R. H. VESEY.

POST HOLE DIGGER.

APPLICATION FILED MAR. 18, 1908. RENEWED JUNE 21, 1909.

957,128. Patented May 3, 1910.

2 SHEETS—SHEET 1.

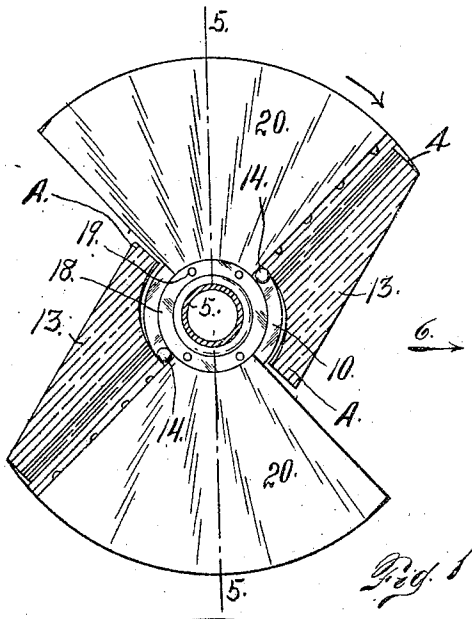

Fig. 1.

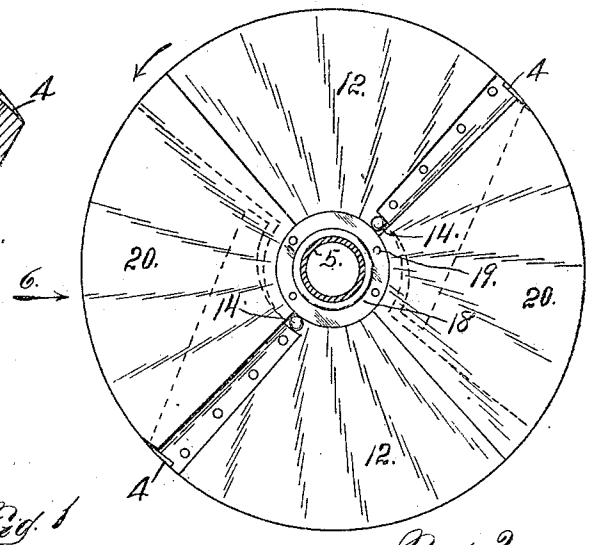

Fig. 2.

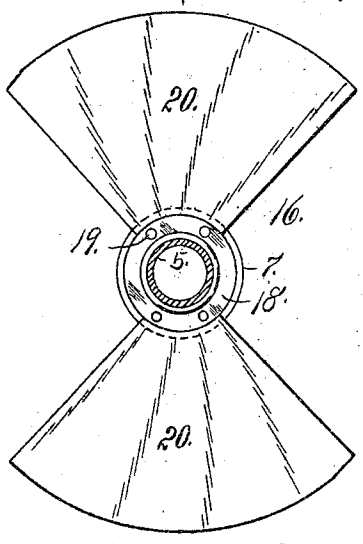

Fig. 3.

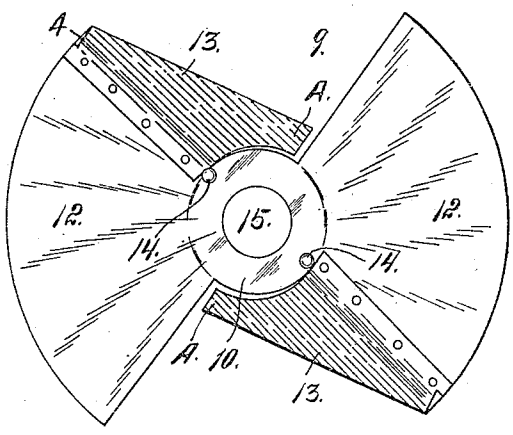

Fig. 4.

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2 SHEETS—SHEET 2.

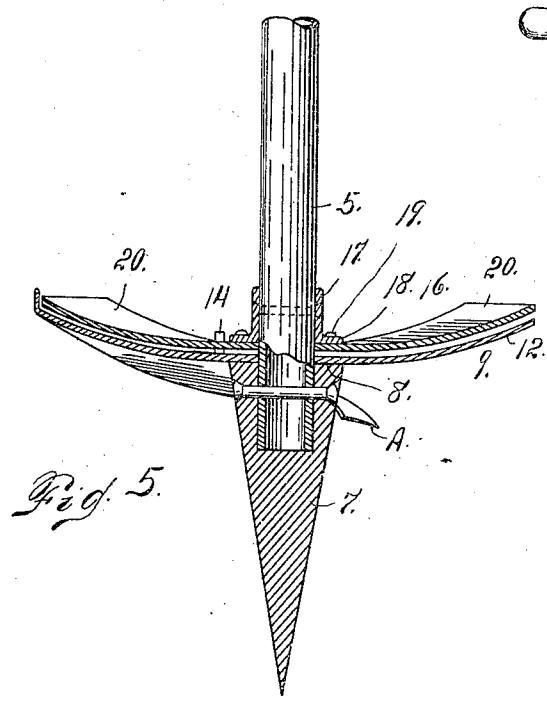

Fig. 5.

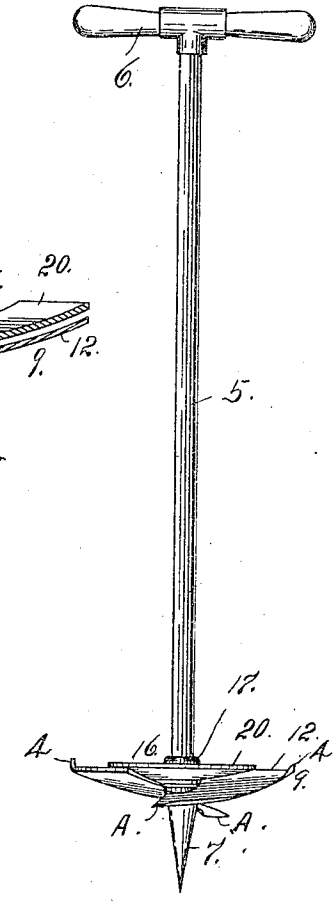

Fig. 7.

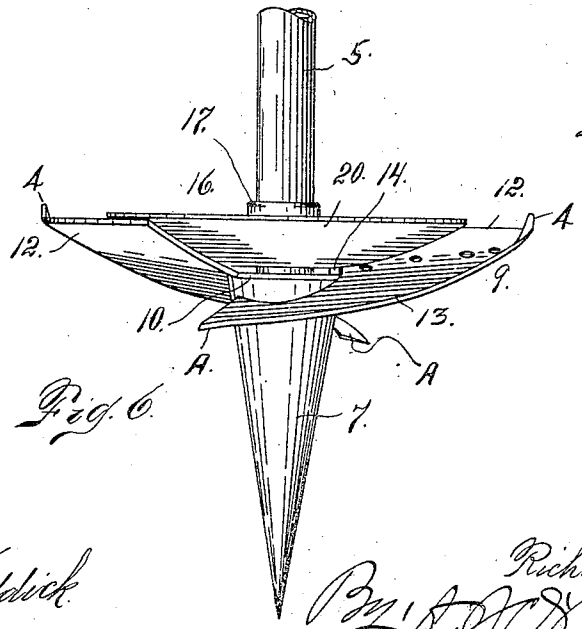

Fig. 6.

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UNITED STATES PATENT OFFICE.

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POST-HOLE DIGGER.

957,128. Specification of Letters Patent. Patented May 3, 1910.

Application filed March 18, 1908, Serial No. 421,955. Renewed June 21, 1909. Serial No. 503,424.

To all whom it may concern:

Be it known that I, RICHARD H. VESEY, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Post-Hole Diggers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in post-hole diggers, my object being to provide a thoroughly practicable construction for digging post holes, the device working somewhat upon the auger principle, having, however, but a single cutter located at the bottom of the rotary handle or shaft. In my improved construction the cutter device is loosely mounted at the lower extremity of the shaft and immediately above a centering point with which the lower extremity of the shaft is connected. Made fast to the shaft a short distance above the cutter device, is an actuating blade which engages stops formed on the cutter device, whereby when the shaft is turned in one direction, the actuating blade rotates the cutter. When, however, it is desired to clean out the dirt from the hole, the shaft is given a quarter turn in the reverse direction, whereby the spaces between the two members of the cutter, are closed thus enabling the user to lift the entire dirt contents out of the hole.

Having briefly outlined my improved construction, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a top plan view of my improved device shown in the cutting or digging position, the hollow shaft being shown in section. In this view the unnumbered arrow indicates the direction of movement for digging purposes. Fig. 2 is a similar view showing an actuating blade after given a quarter turn in the reverse direction or the direction indicated by the unnumbered arrow. When in this position the device is adjusted to remove the dirt from the hole. Fig. 3 is a top plan view showing the actuating blade only in place, the hollow shaft or handle being shown in cross section. Fig. 4 is a top plan view in detail of the cutter. Fig. 5 is a section taken on the line 5—5 Fig. 1. Fig. 6 is an elevation looking in the direction of arrow 6 Fig. 2. Fig. 7 is an elevation showing the complete device on a smaller scale.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a shaft preferably hollow and provided at its upper extremity with a suitable operating handpiece 6. The lower extremity of this shaft is connected with a cone-shaped centering point 7, the upper extremity of the latter being provided with a threaded socket in which the threaded lower extremity of the shaft is inserted. Loosely mounted upon the shaft immediately above the point 7 and resting on a shoulder 8 at the top of the point, is the cutter device 9 which consists of a central collar 10 provided with two outwardly projecting segments 12 which are also deflected upwardly as shown in Fig. 5 and turned abruptly upwardly to form hole shaping projections thereon, as best illustrated in Figs. 6 and 7. To one edge of each of these segments, is attached a downwardly inclined cutter blade 13 so that when the tool is in use for digging purposes and turning in the direction indicated by the arrows in Figs. 1 and 4, the forward edge of each segment 12 is provided with a blade 13 which as before stated is downwardly inclined from its member 12 and so positioned as to have a tendency to move downwardly into the earth as it is rotated with the hollow shaft. This cutter is provided with two upwardly projecting pins 14 forming stops, the same being located on opposite sides of the center of the cutter which has an opening 15 to allow the cutter to slip over the shaft 5 and rest upon the shoulder of the cone-shaped point 7.

Mounted slightly above the cutter, is an actuating device 16 which is secured to the hollow shaft 5. As shown in the drawing (see Fig. 5) the lower portion of the shaft is provided with a sort of ferrule 17 having an outwardly turned flange 18 which is fastened to the central part of the member 16 by rivets 19. This actuating device has two segmental members 20 extending outwardly from its central portion surrounding the shaft. The members 20 also extend

slightly upwardly from the shaft as they extend outwardly, in order to harmonize with the position of the segments 12 of the cutter.

When the device is in use for digging purposes, the relative position of the members 9 and 16 is as shown in Fig. 1, that is to say with the forward edge of each segment 20, in contact with one of the stops 14 of the cutter 9. Then as the shaft 5 is turned in the cutting direction or that indicated by the unnumbered arrow in Fig. 1, the cutter 9 is carried along with the hollow shaft whereby the blades 13 are forced downwardly into the earth. This operation is continued, until the cutter has descended a suitable depth or loosened a sufficient amount of earth to require the removal of the latter. As soon as this is necessary, the actuating device 16 is given a quarter turn in the reverse direction or that indicated by the arrow in Fig. 2, thus closing the openings between the members 12 of the cutter. The operator then pulls upwardly upon the shaft thus removing the latter and its attachments and carrying the loose dirt out of the hole. The device is again inserted and the operation continued as often as may be necessary during the digging of the hole.

When the shaft and the actuating device 16 are given a quarter turn in the reverse direction as above explained, the members 20 of the said device are again brought in contact with the stops 14 of the cutter device which limit the movement of the actuating device in the rear as well as in the forward direction, whereby the segments 20 of the actuating device when reversed as aforesaid are maintained in the proper position to fill the spaces between the segments 12 of the cutter device.

It will be understood that it is important during the digging operation, for the spaces between the members 12 of the cutter device to be open or unobstructed above, in order that the dirt loosened by the cutter blades, may pass upwardly above the cutter and actuating devices. When, however, it is desired to remove the dirt from the hole, and the shaft is moved in the reverse direction as heretofore described, the cutter remains stationary since the inclined cutter blades are embedded in the earth and any tendency of the cutter device to move in the reverse direction with the actuating device, is overcome by the incline of the cutter blades which would make it necessary that the said blades lift the entire quantity of dirt above the cutter in order to have the latter move in the reverse direction. Hence the cutter device remains stationary since the friction between the operating shaft and the said device is comparatively small and consequently more than overcome by the resistance offered by the incline of the cutter blades, to the reverse movement of the cutter device.

The inner extremity A of each cutter blade 13, is lowermost, the blade being inclined both downwardly from the segment 12 and also downwardly from the outer edge of the blade, whereby the point A of each blade is the first to enter the dirt, thus making the downward movement of the digger into the earth automatic assuming that the shaft 5 is rotated. As shown in the drawing these points A are located relatively near the longitudinal center or axis of the shaft and hence the movement of the cutter blade into the earth may be said to be from its inner extremity outwardly on account of the downward incline from the outer edge of the blade.

Having thus described my invention, what I claim is:

1. A post-hole digger, comprising a shaft provided at its lower extremity with a centering point, a cutter loosely mounted on the shaft, an actuating closure fast on the shaft, adjacent the cutter, the cutter and closure being dish-shaped, their outer free edges being highest, while the said members slope gradually downwardly the entire distance from their free outer edges to the shaft, and an interlocking connection between the cutter and the actuating device, whereby as the shaft is turned, the cutter is actuated, the cutter being equipped with a blade bent downwardly from its body portion, substantially as described.

2. A post-hole digger, comprising a shaft, a cutter, loosely mounted on the lower part of the shaft and composed of two separated segments, whose outer free edges are highest, the said segments sloping gradually downwardly the entire distance from their free outer edges to the shaft, each segment having a blade downwardly inclined from one of its extremities, and an actuating device fast on the shaft above the cutter, the said device being also composed of two separated segmental members, of such area as to approximately close the spaces between the two members of the cutters, when the shaft is properly adjusted, the said actuating device sloping downwardly from its free outer edge which is highest toward the shaft, and means for interlocking the actuating device, and the cutter, whereby as the shaft and the said device are rotated, the cutter is carried therewith, substantially as described.

3. A post-hole digger, comprising a shaft, a cutter device, mounted on the lower extremity of the shaft and composed of two segmental members, both members sloping gradually downwardly the entire distance from their free outer edges to the shaft, each member having a downwardly inclined blade for cutting purposes, a second device

mounted on the shaft and also composed of two segmental members, one of the said devices being fast on the shaft and the other device loose thereon, the second device also sloping gradually downwardly from its free outer edge, which is highest, corresponding with the incline of the segmental cutting members, and an interlocking connection between the two devices, whereby the turning of the shaft actuates the cutter, substantially as described.

4. A post-hole digger, comprising a shaft, a cutter loosely mounted on the lower portion of the shaft and composed of two separated segments, an actuating device fast on the shaft above the cutter, the latter being provided with two upwardly projecting stops located on opposite sides of the axis, of the shaft, the said stops being located in the path of the actuating device, when the shaft is rotated in either direction, whereby as the shaft is rotated for digging purposes, the cutter is carried along with the shaft and the actuating device, the latter being allowed a limited movement in a direction the reverse of the movement for cutting purposes, whereby the segments of the actuating device may be brought into register with the spaces between the segments of the cutter, the cutter and actuating device being highest at their outer free edges, from which they slope gradually downwardly the entire distance to the shaft, substantially as described.

5. A post-hole digger, comprising a shaft and cutter mounted on the shaft and composed of a body portion, whose outer free edge is highest, from which the cutter slopes gradually downwardly the entire distance to the shaft, and a cutter blade with which the body portion is provided, the said blade being downwardly inclined from the body portion of the cutter, and also from the outer edge of the blade.

6. A post-hole digger, comprising a shaft and a cutter mounted thereon, the latter being composed of a body portion, having its outer free edge highest, from which the cutter slopes gradually downwardly the entire distance to the shaft, and a cutter blade with which the body portion is provided, the blade being downwardly inclined from the body portion, and having a comparatively narrow inner extremity forming the lowest part of the blade, or that which is adapted to first enter the earth at the beginning of the digging operation, the said blade being also downwardly inclined from its outer edge toward the said inner extremity, substantially as described.

7. A post-hole digger comprising a shaft provided at its lower extremity with a centering point having a shoulder, a cutter loosely mounted on the shaft and supported by the said shoulder, the said cutter being provided on its outer edge with upwardly turned hole-shaping projections, and an actuating device fast on the shaft above the cutter for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD H. VESEY.

Witnesses:

DENA NELSON,

A. J. O'BRIEN.