May 20, 1947. R. RAYMOND 2,420,797

EXCAVATION ANGLE

Filed May 3, 1945

Fig. 1.

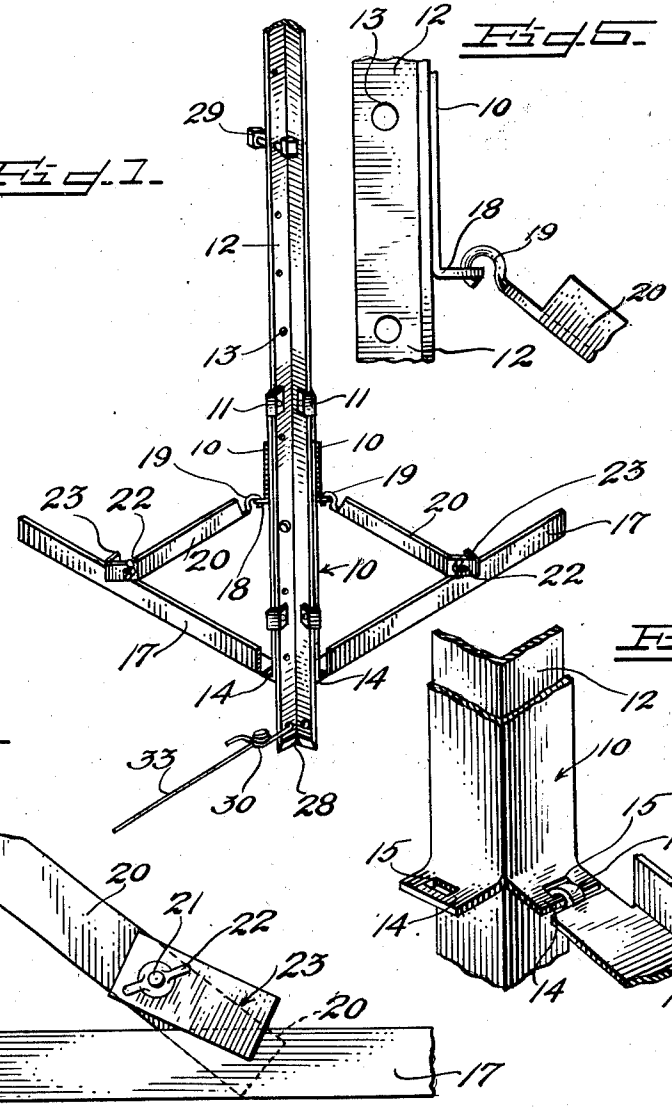


Fig. 2.

Fig. 3.

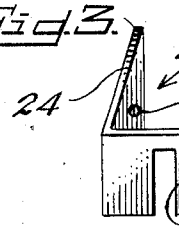


Fig. 4.

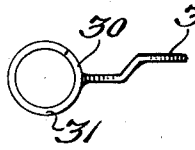


Fig. 5.

Fig. 6.

Inventor

Ray Raymond

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Patented May 20, 1947 2,420,797

UNITED STATES PATENT OFFICE

2,420,797

EXCAVATION ANGLE

Ray Raymond, Sacramento, Calif.

Application May 3, 1945, Serial No. 591,779

2 Claims. (Cl. 33—85)

1

This invention relates to an excavation angle, and more particularly to such a device for determining the depth and angularity of excavations, such as basements, ditches, and the like.

A primary object of this invention is the provision of an improved implement adapted to be utilized in excavating, so arranged that the same may be set at any desired predetermined angle to determine the angularity of the excavations with relation to the ground level, and which also serves as a depth gauge to determine the proper depth to which excavations should be carried.

A further object of the invention is the provision of such a device adapted to be used in conjunction with other similar devices to completely outline an excavation to be formed, and indicate the appropriate depth and angularity of the sides thereof.

Still another object is the provision of such a device, which, when not in use, may be readily folded into a comparative minimum of space and readily transported from place to place.

Other objects reside in the provision of such a device which will be sturdy and durable in construction, reliable and efficient in operation, and relatively simple and inexpensive to manufacture, assemble, and utilize.

Other objects will in part be obvious and in part be pointed out as the description of the invention proceeds and shown in the accompanying drawing, wherein there is disclosed a preferred embodiment of this inventive concept.

In the drawings:

Figure 1 is a perspective view of one form of excavation angle shown in assembled relation, embodying features of the instant invention,

Figure 2 is a fragmentary side elevational view of a constructional detail, certain concealed parts thereof being shown in dotted lines,

Figure 3 is a perspective view of a constructional element as shown in Figure 2,

Figure 4 is a plan view of a further constructional detail,

Figure 5 is a side elevational view disclosing the method of securing certain parts in related assembly, and

Figure 6 is a fragmentary perspective view of a still further constructional detail.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Having reference now particularly to Figure 1, there is generally indicated at 10 a guide member comprised of an angle iron having secured thereto clips 11 forming channels serving as a guide for

2

a depth and angle gauge member 12, comprised of an angle iron, and having a plurality of apertures 13 extending through spaced longitudinal points thereon. The lower extremities of the guide 10 are outwardly turned to form flanges 14, as best shown in Figure 6, provided with apertures 15 adapted to be engaged by extending arcuate projections 16 formed at the extremities of legs 17 similarly comprised of angle iron or the like, and normally adapted to extend at substantially right angles to the guide member and at right angles to each other.

Suitable flanges 18 are formed at intermediate points at the sides of the guide 10, and provided with apertures adapted to engage hook-shaped extremities 19 of links 20 similarly formed of angle iron, and provided at their lower extremities with apertures adapted to be engaged by bolts 21 having wing nuts 22 on their extremities, which normally serve to secure clamp members 23 to the lower extremities of the links 20. As best shown in Figure 3, each of the members 23 is comprised of a section of angle iron including two legs 24 and 25 bent at substantially right angles to each other, the leg 24 being provided with a bolt hole 26 through which the bolt 21 extends, and the leg 25 being provided with a slotted aperture 27 adapted to engage the upright portion of an associated leg 17.

As best shown in Figure 1, the lower extremity of the gauge member 12 is bevelled, as at 28, and a bolt 29 is provided and adapted to be selectively passed through one of the apertures 13 for a purpose which will appear hereinafter.

From the foregoing, the operation of the device should now be understandable. When it is desired to excavate a cellar, or the like, one of the guide members 10 is positioned in upright relation at each of the previously determined corners of the excavation, and the member 12 positioned in each guide member 10. The bolt 29 is positioned in a selected aperture 13, in such manner that the length of the member 12 below the bolt corresponds to the depth to which it is desired to excavate. If desired, suitable spring clips 30, including spring members 31 and hooks 32, may be secured in the lowermost apertures of adjacent gauge members 12, and connected as by cords or strings 33 to provide a true aligned level across the depth of the excavation. In a straight excavation, as the digging proceeds, the members 12 are lowered, and when the bolt 29 strikes the uppermost portion of the guide member 10, it may be readily determined that the excavation has reached the proper depth. When it is de-

sired to excavate at an angle, it will be readily understood that the angular relation of the legs 17 to the guide member 10 may be varied by releasing the tension clamps 23, by loosening the wing nuts 22, and adjusting the legs 17 vertically about pivot point 15—16 to any desired angle and re-setting the clamps, it being pointed out that the engagement of the extremities of the links 20 with the bottom of the angle iron 17 in conjunction with the action of the slotted apertures 27 on the upright portions of the legs 17 serve to hold the parts securely in adjusted position.

Obviously, the hinge portions previously described permit ready folding of the device into a relatively compact, flat unit when not in use.

From the foregoing, it will now be seen that there is herein provided an improved excavation angle accomplishing all of the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

1. An excavation angle guide instrument comprising, a guide member, a depth gauge slidable therein and extending below said guide member, legs hingedly secured to said guide member, and means for varying the vertical angular relation of said legs with said guide, said means including links hingedly secured at their extremities to said guide at points spaced from said legs and having their other extremities releasably secured to said legs.

2. An excavation angle guide instrument comprising, a guide member, a depth gauge slidable therein and extending below said guide members, legs hingedly secured to said guide member, means for varying the vertical angular relation of said legs with said guide, said means including links hingedly secured at their extremities to said guide at points spaced from said legs and having their other extremities releasably secured to said legs, and means including a tension clamp and a set-screw for securing said other extremities to said legs.

RAY RAYMOND.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
458,464	Kelly	Aug. 25, 1891
1,644,456	Winter	Oct. 4, 1927
1,909,267	Golt	May 16, 1933