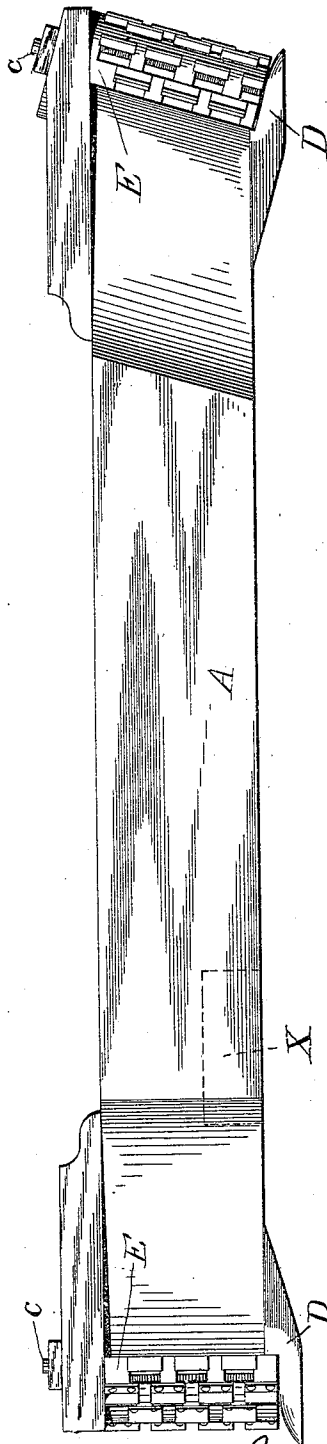


951,360.

N. B. BROWARD.
DREDGING MACHINE.
APPLICATION FILED FEB. 9, 1909.

Patented Mar. 8, 1910.
2 SHEETS—SHEET 1.

Fig. 1.



ATTEST
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2 SHEETS—SHEET 2.

Fig. 2.

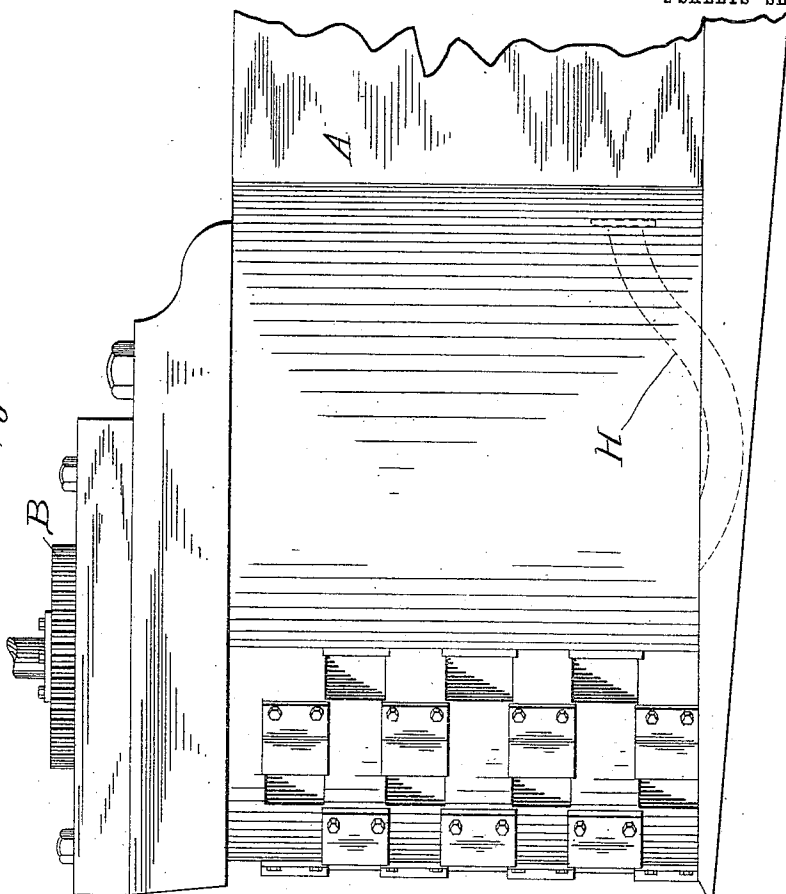
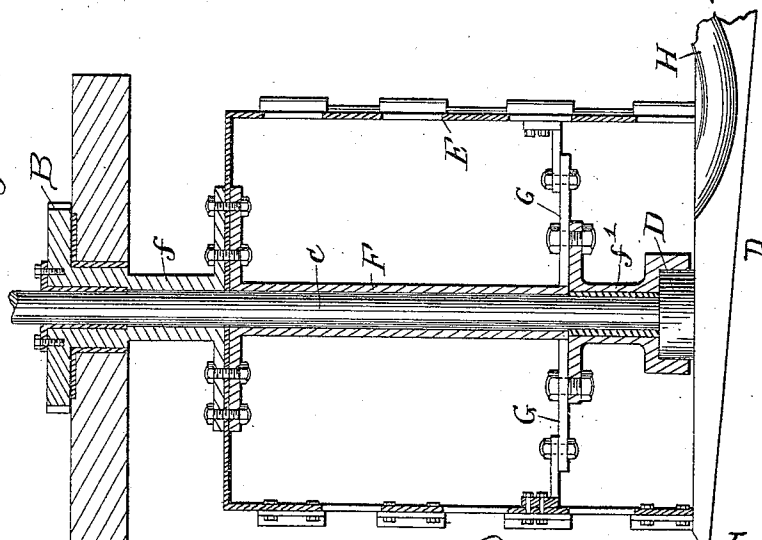


Fig. 3.



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UNITED STATES PATENT OFFICE.

NAPOLEON B. BROWARD, OF JACKSONVILLE, FLORIDA.

DREDGING-MACHINE.

951,360.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed February 9, 1909. Serial No. 476,929.

To all whom it may concern:

Be it known that I, NAPOLEON B. BROWARD, citizen of the United States, residing at Jacksonville, Florida, have invented certain new and useful Improvements in Dredging-Machines, of which the following is a specification.

My said invention is specifically designed for digging channels or canals, for drainage mainly, in soft or marshy lands, level or approximately level. It is of that class in which a rotary cutter is used to disintegrate the soil, and a suction pipe is combined therewith, for the purpose of drawing off and discharging the disintegrated soil.

What especially distinguishes my invention in the art is the simplification and consequent economy in construction and operation, arising from the mounting of the rotary disintegrator in fixed bearings directly upon the dredge boat, and forming the cuts in the soil, by the action of the rotary cutter and swinging of the dredge end of the boat, from side to side. Further, in connection with this organization, an important feature lies in the means for sinking the bow of the boat, in order to increase the depth of the cut, below the normal depth or draft of the boat.

My said invention is illustrated in the accompanying drawings in which,

Figure 1 represents, in conventional view, the side elevation of a dredge or scow provided with my invention, one end showing the cutter in vertical plane and the other end the cutter inclined. Fig. 2 is an enlarged detail view of one end of the dredge or scow showing the cutter more in detail. Fig. 3 is a sectional view of the cutter and its support.

In these drawings—A represents the hull of the scow or dredge boat, which may be of any suitable form or dimensions. On the forward end (or upon both ends) is mounted a rotary cutting and receiving head, shown (but not necessarily) in cylindrical form. It is mounted on an axial shaft in bearings, and is turned by suitable mechanism, indicated by the cog wheel B, and any suitable gearing and source of power. The particular form shown for illustration, consists of a central cylindrical post C, fixed at its lower end in a shoe D.

The cutting cylinder E consists of a drum

or shell, of boiler iron, for example, closed at its upper end. This shell is mounted on a sleeve F, *f*, *f'* surrounding the post. The main part F, has a flange on its upper end bolted to the head of the shell. The lower end extends to the lower section *f'*. This is flanged at both ends, the upper being connected to radial arms G, which at their outer ends are attached to the shell and brace and hold it. These may be duplicated at any point required for strength. The lower end of section *f'* embraces a boss on the shoe, and the upper end of the section *f* is connected with the driving cog wheel B, and the flange of its lower end is bolted to the head. Suitable brass or equivalent bearings are interposed, interior or exterior, where frictional bearings occur. The lower end of the shell E, makes as close a connection as is practicable, with the upper surface of the shoe, on which it turns. The periphery of the shell is formed with rows of holes, set staggered, and each hole is provided with a cutter, somewhat in the form of a hood, each set on the rear edge of the hole (considered in the direction of its movement of rotation) and directly facing the space between two cutters in the next longitudinal line in front of it, the holes and cutters being so arranged as to cover all the space of the opposing wall of mud or earth on which the machine is working. The arrangement is such that the material cut away from this wall, by the hooded knives, is directed through the holes, into the interior of the shell, from which, with the commingled water, it is exhausted. The immediate means for this exhaustion are indicated by the suction pipe H, which opens to the interior of the shell at the bottom, and is connected at the other end by any suitable exhausting pumping apparatus, and discharged into scows or upon the banks of the canal.

The cutting cylinder may be set with its axis vertical or inclined forward or backward.

The dredge boat may be pivoted upon a spud set in line with its central longitudinal axis, or keel line, the spud being set in a longitudinal hole and casing, in the boat, so that the bow of the boat may be swung back and forth, or the boat moved forward as the work progresses, this reciprocation being accomplished by any suitable or ordi-

nary means. Thus, the boat being advanced with its cutters pressed into the material this is removed by the revolution, while the reciprocation of the bow of the boat feeds the cutters laterally from side to side.

My invention also includes another important feature. In order to give a depth of canal greater than the depth of the dredge boat, I depress the bow according to the depth required. This depression may be secured by means of ordinary water tanks or bulkhead compartments, which can be filled or emptied by any suitable means such as the usual valves and pumps. The more the bow is depressed the deeper the cut. Such a compartment is indicated by dotted lines at X in Fig. 1.

I claim substantially as described:

1. In a dredge boat adapted to swing at the bow from side to side of the channel cut, to operate on the whole surface at the end of the cut, a hollow cylinder rotatable in fixed bearings on the forward end of the boat and arranged with its bearings in a substantially vertical line said cylinder having openings into the interior of the cylinder, and exterior cutters for removing the soil and directing it to the interior, means for rotating the said cylinder, and means for exhausting the soil and water, substantially as described.

2. In a dredge boat adapted to swing at the bow from side to side of the channel cut, to operate on the whole surface at the end of the cut, a hollow cylinder rotatable in fixed bearings on the forward end of the boat and arranged with its bearings in a substantially vertical line said cylinder having openings into the interior of the cylinder, and exterior cutters for removing the soil and directing it to the interior, means for rotating the said cylinder, and means for exhausting the soil and water opening into

the bottom of the cylinder, substantially as described.

3. In a dredge boat adapted to swing at the bow from side to side of the channel cut, to operate over the whole surface at the end of the cut, a hollow cylinder rotatable on a substantially vertical shaft in fixed bearings on the forward end of the boat, said cylinder extending substantially from the bottom of the boat to the top of the cut and having cutters and openings for cutting the soil and directing it to the interior, and means for exhausting the soil and water, substantially as described.

4. A dredge boat carrying a vertically arranged cylinder having cutters and openings for removing the soil and directing it to the interior, said cylinder extending from the bottom of the boat substantially to the top of the cut, a shoe D carried on the bottom of the boat at its forward end forming the bottom of the cylinder and an exhaust pipe opening into the cylinder through said shoe, substantially as described.

5. A dredge boat adapted to swing at the bow from side to side of the cut, a hollow cylinder at the bow rotatable in fixed bearings substantially vertical, said cylinder extending from the bottom of the boat to the top of the cut, and provided with openings and cutters whereby the soil is cut and directed to the interior, means for rotating the cylinder, means for exhausting the soil and water from the cylinder, and a water tight compartment in the bow of the boat for depressing the same, all substantially as described.

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

NAPOLEON B. BROWARD.

Witnesses:

J. M. BARRS,
HARVIE DU VAL.