Feb. 5, 1929. 1,701,069

G. C. FRANTZ

ADJUSTABLE GRADING ATTACHMENT

Filed Dec. 24, 1926

FIG. 1.

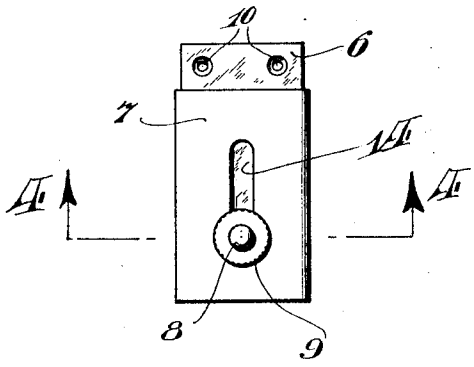


FIG. 2.

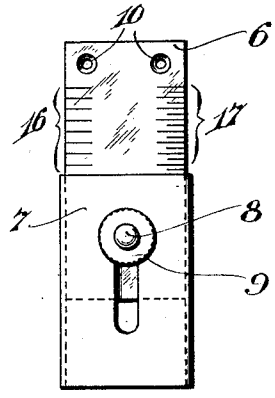


FIG. 3.

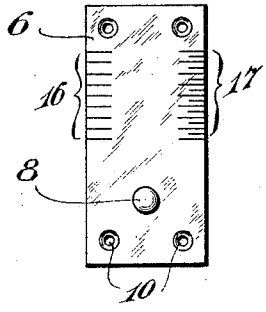


FIG. 4.

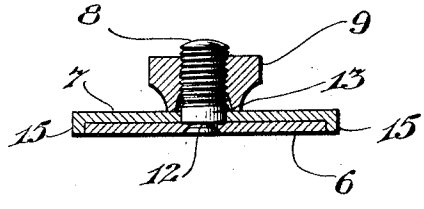
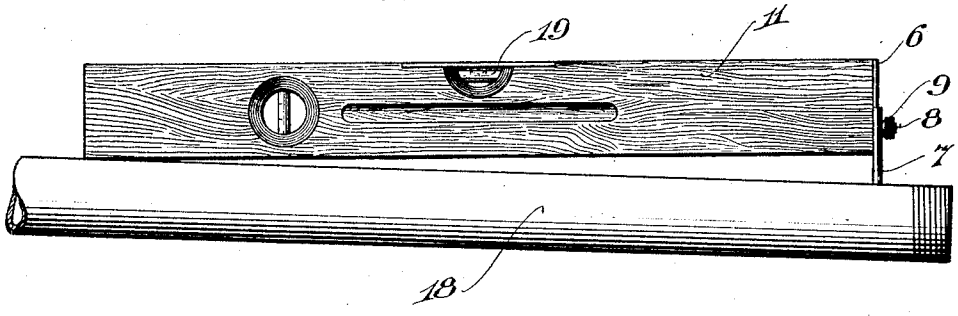


FIG. 5.



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Patented Feb. 5, 1929. 1,701,069

UNITED STATES PATENT OFFICE.

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ADJUSTABLE GRADING ATTACHMENT.

Application filed December 24, 1926. Serial No. 156,363.

My invention relates to grade indicating devices and more particularly to an attachment adapted to be secured to the end of an ordinary mechanic's level whereby it adapts the level to be used as a grade indicator.

I am aware that a number of grade indicating devices and attachments have been produced but the devices are usually cumbersome or expensive and the attachments so far produced are lacking in strength and in efficiency.

The principal object of my invention is to provide an attachment which may be secured to the end of an ordinary mechanic's level so that it will not detract from its ability to function in its ordinary capacity and which may be extended to measure the grade of any sloping surface.

A further object of my invention is to provide a device of this character which may be quickly and easily set in selected positions and which will be rigid and serviceable under all conditions.

A still further object of my invention is to provide a device of this character which may be cheaply manufactured and which may be readily attached by any workman.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which:

Figure 1 is an elevation of a preferred embodiment of my invention, showing the device in closed position,

Figure 2 a view similar to Figure 1 but showing the device in extended position,

Figure 3 a view of the base plate forming a part of the device shown in Figure 1,

Figure 4 a cross sectional view taken on line 4—4 on Figure 1, drawn to an enlarged scale, and

Figure 5 a view showing the device attached to an ordinary mechanic's level and illustrating how the device may be used.

Referring now more in detail to the drawing, the device consists primarily in a base plate 6, a slide 7, a stud 8, and thumb nut 9. The base plate is provided at each corner with a countersunk hole 10, through which screws may be inserted for securing the device to the end of a level 11, as shown in Figure 5.

Near the lower end of base plate 6, a reduced part 12 on stud 8 is inserted through a suitable countersunk hole and riveted flush with the rear side of base plate 6, as plainly shown in Figure 4. The outer end of stud 8 is threaded, leaving a short plain portion 13, the shoulders of which abut the face of the base plate 6 and hold the stud firmly in an upright position and the sides of plain portion 13 are adapted to engage the edges of a slot 14 formed vertically in slide 7. Thumb nut 9 is threaded onto stud 8 and adapted to bear against the outer face of slide 7 and hold same firmly in any desired position; the thumb nut being counterbored to clear the plain portion 13 of the stud.

The sides of base plate 6 are straight and parallel and are overlapped by a pair of flanges 15 formed on either side of slide 7. It is evident that stud 8 and thumb nut 9 will hold slide 7 against vertical movement and that flanges 15, by engaging the edges of base plate 6, will hold the slide against any lateral movement.

A scale 16 is provided along one edge of base plate 6 and a second scale 17 along its other edge; both scales being placed at a predetermined distance from the bottom of the base plate.

While any system of measurement may be used, I prefer to provide scales which indicate the fall in inches per one foot run and the fall in inches per 10 feet run as these are the dimensions to which mechanics are usually required to work.

In applying the device, the workman merely places the bottom of base plate 6 flush with the bottom of his level and drills holes therein to coincide with holes 10. He then fastens the base plate to the end of the level by means of inserting countersunk head screws through holes 10 and into the holes drilled in the end of the level, then places slide 7 in position and screws thumb nut 9 to its seat.

Assuming that he wished to install a run of pipe, such as illustrated by the numeral 18 in Figure 5, to a fall of one inch per foot, he would loosen nut 9, move slide 7 downwardly until the top of the slide came in alignment with the proper graduation on scale 16 and tighten the thumb nut. He would then raise or lower one end of pipe 18 until the spirit level 19 indicated that the top of the level was in a horizontal plane. If the slope given the mechanic was in inches per 10 feet, he would merely use scale 17.

It is understood that attachments having differently graduated scales are required for levels of different lengths. Slide 7 need not

necessarily be attached to a level whose thickness is equal to the width of the slide or whose height is equal to the length of the base plate. It may be attached to a level of any thickness or height; so long as the bottom of slide 7, in normal position, is flush with the underside of the level, as in Figure 1, when the attachment is not in use, to enable the level to be used in its ordinary manner.

While I have illustrated and described a preferred embodiment of my invention, it will be readily understood that various modifications may be made without departing from the spirit thereof, and hence I do not wish to limit myself to the precise construction set forth but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claim.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

A grading attachment for a mechanic's level comprising a flat rectangular base plate adapted to be secured to the end of the level with its bottom edge flush with the bottom of the level, a slide abutting the base plate and having an elongated slot, a stud having a reduced part extending through the base plate and secured therein by having its end riveted over flush with the rear face of the base plate, a plain part on the stud slidably engaging the sides of the slot, a counterbored thumb nut threaded upon the stud and abutting the slide for holding same in selected positions, flanges formed on the side edges of the slide parallel to and slidably engaging the sides of the base plate but not extending beyond its rear face, and a plurality of scales formed on the front face of the base plate and adapted to coact with the top edge of the slide for indicating various grades.

In testimony whereof I have signed my name to this specification.

GROVER C. FRANTZ.