

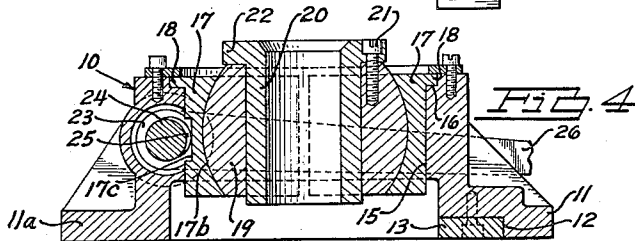
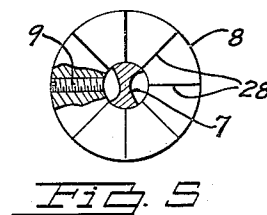
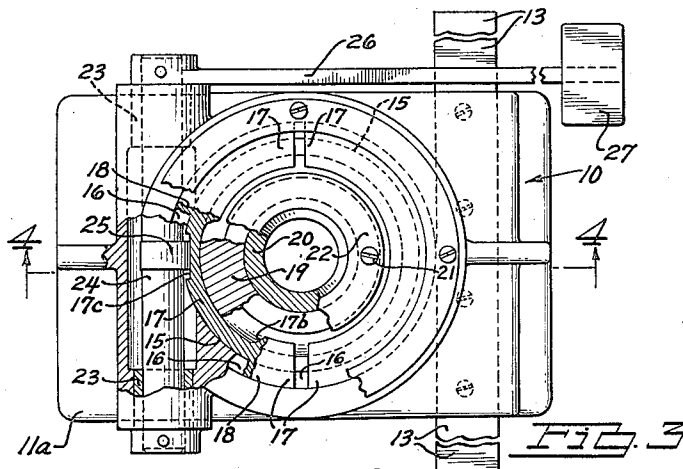
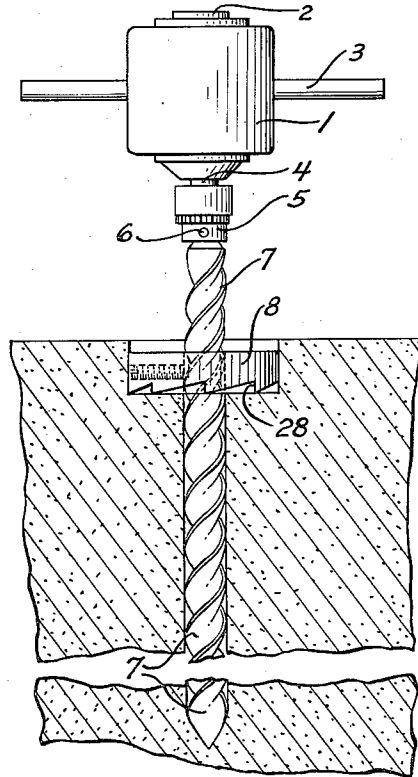
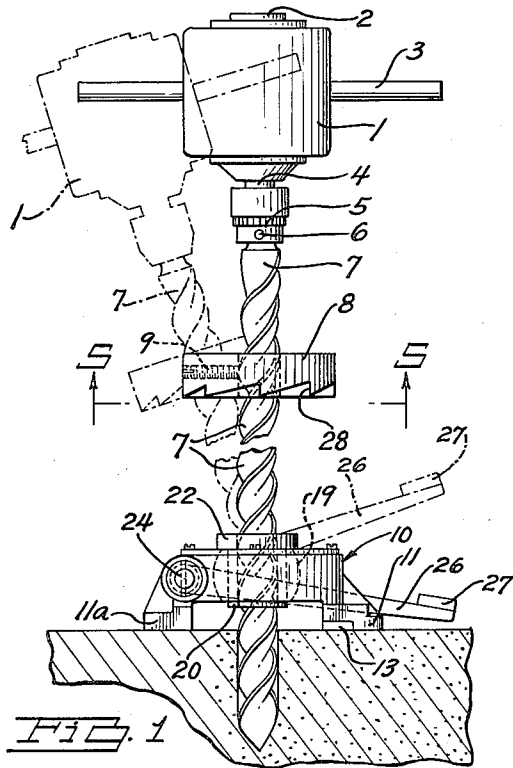
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POST HOLE BORING DEVICES

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POST HOLE BORING DEVICES

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This invention relates to improvements in post hole boring devices. It is an object of the invention to provide a post hole boring device including a boring bit for making holes of uniform diameter throughout their depth in the ground so that posts inserted therein may be axially adjusted; and wherein means are provided for continuously indicating whether the device is being held plumb so that the operator is informed at all times whether the holes are being vertically bored.

Another object of the invention is to provide such a post hole boring device including a separate base to rest upon the ground and having a spherical bushing mounted for universal adjustment therein to support the boring bit, so that the latter may be held with its axis substantially vertical irrespective of the inclination of the ground on which the base rests.

A further object of the invention is to provide a post hole boring device including an annular member mounted for axial adjustment along the boring bit to visually indicate when the hole is substantially the desired depth, and which also has a counterbore on its underside to form a flat surface on the ground around the top of the post hole after removal of the base from beneath the annular member.

With these and other objects and advantages in view which will become apparent as the specification proceeds, the invention is hereinafter more fully described with the aid of the accompanying drawing, in which:

Figure 1 is a side elevation of the invention with the boring bit being guided by the spherical bushing, and

Figure 2 is a side elevation of the invention after removal of the base and with the counterbore in the ground.

Figure 3 is a plan view of the base, and

Figure 4 is a section on the line 4—4 of Figure 3, and

Figure 5 is a detail showing of form of the counterbore.

Referring to the drawing, 1 designates a suitable rotary driving mechanism, which may consist for instance of an internal combustion engine having a conventional spirit level 2 secured thereon, the level being preferably of the circular type; and projecting from opposite sides of the driving mechanism are suitable handles 3. Forming part of and projecting downwardly from the driving mechanism and rotated thereby is a drive shaft 4 on which a conventional chuck 5 is secured. Suitably held in the chuck, as by a set screw 6, for rotation therewith and projecting downwardly therefrom is an auger or boring bit 7. Mounted around the auger for axial adjustment thereon is an annular member 8 which is normally held immovable thereon as by a set screw 9.

10 denotes a substantially rectangular base having downwardly projecting feet 11 and 11a extending along opposite sides. Mounted fixedly in a recess 12 formed in the underside of the foot 11 is a plate 13. It will be noted that the opposite extremities of the plate project beyond the ends of the base to provide increased bearing for the base upon the ground.

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Formed centrally and vertically through the base 10 is an opening 15 the upper extremity of which is counter-bored as shown at 16. Mounted in the opening 15 is a swivel support 17 having an outwardly projecting flange 18 around its upper extremity which rests in the counter-bore 16. The swivel support is split into two substantially semi-circular halves the adjacent extremities of which are normally somewhat spaced from one another. The bore of the swivel support is of the conventional concave form as shown at 17b. Mounted for universal adjustment in the two substantially semi-circular portions of the swivel support is a spherical bushing 19 the periphery of which is convex for limited universal adjustment therein. A bearing 20 extends coaxially and normally substantially vertically through the bore of the bushing 19 and is secured thereto as by screws 21 which extend through a flange 22 formed integral with and around the top of the bearing.

Formed integral with the base 10 are horizontally aligned bearings 23 extending across the foot 11a to support opposite extremities of a shaft 24 having a cam 25 thereon substantially centrally of its length. The cam is adapted to exert pressure against the outer face of the adjacent substantially semi-circular portion of the swivel support 17 to hold the spherical bushing 19 immovable between it and the other substantially semi-circular portion. Secured upon one extremity of the shaft 24 is a lever 26 having a treadle 27 secured upon its outer extremity so that when the treadle is depressed the shaft and its cam are turned to swivel support engaging position.

It will also be noted that the length of the plate 13 is such as to increase the width of the bearing surface of the base 10 upon the ground, and thereby decrease the tendency for the base to tip when the treadle is depressed. Again any suitable type of teeth such as those shown at 28, to function as a counterbore may be formed on the underside of the annular member 8 to cut a flat surface on the ground around the top of the hole made by the boring bit 7. It is of course also understood that in order to use the counterbore the boring bit must be lifted out of the bearing 20 and the base removed, after which the said bit is re-inserted in the ground. Then the hole is completed to the required depth as the counterbore is formed. It will also be noted that as the annular member 8 approaches the top of the bearing 20 it serves as a gauge to indicate approximately when the base 10 should be removed, by which time the hole has been bored to such depth that there is little likelihood of the bottom of the hole becoming misaligned.

While the boring bit 7 and the driving mechanism 1 have been referred to as being held vertical, or substantially so, during the boring operation it must also be borne in mind that occasionally it is desirable to mount the posts at a considerable inclination to the vertical. This too may be readily done by holding the device at a specific inclination which may be easily maintained with the aid of the spirit level 2.

While in the foregoing the preferred embodiment of the invention has been described and shown it is understood that alterations may be made thereto provided they fall within the scope of the claims.

What I claim is:

1. A post hole boring device comprising a rotary driving mechanism including a drive shaft, a boring bit to bore a hole in the ground secured on the lower extremity of the drive shaft for rotation therewith, a spirit level on the driving mechanism and handles extending from said mechanism for holding it substantially vertical, in combination with a stand adapted to rest upon the ground, a swivel support being split into movable semi-

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circular halves mounted on the stand, a spherical bushing mounted in the swivel support, a bearing extending through the bushing for supporting the boring bit for rotation, and treadle-operated means for forcing the semi-circular halves together to hold the spherical bushing immovable in said support. 5

2. The combination in claim 1, including an annular member mounted for vertical adjustment on the bit, and a counterbore on the underside of said member for forming a flat annular surface on the ground around the top of the hole after removal of the stand. 10

3. A post hole boring device comprising a rotary driving mechanism including a drive shaft, a circular spirit level on the driving mechanism, a boring bit to bore a hole in the ground mounted on the lower extremity of the drive shaft for rotation therewith, handles projecting from the driving mechanism for manually supporting it, and an annular member mounted for axial adjustment along the boring bit, in combination with a stand to rest upon the ground and having a swivel support thereon, a spherical bushing mounted on the support, a bearing extending through the bushing for supporting the boring bit for rotation, said swivel support being split into two substantially semi-circular halves, a shaft mounted on said stand transversely of and spaced 15 20 25

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from said swivel support and having an eccentric thereon to engage one of the split halves and force it towards the other half to grip the spherical bushing between them and hold it immovable, a treadle extending from the shaft for turning the latter about its axis, means on the underside of the stand to extend along the ground from opposite sides thereof parallel with the shaft for supporting the stand upright, a counterbore on the underside of the annular member for forming an annular recess in the ground around the top of the hole after removal of the stand, and said annular member being adapted for mounting on said boring bit a predetermined distance from the cutting end thereof to facilitate drilling a hole to a predetermined depth.

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