(No Model.)

H. M. FLANDERS.

POST HOLE AUGER.

No. 484,519. Patented Oct. 18, 1892.

Fig 1.

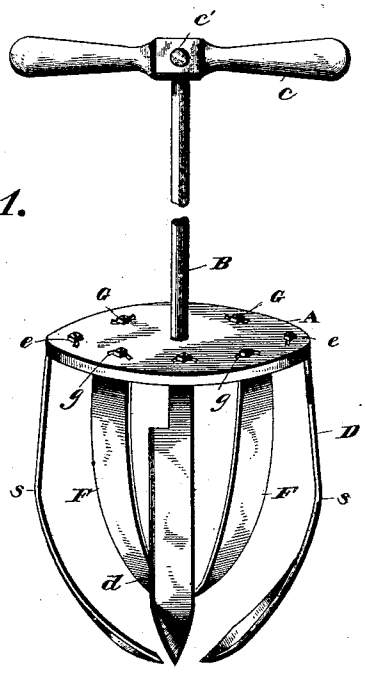


Fig 2.

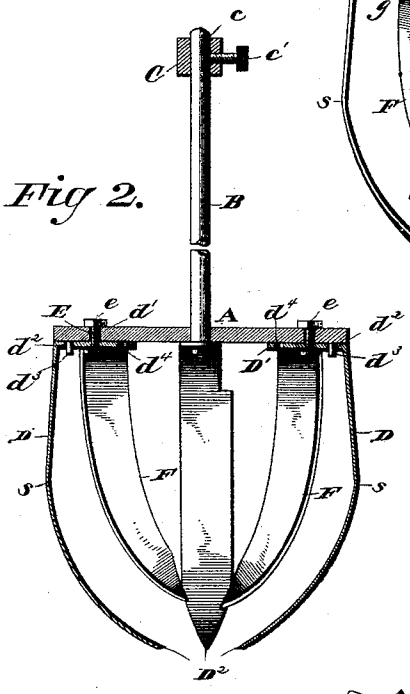


Fig 3.

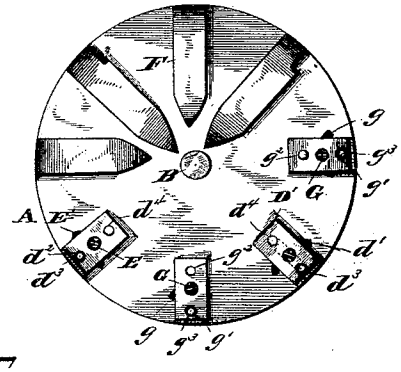


Fig 5.

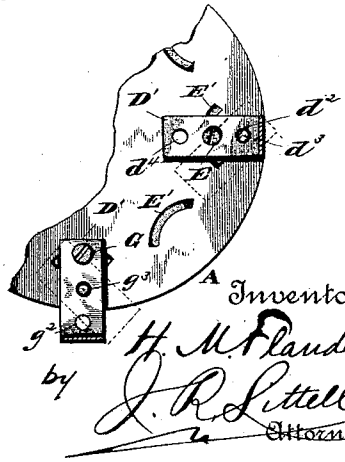
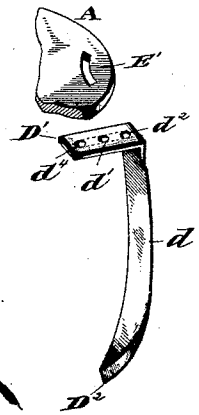


Fig 4.



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UNITED STATES PATENT OFFICE.

HENRY M. FLANDERS, OF ASHLAND, NEBRASKA.

POST-HOLE AUGER.

SPECIFICATION forming part of Letters Patent No. 484,519, dated October 18, 1892.

Application filed September 28, 1891. Serial No. 407,053. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. FLANDERS, a citizen of the United States, residing at Ashland, in the county of Saunders and State of Nebraska, have invented a new and useful Post-Hole Auger, of which the following is a specification.

This invention relates to post-hole augers; and it has for its object to provide a simple and improved device of this character wherein the parts are designed to be adjusted or removed to adapt it for boring in soil of varying conditions or degrees of hardness.

A further object of the invention is to provide a simple and improved auger of this class in which the parts are also adjustable to adapt it for boring holes of different sizes and which will, furthermore, possess advantages in point of durability and inexpensiveness in construction, ease and rapidity of operation, and general efficiency.

In the drawings, Figure 1 is a perspective view of a post-hole auger embodying my invention. Fig. 2 is a vertical longitudinal sectional view taken centrally through two oppositely-located cutters or knives. Fig. 3 is a bottom or inverted plan view, parts being broken away to show the construction. Fig. 4 is a detail perspective view of a section of the head and one of the cutters or knives, the latter being detached. Fig. 5 is a detail bottom or inverted plan view illustrating the adjustment of the cutters or knives.

Corresponding parts in the specification are denoted by the same letters of reference.

Referring to the drawings, A designates a circular head, preferably constructed of cast metal, and to the center of which at its upper side is secured a standard or upright B. An operating-handle C is provided centrally with a transverse bore *c*, designed to receive the standard or upright, upon which the handle is adjustable, the latter being also provided with a set-screw *c'*, whereby it is rigidly secured in adjusted position to the standard or upright.

D designates the cutters or knives, (preferably four in number,) which are adjustably secured to the under side of the head A and at equidistant points thereon. The cutters or knives are each provided longitudinally at one side with an extended cutting-edge *d* and at their upper ends with an inturned arm D'. The latter are provided at or near their center with an aperture *d'*, through which a securing-bolt E is passed. The bolts E engage segmentally-curved slots E', provided in the head A reversely to the periphery thereof and are held in place by a nut *e*, screwed upon the upper end of each thereof. The arms D' of the cutters or knives are each also provided near its outer end with an aperture d^2, which receives a stud or pin d^3, cast or otherwise provided near the periphery of the head A, and upon which the cutters or knives are adapted to turn during adjustment. To permit of adjustment of the cutters or knives outwardly for the purpose of boring a larger hole, the arms D' are further each provided with a similar aperture d^4 near its inner end; or in lieu of the apertures an elongated slot may be employed, as shown in dotted lines, Fig. 4.

In construction the cutters or knives are curved from their secured ends slightly outward to about their center, as shown at *s*, and from the latter point are thence curved inwardly, terminating in pointed lower ends D^2. By thus having the greatest width of the boring parts at or near the center the auger is adapted to be more readily removed when the operation of boring is completed. The ends D^2 are also curved obliquely at the cutting-edge for the purpose of imparting a spiral movement to the cutters and rendering them self-feeding.

Between the cutters or knives are provided inwardly-curved blades or plates F, which serve as holders for the earth and by which the latter is adapted to be removed. In construction the blades or plates are substantially the same as the cutters or knives, but of shorter length, and inclose a space of less diameter than that between the latter. The blades or plates are also secured by bolts G, disposed in segmentally-curved slots *g* in the head, and are provided with apertures *g' g²*, corresponding, respectively, to the apertures d^2 and d^4 in the cutters. Coincident pins or studs g^3 are likewise provided for the blades or plates upon the head A.

The operation and advantages of my in-

vention will be readily understood by thos skilled in the art to which it appertains. In practice when the earth is hard and dry the bolts E are loosened and the cutters adjusted with their cutting-edges inward. In case the earth be soft or in working in sand a reverse adjustment of the cutters is desirable; also, when the earth is damp two oppositely-located cutters can be removed to enable the auger to work more easily. Under the latter circumstances it is also desirable to remove two of the blades or plates F. When the earth is moist, all of the latter may be removed and either two or four of the cutters employed. In the latter event two of the cutters may be adjusted with their cutting-edges thrown outwardly and the other two inwardly, the cutting being accomplished by the outturned cutters. To adjust the knives for boring a larger hole, their securing-bolts are removed from the center aperture d', the latter being placed in engagement with the studs or pins d^3. The bolts are then passed through the rear apertures d^4 and the knives secured. In some instances I may prefer to use the slots shown in Fig. 4 in lieu of the separate apertures. In this case to adjust the knives outwardly it is only necessary to loosen the bolts, when the knives can be moved outwardly and secured without removing the bolts. It will thus be obvious that my improved auger is readily adapted to all conditions and nature of the soil, the operation and utility of the device being thereby greatly enhanced.

I claim as my invention—

1. In a post-hole auger, the combination, with the head provided upon its under side near its periphery with studs or pins and with segmentally-curved slots in rear thereof arranged reversely to the periphery of the head, of the cutters or knives provided with inturned arms pivotally mounted on said studs or pins and a binding-bolt passing through each of said arms and working in said slots, substantially as set forth.

2. In a post-hole auger, the combination, with the head carrying a standard and provided with studs or pins and with segmentally-curved slots in rear of said studs or pins, said slots being arranged reversely to the periphery of the head, of cutters or knives provided with inturned arms pivotally mounted on each alternate stud or pin and provided with a removable binding-bolt working in the relative slots, blades or plates correspondingly mounted intermediate said cutters or knives and inclosed by the same, and a handle mounted on the standard, substantially as and for the purpose set forth.

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

HENRY M. FLANDERS.

Witnesses:

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