Aug. 20, 1929. A. LANGSNER 1,725,531

LEVELING ROD CLAMP

Filed March 10, 1927

Fig. 1.

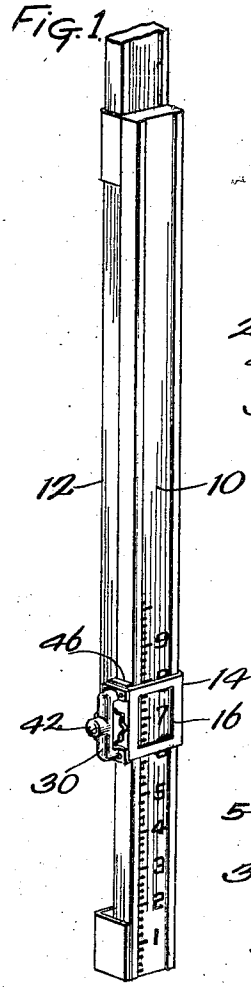


Fig. 2.

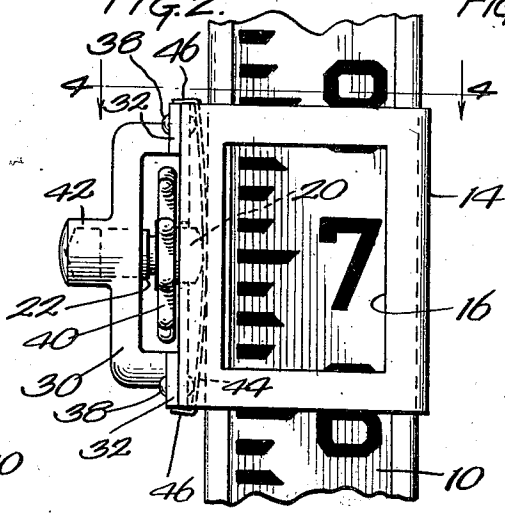


Fig. 3.

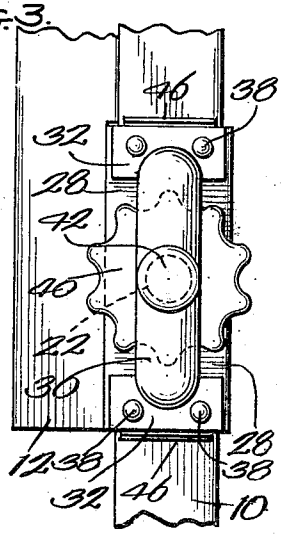


Fig. 4.

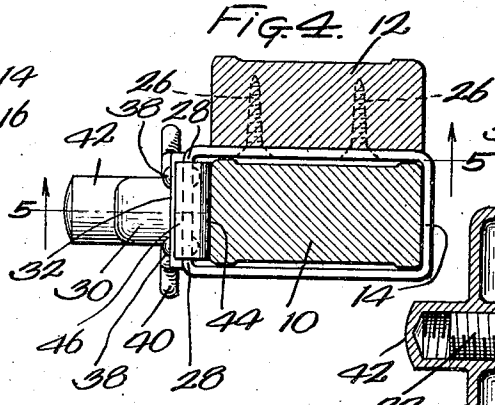


Fig. 5.

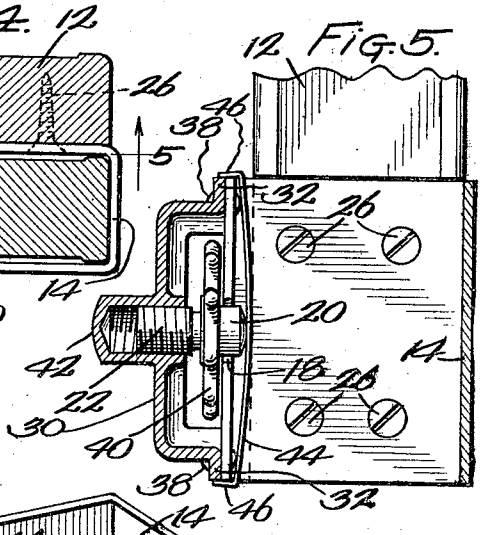


Fig. 6.

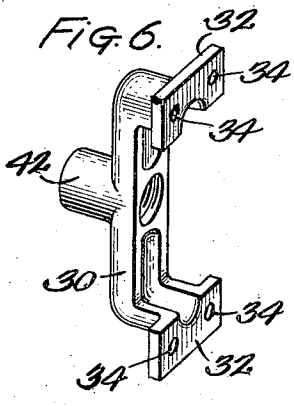


Fig. 7.

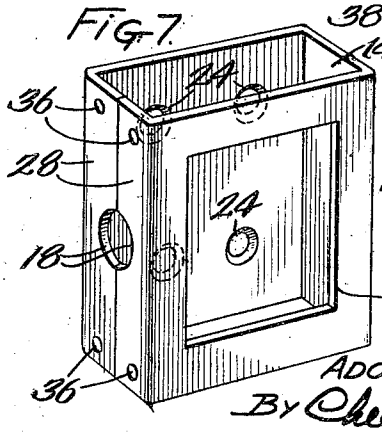
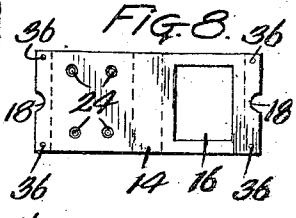


Fig. 8.



INVENTOR
ADOLPH LANGSNER
BY Cheever & Cox ATTY'S.

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UNITED STATES PATENT OFFICE.

ADOLPH LANGSNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO EUGENE DIETZGEN COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

LEVELING-ROD CLAMP.

Application filed March 10, 1927. Serial No. 174,278.

My invention relates to clamps for leveling rods, used by surveyors and others, especially that type of rod composed of two sections whereby the rod may be extended in length, the clamp serving to hold the two rod sections in various positions of adjustment. One object of the invention is to provide a clamp which lends itself readily to manufacture, and is composed of few parts, all of which are of simple form. Another object is to provide means for protecting the clamp screw from dirt and from damage by contact with external objects.

These objects are accomplished by the mechanism illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of a portion of the two sections of an extensible leveling rod, showing the improved clamp in position.

Figure 2 is a view of one side of the clamp in position, the same being drawn to an increased scale.

Figure 3 is a view looking toward the right in Figure 2.

Figure 4 is a plan section on the line 4—4 Figure 2.

Figure 5 is a vertical section on the line 5—5 Figure 4.

Figure 6 is a perspective view of the yoke.

Figure 7 is a perspective view of the sheet metal main frame.

Figure 8 is a view drawn to a reduced scale showing the form of blank of which the frame is made.

Like numerals denote like parts throughout the several views.

Referring to the drawings, the rod is formed in two sections 10, 12 in the manner common to extension leveling rods, the upper section 12 having in practice a target at its upper end, not shown in the drawing. This upper section may be termed the movable section, the lower section 10 being designed to rest upon the ground or other support. Ordinarily the front of the stationary section 10 has scale markings.

Referring now more particularly to the clamp, the frame, which is shown in perspective in Figure 7, is formed of heavy sheet metal, for example, brass, and is bent from the blank 14 shown separately in Figure 8. The blank has an opening 16 for exhibiting the scale markings and at the ends has notches 18 for accommodating the nose 20 of the clamp screw 22 hereinafter again referred to. One section of the blank also has apertures 24 for accommodating screws 26 by which the frame may be secured to the upper section 12 of the rod as shown in Figures 4 and 5.

Figure 8 of the drawing shows the blank which is bent to form the frame shown in Figure 7.

In manufacture, the blank of Figure 8 is bent to box form, that is, to rectangular cross section to encircle the stationary lower rod section 10. It is bent in such manner that the ends 28 of the blank come approximately together at one side of the rod. Thus the notches 18 are brought into register for accommodating the nose of the clamp screw as illustrated in Figures 2 and 5.

A yoke 30 shown in perspective in Figure 6 has two feet 32 designed to bear upon that side of the wall or frame where the two ends of the blank come approximately together. These feet have holes 34 which register with holes 36 formed in the ends of the blank. Rivets 38 or other fastening devices pass through the holes 34, 36 with the result that the yoke is held in position upon the frame and the two ends of the blank of which the frame is composed are held against spreading. Thus the yoke serves a dual purpose, that is, of supporting the clamp screw and holding the frame closed so that it will maintain its form.

The clamp screw is provided with a wheel 40 by which it may be rotated. The yoke 30 bridges this wheel and also has a chambered boss 42 which is internally threaded to take the threads of the clamp screw 22. It will be evident that as a result of this construction the boss forms a housing for the screw and prevents dust and grit from gaining access to it. It also prevents the screw from being struck by external objects. Further-

more by packing the space within the housing with grease the screw may be kept lubricated with little attention.

Between the nose of the screw and the side of the rod section 10 there is interposed a leaf spring 44. This is for preventing the nose of the screw from indenting the wood of which the rod is formed, and it also increases the area available for clamping engagement on the rod section. The spring has extensions 46 at each end bent at right angles to the body of the spring. These engage the upper and lower edges of the frame and prevent the spring from moving longitudinally relatively to the frame. By preference the extensions 46 are sprung a trifle so that they will converge slightly and grip the upper and lower edges of the side wall of the frame. Thus the spring is held somewhat after the manner of a clip, with the result that the spring will retain itself upon the frame even though the rod section is not present. As the spring is resilient it can of course be readily pulled off, and it can be positioned by merely pressing it in place, but this construction forms a simple and effective means for keeping the spring in position in the frame and simplifies the act of assembly.

From the foregoing it will be evident that in my clamp the form of the component element is extremely simple, and the number of pieces is reduced to a minimum. It will also be evident that the process of manufacture is greatly simplified, as the blank 14 can be struck out of a single piece of metal, and the only machine work required is that of threading the clamp screw and the chambered housing. It will also be obvious that there is no danger of the parts working loose or falling out when the device is in use. Practically speaking there are no screws to become loose, and this is of importance when it is remembered that this class of device is intended to be used in the field where it may be inconvenient or impossible to make repairs.

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

1. A leveling rod clamp having a frame encircling one section of the rod and secured to the other section, one side of the frame having an opening, a clamping screw having a nose passing through said opening and adapted to exert clamping pressure on one section of the rod, a wheel for turning said screw, and a yoke bridging the wheel and having a chambered boss which is internally threaded to receive the outer end of the screw, said boss forming a closed housing for the outer end of the screw.

2. A leveling rod clamp having a sheet metal frame of rectangular cross section to encircle one section of the rod, the free ends of the sheet projecting toward each other at one side of the rod, a clamping device having a nose for exerting pressure against the side of the rod, a wheel secured to the device for rotating it, and a yoke in which the device is mounted, said yoke bridging the wheel and being fastened at its ends to both ends of the sheet metal frame to thereby support the yoke on the frame and at the same time hold the two ends of the frame together.

3. A leveling rod clamp comprising a sheet metal sleeve to enclose one section of the rod, one of the walls of said sleeve having a plurality of perforations to receive screws passing into another section of the rod and the opposite wall of said sleeve having a relatively large opening to exhibit the scale markings on the rod, one of the intermediate wall portions of the sleeve, being formed by the adjoining free edges of the sheet metal blank, being arranged in abutting relation, said edges having intermediate their length notches which, when the edges are abutted, provide an opening, a bracket member mounted on the wall formed by said abutting edges and a clamp screw threadably adjusted in and carried by said bracket member and having its inner end passing through the opening formed by said register notches and a turning member on said clamping screw.

4. In a device of the class described, the combination of two rod sections relatively slidable, a sheet metal sleeve having the form of a rectangular hollow tube and having perforations for the reception of fastening members passing into one of said rod sections, said sheet metal member having opposite that face of the sleeve which carries the openings for the fastening elements, a relatively large opening for the exhibition of scale markings on the other rod section which passes through said sleeve, an intermediate wall portion of the sleeve having an opening for the reception of the clamping screw, a yoke having a main body portion provided with a laterally extended hollow boss having an internally threaded wall, said main portion of the yoke having spaced apart feet having flat exterior surfaces in contact with and secured to the intermediate wall of the sleeve having the clamping screw opening therein and a clamping screw provided with an outer threaded portion adapted to operate in the threaded hollow boss, the inner end of the clamping screw projecting through the clamping screw opening in the intermediate wall of the sleeve and a turning wheel on the clamping screw, said turning wheel lying between the bridge member and the sleeve.

5. A leveling rod clamp comprising a sleeve encircling one section of the rod and secured to the other section, one side of the

sleeve having an opening, a yoke mounted on said side and said opening, said yoke having an opening therein, a clamping screw device mounted in the yoke opening and including a turnable wheel disposed between the sleeve and the inner wall of the yoke to cause a portion of the clamping screw on rotation of the wheel to be adjusted through said opening in the side of the sleeve to cause the clamping action.

In witness whereof, I have hereunto subscribed my name.

ADOLPH LANGSNER.