

(No Model.)

A. SCHNELL.
SPIRIT LEVEL ATTACHMENT.

No. 527,815.

Patented Oct. 23, 1894.

Fig. 1.

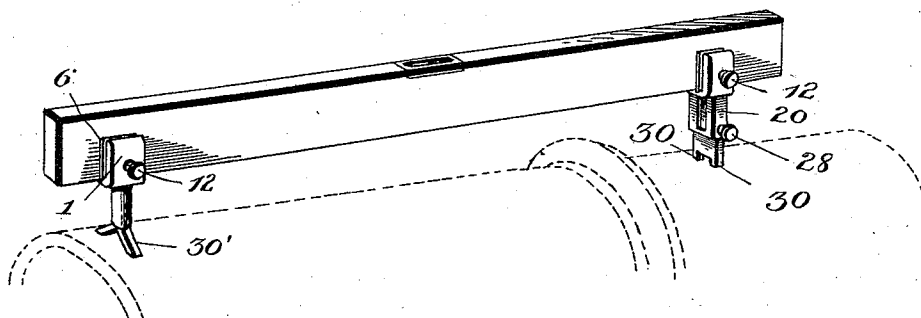


Fig. 2.

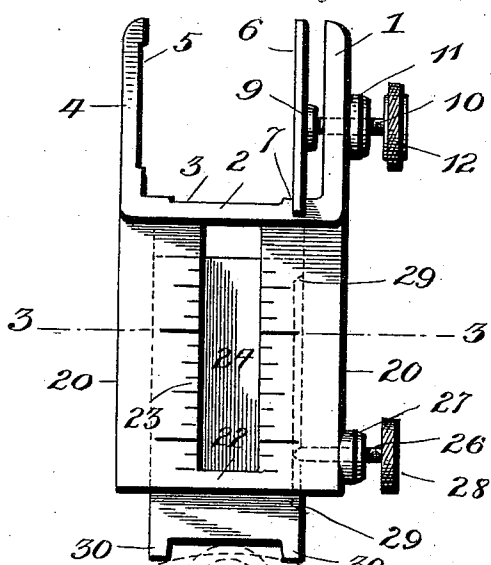


Fig. 4.

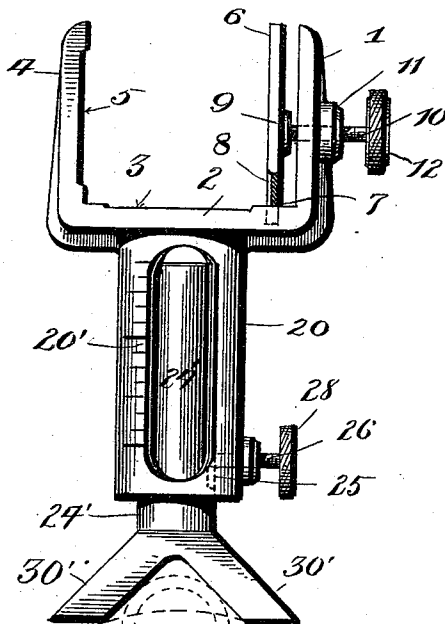


Fig. 3.

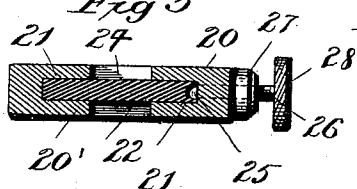
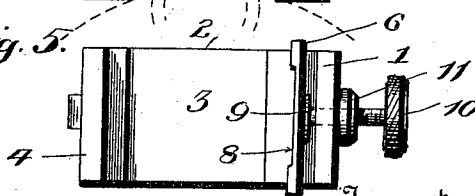


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

AUGUST SCHNELL, OF CLINTON, IOWA.

SPIRIT-LEVEL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 527,815, dated October 23, 1894.

Application filed June 2, 1894. Serial No. 513,286. (No model.)

To all whom it may concern:

Be it known that I, AUGUST SCHNELL, a citizen of the United States, and a resident of Clinton, Clinton county, State of Iowa, have invented certain new and useful Improvements in Spirit-Level Attachments; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to measuring instruments, and more especially to attachments for spirit levels; and the object of the same is to produce a pair of such attachments whereby an ordinary spirit level may be used for the purpose of laying gas, sewer, and other pipes at the desired angle to a horizontal, as well as for leveling shafting and other similar uses to which the device may be put.

To this end the invention consists of certain improvements in the specific details of construction over Patent No. 517,935, granted to me on April 10, 1894; all as hereinafter more fully described, and as illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view showing my improved spirit level attachment in use. Fig. 2 is a side elevation of the attachment having the square sliding block and the U-form of foot piece. Fig. 3 is a horizontal section on the line 3—3 of Fig. 2. Fig. 4 is a side elevation of the attachment having the round sliding block and the V-form of foot piece. Fig. 5 is a plan view showing the construction of any of the attachments.

Each of my improved attachments has at its upper end a half-frame of substantially U-shape comprising one upright side piece 1, a horizontal bottom piece 2 having a horizontal groove or recess 3 in its upper face running parallel with the side piece 1, and a second side piece 4 having a horizontal groove or recess 5 in its inner face running parallel with the recess 3. Within this half-frame is a laterally sliding plate 6 preferably forked at its lower end as at 7 so as to slide upon the bottom piece 2, and the inner face of the sliding plate 6 is provided with a vertical groove or recess 8. Swiveled as at 9 to the back or outer face of this sliding plate is a set screw 10 (which takes through an internally threaded boss 11 rigidly or integrally secured

to the outer face of the side piece 1) and having a milled head 12 at its outer end. When this screw is retracted so as to draw the sliding plate 6 close to the side piece 1, the half-frame will receive an ordinary spirit level of the greatest commercial width, and if a narrower spirit level be used the screw 10 is adjusted so that the plate 6 will bear against the adjacent face of the level. The latter rests firmly on the bottom piece 2 at each side of the recess 3, on the side piece 4 above and below its horizontal recess 5, and against the sliding plate 6 at each side of its recess 8, whereby any irregularities or inequalities in the three faces of the level thus engaged are spanned over; and the fact that the half-frame is open at its top permits a level or a long straight-edge of any height to be firmly clamped in this attachment. This construction of the upper end is employed on both the attachments shown in Fig. 1.

At its lower end one half-frame is continued downward into legs 20 which are grooved on their inner or adjacent faces as at 21 and which are connected at their lower ends by two cross bars 22; and the inner edges of these legs are separated some distance as seen in Figs. 2 and 3, while their front faces are provided with scales or graduation marks 23.

Sliding within the grooves 21 is a rectangular block 24 which is narrower than the legs 20 so as to pass between the cross bars 22 at their lower ends, and one edge of this block is provided with a groove 25. 26 is a set screw taking through a boss 27 on the outer edge of one of the legs with its tip resting in said groove 25, while its outer end is provided with a milled head 28. The upper and lower ends of the groove are not carried to the extremities of the block 24, but terminate short thereof as seen at 29 in Fig. 2 whereby the block will not drop out of the grooves 21 until the set screw is considerably withdrawn. By this means it will be clear that the set screw may be loosened and the block 24 adjusted higher or lower with its upper end moving adjacent the scale 23 on the legs 20 as the exigencies of the case may require.

In Fig. 4 I have shown the same construction except that the legs 20' are here nearly semi-circular, and the block 24' is round or

cylindrical in cross section. The equivalent of the grooves 21 of Fig. 3 would here be formed by the curved inner faces of the legs 20' as will be clear, and the same set screw 26 and upright groove 25 are here employed. It will be obvious that the advantages of this construction are in every respect the same as those of the construction illustrated in Figs. 2 and 3; and it will appear that, in addition to those advantages, the set screw can here be retracted a sufficient distance to disengage its tip from the groove 25, after which the cylindrical block 24 can be turned in its cylindrical seat between the two legs until the foot piece described below shall stand at an angle to the half-frame above described, which makes it possible to use the attachment for leveling a pipe around an angle therein.

In Fig. 1 I have shown the two members of the attachment as provided with foot pieces of different shape—one of which is illustrated in side elevation in Fig. 2, and the other in side elevation in Fig. 4. I do not limit myself to either form of foot piece, as I consider each an improvement over the square lower end of the block shown in my former patent above referred to.

In Fig. 2, the lower end of the block is simply provided at its corners with downwardly projecting studs 30 which are spaced a considerable distance so that their inner corners or angles may rest on the upper edge of a pipe of some considerable circumference, or so that a smaller pipe may rest in the flat portion between these studs—both as indicated in dotted lines.

In Fig. 4 the studs 30' diverge from the lower end of the block 24' at about a right angle to each other, whereby their corners would rest on a large pipe as above described, or a smaller pipe would rest in the angle between these two studs and against their flat inner faces, as seen in dotted lines.

All parts of this device are of the desired sizes, shapes, materials, and proportions; and such changes in the details of construction may be adopted as do not depart from the essential principles of my invention. The block at the lower end of one member of the attachment is rigidly connected with the half-frame as seen in Fig. 1, while the block in the other member is adjustably connected therewith as above described; and said block may be rectangular or round as preferred—either shape of block also having either shape of foot piece as preferred.

In use, the two members are attached to the opposite ends of a spirit level (or a long straight-edge upon whose center is mounted or supported a spirit level), the adjustable block is set at the proper mark on the scale 23 and held by its set screw, and the entire device is rested on the pipe being laid. If there be a bend in the pipe between the two members of the attachment, the cylindrical block 24 could be turned at an angle with its half-frame; and if the turn be a right angle el-

bow, two of the attachments illustrated in Fig. 4 could be used and the block of each could be turned at an angle of forty-five degrees with its half-frame so that the level or straight-edge would stand diagonally across the pipe from a point above to a point below said elbow. In fact, if the pipe be very small or the block 24 of sufficient size, the whole could be used in this oblique manner with the foot piece shown in Fig. 2, since the size of the space between the two studs 30 is sufficient to permit the pipe to pass between them at quite an angle. In the usual use of this attachment, however, it will simply be necessary to clamp the two members to the opposite ends of a level and set the sliding block at such a height that the proper inclination of the pipe will be indicated by the level when one foot piece is slightly lower than the other. A degree of inclination greater than can be indicated by the adjustability of the block, can be indicated by bringing the attachments nearer together on the level, and vice versa. I consider the grooves or recesses in the half-frame an important feature in this improvement for the reasons set forth above, and also the grooves in the sliding block whether the latter be rectangular or round. The foot piece is also an improvement when of either construction shown.

What is claimed as new is—

1. An attachment for spirit levels consisting of a half-frame comprising an upright side piece, a horizontal bottom piece having in its upper face a recess parallel with the side piece, and a second upright side piece having in its inner face a horizontal recess, a vertical sliding plate within this half-frame having an upright recess in its inner face, and a set screw taking through a threaded boss on the first-mentioned side piece and swivelly connected with the sliding plate; combined with a block connected with and depending from the half-frame and having a foot piece at its lower extremity, as and for the purpose set forth.

2. An attachment for spirit levels consisting of a half-frame, and means substantially as described for detachably and adjustably connecting it with a level; combined with two separated legs depending from said half-frame and having grooves in their inner edges, one face of the legs being provided with a scale adjacent the space between the legs, a block sliding in said grooves and itself having a groove in one edge which terminates short of the upper end of the block, a foot piece at the lower end of the block, and a set screw taking through one leg and resting in the groove in the edge of the block, as and for the purpose set forth.

3. An attachment for spirit levels consisting of a half-frame, and means substantially as described for detachably and adjustably connecting it with a level; combined with a cylindrical portion depending from said half-frame and consisting of two separated legs

having grooves in their inner faces to produce
a cylindrical cavity within said depending
portion and cross bars connecting the legs at
their lower ends around said cavity, a cylin-
5 drical block sliding vertically within the cav-
ity and having an upright groove, a set screw
through one of the legs with its tip normally
resting in said groove, and two divergent
studs at the lower end of said block forming
10 a foot piece therefor, which foot piece stands

in alignment with the half-frame when the
set screw engages said groove, as and for the
purpose set forth.

In testimony whereof I have hereunto sub-
scribed my signature on this the 31st day of 15
May, A. D. 1894.

AUGUST SCHNELL.

Witnesses:

OSCAR MAJER,
F. E. APEL.