G. E. ALLEMAN.

DREDGING MACHINE.

APPLICATION FILED APR. 20, 1914.

1,148,816.

Patented Aug. 3, 1915.

4 SHEETS—SHEET 1.

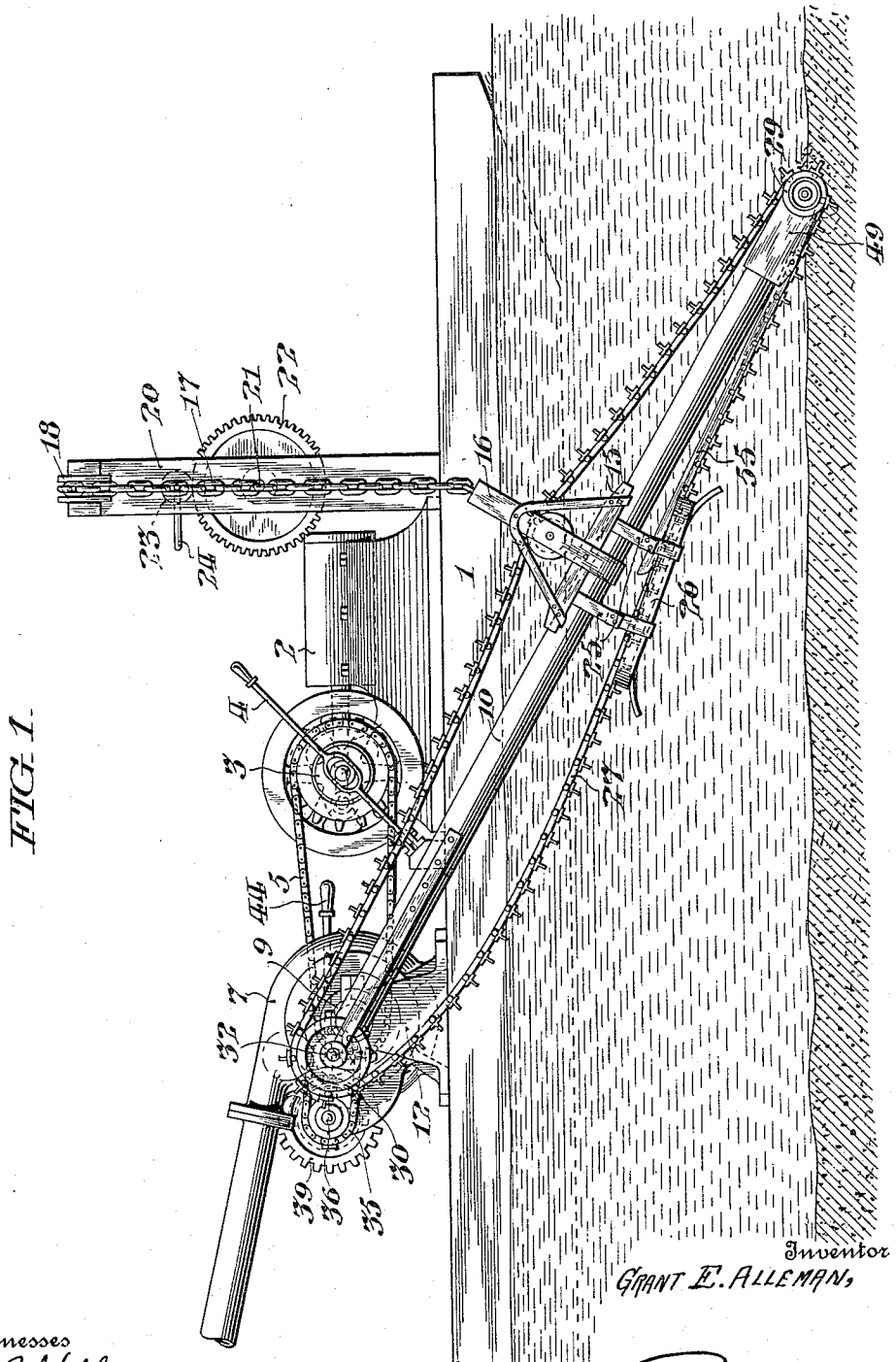


FIG. 1.

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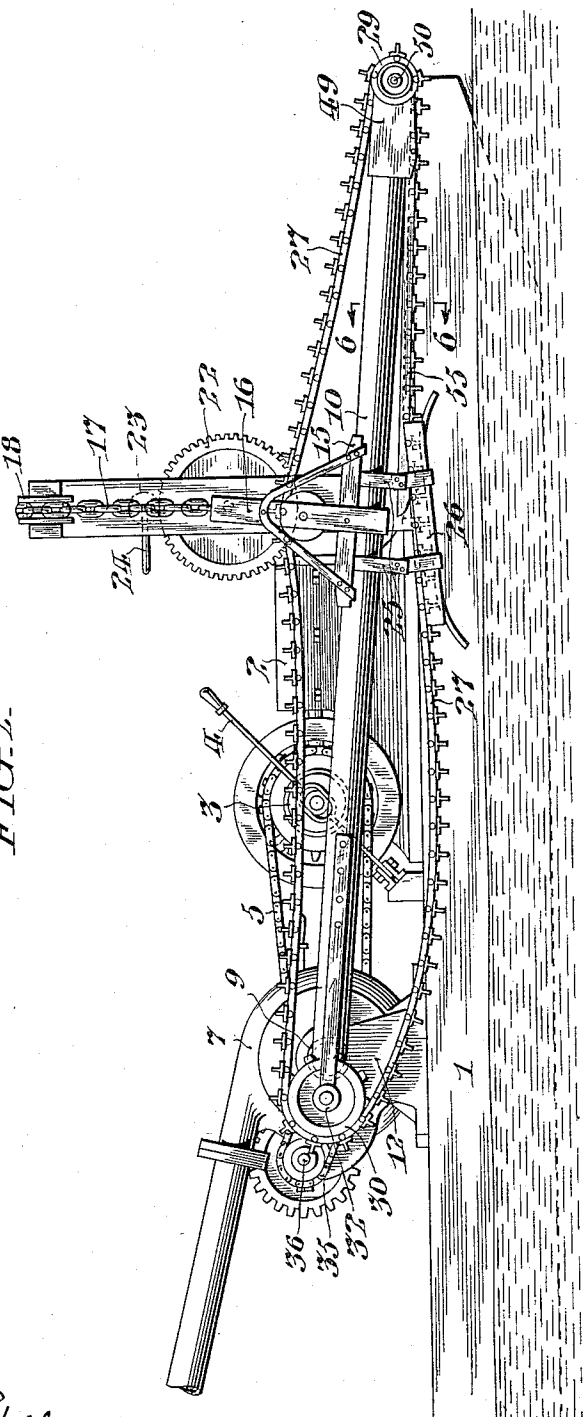


FIG. 2.

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4 SHEETS—SHEET 3.

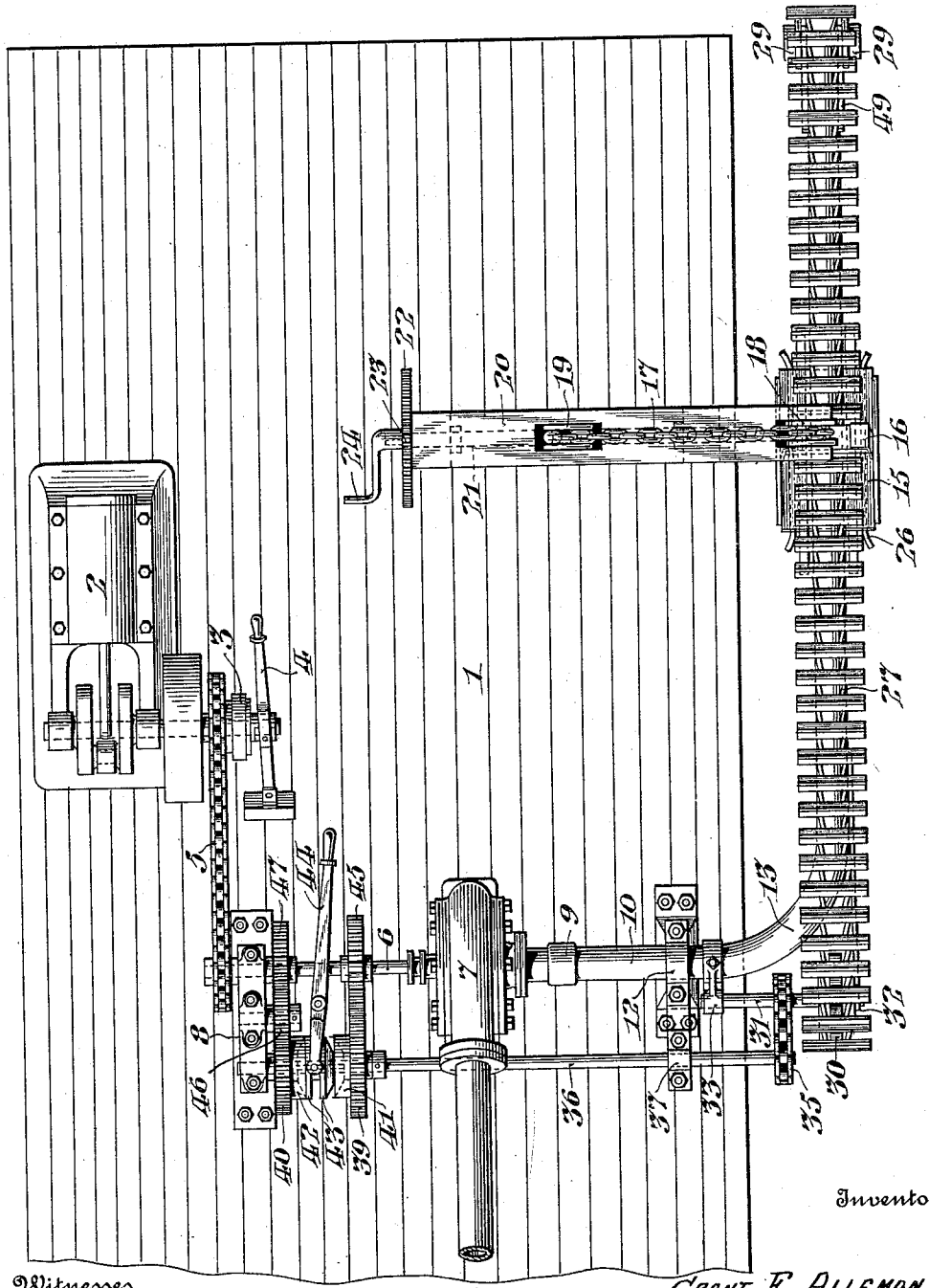


FIG. 3.

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4 SHEETS—SHEET 4.

FIG. 4.

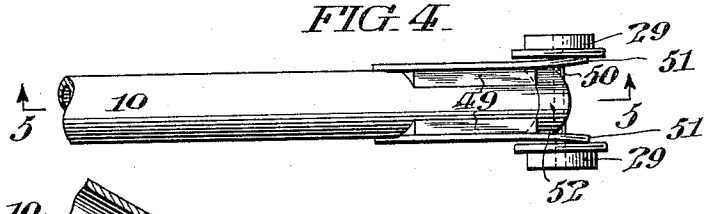


FIG. 5.

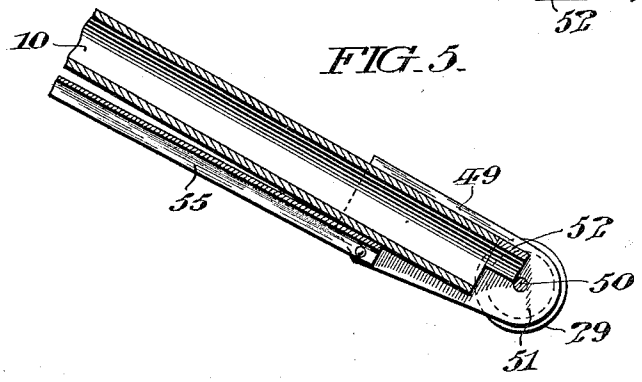


FIG. 6.

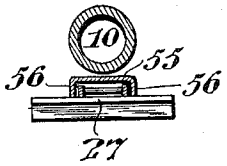


FIG. 7.

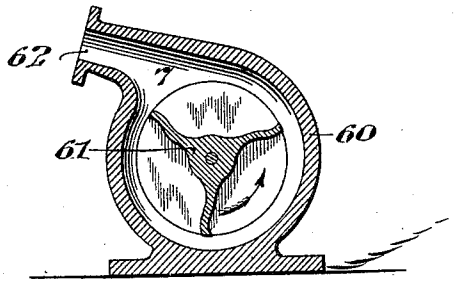
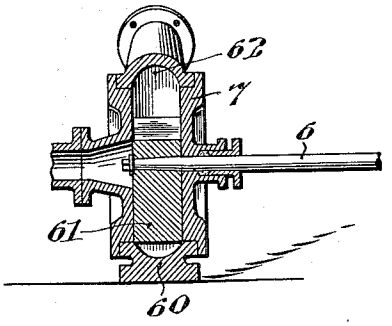


FIG. 8.



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UNITED STATES PATENT OFFICE.

GRANT E. ALLEMAN, OF SHOEMAKERSVILLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ALLEMAN & EBERSOLE (GRANT E. ALLEMAN AND JOHN M. EBERSOLE) AND ONE-HALF TO ALLEMAN & WOLFE (GRANT E. ALLEMAN AND DAVID S. WOLFE), BOTH FIRMS OF SHOEMAKERSVILLE, PENNSYLVANIA.

DREDGING-MACHINE.

1,148,816. Specification of Letters Patent. Patented Aug. 3, 1915.

Application filed April 20, 1914. Serial No. 833,070.

To all whom it may concern:

Be it known that I, GRANT E. ALLEMAN, a citizen of the United States, residing at Shoemakersville, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Dredging-Machines, of which the following is a specification.

My invention relates particularly to dredging machines, and is especially applicable to machines designed for reclaiming fugitive coal which is washed down from the mining districts and is deposited upon the bottom of rivers and streams.

The principal objects of my invention are, to provide a dredging machine having its parts so interchangeable as to permit of great flexibility of operation; to provide means for agitating the coal deposits adjacent to the mouth of the suction pipe; to provide means for quickly reversing the motion of said agitating means; and to provide means for preventing sticks and other debris from entering the suction pipe.

Other objects of my invention are, to provide a dredging machine having its parts so constructed as to prevent clogging, due to any solid particles collecting between relatively movable surfaces; and to provide a rotary pump having its chamber increasing in area toward its outlet.

My invention comprehends an endless belt agitator, and includes means for preventing a slackening of said belt adjacent to the mouth of the suction pipe.

My invention further includes all of the various novel features of construction and arrangement hereinafter more definitely described.

In the accompanying drawings, Figure 1 is a side elevational view of a float carrying dredging machinery constructed in accordance with my invention, the parts being shown in their operative position; Fig. 2 is a view similar to Fig. 1, but showing the suction pipe raised to its inoperative position; Fig. 3 is a plan view of the construction as shown in Fig. 2; Fig. 4 is a fragmentary plan view of the intake end of the suction pipe; Fig. 5 is a central vertical longitudinal sectional view taken on the line 5—5 in Fig. 4; Fig. 6 is a transverse vertical sectional view taken on the line 6—6 in Fig. 2; Fig. 7 is a central vertical longitudinal sectional view of the suction pump; and Fig. 8 is a central vertical transverse sectional view of said pump.

In said figures, the barge or float 1 carries the dredging machinery which comprises the engine 2, connected through the controlling clutch 3, having the operating lever 4, by the chain belt 5 with the shaft 6 of the pump 7, said shaft 6 being supported in the bearing block 8.

The pump 7 is connected through the swivel ring or collar 9 with the relatively movable suction pipe 10, which is supported in the bearing block 12 and extends laterally from said pump and turns in a long sweeping bend 13 into longitudinal relation to the side of the float and at a suitable distance therefrom, so as to be swung vertically and thereby present its intake end at the bed of the stream, as best shown in Fig. 1.

The pipe 10 is provided intermediate of its ends with the frame 15, having the upwardly extending bail 16, which is connected to one end of the chain 17 which extends over the pulleys 18 and 19 on the frame 20 of the windlass, to which the other end of said chain is connected.

The windlass comprises the shaft 21 which is journaled in the uprights of the frame 20, and which carries the gear 22 in mesh with the pinion 23, to which the operating handle 24 may be attached.

The frame 15 carries depending supports 25, upon which is suspended the guide 26, over which the agitating chain belt 27 slides, and which provides a convenient intermediate support for said belt 27, which is carried at the intake end of the suction pipe 10 by the pulleys 29, and which is driven by the sprocket 30.

The sprocket 30 is mounted on the shaft 31, which is supported in bearings 32 and 33 on the pipe 10, and therefore movable therewith. Said shaft 31 is connected by the sprocket chain 35 with the shaft 36, rotatably supported in the bearing block 8 and in the bearing bracket 37 on the bearing block 12.

Loosely mounted on the shaft 36 are the

spaced gears 39 and 40, respectively having opposed clutch bosses 41 and 42 which are arranged to be selectively engaged by the axially movable clutch 43, having the controlling lever 44. Said clutch 43, as best shown in Fig. 3, is keyed to the shaft 36 and is thereby caused to rotate therewith irrespective of the gears 39 and 40, with which it may be connected.

The gear 39 is directly in mesh with the gear 45, which is mounted on the shaft 6 and arranged to rotate therewith, while the gear 40 is connected through the idler 46 with the gear 47, which is mounted on the shaft 6 and arranged to rotate therewith. Thus it will be seen that the gears 39 and 40 are rotated in opposite directions, and therefore when the clutch 43 is connected with one or the other, the shaft 36 will be caused to rotate in accordance therewith, so that the agitating belt 27 may be driven in either direction and quickly reversed.

As best shown in Figs. 4 and 5, the intake end of the pipe 10 is provided with a bearing frame 49 for the shaft 50 of the pulleys 29, and comprises side plates whose forward ends 51 diverge toward the respective pulleys to prevent pebbles or other debris from wedging and thereby retarding the free rotation of said pulleys.

The upper portion of the pipe 10 may be provided with the extension 52, as shown in Figs. 4 and 5, which may be removable and capable of being reversed to the opposite side should it be desired to direct the pipe in the opposite direction, in which instance the upper portion would become the lower portion, and vice versa.

To the rear end of the frame 49 is pivotally connected an apron 55, which extends for a considerable distance over the agitating belt 27, and as best shown in Fig. 6, has depending lateral walls 56 embracing the chain of said belt and bearing upon the transverse blades of said belt. This apron is provided to shed the chain of any debris which may be carried thereby, and in case of sticks of wood is intended to shear them into such lengths as to be incapable of clogging the intake opening of the suction pipe 10.

As best shown in Figs. 7 and 8, the suction pump 7 has its casing 60 so formed that the space surrounding the winged piston 61 gradually increases in area toward the outlet 62, whereby the solid particles being forced therethrough cannot possibly become clogged therein, so that a free passage is insured.

It will be seen in Fig. 8 that the openings in the sides of the pump casing are of the same size, and the casing is otherwise symmetrically constructed so that the intake flange and stuffing-box flange may be reversed if desired.

I do not desire to limit my invention to the precise details of construction and arrangement as shown herein, as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined by the appended claims.

Having thus described my invention, I claim:

1. In a dredging machine, the combination with a suction pipe having an intake opening, of a pump, a swivel connection between said pump and pipe, means for raising and lowering the intake end of said pipe, a frame at the intake end of said pipe, pulleys mounted on said frame, a sprocket carried by said pipe, a chain belt having a series of spaced crossbars forming scrapers, carried by said sprocket and pulleys, a guide for supporting said belt intermediate of said sprocket and pulleys, and an apron pivotally supported on said frame at one end and resting upon said belt to shed any debris which may be carried thereby.

2. In a dredging machine, the combination with a suction pipe having an intake opening provided with a removable shield or extension, of a chain belt having suitably spaced transverse scrapers mounted to rotate over said opening, frames adjacent to the intake end of said pipe, and having side plates whose free ends relatively diverge, and belt-supporting pulleys rotatably mounted on said frames, spaced from the body of said plates and in contact with said diverging ends.

In witness whereof, I have hereunto set my hand April, A. D., 1914.

GRANT E. ALLEMAN.

Witnesses:
CLARA E. YOUNG,
ED. A. KELLY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."