No. 743,445. PATENTED NOV. 10, 1903.

H. S. BUTLER.

POST HOLE AUGER.

APPLICATION FILED JAN. 13, 1903.

NO MODEL.

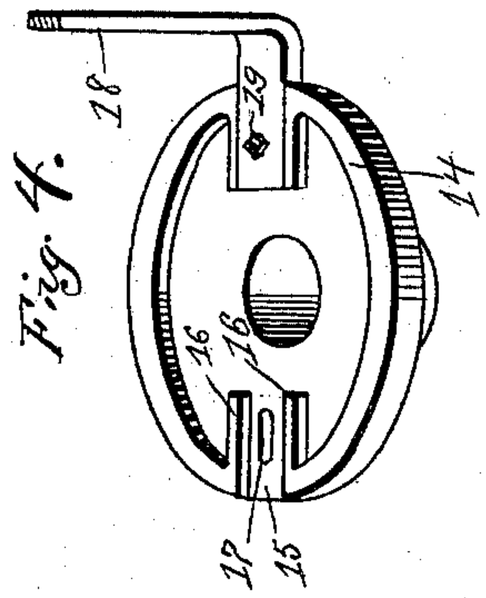

Fig. 4.

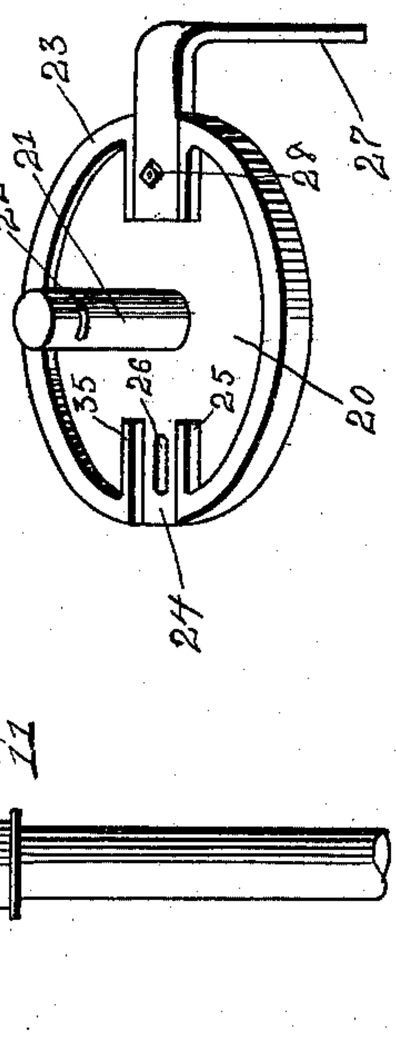

Fig. 3.

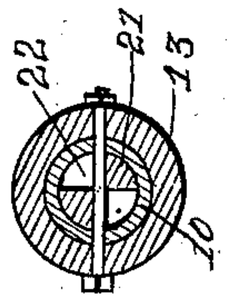

Fig. 6.

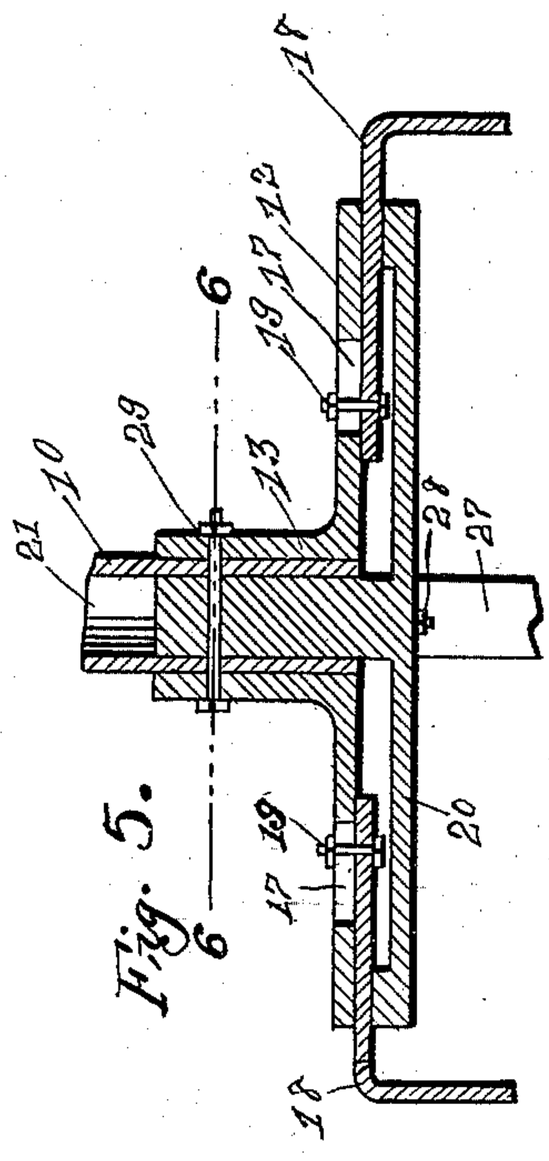

Fig. 5.

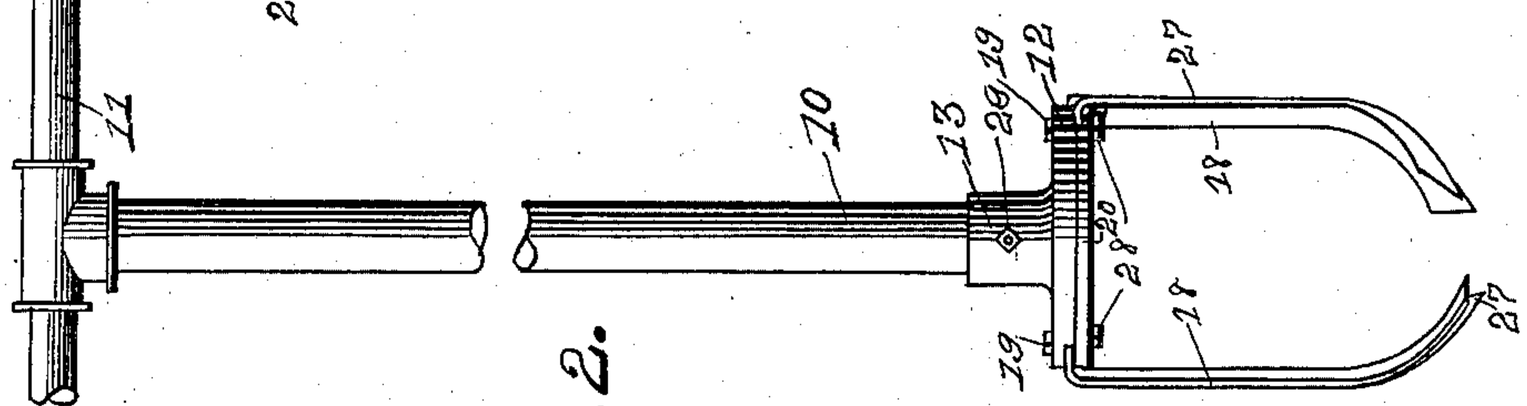

Fig. 2.

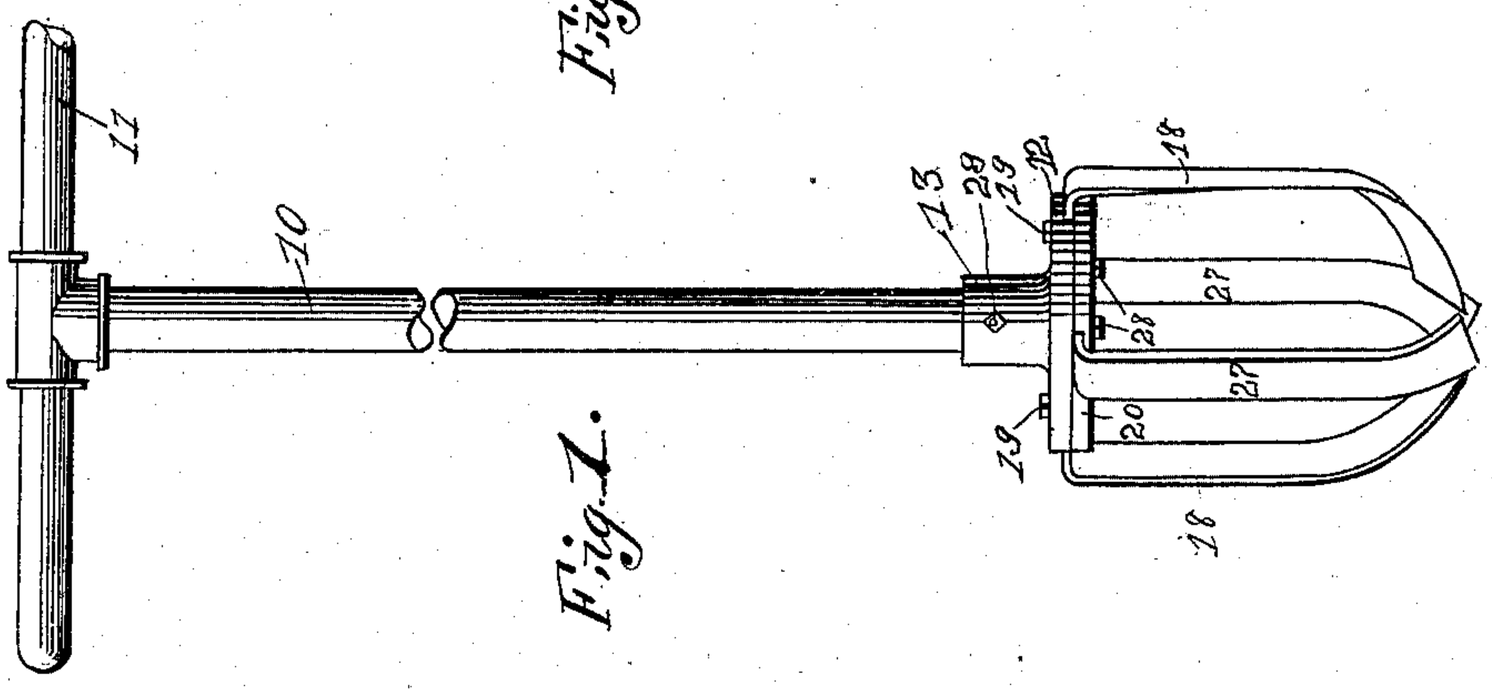

Fig. 1.

Witnesses:-
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Inventor. H. S. Butler.
by Owig Lane
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No. 743,445. Patented November 10,1903.

UNITED STATES PATENT OFFICE.

HENRY S. BUTLER, OF DES MOINES, IOWA.

POST-HOLE AUGER.

SPECIFICATION forming part of Letters Patent No. 743,445, dated November 10, 1903.

Application filed January 13, 1903. Serial No. 138,944. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. BUTLER, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Post-Hole Augers, of which the following is a specification.

This invention relates to that class of post-hole augers having a number of flat blades inclined downwardly, said blades being curved inwardly and bent torsionally at their lower ends, and when the lower ends are placed in a post-hole and the blades are rotated they will cut into the earth and the space between the blades will be filled with the earth, which will be retained between the blades when the auger is elevated out of the hole.

My object is to provide an auger of this class of simple, durable, and inexpensive construction in which one or more of the blades may be moved laterally to stand in position adjacent to its neighboring blade, to the end that a large opening is formed through which the earth contained between the blades may readily drop out. In augers of this class it is necessary to attach a long handle to the blade, and obviously an operator grasping the handle would experience considerable difficulty, and delay would be occasioned if he were required to touch the blades in order to dump the contents thereof, and in this connection it is my object more specifically to provide a device of this class in which the movable blade or blades may be rotated relative to the stationary ones as required to dump the contents without the necessity of the operator touching any of the blades or releasing his hold upon the handle. In other words, the device may be drawn from the post-hole full of earth and placed on top of the ground-surface, and then by turning the handle the movable blade or blades may be placed in position adjacent to the stationary one and the earth contained between the blades will drop out. Hence the operator need not soil his fingers by touching the blades.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of the complete device ready for use. Fig. 2 shows a similar view with the movable blades in position adjacent to the stationary ones. Fig. 3 shows a detail perspective view of the lower disk to which the movable blades are attached, showing a portion of one of the blades in position. Fig. 4 shows a detail perspective view, in an inverted position, of the upper plate, to which the stationary blades are attached, showing a portion of one of the blades in position. Fig. 5 shows an enlarged detail vertical sectional view of a portion of the handle with the fixed and movable plates connected therewith and portions of the blades connected with the plates, and Fig. 6 shows a horizontal sectional view through the indicated line 6 6 of Fig. 5.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the handle portion, which is preferably made of a straight piece of gas-pipe having at its top a cross-head 11.

The upper plate is indicated by the reference-numeral 12 and is provided on its upper face with a socket 13 and on its lower face with a downwardly-projecting rim 14. This rim is provided at diametrically opposite points with notches 15, and the lugs 16 are formed on the under face at the edges of the said notches, and radial slots 17 are formed in the plate between the lugs 16. Two blades 18 are connected with the upper plate 12 by being inserted between the notches 15 and between the lugs 16, and they are held in place and made adjustable by the bolts 19, passing through the blades and through the slots 17. The blades 18 project horizontally outward a slight distance beyond the edge of plate 12 and then straight downwardly, and their inner ends are curved inwardly and bent torsionally in the ordinary way.

The lower plate 20 is provided at its central portion with an upwardly-projecting journal 21, having a horizontal slot 22 near its upper end for purposes hereinafter made clear. On the upper surface of the plate 20, near its periphery, is a rim 23, having on diametrically opposite sides the notches 24 and lugs

25, and between each pair of the lugs is a radial slot 26. Two blades 27 are passed through the notches 24 and secured to the plate by bolts 28, so that the blades may be adjusted radially relative to the blade. These blades 27 are similar to the blades 18, before described. The rims 14 and 23 are preferably of the same diameter, so that when the plates are placed together dust and earth cannot enter between the plates.

I have provided for connecting the plates and the handle by placing a bolt 29 through an opening in the socket 13, through an opening in pipe 10, and through the slot 22 in journal 21. By this means I rigidly connect the upper plate to the handle and permit the lower plate to rotate to a limited extent relative to the upper plate and to the handle. Obviously the upper and lower plates may each be cast complete in one piece ready for use, and by providing a structure of these plates permitting them to be connected by a single bolt it is obvious that the cost of manufacture is reduced to a minimum.

In practical use the parts are assembled as follows: First, the blades are attached to their respective plates by means of the bolts, and the blades may obviously be set to any desirable distance from the center, thus providing for forming post-holes of different diameters. Then the upper plate and the handle are connected, and finally the journal of the lower plate is inserted in the handle and the bolt 24 is passed through the socket, handle, and journal, thereby firmly connecting the handle and socket and also holding the lower plate against the upper plate, but permitting a limited rotary movement of the lower plate relative to the upper plate and the handle. The slot 22 is so shaped and arranged that when the auger is placed in a post-hole and the handle turned as required for digging the blades on the lower or movable plate will be stopped by the bolt 24 in the slot 22 when the blades are at points midway between the blades of the upper or stationary plate. A continued rotation of the handle will cause the space between the blades to be filled with earth. Then the operator draws the auger from the post-hole and places it upon the ground-surface at the side of the post-hole. He then turns the handle in a direction opposite from that required for boring, and the blades fixed to the movable plate resting upon the ground-surface cannot turn, so that the blades fixed to the stationary plate—that is, to the plate attached to the handle—will move relative to the loose blades resting on the ground, thus bringing the blades close together, but providing wide openings between the blades, through which the contained earth may pass. Then when the auger is again placed in the post-hole and turned in the direction required for boring the blades on the lower plate will be held stationary in the post-hole until when the handle is turned the blades on the upper plate will turn to position at right angles to the other blade before boring commences, and they will stand in this position throughout the entire operation or until the space between the blades is filled.

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

1. In a post-hole auger, the combination of a number of stationary blades and a blade movable laterally toward one of the stationary ones.

2. In a post-hole auger, a number of stationary blades spaced apart, a blade movable from a position adjacent to one of the stationary blades to a position spaced apart equally from the adjacent stationary blades.

3. The combination of a number of blades coacting to form an auger, one of said blades movable laterally toward its adjacent blade to form an opening through which the contents of the auger may discharge.

4. In a post-hole auger, the combination of a handle, a number of blades fixed to the handle, and a blade rotatable relative to the handle.

5. In a post-hole auger, the combination of a handle, a number of stationary blades fixed to the plate, and a blade rotatable relative to the fixed blades.

6. In a post-hole auger, the combination of a handle, a plate fixed to the handle, blades fixed to said plate, a second plate rotatably mounted on the handle, and a blade fixed to the rotatable plate.

7. In a post-hole auger, the combination of a handle, a plate fixed to the handle, blades fixed to the plate at points diametrically opposite, a second plate rotatably mounted on the handle, and blades fixed to the second plate at diametrically opposite points.

8. In a post-hole auger, the combination of a handle, a plate fixed to the handle, blades fixed to the plate at points diametrically opposite, a second plate rotatably mounted on the handle, blades fixed to the second plate at diametrically opposite points, and means for limiting the movement of the plates relative to each other.

9. In a post-hole auger, the combination of a handle, an upper plate fixed to the handle, blades secured to the under surface of the upper plate, a lower plate having a journal thereon passed upwardly through the handle and through the upper plate, blades fixed to the top surface of the lower plate, and means for connecting the handle and the plates and for permitting the lower plate to rotate to a limited extent relative to the upper plate.

10. In a post-hole auger, the combination of a handle, a plate fixed to the handle, blades radially adjustable at opposite sides of the plate, a second plate rotatably mounted on the handle, and blades radially adjustable on the second plate at opposite sides thereof.

11. In a post-hole auger, of a hollow han-

dle, an upper plate having a socket at its top to receive the hollow handle, a downwardly-projecting rim on the under surface of the plate having notches therein, blades in said notches radially adjustable, a second plate having a journal on its top to enter the hollow handle and also having a slot near its upper end, an upwardly-projecting rim on the plate to engage the rim of the upper plate, said rim having notches at opposite sides, blades radially adjustable on the lower plate inserted in said notches, and a bolt passed through the hollow handle, and a socket firmly connecting them and passed through the slot of the journal to permit a limited rotary movement of the lower plate relative to the upper plate.

12. In a post-hole auger, the combination of a handle, a blade fixed to the handle, and a blade rotatable on the handle, said blades when in position opposite each other coacting to form an auger.

13. In a post-hole auger, the combination of a handle, a plate fixed to the handle, a blade radially adjustable on the plate, and a blade rotatably mounted on the handle, and means for limiting the movement of the second blade, said blades when opposite each other coacting to form an auger.

14. In a post-hole auger, the combination of a handle, a blade fixed to the handle, a blade rotatable on the handle, said blades when in position opposite each other coacting to form an auger, and means for limiting the movement of the blades relative to each other.

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Witnesses:
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