Jan. 29, 1952 R. A. BAUMER 2,583,990

CORNER GUIDE AND LINE SUPPORTING DEVICE FOR MASONRY CONSTRUCTIONS

Filed April 21, 1950 3 Sheets-Sheet 1

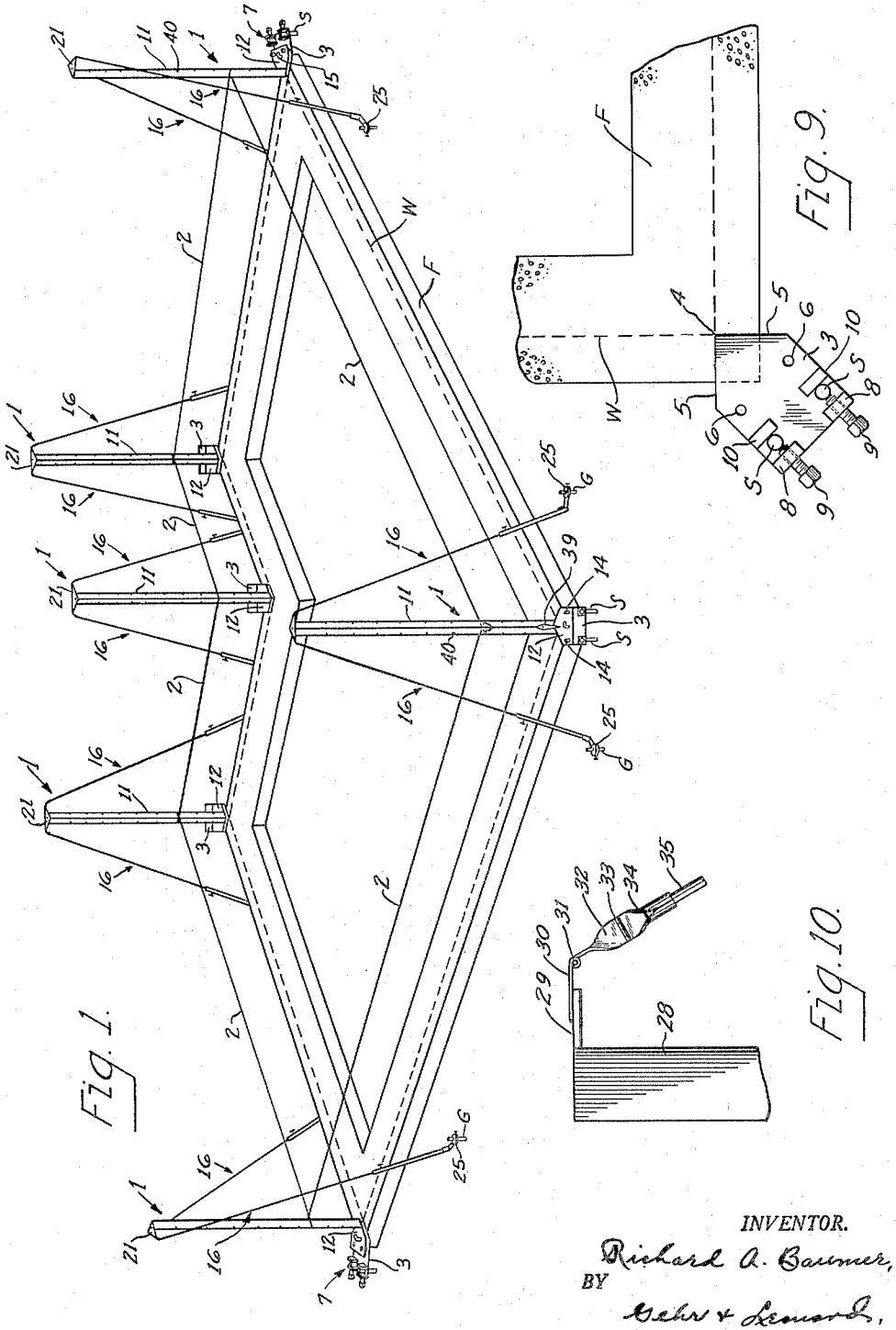


Fig. 1.

Fig. 9.

Fig. 10.

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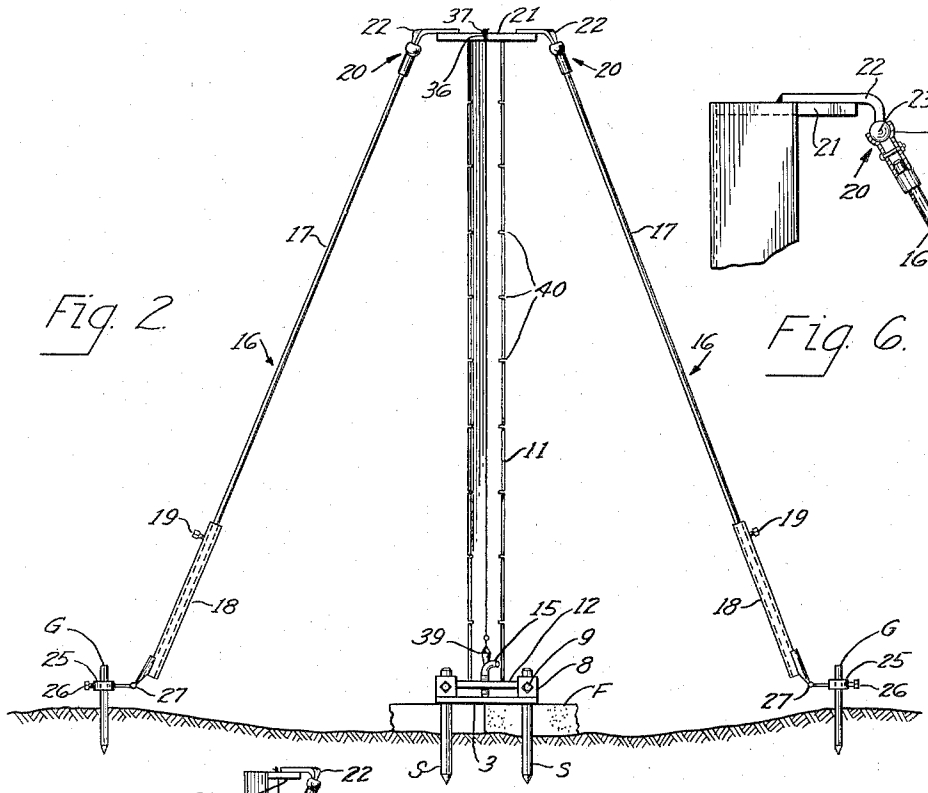


Fig. 2.

Fig. 6.

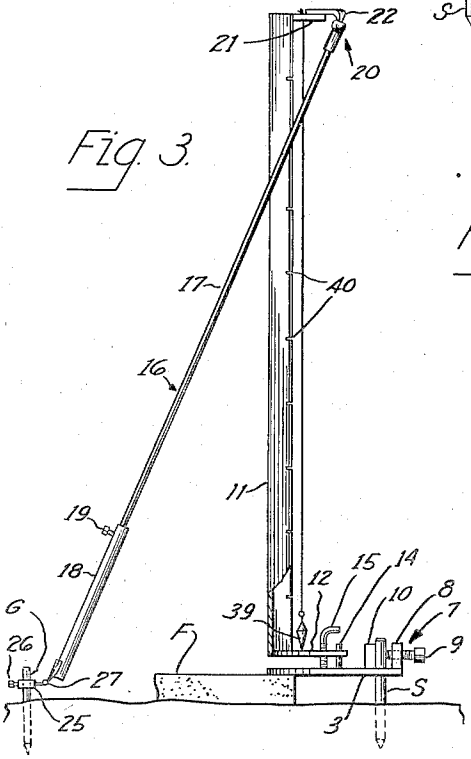


Fig. 3.

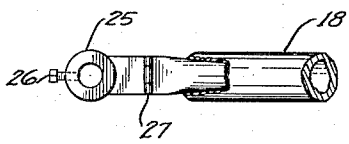


Fig. 7.

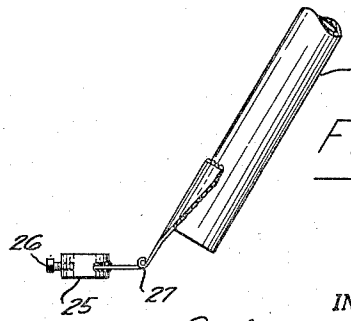


Fig. 8.

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CORNER GUIDE AND LINE SUPPORTING DEVICE FOR MASONRY CONSTRUCTIONS

Filed April 21, 1950 3 Sheets-Sheet 3

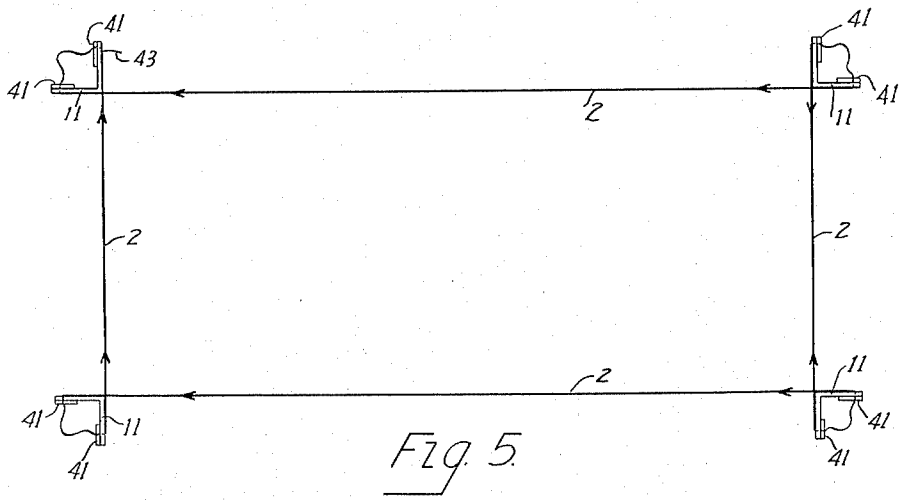


Fig. 5.

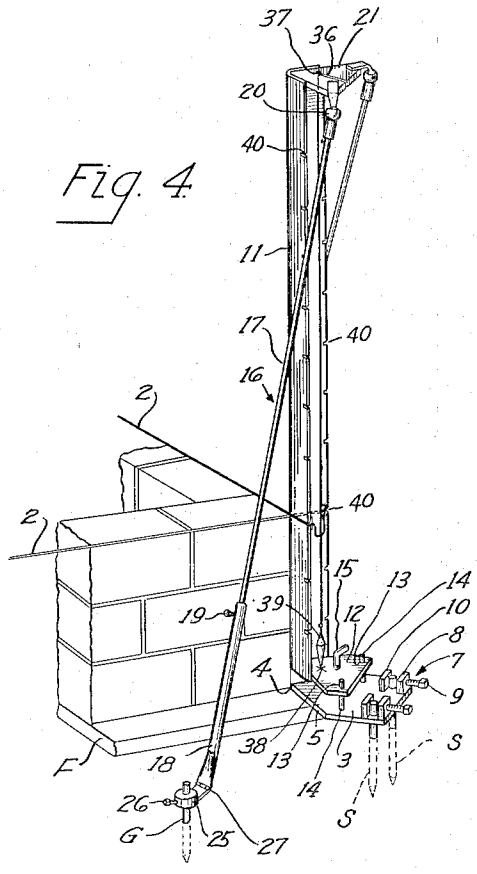


Fig. 4.

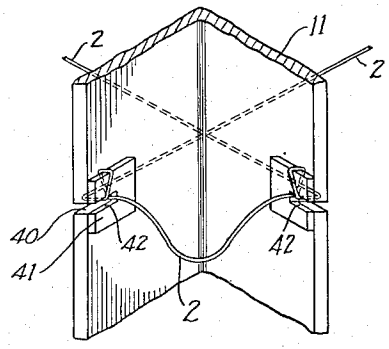


Fig. 11.

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UNITED STATES PATENT OFFICE

2,583,990

CORNER GUIDE AND LINE SUPPORTING DEVICE FOR MASONRY CONSTRUCTIONS

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Application April 21, 1950, Serial No. 157,274

10 Claims. (Cl. 33—85)

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This invention relates to a corner guide and line supporting device, for masonry construction, which may be installed and removed readily from the worksite and, when installed, provides an accurate gauge for the running wall and corners, yet lies wholly without the indicated lines of the wall to be built so as not to interfere in any manner with the laying up of the running courses and corners thereof.

More specifically, the invention relates to a plurality of rigid corner guides adapted to be accurately supported in upright position at all corners of the foundation footing and, in turn, supporting a guide line or string so as to outline completely the exterior of the wall and provide an accurate gauge therefor and for the corners, yet which do not overlie that part of the footing on which the wall is to be supported and do not interfere with the placing of blocks or bricks to form the wall.

Furthermore, the invention resides in the structure of the individual corner guide and supporting devices, each of which comprises generally a base adapted to be positioned on the footing outside of the lines of the proposed wall with indicated portions of the base aligned with the lines of the wall, clamping means for clamping the base to ground stakes located outwardly beyond the footing so as to secure the base accurately in properly aligned position, an elongated upright rigid guide element adapted to be supported in upright position on the base, interengageable positioning means on the guide element and base adapted to interengage and position the connected end of the guide in the proper position and alignment with respect to the wall and corner lines, additional means in the form of extensible legs connected to the guide element and arranged to be clamped to ground stakes for securing the guide in plumb position on the base, and means to indicate the plumb position of the guide.

Heretofore, in the construction of masonry walls, corner guide devices have been used for assuring that the corners are built plumb, such prior devices being provided with plumb bobs or spirit levels for indicating the plumb position of the guide. Some of these prior devices have been provided with bracing legs which are adapted to rest on the ground for resisting tilting of the guide out of plumb position. Other upright guides of angular cross section have been used. these guides being adapted to fit the corners of a wall and be secured thereto and supported thereby. The latter guides necessitate the construction of the wall corners in advance of the

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running wall courses between the corners. Guide lines are supported by such guides for the running wall courses between previously constructed wall corners.

Other guides used are in the form of various types of levelling gauges which are adapted to be held by hand in position to gauge the plumbness and alignment of the corners and after the corners are set, guide lines or strings are fastened to and stretched between the previously built corners.

Generally all such devices are inconvenient to use and difficult to align properly without interfering in any way with the laying up of the walls, including the corners.

Due to the nature of prior devices for this purpose the customary practice is to use skilled masons for laying up the corners of the wall, using hand levels and squares for assuring plumb and square corners which are properly aligned for the running courses. These corners, when being laid up, are maintained a few courses above the level of the running wall courses therebetween and a line or string is then stretched between the partially built corners and the running walls are filled in by less skilled masons or workmen. Since, in this method, the construction of the corners must always lead at least a few courses over the construction of the wall therebetween the progress and quality of the construction depends largely upon the ability and speed of the skilled masons. The corner building by the use of hand levels and squares is a rather slow and expensive process even when done by skilled masons.

It is an object of the present invention to eliminate the necessity for the laying up of walls in the manner described and, instead, to provide a guide and line supporting device which makes possible laying up of walls beginning either at the corners or at any desired point along the running wall and laying up of a number of running courses and accurate and plumb corners concurrently by a large number of less skilled workmen.

Another object is to provide a device for the purposes described which is economical to produce, extremely rugged, and is easily installed and removed for use.

Other objects and advantages will become apparent from the following description of a preferred embodiment of the invention, wherein reference is made to the drawings, in which:

Fig. 1 is a diagrammatic perspective view illustrating a foundation footing with a plurality

of the devices of the present invention installed and supporting a guide line;

Fig. 2 is a rear elevation of one of the corner guide and line supporting devices showing the manner in which it is fastened in operating position, part of the foundation footing being shown for clearness in illustration;

Fig. 3 is a side elevation of the installed device illustrated in Fig. 2, part thereof being shown in section for clearness in illustration;

Fig. 4 is a perspective view showing a corner wall portion and footing with the device installed in operating position relative thereto;

Fig. 5 is a diagrammatic plan view showing the manner in which the guide and lines are arranged for outlining the foundation wall;

Fig. 6 is an enlarged fragmentary side elevation, partly in section, illustrating one form of universal connection between the guide element of the device and its bracing legs;

Fig. 7 is an enlarged fragmentary to plan view of the lower end portion of one of the bracing legs showing the means for clamping the leg to a ground stake;

Fig. 8 is an enlarged fragmentary side elevation of the lower end portion and clamping means of the leg illustrated in Fig. 7;

Fig. 9 is a top plan view of a corner of a foundation footing showing a preferred type of base plate of the device, installed on the foundation footing prior to installation of the guide element;

Fig. 10 is an enlarged fragmentary side elevation of the upper end of the guide element of the device, showing a modified form of universal connection between the guide element and its bracing legs; and

Fig. 11 is an enlarged fragmentary rear elevation of the guide element with a guide line and connecting clips for the guide line installed.

Referring first to Fig. 1, a foundation footing F having both inside and outside corners is illustrated, the outer wall line of the proposed foundation wall being indicated by the dotted line W. A plurality of the corner guide and line supporting devices, each indicated generally at 1, are set up, one at each indicated corner of the wall and the guide line or string 2 is secured to each and thus indicates the line of the entire outer wall surface of the proposed foundation wall. As is common in masonry foundation walls, the footing F is considerably wider than the thickness of the proposed wall and extends beyond the line of the proposed wall both outwardly and inwardly, The devices 1 are installed at the indicated corners outside of the wall line W and in such a manner as not to interfere with the laying up of the corners of running wall courses. The devices are anchored and braced so that the upright guide elements thereof are plumb with their sides aligned with the proposed wall, and the guide elements are adjusted vertically relative to the footing F so that, when the guide line 2 is connected to the guide elements by the corresponding line retaining means on each, the line 2 is horizontal throughout its extent and at a convenient height for gauging the height of the running courses of the wall.

Thus instead of building up the corners of the wall, using hand levels and squares for gauging, and maintaining the corners during construction several courses higher than the intervening running wall, the running wall and corners can be laid up concurrently, the workmen beginning the laying up of the wall at any desired position along the footing, gauging the corners by the corner guide as they are laid up.

Referring next to the illustrated structure of an individual one of the devices 1 and the manner in which it is installed on the footing, each device 1 comprises a base 3, preferably in the form of a plate, which is adapted to rest in substantially horizontal position upon the footing F. The base or plate 3, at one end, is shaped to provide a point 4, as best illustrated in Fig. 9, with the edges 5 of the pointed end diverging at right angles to each other and providing suitable guides for assisting in the proper location of the base or plate 3 with respect to the corner of the wall line W. The base 3 is laid on the footing outside of the wall line W with the guiding edges 5 thereof aligned, respectively, with the portions of the wall line W defining the associated corner of the wall. The base 3 is of such a length that when the point 4 is at the corner point of the wall and the edges 5 are aligned with the wall lines defining the corner, the base 3 extends outwardly beyond the outer corner of the footing F. The base 3 is provided with suitable means for clamping it securely to ground stakes and the like, such as the iron rods indicated at S which are driven firmly into the ground in approximate position outwardly beyond the footing. In the form illustrated, the means for clamping the base 3 firmly to the stakes S so as to retain it accurately in position may comprise suitable holes 6 in the base 3 which are adapted to receive the stakes S with some clearance, and clamps 7 carried on the plate and arranged in position to engage the upper portions of the stakes S which extend through the plate. Economical clamps may be provided by welding threaded nuts 8 to the base 3 with their axes horizontal and intersecting the axes of the respective holes 6, and providing screws 9 in threaded engagement with the stakes. The screws 9 preferably are located close to the plane of the top of the holes and, if desired, suitable lugs 10 may be secured on the top surface of the base 3 at the opposite side of the holes 6 from the nuts 8 so as to form a buttress against which the protruding ends of the stakes may be pressed firmly by the screws 9. Since the remainder of the devices is readily detachable from the plate 3, the plate may be conveniently and accurately installed and firmly anchored in proper position.

The device 1 includes a guide element 11 adapted to be supported in upright position on the plate 3. The guide element 11 is preferably an elongated and extremely rigid member and is arranged to be detachably connected to the plate 3 at its lower end. In the form illustrated, the guide is in the form of a steel structural angle of right angular cross section and is supported in upright position on the plate 3 with its sides coplanar with the guiding edges 5, respectively, and the vertex of its base substantially directly above the point 4. Thus the sides of the guide element 11 extend outwardly from the wall line W so as to lie above the base 3 and not in any manner overhang the established wall line W.

In order to detachably support the guide element 11 in upright position on the base 3 and maintain it with its lower end substantially in alignment vertically with such predetermined portion of the base 3 that the vertex of the lower end is above the point 4 and the sides are coplanar with the edges 5, interengageable positioning means are provided at the lower end of

the guide element 11 and on the base 3, respectively. Suitable interengageable means are illustrated in the drawings and are provided as follows:

On the lower end of the element 11 is a flange plate 12 which is connected to the lower end for movement therewith. Preferably this connection is rigid and may be provided by welding. The plate 12 is provided with apertures 13 which are adapted to receive upright pins or lugs 14 which are fixedly mounted on the plate or base 3. The pins 14 engage the apertures 13 with slight operating clearance so that, when the pins are engaged with the apertures, the plate 12 and the guide element 11 are constrained from bodily movement transversely of the base 3 while the guide 11 is free to rock about its lower end, at least to a limited extent, into and out of upright position. The pins 14 and apertures 13 are so arranged that when the pins are received in the apertures the vertex of the bottom of the guide element lies substantially directly above the intersection of the edges 5 and, when the guide is vertical, the sides thereof are coplanar with the edges 5, respectively.

Mounted in the plate 12 is a suitable manually operable adjusting screw 15 which is spaced from the apertures 13 and engages the upper surface of the base 3 so that, by rotating the screw, the guide element 11 can be raised and lowered as a unit while its lower end is maintained in proper alignment with the base 3.

In order to maintain the guide element 11 in plumb position, extensible legs 16 are provided. In the form illustrated each leg comprises a rigid rod 17 telescopically received in a suitable sleeve 18, a set screw 19 being provided for securing the rod and sleeve in the desired extended or retracted condition.

At the upper end, each leg 16 is connected to the guide element 11 by means of a universal joint 20. A convenient manner of providing this connection is by means of a plate 21 which is welded to the guide element 11 to which are welded suitable straps 22. Each strap 22 carries a suitable ball 23 at its outer end which is received in a socket 24 on the upper end of the leg 16. Clamp means are provided at the lower end of each leg for connecting the lower end in fixed position relative to the ground or other support. Since it is desirable that the legs be outside of the wall line and outwardly beyond the footing, in general practice it is desirable that each leg be arranged to be connected to a suitable ground stake, such as indicated at G.

For providing a firm connection therewith the lower end of each leg 16 is provided with a clamp in the form of an eye 25 adapted to receive the stake and a set screw 26 for clamping the stake firmly in the eye. The eye 25 is connected to the leg 16 for swinging movement relative thereto, preferably by means of a hinged connection, as indicated at 27, which permits the eye 25 to be swung upwardly and downwardly.

By virtue of the universal connection of the legs 16 with the guide element 11, they can be disposed in the proper position to firmly brace the guide in plumb position either on outside or inside corners. As illustrated in Fig. 4, wherein the device 1 is used for an outside corner, the legs 16 are positioned to engage the ground alongside the wall rather than rearwardly of the guide away from the wall so as to effectively resist movement of the guide element out of plumb position by the tension of the guide line 2.

Instead of the universal joint illustrated in Figs. 1 through 6, the universal joint illustrated in Fig. 10 may be used. In this modification the guide element 28, which is essentially the same as the guide element 11, is provided with a top plate 29 corresponding to the plate 21. To the plate 29 are attached a pair of straps 30, each of which is hingedly connected, as at 31, to an intermediate strap 32. The strap 32 in turn is hingedly connected, as indicated at 33, to a strap 34 which is fittedly secured to the upper end of the leg 35, which latter corresponds with the leg 16. The hinge axes of the straps of each leg are at right angles to each other. This universal connection is very economical and inexpensive but is not as desirable as the ball and socket universal connection heretofore described.

The plumb position of the guide element 11 may be gauged in numerous ways. Preferably, however, for this purpose the plate 21 is provided with a notch 36 which leads into an aperture 37. The flange plate 12 is provided on its upper surface with an indicating mark 38 which is so positioned relative to the aperture 37 that the line defined by the aperture and the mark 38 are parallel to the intersection of the sides of the angle forming the guide element 11. Thus by securing the string of a plumb bob 39 in the aperture 37, the plumb position of the guide element 11 can be indicated by the centering of the plumb bob on the indicating mark 38.

When the device is installed for use as described, the intersection of the two sides of the guide element 11 are substantially coplanar with the walls to be gauged thereby. Accordingly, when the string or guide line 2 is drawn across corresponding side walls of two adjacent guide elements 11, lies directly above the wall line W. For obtaining the proper elevation of the guide line 2 and retaining it at the desired level, suitable means are provided on the guide elements 11 for anchoring the line at spaced points therealong. Preferably, as best illustrated in Fig. 11, these means are in the form of horizontal notches 40 which may be spaced apart from each other lengthwise of the guide distances which are multiples of the thickness of the running courses of the wall. Corresponding notches 40 of the respective guide elements are brought to the level of the top of the first course of the wall by adjusting the guide elements vertically by means of the screw 15.

In order to anchor the line to the guide suitable clips 41 are provided, these being in the form of flat pieces of metal with notches, as indicated at 42, for receiving the line. The line is passed through the desired notch 40 to the inside of the guide element, then inserted in the notch 42 of the clip 41, then drawn tight and wrapped once around the clip 41 while tight, after which the clip is permitted to be drawn firmly against the inside wall of the guide element by tension of the line 2, whereby it remains in said position and in turn anchors the line firmly.

As illustrated in Fig. 5 a number of the devices have been set up and drawn to plumb position. The line 2 is secured to one guide as indicated at 43 and passed successively around the guides as indicated by the arrows in Fig. 5, preferably being anchored at each guide by means of the clips 41 and allowing a considerable length of slack line between the two clips of each guide element. Thus in event of breakage of the line 2 between any two guide elements the line between the remaining guide elements does not become slack-

ened, and broken lengths of line 2 between two adjacent guide elements can be detached readily and repaired. Likewise, the length between any two adjacent guide elements can be moved to a different level than the length between other guide elements without disturbing the line for the courses between the latter guide elements.

It is apparent from the examination of the drawings and the above description that the wall can readily be laid starting the course at any point desired along the footing but it is preferable to start at the corner, particularly for relatively short running courses, and work from the corners to the center of the running length of the course so as to better distribute any error resulting from variation in the joints or lengths of the blocks. As mentioned, however, the corners do not have to be constructed first nor carried through at a level always above that of the running courses therebetween.

Having thus described my invention, I claim:

1. A device for the purposes described and comprising a base plate adapted to rest in predetermined position on a foundation footing, clamping means on the base and operable to clamp the base plate firmly to a stake adjacent the footing when the base plate is in said position, a rigid elongated guide element adapted to be supported at its lower end by the base plate in approximately upright position, interengageable positioning means on the guide element near said lower end and on the base plate, respectively, and operable to detachably engage with each other and hold the said lower end of the guide element substantially in alignment vertically with a predetermined portion of the base while affording limited rocking movement of the guide element into and out of upright position, bracing legs for the guide element, each leg being independently adjustable lengthwise, connecting means respective to the legs, each connecting means connecting its associated leg to the guide element in spaced relation above the lower end thereof for generally universal pivotal movement with respect to the guide element, and each of said legs being adapted to extend outwardly from its connecting means beyond the lateral limits of the base plate when the guide element is mounted thereon.

2. A device according to claim 1 characterized in that adjustment means are provided which are operatively connected with the guide element and base and are operable manually to move the guide element vertically to different adjusted positions while the lower end of the guide element is maintained substantially in said predetermined vertical alignment.

3. A device according to claim 1 characterized in that means are provided on the guide element for receiving a guide line and are adapted to retain the line at a predetermined elevation thereon.

4. A device according to claim 1 characterized in that additional clamping means are provided on the lower ends of the legs, respectively, each of the additional clamping means being adapted for detachably connecting its associated leg firmly to a stake.

5. A device according to claim 4 characterized in that each of said additional clamping means is swingably connected to its associated leg.

6. A device for the purposes described comprising a base plate adapted to rest in substantially horizontal position on a foundation footing and having a corner-indicating portion adapted to lie at the proposed corner of the wall to be constructed on said footing, a plurality of clamp means on the plate spaced from said portion and adapted for firmly detachably clamping the plate to a plurality of stakes, respectively, adjacent the footing while the plate is in said position, an elongated guide element, a flange plate connected to the lower end of the guide element, a plurality of upright pins on one plate, pin receiving means on the other plate for receiving the pins endwise and positioned to receive their associated pins concurrently when the said lower end of the guide element is moved toward the base plate while the guiding edge of the guide element is substantially in alignment vertically with said corner-indicating portion, said pins and pin receiving means interfitting to retain the lower end of the guide element in said alignment while affording limited rocking movement of the guide element thereabout into and out of upright position, bracing legs for the guide element, each leg being independently adjustable lengthwise, connecting means respective to the legs, each connecting means connecting its associated leg to the guide element in spaced relation above the lower end thereof for generally universal pivotal movement with respect to the guide element, and each of said legs being adapted to extend outwardly from the connecting means beyond the lateral limits of the base plate when the guide element is mounted thereon.

7. A device according to claim 6 characterized in that said guide element is in the form of an elongated structural metal angle having sides diverging at ninety degrees to each other.

8. A device according to claim 7 further characterized in that said corner-indicating means is the intersection of two edges of the base plate and the lower end of the guide element is positioned by the pins directly above the base plate with the intersection of the sides of the guide element in substantially vertical alignment with the intersection of said edges.

9. A device for the purposes described comprising a base plate having two edges intersecting at right angles to each other, the intersection providing a corner indicator, a plurality of detachable clamp means on the plate adapted to clamp the plate firmly to a plurality of stakes, respectively, a rigid elongated guide element of right angle cross section, cooperable detachable positioning elements in fixed positions on the guide element and plate, respectively, and interengageable with each other by movement of the guide element endwise toward the base plate while the positioning elements are aligned vertically, and operative when interengaged, to maintain the lower end of the guide element with the intersection of the sides substantially in vertical alignment with the intersection of the said edges and with the sides of the guide element overhanging the base plate and coplanar with said edges, repectively, independently extensible legs each connected by one end to the guide element, near the opposite end of the guide element, for universal movement relative thereto, clamping means respective to the legs and connected to the other ends of their respective legs and adapted to firmly detachably clamp said opposite ends to stakes, respectively, and each of said legs being adapted to extend from its point of connection with the guide element outwardly beyond the limits of the base plate.

10. A device according to claim 9 characterized in that said positioning elements comprise a

flange plate on the lower end of the guide element and having a pair of apertures, a pair of upright pins on the base plate receivable in said apertures, and positioned between said corner indicator of the base plate and said clamping means, and an upright adjusting screw is carried by the flange plate at a position between the intersection of the sides of the guide element and the apertures and is exposed at its upper end above the flange plate for access for rotation and at its lower end it engages the base plate.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,643,915	Angelilli	Sept. 27, 1927
1,897,682	Souders	Feb. 14, 1933
1,909,267	Golt	May 16, 1933
2,143,237	Byrnes	Jan. 10, 1939

FOREIGN PATENTS

Number	Country	Date
582,894	Great Britain	Dec. 2, 1946