circular and has a countersink or socket formed about the aperture and substantially coaxially therewith. A threaded hole is formed centrally in the bottom 19 of the block socket to coact with the aperture through the disk to receive a post having a threaded portion 21 for engaging the threads in the hole in the block and with a non-circular portion 22 extending through the aperture in the disk. It will be noted that the non-circular portion of the post has a material clearance relative to the disk aperture so that the disk may be shifted about the center of its spherical surface to a degree dependent on the clearance about the post. A compression spring 23 seats in the disk countersink and acts under the head of the screw 21, 22 to press the disk peripheral surface toward the spheric side wall 18 of the block socket.

A pair of level indicating or leveling tubes 28, 29 of the usual form and construction to provide a bubble indicator in each tube, are fixed on the disk. The leveling tubes may be mounted on the disk with their longitudinal axes forming a right angle and with the apex of such angle on a line bisecting the angle and extending through the axis of the post. The leveling tubes may be partially imbedded in the disk and otherwise fastened thereto as is well known and not illustrated. Upon tilting of the disk relative to the block, it is possible to adjust the levels to center the bubbles in the respective tubes when the device is in the position shown in Fig. 1.

The leveling tubes 28, 29 and the disk top surface, are enclosed by a shield which may comprise an angle ring 30 coacting with a Z-ring or double-flanged ring 31 for defining an annular space adapted to receive a transparency 32 which is preferably a synthetic resin or plastic and not brittle. The ring 32 is removably fastened to the block and holds the entire shield in place. Once the leveling tubes are adjusted as will be described, it is unlikely that readjustment may be required for a given user and the shield accordingly is not likely to require frequent removal and replacement.

Grooves 37, 38 are formed in the side 13 of the blocks to receive parallel ends 39 of a substantially U-shaped base member having a bottom portion 40 with a surface at a right angle to the bar ends 39. The ends 39 fit snugly in their respective grooves in lateral relation and are slotted for severally receiving a screw 41 therethrough for engaging in threaded holes in the blocks. When attached, the base member 39, 40 coacts with a concave surface of the block for defining a loop through which the user's hand may be thrust. The inner surface of the base member and the concave surface of the block are preferably resiliently padded at 46, 47 as being the parts of the device most likely to come into harsh contact with the hand of a user. The base member 39, 40 may be adjusted relative to the block to provide the size of loop found to be most comfortable for a given user.

Cross-pieces 48 are fixed on the bottom portion 40 of

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the base member to extend in parallel longitudinally of the block and to provide surfaces with which a plane through the longitudinal axes of the level tubes may be brought to parallel relation. The cross-pieces preferably have offset ends as shown at 49 to provide two faces for each of the cross-pieces and at considerable spacing from each other. Thus, four such faces in the same plane provide for bearing over a considerable area of a brick, building block or stone. By placing the cross-pieces on a surface known to be horizontal, it is possible to adjust the disk 20 to bring the bubbles of leveling tubes to center position in the tubes for the horizontal surface. If the screw 21, 22 is then threaded further into its hole, the spring 23 is put under compression to seat the disk peripheral surface sufficiently firmly on the socket side wall for keeping the level in adjustment during normal usage and such position is shown in Fig. 4.

The space within the base member 39, 40 and the concave surfaces of the block is preferably adjusted to permit free opening and closing of the user's hand. It will be seen in Fig. 1 that the fingers and the thumb and the sides of the hand are not so restrained as to hinder gripping brick, etc. Straps 54 are preferably provided for retaining the device on the hand without attention by the user. The straps are attached severally at one of their ends to the block and may be joined at the other ends by means of a buckle 55. It has been found that passing the straps under the wrist as shown in Fig. 1 is sometimes sufficient, but the strap is of a length to wrap around the user's wrist if required.

Fig. 5 illustrates a modified form of base member in which one or both of the end portions 60, 61 are separate parts forming a right angle with slots in each leg of the angle. The bottom of the base member is divided into parts 62, 63 forming a half-lap joint and having registering slots. Base parts 61, 63 are joined by screw 64 and parts 62, 63 are joined by screw 65. Thus the base member is adjustable in both directions to the thickness and width of hand of any person.

It will be noted that the level tubes are shown in Figs. 1 and 3 especially, as extending from or having the apex of their angle on the longitudinal axis of the block. By reference to the Fig. 1, it will be seen that (for a given person's manner of handling bricks), the level tube 28 extends along the longitudinal axis of the brick and thus shows whether or not the brick is horizontal along such axis. Leveling tube 29 then extends along the transverse axis of the brick and shows whether or not the brick is horizontal along its transverse axis.

Although the present positioning of the level tubes has been found satisfactory by a vocational instructor, several professional bricklayers and a number of amateurs, it is possible that the disk and level tubes should be rotated for some users to position the level tube 28 as described for particular users. Such adjustment is easily made by a user and avoids need for change in such user's present working methods.

Although but one embodiment of the present invention has been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

I claim:

1. In a hand-tool for laying brick and the like, a main member of a size to be carried on the back of a user's hand and of substantially the width of the hand; a rigid base member attached to the main member and coacting therewith in forming a loop for receiving the user's hand, the base loop being adjustable toward and transversely of the main member to approximately the size of the hand, level-mounting means positioned on the main member for universal adjustment into parallel position with surfaces of the base member in a plane, and a plurality of leveling tubes fixed in horizontally angular relation on

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the mounting means for movement therewith and indicating deviation from horizontal in two directions in a plane.

2. In a hand-tool for laying brick and the like, a main member of a size to be carried on the back of a user's hand, the main member being substantially rectangular, a rigid base member attached to the main member and coacting therewith in forming a loop for receiving the user's hand, the base loop being adjustable toward and transversely of the main member to approximately the size of the hand, level-mounting means positioned on the main member for universal adjustment into parallel position with surfaces of the base member in a plane, and a plurality of leveling tubes fixed in horizontally angular relation on the mounting means for movement therewith.

3. In a hand-tool for laying brick and the like, a main member of a size to be carried on the back of a user's hand, a base member attached to the main member, the base member being rigid and substantially U-shaped for coacting with the main member in forming a loop for receiving the user's hand, the base loop being adjustable toward and transversely of the main member to approximately the size of a hand, level-mounting means positioned on the main member for universal adjustment into parallel position with surfaces in a single plane of the base member, and a plurality of leveling tubes fixed in horizontally angular relation on the mounting means for movement therewith.

4. In a hand-tool for laying brick and the like, a main member of a size to be carried on the back of a user's hand, a rigid base member attached to the main member and coacting therewith in forming a loop for receiving the user's hand, the base member being divided into a plurality of parts adjustable relative to one another for adjusting the size of the loop to a given user's hand, level-mounting means positioned on the main member for universal adjustment into parallel position with a plurality of spaced surfaces in a plane of the base member, and a plurality of leveling tubes fixed in horizontally angular relation on the mounting means for movement therewith.

5. In a hand-tool for laying brick and the like, a main member of a size to be carried on the back of a user's hand, a rigid base member attached to the main member and coacting therewith in forming a loop for receiving the user's hand, the base loop being adjustable to approximately the thickness and width of the hand, cross-pieces fixed on the base member at right angles thereto for providing a plurality of spaced faces in one plane, the faces extending to and being within the perimeter of the main member level-mounting means positioned on the main member for universal adjustment into parallel position with the faces of the cross-pieces, and a plurality of leveling tubes fixed in horizontally angular relation on the mounting means for movement therewith.

6. In a hand-tool for laying brick and the like, a main member of a size to be carried on the back of a user's hand, a rigid base member attached to the main member and coacting therewith in forming a loop for receiving the user's hand, the base loop being adjustable to approximately the thickness and width of the hand, level-mounting means positioned on the main member for universal adjustment into parallel position with a plurality of spaced surfaces in a single plane of the base member, and a plurality of leveling tubes fixed in horizontally angular relation on the mounting means for movement therewith, the longitudinal axis of the tubes being adjustable dependent on the habit of the user in gripping a brick with the hand carrying the tool for indicating deviation from horizontal in two directions in a plane.

7. In a hand-tool for laying brick and the like, a block of substantial thickness for providing a spherical socket, a rigid base member attached to the block and coacting therewith in forming a loop for receiving a user's hand, the base loop being adjustable to approximately the thickness and width of the hand, mounting means having a

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spherical surface seating in the block socket for universal adjustment into parallel with a planar surface of the base member, and a plurality of leveling tubes held in horizontally angular relation on one surface of the mounting means for movement therewith into parallel position with the planar surface of the base member whereby an indication is given of the deviation in two directions upon horizontal leveling of the brick.

8. In a hand-tool for laying brick and the like, a block of substantial thickness provided with aligned slots on opposite block surfaces, the block having a spherical surfaced socket therein, a rigid base member having parallel end portions adjustably extending into the block slots and adjustably connected with the block and to each other for forming a loop approximating the thickness and width of a user's hand and having plural spaced surfaces in a plane, mounting means positioned in the socket for universal adjustment into parallel with the spaced surfaces of the base member, the mounting means having a spheric surface frictionally engageable with the spheric surface of the block socket, and a plurality of leveling tubes held in horizontally angular relation on one surface of the mounting means for movement therewith into parallel with the spaced surfaces of the base member.

9. In a hand-tool for laying brick and the like, a block of substantial thickness and providing a socket having a spheric wall surface, a rigid base member attached to the block and coacting therewith in forming a loop for receiving a user's hand, the base loop being adjustable toward and transversely of the main member to approximately the thickness and width of the hand, the base providing a plurality of spaced faces defining a plane a disk adjustably positioned in the block socket for movement into parallel with the plane of the faces of the base member, the disk having a spherical surface for universal pivoting of the disk relative to the block, resilient means for attaching the disk to the block for tilting movement thereof relative to a horizontal plane for bringing a disk surface into parallel with the plane of the faces of the base member, and a plurality of leveling tubes held at right angles on one surface of the disk for movement therewith into position for indicating levelness in two directions in a plane of a brick upon placing of the user's hand bearing the tool on a surface of the brick.

10. In a hand-tool for laying brick and the like, a block of substantial thickness and providing a socket with a spheric surface, a rigid base member attached to the block and coacting therewith in forming a loop for receiving a user's hand and adjustable to approximately the thickness and width of the hand, a disk positioned in the block for movement into parallel with a surface of the base member and having a spheric surface engageable with the spheric socket surface, a plurality of rigid cross-pieces fixed on the base member and extending transversely thereof in spaced relation, the cross-pieces severally providing at least one face in a given plane, the cross-piece faces being spaced to include an area approximately equal to the area of the block, the disk being universally pivoted in the block for movement into parallel with the plane defined by the cross-piece faces, and a plurality of leveling tubes held at right angles to each other on one surface of the disk for movement therewith whereby horizontal leveling of the brick in two horizontal directions at right angles to each other is shown at the same time and as the brick is being laid.

References Cited in the file of this patent

UNITED STATES PATENTS

70	967,258	Stamm	Aug. 16, 1910
	979,531	Melville	Dec. 27, 1910
	1,617,125	Kuhar	Feb. 8, 1927
	2,176,052	Beyer	Oct. 17, 1939
	2,553,317	Hill	May 15, 1951
75	2,627,665	Strnad	Feb. 10, 1953