

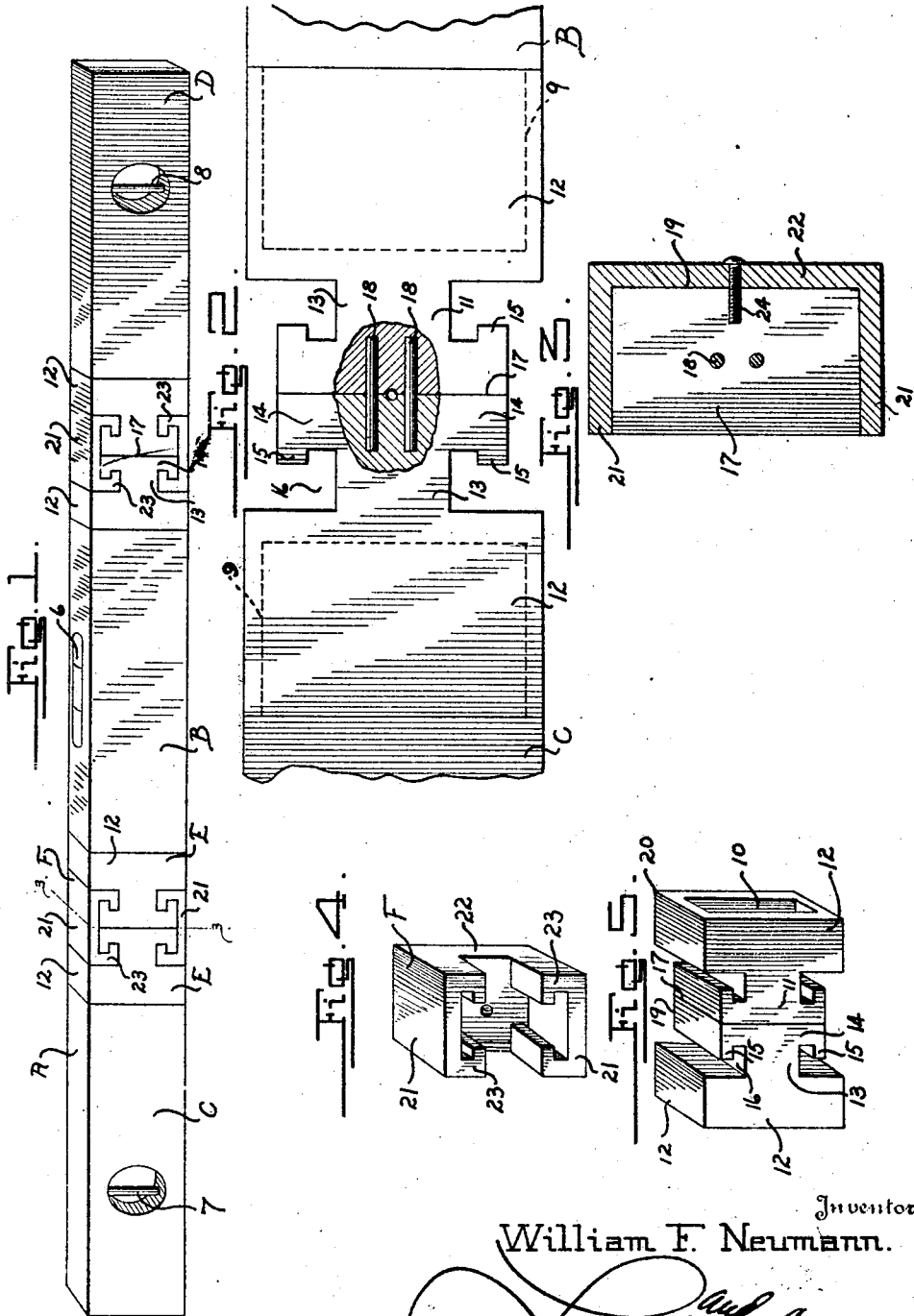
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SPIRIT LEVEL

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SPIRIT LEVEL.

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To all whom it may concern:

Be it known that I, WILLIAM F. NEUMANN, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Spirit Levels, of which the following is a specification.

This invention relates to spirit levels and the primary objects of the invention are first,—to provide a knock down level which can be easily disassembled so as to utilize a minimum amount of space in a tool kit or other suitable carrier, making it convenient to carry; and, to provide a level made of a plurality of sections, and novel means for securing and holding these sections in accurate alignment, thus providing a knock down level possessing all of the qualities of a one piece level, without impairing the efficiency or weakening the structure thereof.

It is now common practice for all bricklayers and masons to use a spirit level for determining the trueness of horizontal or vertical surfaces. Such levels are ordinarily constructed of a length which makes it practically impossible to convey them from one place to another without great inconvenience, and as a result they are often abandoned or sold for a fraction of their original cost when ready to move from one job to another. It is therefore an object of this invention to overcome these disadvantages by providing a level of simple construction which is capable of being disassembled for transportation and which may be accurately put together when the same is to be used.

A further object of this invention is to provide a spirit level which will have a high degree of strength and durability, one which will be practical and efficient in use, and one which may be supplied to the trade at a relatively low cost.

Further objects and advantages will appear in the following detailed description, taken in connection with the accompanying drawings, forming a part of this specification, and in which drawings:

Figure 1 is a perspective view of a spirit level constructed according to my invention.

Figure 2 is an enlarged fragmentary side view of the end portion of two of the sections in abutting relation, partly in section,

showing the studs or pins which prevent lateral movement of the sections.

Figure 3 is an enlarged transverse section taken on the line 3—3 of Figure 1.

Figure 4 is a detail perspective view of one of the clamp members, and

Figure 5 is a detail perspective view of two of the end members of the sections.

In the drawing, where similar characters designate corresponding parts throughout the several views, the letter A designates a spirit level constructed in accordance with my invention having a central section B and the end sections C and D; E clamp receiving members carried by the adjacent end portions of the sections B, C, and D; and F a clamp adapted to hold companion clamp receiving members E in abutting relation.

The central section B may carry the horizontal leveling tube 6, such as is carried by the ordinary level and the end sections C and D may have positioned therein the vertical indicating tubes 7 and 8 respectively.

In the preferred embodiment of my invention, the adjacent end portions 9 are each reduced in size and adapted to be inserted into a recess 10 formed in the main body portion 12 of the clamp receiving member E. It is to be understood, however, that these clamp receiving members E may be made or cast integral, with the adjacent end portions of the sections, when such sections are of metal. These clamp receiving members E each preferably includes a T-shaped extension 11 in addition to the main body portion 12. Each T-shaped extension 11 includes the stem 13 and a head 14 which is preferably provided with flanges 15 formed on its ends. It can readily be seen by referring to the drawing, that the stem 13, head 14, and flanges 15 define transversely extending L-shaped recesses 16. The upper face 17 of the head 14 forms the abutting end of the T-shaped extension and is adapted to be held in abutting relation to its companion T-shaped extension, said abutting end carrying detachable interfitting connections to prevent lateral movement of the sections. In the drawing these detachable interfitting connections are shown as a pair of dowel pins 18, which may be carried by one of the abutting ends 17 and fit into recesses formed in the other abutting end,

thus precluding the possibility of lateral or transverse movement of one section with respect to the other.

One of the faces, designated 19, of the T-shaped extension 11, terminates in a plane short of a face 20 of the main body portion 12, so that when the clamp member F is positioned on the clamp receiving members E, it is adapted to seat on these faces 19 of the companion T-shaped extensions and have its outer face in substantially the same plane as the faces of the clamp receiving members, thus having no sharp projecting edges and forming a continuation of the side wall of the level A.

Referring to the clamp member F, it preferably is of U-shaped formation, consisting of a pair of spaced arms 21 and suitably connected at one end as at 22. Projecting from the confronting faces of the arms 21 are transversely extending L-shaped flanges 23, which are adapted to interlock in the transversely extending L-shaped recesses of companion shaped extensions, and when so positioned will prevent longitudinal movement of one section with respect to another. To prevent the clamp F from accidental transverse movement when positioned on the clamp receiving members E, a screw 24 is threaded thru the connecting member 22 and into the two abutting ends 17 at an intermediate point.

Thus it can be seen that by providing a clamp and clamp receiving members of the above mentioned character, a novel means has been provided whereby a spirit level may be formed of a plurality of sections, easily and accurately put together, and held in longitudinal alignment in such a manner as to preclude accidental movement of the sections one with respect to another, in any direction.

Changes in details may be made without departing from the spirit of the invention or the scope of the claims; but,

I claim:

1. A spirit level comprising a plurality of separable sections, clamp receiving members carried by the adjacent end portions of said sections, and having pockets leading from their end faces and registering when the clamp receiving members are in end to end contact, means fitting into the pockets to prevent lateral movement of one section with respect to another, and a clamp associated with said clamp receiving members for securing said sections end to end in longitudinal alignment.

2. A spirit level comprising a plurality of separable sections, clamp receiving members carried by the adjacent end portions of the sections, detachable interfitting connections at the abutting ends of said clamp receiving members to prevent lateral movement of one section with respect to another,

and a clamp associated with said clamp receiving members for securing said sections end to end in longitudinal alignment.

3. A spirit level comprising a plurality of separable sections, companion T-shaped extensions carried by the adjacent end portions of said sections, each extension including a main body portion, a stem formed on said main body portion, and a head carried by said stem having inwardly projecting flanges at its outer end, defining transversely extending L-shaped recesses, a U-shaped clamp adapted to hold said T-shaped extensions in abutting relation, said clamp including a pair of spaced arms, a connection therebetween, L-shaped flanges extending from the confronting faces of said arms, for interlocking with said L-shaped recesses in said extension to prevent longitudinal movement thereof, and a device carried by said clamp for preventing transverse movement with respect to said T-shaped extensions.

4. A spirit level comprising a plurality of separable sections, clamp receiving members carried by the adjacent end portions of said sections having L-shaped recesses formed in opposite side faces to provide T-shaped portions each provided with a shank and a cross head having arms at its ends, and a U-shaped clamp having side arms provided with L-shaped flanges along their side edges for sliding into the recesses of the clamp receiving members beneath the arms at the ends of the cross heads thereof and serving to hold said clamp receiving members in abutting relation.

5. A spirit level comprising a plurality of separable sections, companion T-shaped extensions carried by the adjacent end portions of said section, each extension including a main body portion, a stem formed on said main body portion, and a head carried by said stem defining transversely extending recesses, a U-shaped clamp adapted to hold said T-shaped extension in abutting relation, said clamp including a pair of spaced arms, a connection therebetween, flanges extending from the confronting faces of said arms for interfitting with said transversely extending recesses in said extensions to prevent longitudinal movement thereof, and a device carried by said clamp for preventing transverse movement with respect to said T-shaped extensions.

6. A spirit level comprising a plurality of separable sections, companion T-shaped extensions carried by the adjacent end portions of said sections, each extension including a main body portion adapted to lie flush with said section, and a head carried by said stem defining transversely extending recesses, said stem and head having one face thereof terminating in a plane short of one face of the main body portion defining

a cut out portion, a U-shaped clamp adapted to hold said T-shaped extensions in abutting relation, said clamps including a pair of spaced arms, a connection therebetween, said connection adapted to seat in the cut away portion and have its outer face lying flush with the main body portion of the T-shaped extension, flanges extending from the confronting faces of said arms for interfitting with said recesses in said extensions to prevent longitudinal movement thereof, and a device carried by said clamp for preventing transverse movement with respect to both T-shaped extensions. 10

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