March 19, 1929. C. THERIOT 1,706,332

POSTHOLE DIGGER

Filed March 24, 1928

Fig. 1.

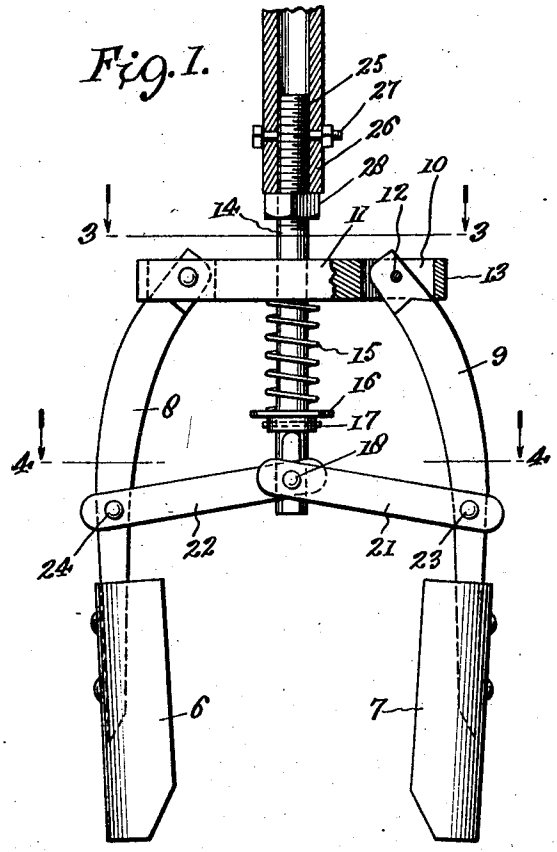


Fig. 2.

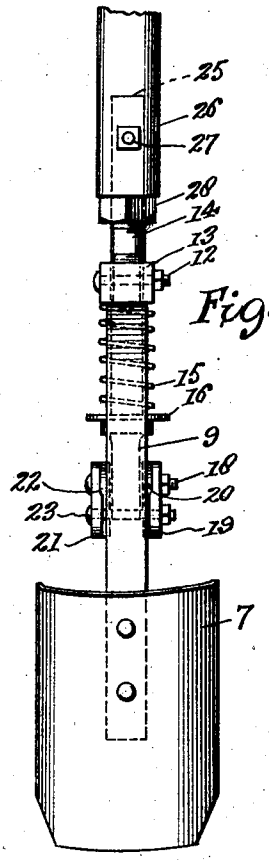


Fig. 3.

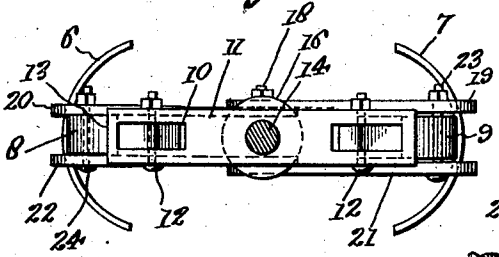


Fig. 4.

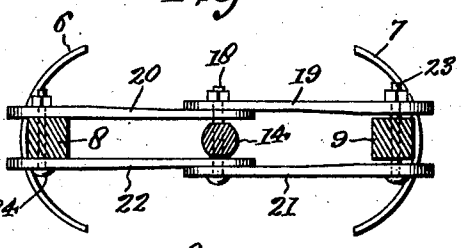
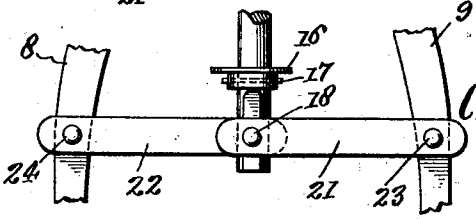


Fig. 5.



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UNITED STATES PATENT OFFICE.

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POSTHOLE DIGGER.

Application filed March 24, 1928. Serial No. 264,563.

The present invention relates to improvements in post hole diggers, and has for an object to provide an improved implement of this character which will admit of easy operation, and will be constructed with a view more particularly to its use in marshy soil where mechanical post hole diggers as heretofore constructed could not be used.

Another object of the invention is to provide an improved post hole digger, which is constructed with a view to labor saving, economy and simplicity in construction, and ease in its operation.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a side elevation, with parts broken away and parts in section, of an improved post hole digger constructed in accordance with the present invention.

Figure 2 is an end elevation view of the same.

Figure 3 is a cross-section taken on the line 3—3 of Figure 1.

Figure 4 is a similar view taken on the line 4—4 also in Figure 1, and

Figure 5 is a fragmentary side view of the toggle construction shown in the locked position.

Referring more particularly to the drawings, 6 and 7 represent the two opposed shovels or blades of curved form, and riveted or otherwise secured to the free ends of arms 8 and 9, which are preferably curved and have their opposite ends fitted through slots 10 near the opposite ends of a cross beam 11. Pivot pins 12 are shown as extending through the slotted end portions of the beam 11, and through the upper ends of the arms 8 and 9. The end walls 13 of the slots 10 are closed and constitute stops for the convex outward portions of the curved arms 8 and 9.

A rod 14 is shown as extending slidably through the central portion of the beam 11 between the arms 8 and 9. A portion of the rod 14 below the beam 11 is encircled by a coil spring 15, one end of which takes against the lower side of the beam, while the other end abuts against a flanged collar 16 affixed, as by the cross pin 17, to the rod 14 above its lower end, which terminates above the shovels 6 and 7. The lower end portion of the rod 14 is provided with a cross pin 18 which projects outwardly beyond both sides of the rod, as shown in Figure 4. This pin is of a length to receive at each side of the rod the overlapping ends of a pair of links 19, 20, 21 and 22. The outer ends of the links 19 and 21 straddle the arm 9 at an intermediate point, and are pivotally secured thereto as by the cross pin 23. In a similar manner, the opposite links 20 and 22 extend upon opposite sides of the arm 8 and are secured thereto, as by the pin 24. These links form a toggle connection between the arms 8 and 9 and the rod 14.

The upper end of the rod 14 above the beam 11 is threaded, as indicated at 25, and is adapted to be screwed into the end of a hollow handle 26. A cross bolt 27 is shown as passing through the handle and rod 14. This bolt may be used alone or in combination with the threaded connection. Preferably a nut 28 is also used, being threaded on the rod 25 and abutting against the lower end of the handle 26.

In the use of the device, the shovels 6 and 7 are expanded and contracted and manipulated in the ground in a way that will be understood by those in the art. Upon each pull upon the handle 26, the shovels 6 and 7 will be contracted to confine a mass of earth therebetween, and enable the raising of this earth to the surface; whereupon, without the exercise of labor, the spring 15 will again automatically separate the shovels to release the earth and deposit same. The device can be used with a long or short handle, as the work requires, and provision is made for quickly releasing a long handle and applying a short handle.

The spring 15 will be protected by the relatively wide arms 8 and 9, as shown in Figure 2. The spring is also protected by the wide beam 11 at the top, and by the double sets of toggle arms below; moreover, the double toggle arms tend to keep the rod 14 centered below the beam 11. The rod has, of course, one bearing in the beam 11, and as the work is connected to the lower free end of the rod, the tendency is to cause a wobbling movement in the rod, or to set up lateral strains which would tend to rock the rod 14 in its

bearing through the beam 11. This would tend to destroy the bearing, the beam, and the rod itself. It will be noted from Figure 4, however, that there are four toggle arms which tend to keep the rod 14 in an axial path and to distribute the strains equally; moreover, the ends of the links have a wide area of overlapping engagement, which will further tend to balance and steady the parts.

The thrust of the spring 15 on the collar 16 will also tend to keep the rod in a true rectilinear path. The compressive force of the spring will form a stop against excessive movement of the rod 14 in an upward direction, which would tend to bring the shovels too close together. Movement in the opposite direction is arrested by the engagement of the arms with the closed end walls 13 of the beam. The nut 28 may also act in the capacity of a stop. The toggle and balancing links have the further effect to produce a toggle lock as shown in Figure 5 when the rod 14 is forced downwardly to bring the pivots 18, 23 and 24 into alignment. By so doing, the shovels 6 and 7 may be locked in the outer position, and no force applied to the shovel will be able to move same; but the shovels may be tightly wedged against the walls of the hole to brace the earth, and held in this position until a lifting force is applied to the handle 26, in other words, until the center pin 18 is lifted and the toggle lock broken.

It will be obvious that many changes in the construction, combination and arrangement of parts could be made, which could be used without departing from the spirit of my invention, and I do not mean to limit the invention to such details, except as particularly pointed out in the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. A post hole digger comprising a beam having slotted end portions, shovel-carrying arms pivoted in said slotted portions, a rod extending slidably through the beam between the arms, a handle coupled to the rod, toggle arms pivoted to the rod and to the arms at both sides of the arms, and spring means associated with the rod for forcing the same downwardly to normally spread the shovels.

2. A post hole digger comprising a beam having a central bearing and slotted outer portions with closed end walls, curved shovel-carrying arms pivoted in the slotted portions of the beam and adapted to abut against the closed walls, a rod slidably fitted in the bearing in the beam, a handle coupled to the rod above the beam, a coil spring surrounding the rod below the beam and urging the rod normally downwards, and double pairs of toggle links pivoted to the lower portion of the rod at opposite sides thereof, and also pivoted at opposite sides of the shovel-carrying arms.

3. A post hole digger comprising a beam, shovel-carrying arms pivoted in the beam, a rod slidable through the beam, toggle arms pivoted to the rod and to the arms and being overlapped upon opposite sides of the rod, yieldable means associated with the rod for forcing the same downwardly to spread the shovels, the upper portion of the rod being threaded, a nut run upon the threaded portion of the rod, a hollow handle engaging over the end of the rod and abutting upon said nut, and a cross fastening passing through the hollow handle and rod.

CHARLES THERIOT.