

June 4, 1957

H. F. CRANMER
SUPPORTING BRACKET

2,794,263

Filed Oct. 13, 1954

2 Sheets-Sheet 1

FIG. 1.

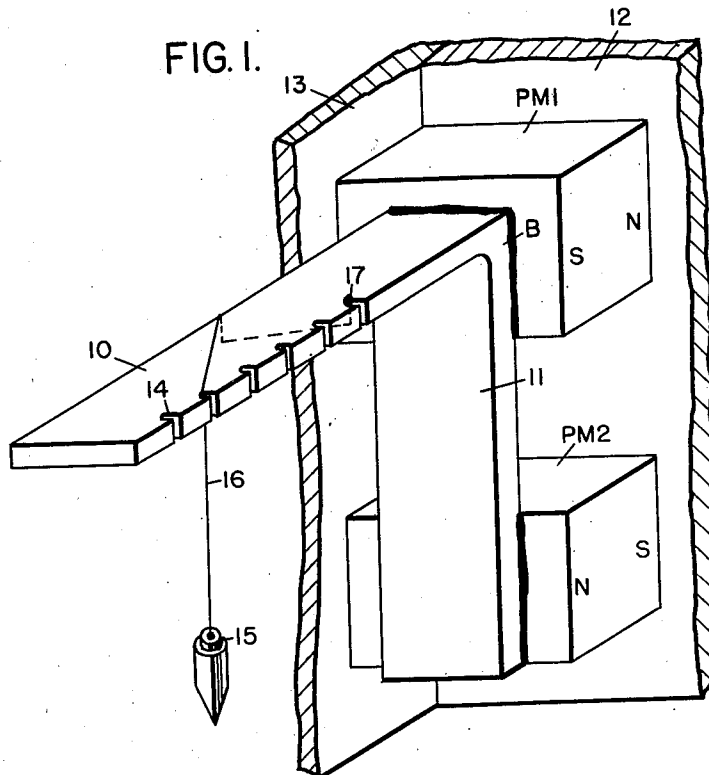


FIG. 2.

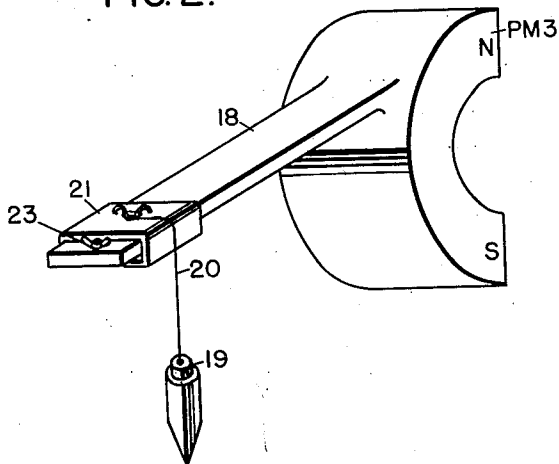
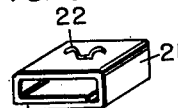


FIG. 3.



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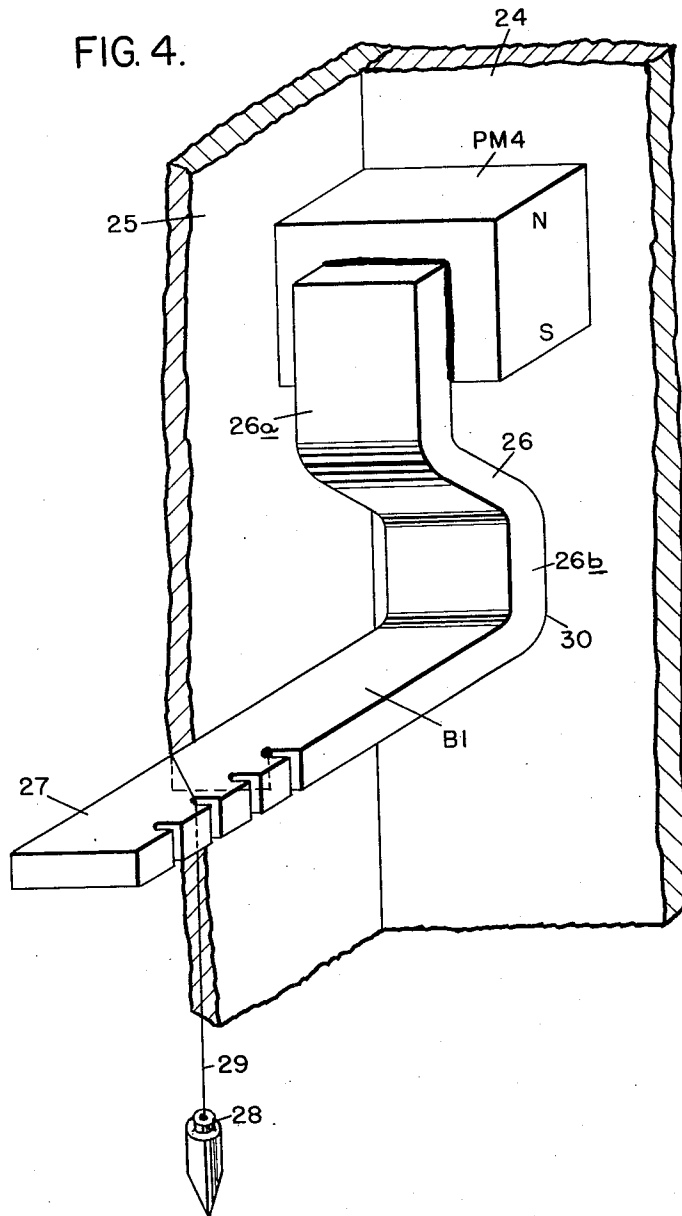
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2 Sheets-Sheet 2

FIG. 4.



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SUPPORTING BRACKET

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4 Claims. (Cl. 33—207)

This invention relates to supporting brackets, and it more particularly pertains to plumb bob supporting means that is magnetically attachable to structural steel piers, metal window and door frames, and the like.

In the use of plumb bobs, it is desirable that they be hung from supporting brackets in a manner to be readily adjustable in spacing away from a vertical reference plane, such as the side of a door or window frame. It is generally required in using such a bracket that one person must hold the bracket while another uses the plumb bob.

The plumb bob supporting bracket provided by the present invention is preferably of magnetic material, having one leg of the bracket in the form of a yoke connecting two permanent magnets to form a U-shaped magnetic structure for attachment to a vertical steel frame member or pier. The other leg of the bracket has measured notches for suspension of a plumb bob at a selected spacing away from a vertical steel reference plane to which the bracket may be magnetically secured. Thus the bracket is self-supporting and no aid is required in the use of the plumb bob.

An object of the present invention is to provide a quickly detachable plumb bob support bracket adapted to be detachably secured to vertical steel members.

Another object of the present invention is to use one leg of a plumb bob supporting bracket as a yoke magnetically connecting two permanent magnets.

Another object of the present invention is to provide a magnetic plumb bob support bracket that is magnetically attachable in an upper corner of a frame, but yet the leg of the bracket from which a plumb bob is to be supported is spaced away from two vertical planes at right angles to each other.

Other objects, purposes, and characteristic features of the present invention will be in part obvious from the appending drawings, and in part pointed out as the description of the invention progresses.

In describing the invention in detail, reference is made to the accompanying drawings in which like reference characters are used to identify corresponding parts in the several views, and in which:

Fig. 1 is an elevational view in perspective of one embodiment of the present invention showing a magnetic plumb bob bracket magnetically secured in the side of a vertical steel frame;

Fig. 2 is an elevational view in perspective of another embodiment of the present invention showing a plumb bob supporting bracket leg as being integral with a U-shaped supporting permanent magnet;

Fig. 3 is an elevational view in perspective of a slider for use on the bracket of Fig. 2; and,

Fig. 4 is an elevational view in perspective of another embodiment of the present invention showing a plumb bob support bracket requiring only a single permanent magnet.

With reference to Fig. 1, the plumb bob supporting bracket comprises a right angle bracket B supported by

2

permanent magnets PM1 and PM2. The bracket B has a horizontal leg 10 and a vertical leg 11.

The permanent magnets PM1 and PM2 are of equal size and substantially cubical in shape. These magnets are spaced from each other and disposed one above the other as viewed in Fig. 1, the leg 11 of the bracket B being suitably secured as by welding across the backs of the permanent magnets PM1 and PM2 to form a yoke of magnetic material connecting the two permanent magnets in series to form a U-shaped magnetic structure. The magnets PM1 and PM2 could, however, be detachably secured, as by spring clips, to the leg 11. The magnets PM1 and PM2 are shown as being magnetically attached to the side and back members 12 and 13 respectively of a vertical steel frame or pier. It will be noted as illustrated that the bracket is supported both by magnetic attraction to the side member 12 and the back member 13, but it is to be understood that the bracket will be adequately supported by either of these members alone in the absence of the other as conditions may arise in practice. The magnets PM1 and PM2 are preferably poled for a series magnetic circuit by being magnetized with north and south poles in elevational relationship for the different magnets as is illustrated by the N and S markings in the drawings.

The leg 10 has several vertical notches 14 formed at regular intervals along the righthand side thereof, these notches 14 being preferably spaced in even inches, or fractions thereof so that a plumb bob 15 supported by a cord 16 is supported at a known distance from the surface 12.

The bracket B is made slightly narrower than the permanent magnets PM1 and PM2, and is disposed slightly below the top of permanent magnet PM1, so that when in position as shown in Fig. 1, there is always space around the back and above the leg 10 to secure the plumb bob at the proper height after the bracket has been magnetically secured in position. When the cord 16 is wound around the leg 10, it is secured as by the knot 17 formed in the cord 16 and inserted into one of the slots 14. It will be noted that by the righthand side of the permanent magnets PM1 and PM2 projecting beyond the bracket B, the same facility of providing clearance for wrapping the cord 16 around the leg 10 is provided for a condition where the supporting bracket is mounted in a corresponding lefthand corner, as compared to the righthand corner in which it is shown.

With reference to Fig. 2, another embodiment of the present invention is illustrated wherein a horizontal bracket leg 18 is formed as an integral part of a U-shaped permanent magnet PM3. The bracket leg 18 is made slightly narrower than the width of the permanent magnet PM3 for the same reasons that have been given with reference to the embodiment of the invention shown in Fig. 1.

According to Fig. 2, the support of a plumb bob 19 is by a cord 20 that is carried on the leg 18 by a sliding sleeve 21 that is slidable longitudinally along the leg 18 so that the plumb bob 19 may be located at any desired spacing from the surface to which the supporting bracket is magnetically secured. The sleeve 21 may be formed of sheet metal folded in a rectangular manner as is illustrated in Fig. 3. A suitable anchor 22 is provided in the top of the sleeve 21 for the cord 20. A thumb screw 23 is threaded into the leg 18 to retain the sleeve 21 on the leg 18.

Another embodiment of the present invention is shown in Fig. 4 wherein a bracket is constructed of U-shaped magnetic structure but requiring only a single permanent magnet PM4. This permanent magnet is illustrated as being magnetically attracted in operating position to right angle vertical steel pier members 24 and 25 respectively.

3

As has been described with respect to the embodiment of the invention shown in Fig. 1, the magnet will hold when used in connection with either of the pier members 24 or 25 in the absence of the other. The permanent magnet PM4 is magnetized to set up magnetic poles in general as is indicated by N and S markings in the drawing.

A bracket B1 of a width preferably less than the width of the permanent magnet PM4 is secured across the side of the permanent magnet PM4 opposite from the pier member 24 by a vertical leg 26 being welded as shown, or otherwise suitably secured, to the permanent magnet PM4. This vertical leg 26 is offset so as to have vertical surfaces 26a and 26b in laterally disposed vertical planes that are spaced apart by the width of the permanent magnet PM4. This provides a vertical surface of the leg section 26b that bears against the pier 24 to which the supporting bracket is shown as being magnetically attached.

The bracket B1 has a horizontal leg 27 extending outwardly from the lower end of the section 26b of the vertical leg 26. This leg 27 is notched for support of a plumb bob as described with respect to the leg 10 of bracket B shown in Fig. 1. Thus a plumb bob 28 is supported by a cord 29 from the leg 27. Like the bracket B of Fig. 1, the bracket B1 is of magnetic material so as to cooperate with the associated permanent magnet to form a U-shaped magnetic structure so as to most effectively adhere to any vertical steel member.

It will be noted that the structure as shown in Fig. 4 will support a maximum amount of weight for a single magnet because a force tending to break the magnet PM4 loose from the pier 24 acts around a pivot point at the base of the bracket leg 26, and thus the permanent magnet PM4 has mechanical advantage as compared to extending the horizontal bracket leg 27 directly from the permanent magnet PM4.

Having thus described three embodiments of a plumb bob support bracket, it is to be understood that the pres-

4

ent disclosure is given merely by way of example, and that various modifications, adaptations and alterations may be made to the specific forms shown without departing from the spirit and scope of the present invention except as limited by the appended claims.

What I claim is:

1. A plumb bob support for magnetic attachment to a steel pier comprising, a permanent bar magnet having a pole face for magnetic attachment to a vertical steel pier, and a bracket of magnetic material having two legs, one end of one of said legs being secured to said permanent magnet, and the other end of said one leg being formed with a pole face in the same plane as said pole face of the permanent magnet, the other of said legs of said bracket extending outwardly at right angles from said pole face of said one leg, and the other of said legs having notches formed therein for receiving a plumb bob cord.
2. A plumb bob support according to claim 1 wherein the permanent magnet extends laterally from the bracket to space the bracket laterally away from any object to which the permanent magnet may be attracted.
3. A plumb bob support according to claim 1 wherein the permanent magnet extends elevationally from the bracket to space the bracket elevationally away from any horizontal object to the underside of which the permanent magnet may be attracted.
4. A plumb bob support according to claim 1 wherein the permanent magnet overlaps the bracket on two adjoining sides to space the bracket laterally and elevationally away from a corner in which the permanent magnet may be disposed when it is attracted to an inside corner of a steel pier.

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