(No Model.) 3 Sheets—Sheet 1.

J. K. HOWE.

BRAKE FOR TURN TABLES OF DREDGES, &c.

No. 302,336. Patented July 22, 1884.

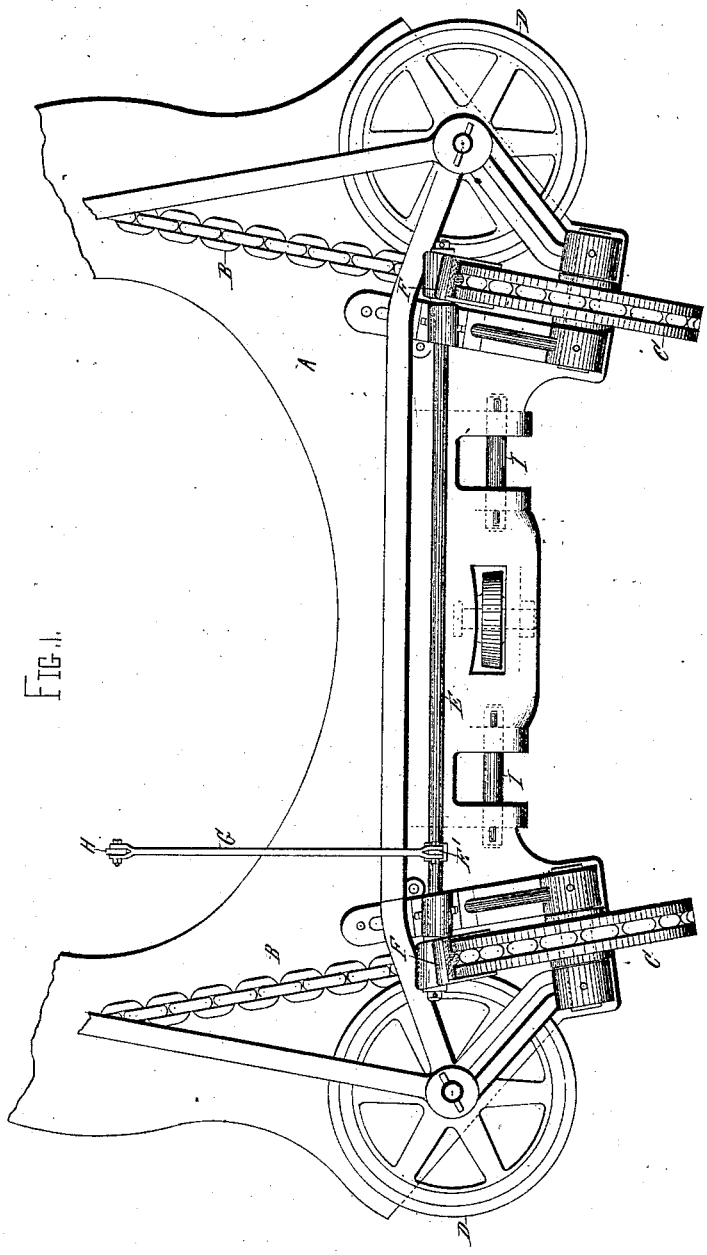

FIG. 1.

Witnesses
John Buckler
Henry Sieb

John K. Howe
Inventor.
By Wood & Dyer
Attorneys

(No Model.) 3 Sheets—Sheet 2.

J. K. HOWE.

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FIG. 2.

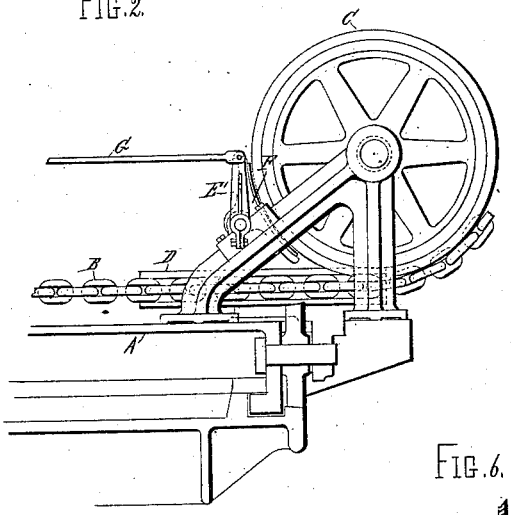


FIG. 4.

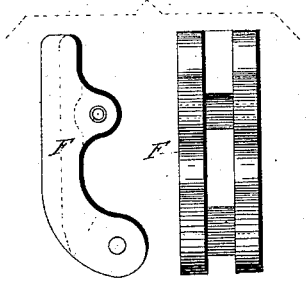


FIG. 5.

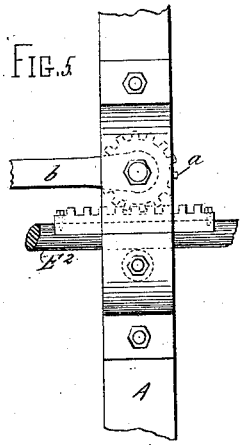
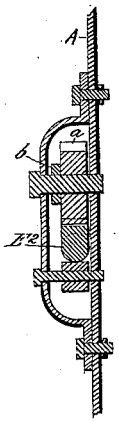


FIG. 6.



Witnesses:
John Buckley,
Henry Sieb.

John K. Howe,
Inventor.
By Worth Osgood,
Attorney.

(No Model.) 3 Sheets—Sheet 3.

J. K. HOWE.

BRAKE FOR TURN TABLES OF DREDGES, &c.

No. 302,336. Patented July 22, 1884.

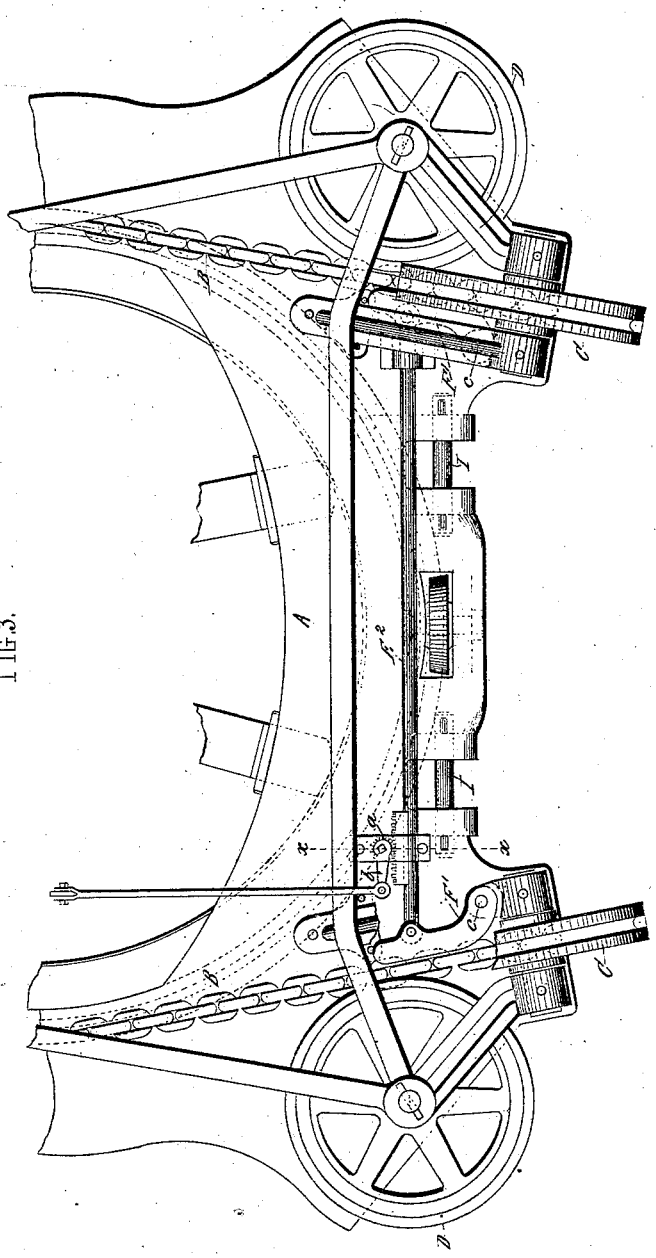


FIG. 3.

Witnesses:
John Buckeler.
Henry Lieb.

John K. Howe,
Inventor.
By Worth Osgood & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN K. HOWE, OF TROY, NEW YORK.

BRAKE FOR TURN-TABLES OF DREDGES, &c.

SPECIFICATION forming part of Letters Patent No. 302,336, dated July 22, 1884.

Application filed January 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN K. HOWE, of Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Brakes for Turn-Tables of Dredges, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to appliances peculiarly adapted to dredges and excavators wherein the load is capable of being swung toward one side or the other; but the improvements are likewise applicable in connection with any other hoisting machinery wherein a turn-table is employed.

The object of my invention is to assist the swinging of the load through the medium of the hoisting-chains by applying a brake or clutch to either of the two hoisting-chains, or to either of the sheaves employed to guide said chains, as the circumstances of the case may require; and to attain this object my improvements involve certain novel and useful peculiarities of construction, relative arrangements or combinations of parts, and principles of operation, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a portion of a turn-table of a dredge or excavator showing my improved brake mechanism applied thereon and arranged for operation in connection with the hoisting-chain sheaves. Fig. 2 is a side elevation showing one of the brake-shoes and its connections, arranged as in Fig. 1. Fig. 3 is a plan view representing the brake applied and arranged for operation directly in connection with the hoisting-chains. Fig. 4 represents a plan and side view of the brake-shoe shown in Fig. 3, but detached from the other parts. Fig. 5 is a plan view. Fig. 6 is a vertical section on line *x x* of Fig. 3.

In all these figures like letters of reference, wherever they occur, indicate corresponding parts.

A is the turn-table, B B the two hoisting-chains, C C vertical sheaves, and D D horizontal sheaves for guiding said chains. These parts are arranged substantially as in the patent of Ralph R. Osgood, No. 196,378, dated October 23, 1877, for dredging-machines, and the load or dipper is hoisted by the chains, as set forth in that patent. It has not been deemed necessary to represent the load or dipper herein, because it may be of any character; but it may be well to explain that in the aforesaid patent of Osgood the swinging of the load or dipper is dependent entirely upon its weight and position with respect to the axis of the turn-table; and in order to permit the load to swing, one of the chains is slackened or allowed to pay out while the other is wound up upon its drum. The weight of the load varies with many circumstances, as does also its position, and although it must and does swing in the direction required, its movements are not always steady or under sufficient control of the operator or dipper-tender, nor are these swinging movements always capable of being commenced at the desired instant, so that time may be most advantageously economized. The use of the two hoisting-chains and their sheaves upon the turn-table is primarily for the purpose of dispensing with separate swinging-engines or separate swinging appliances.

To obviate the disadvantages above indicated, and to secure perfect control of the load at all times, and still dispense with the independent swinging engines or appliances, I apply a brake or clutch which shall operate to connect the turn-table directly with one or the other of the two hoisting-chains, or, what effects the same purpose, to connect the turn-table with one or the other of the sheaves upon which said chains run.

E is a rock-shaft extending between two brake-shoes F F, arranged to bear upon the sheaves C C. These shoes may of course be of any pattern, and they are so hung upon the shaft or otherwise connected therewith that when one is in engagement with its corresponding sheave the other one will be entirely disengaged from its sheave. The shaft E is provided at a convenient point with an arm, E′, in connection with which is a connecting-rod, G, serving to communicate motion from a hand-lever, as H, suitably hinged upon the turn-table or elsewhere, and situated so as to be within

convenient reach of the operator. The shaft E is shown as journaled in suitable boxes upon the frames which support the sheaves. By moving the hand-lever in one direction, one of the brake-shoes arrests the motion of its sheave, and by moving the lever in the opposite direction the other shoe arrests its sheave. By leaving the lever in its central position, both shoes are brought to a point where neither will touch its sheave, so that the turn-table may, if desired, be moved by the load itself. When either brake-shoe is brought to bear upon its sheave, the effect is to connect the turn-table with the hoisting-chain on one side, and then, when the chain on that side is pulled or wound up, it will force the turn-table to swing, as required by the principles of my invention, and thus place its movements positively under the control of the operator. The application of the brake to the sheaves necessitates the employment of what are known as "bedded sheaves," so as to insure the proper holding or clamping of the chain or the proper union between them and the turn-table so as to avoid all slipping. The same effects and purposes may be accomplished without the use of bedded sheaves by applying the brakes directly to the chains, and this direct application I have represented at Fig. 3, wherein the bar or rod E^2 carries the shoes F' F', and is made to move longitudinally, thus carrying one shoe or the other directly against the chain, or leaving both free, as the case may require. The longitudinal movement is effected by supplying the rod E^2 with a short rack, with which a pinion, *a*, is made to engage. This pinion is suitably axled upon the turn-table, and is turned or partially turned by the application to its axle of a wrench, bar, or crank, *b*, the latter being operated by a hand-lever and connecting-rod much the same as in the preceding form. As the pinion is turned it causes the required longitudinal movements of the shaft E^2, and the consequent application of the brake-shoes to the chain. The turn-table is thus turned or moved upon the same general principles as in the case of the application of the brake to the sheaves, and thus the hoisting-chains are made to assist the swinging, when required, or to accomplish the swinging entirely. Under this latter construction the brake-shoes are hinged, as at *c*, and they force the chain more or less tightly against the horizontal sheave, and prevent it (the chain) from moving without carrying the turn-table with it. The shoes might be otherwise mounted and arranged, the details of their construction being immaterial so long as they accomplish the required work at the required times and for the purposes set forth.

At I I are the hinge-bolts, upon which the boom is connected with the turn-table. Being constructed and arranged for operation substantially in accordance with the foregoing explanation, the improved brake will be found to admirably answer the purpose or object of the invention, as previously set forth.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A brake mechanism applied upon a turn-table, and arranged to effect a union between said table and the hoisting-chain, substantially as explained, so that the table may be moved or swung by the chain, for the purposes and objects named.

2. In combination with a turn-table having the two hoisting-chains applied in connection therewith, the herein-described brake mechanism arranged to connect either chain with the turn-table, substantially as and for the purposes set forth.

3. In combination with a turn-table having the two hoisting-chains applied in connection therewith, the herein-described brake mechanism arranged to connect either chain with the turn-table, and to let both chains go free at the will of the operator, substantially as and for the purposes explained.

4. The hoisting-chains, the turn-table, the sheaves mounted thereon and serving to guide said chains, and the brake mechanism, applied substantially as explained, so as to connect the turn-table and chains by arresting the movement of the sheaves, combined and arranged to operate substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

JOHN K. HOWE.

Witnesses:
RALPH R. OSGOOD,
JAMES CLARK.