(No Model.)

H. BURDICK.

AUGER.

No. 390,749. Patented Oct. 9, 1888.

Fig. 1.

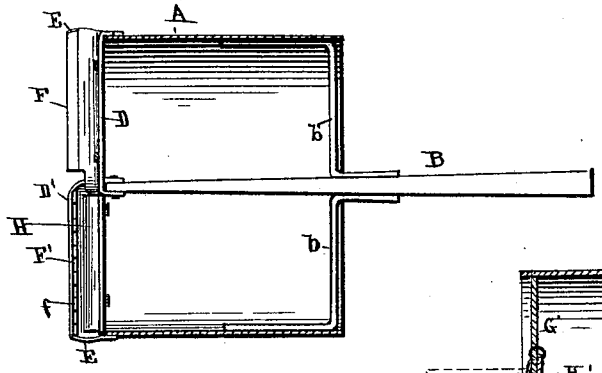


Fig. 6.

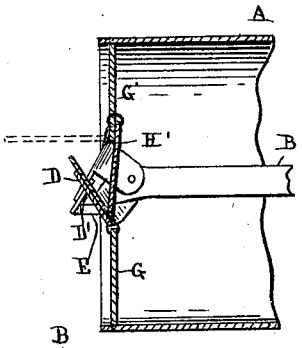


Fig. 2.

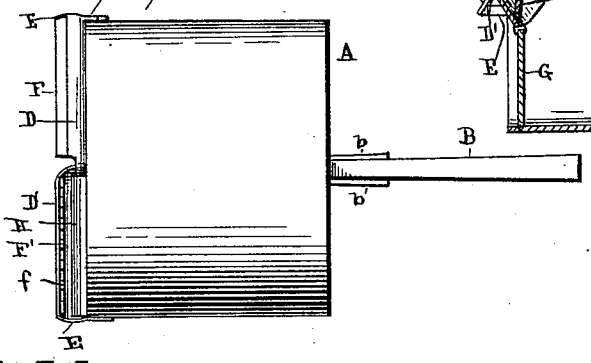


Fig. 3.

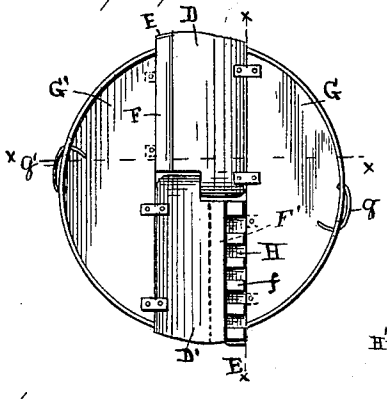


Fig. 4.

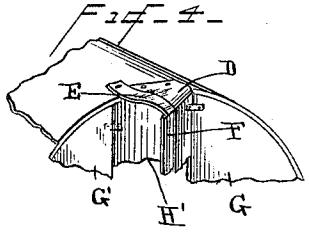
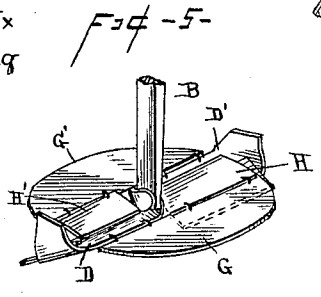


Fig. 5.



WITNESSES.
Louis A. Clark
Van Buren Hillyard.

INVENTOR.
Harlow Burdick.
By R.S. & A.P. Lacey
attys

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

HARLOW BURDICK, OF MAPLE RAPIDS, MICHIGAN.

AUGER.

SPECIFICATION forming part of Letters Patent No. 390,749, dated October 9, 1888.

Application filed April 30, 1888. Serial No. 272,287. (No model.)

To all whom it may concern:

Be it known that I, HARLOW BURDICK, a citizen of the United States, residing at Maple Rapids, in the county of Clinton and State of Michigan, have invented certain new and useful Improvements in Augers; 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.

This invention relates to earth-augers, and has for its object the production of an auger that can be used for boring in gravelly and sandy soil, as well as in clayey ground, and which will prevent the escape of sand from the auger-case when the latter is withdrawn from the bore loaded.

The improvement consists, chiefly, in having the cutting-blades provided with valves and in having supplemental valves hinged to the said valves, the two sets of valves closing the entire bottom of the auger-case.

The improvement further consists in the peculiar construction and combination of parts, which hereinafter will be more fully described and claimed, and shown in the annexed drawings, in which—

Figure 1 is a vertical central sectional view of an auger embodying my invention; Fig. 2, a front view of the auger; Fig. 3, a bottom view of the auger; Fig. 4, a perspective view showing the side cutter; Fig. 5, a perspective view of the auger, the case being removed; and Fig. 6, a cross-section on the line X X of Fig. 3, showing the operation of the valves by dotted lines.

The case A, for holding the earth that is removed from the hole, is provided with the rod B and the side braces, *b*. The bars D and D′, having their inner ends attached to the rod B and their outer ends to the sides of the case, incline upwardly from their lower edges, which edges are below the plane of the lower edge of the case, the upper edges of the bars being about in the plane of the lower edge of the case. The outer ends of the bars, which are bent substantially at right angles, flare outwardly beyond the sides of the case and reenforce the side cutting-blades, E, that enlarge the bore made by the auger. The upper ends of the blades E are fastened to the case and their lower ends curve outwardly.

The cutting-blades F and F′ are secured to the lower edges of the bars D and D′. The lower edge of the blade F is straight. The lower edge of the blade F′ is serrated, to provide a series of cutting points or teeth, *f*.

The blades or cutters F and F′ extend in diametrically-opposite directions from the rod B, each being but one-half the length of the diameter of the case and their combined length being about equal to the diameter of the case. One blade is supplemental in its action relative to the other. The blade F′ with its serrated edge loosens the earth, and the blade F with its straight edge scoops up the loose earth and removes the earth left untouched by reason of the spaces between the teeth *f*.

The valve G is hinged to the upper edge of the bar D, and is held closed by the catch *g*, and the valve H, hinged to the valve G, is supported at its free edge on the bar D′. A corresponding valve, G′, is hinged to the bar D′, and is provided with the valve H′, which is hinged thereto at one edge and is supported at its other edge on the bar D. The catch *g*′ supports the valve G′.

The cutting-blades F and F′ remove the earth, which rides over the bars D and D′ into the case, the valves H and H′ opening upwardly to permit the earth to enter the case freely. When the case is full and the auger is withdrawn, the valves H and H′ close automatically and prevent the escape of any earth. The earth is discharged from the auger when the latter is withdrawn by operating the catches *g* and *g*′, which release the valves G and G′ and permit them to open outward to discharge the earth.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an earth-auger, the combination of the case, the bars D and D′, having cutters at their lower edges, the valves G and G′, hinged, respectively, to the bars D and D′ at one end, and the valves H and H′, hinged to the free ends of the valves G and G′ at one edge and

having their other edge supported on the bars D′ and D, substantially as shown and described.

2. In an earth-auger, the combination, with the case and the two bars, of the two main valves, each valve hinged at one end to one of the said bars, and the two supplemental valves hinged at one edge to the other or free end of the said main valves and supported at their other edges on the bar opposite the free end of the said main valves, substantially as described.

3. The herein-described auger, composed of the case, the rod, the side braces, *b*, the bars D and D′, having their inner ends secured to the rod and having their outer ends bulged and secured to the case, the side cutting-blades, the cutting-blades F and F′, the valves G and G′, the catches for supporting the valves G and G′, and the valves H and H′, substantially as and for the purpose described.

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

HARLOW BURDICK.

Witnesses:
JOHN BENNETT,
CLIFTON J. BENNETT.