

United States Patent

Harvey

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[54] PROPS

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254/DIG. 1, 101; 52/301, 298

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Primary Examiner—Chancellor E. Harris

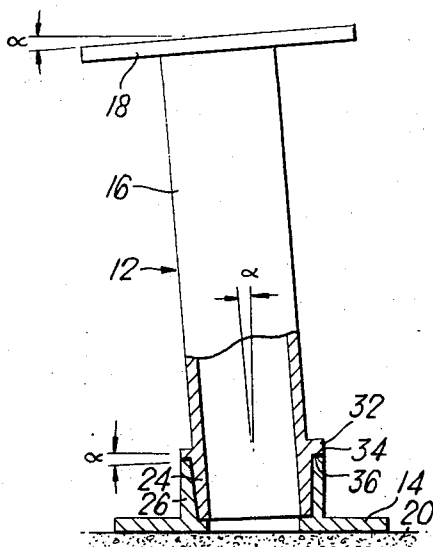
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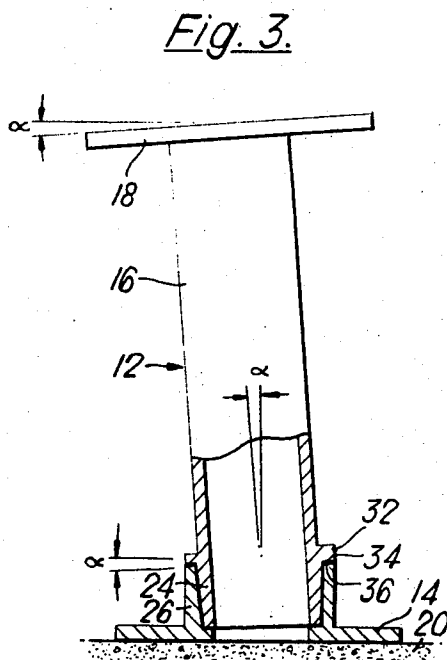
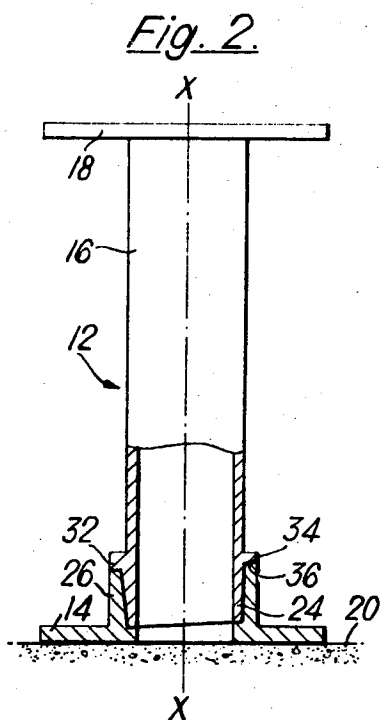
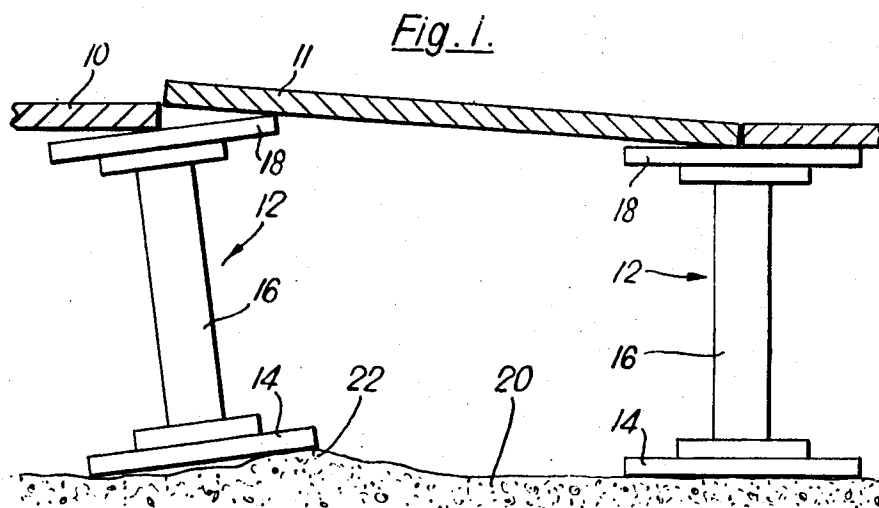
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ABSTRACT

A prop for supporting floor panels comprising a base plate from which upstands a shank carrying at its upper end a head plate to receive the load. The shank and the base plate have a spigot and socket connection such that by turning the vertical axis of the base plate, the head plate is caused to gyrate and the plane of its load bearing surface to take up any desired inclination to the horizontal.

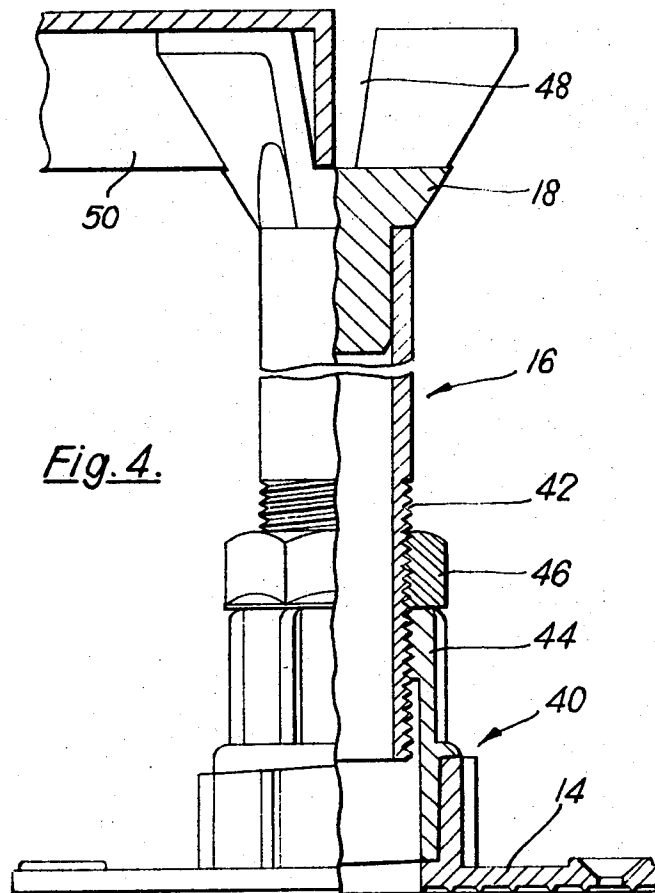
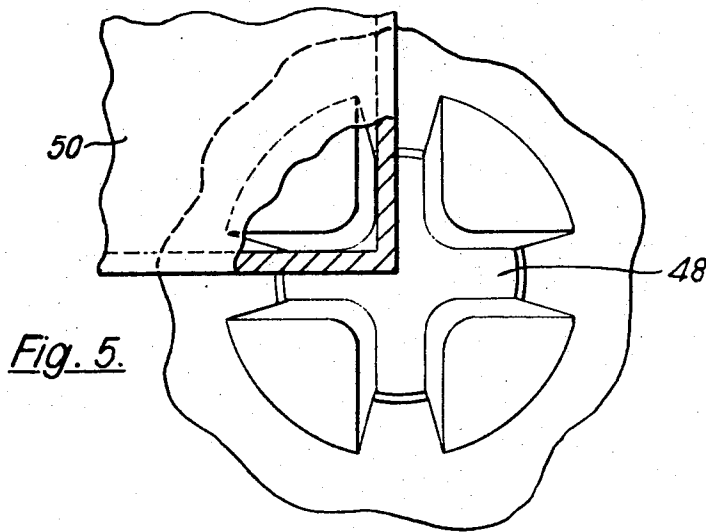
6 Claims, 5 Drawing Figures





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BACKGROUND OF THE INVENTION

This invention relates to props and particularly to props designed for use in supporting floor panels.

Where, as in the case particularly with computers, telephone exchangers and the like, a machine has an installation leading to and from it a large number of conductors and/or cables, it is convenient to have a readily accessible under-floor space in which to accommodate the latter. This leads to the provision of a floor made up of panels of rectangular or other polygonal shape supported at their corners by props.

The props which come into question have a base plate from which upstands a shank carrying at its upper end a head plate on which the load is supported. It can and indeed frequently does happen that the surface on which the base plate rests is unyielding and uneven. In that case, the shank may be tilted out of plumb and the bearing surface of the head plate be tilted out of the horizontal plane and be ineffective to spread the load which is supported. Also, if the head plate has to support a number of continuous floor panels or the like, the upper surfaces of these may not be flush with each other.

THE INVENTION

According to the invention there is provided between the shank and the base plate a connection such that by turning the shank about the vertical axis of the base plate, the head plate is caused to gyrate and the plane of its load-bearing surface to take up any desired inclination to the horizontal.

Preferably the shank and the base plate have a spigot and socket connection, the socket providing for the spigot a bearing surface the plane of which makes an acute angle with the plane of the base plate and the cooperating surface of the spigot being in a plane which makes the same angle with the axis of the shank.

With such an arrangement, the shank can be turned about its axis relatively to the base plate into a position in which that axis and the normal to the base plate coincide. In that case, the head plate is in a plane parallel to that of the base plate as in the conventional prop. On turning the shank out of that position, its axis becomes tilted as does the head plate through an angle which lies between zero and the above mentioned acute angle. If, therefore, the base plate is out of the horizontal plane by an angle not exceeding the same acute angle, the head plate can nevertheless be brought into the horizontal plane.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates diagrammatically, the condition for which the prop in accordance with the invention is designed to cater;

FIG. 2 is an elevation of a prop in accordance with the invention partly in section, showing it in its normal upright position;

FIG. 3 is a similar elevation of the prop with its shank inclined to the vertical; and

FIGS. 4 and 5 are respectively an elevation and a plan of a more practical form of the prop.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 are shown two floor panels 10, 11 supported on a pair of props 12, each prop having a base plate 14, a shank 16 and a head plate 18.

The props rest on a concrete raft 20 having an upward excrescence 22 causing the left hand prop to be tilted out of the plumb. As will be seen, the floor panels 10, 11 are then badly supported and are not flush with each other at their meeting edges. To overcome those disadvantages, in accordance with the invention, the props are provided with connections between their shanks and their base plates which enable the head plate to be brought from the position shown on the left hand side of FIG. 1 to that shown on the right hand side in spite of the tilt caused by the excrescence 22.

One form of such a connection is shown in FIGS. 2 and 3 which, again, are somewhat diagrammatic.

Therein, as in FIG. 1, the prop has a base plate 14, a shank 16 and a head plate 18. The base plate and the shank of the prop are provided with a spigot and socket connection, the spigot or male member 24 being provided on the shank and the socket or female member 26 being provided on the base plate.

The spigot 24 and socket 26 are respectively complementary male and female truncated cones having an angle of convergence α as shown in FIG. 3 and the socket is set so that its axis makes the same angle α with the vertical.

The shank 16 is provided with an annular rib 32 the lower surface 34 of which is in a plane making the angle α with the horizontal and which rests on the surface 26 of the socket which also lies in that plane.

In the position shown in FIG. 2, the axis of the shank and its spigot 24 is in the vertical plane X—X and consequently the head plate 18 is in the horizontal plane.

If now, the shank is turned through 180° into the position shown in FIG. 3, the shank and head plate will gyrate about an axis making an angle α with the vertical plane so that the bearing surface of the head plate takes up the position shown in which it is in a plane making an angle α with the horizontal. Thus, by turning the shank through an appropriate angle, the prop can be set with the bearing surfaces of its head plate at any desired angle to the horizontal not exceeding α . It follows that if the base plate is tilted as shown in FIG. 1 at an angle not exceeding α , the head plate can nevertheless be brought into the horizontal position by the simple process of turning the shank of the prop relatively to the base plate.

It will be appreciated that the prop illustrated in FIGS. 2 and 3 can be used upside down, the base plate becoming the head plate and vice-versa. In that case, the angularity of the head plate is adjusted by turning the socket relatively to the spigot. The prop can usefully be made of adjustable height as shown in FIG. 4.

The prop shown therein has a base plate 14, a shank 16 and a head plate 18 corresponding to those of FIGS. 1-3, the shank and base plate having a spigot and socket connection designated generally by the reference numeral 40 which corresponds exactly with that described above in relation to FIGS. 2 and 3.

As will be seen, the shank 16 is in two complementarily screwthread parts 42, 44 so that by turning one

relatively to the other the length of the prop can be adjusted, a locknut 46 being provided to hold the prop in the adjusted condition.

The head plate shown in FIGS. 4 and 5 is designed to support a number of floor panels and hold them against movement relatively to each other in the horizontal plane. To that end, the head plate has formed in it a cruciform groove 48. If then the panels 50 (of which only one is shown) are provided with depending flanges, the latter can be engaged in two branches of the groove and be positively held.

I claim:

1. A prop for supporting floor panels comprising:

a base plate having a lower support surface on which said prop rests, a shank upstanding from said base plate, said shank having an upper end, a head plate having a top surface designed to support said floor panels, said head plate being connected to said upper end of said shank;

a spigot and socket connection positioned between said base plate and said head plate for altering the plane of said top surface of said head plate relative to the plane of said lower support surface of said base plate by rotation of said shank relative to at least one of said plates, said spigot and socket connection comprising a male truncated cone having an angle of convergence α and a corresponding female truncated cone also having an angle of convergence α , said male truncated cone rotatably fitting within said female truncated cone, said male

and female cones being arranged so that their axes make acute angles with the upright axis of said shank;

whereby, when said lower support surface rests on a surface not parallel to said floor panel, said spigot can be rotated relative to said socket to bring said plane of said head plate parallel to said floor.

2. A prop according to claim 1 wherein said male and female truncated cones are arranged so that their axes make said angle α with upright axes of said shank.

3. A prop according to claim 1 wherein said spigot and socket connection is positioned between said base plate and said shank.

4. A prop according to claim 1 comprising upright adjusting means for adjusting the distance between said base plate and said head plate.

5. A prop according to claim 3 which comprises an annular rib provided on said shank, said rib having a lower bearing surface designed to support said shank on said female truncated cone.

6. A prop according to claim 4 wherein said shank includes an upper part, a threaded length of said upper part, a lower part connected to said male truncated cone, an internal threaded length on said lower part in which said threaded length on said upper part is threaded, whereby the length of said shank can be adjusted by screwing said upper part relative said lower part.

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