

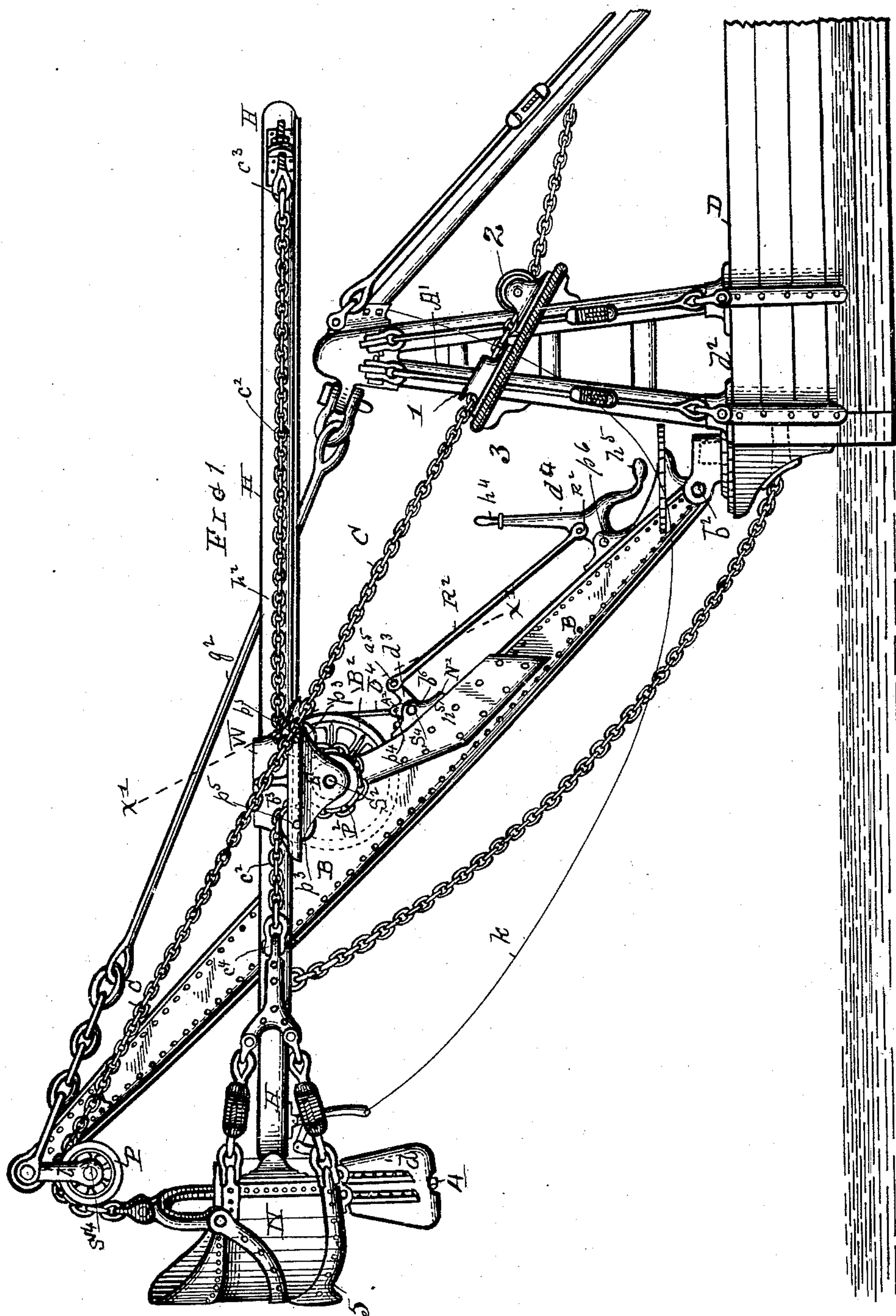
(No Model.)

2 Sheets—Sheet 1.

J. VAN PATTEN.
DIPPER DREDGER.

No. 473,535.

Patented Apr. 26, 1892.



WITNESSES.

*A. C. Howes &
Chas. Rhodes.*

INVENTOR.

John Van Patten
BY *W. E. Hagan.*
ATTORNEY.

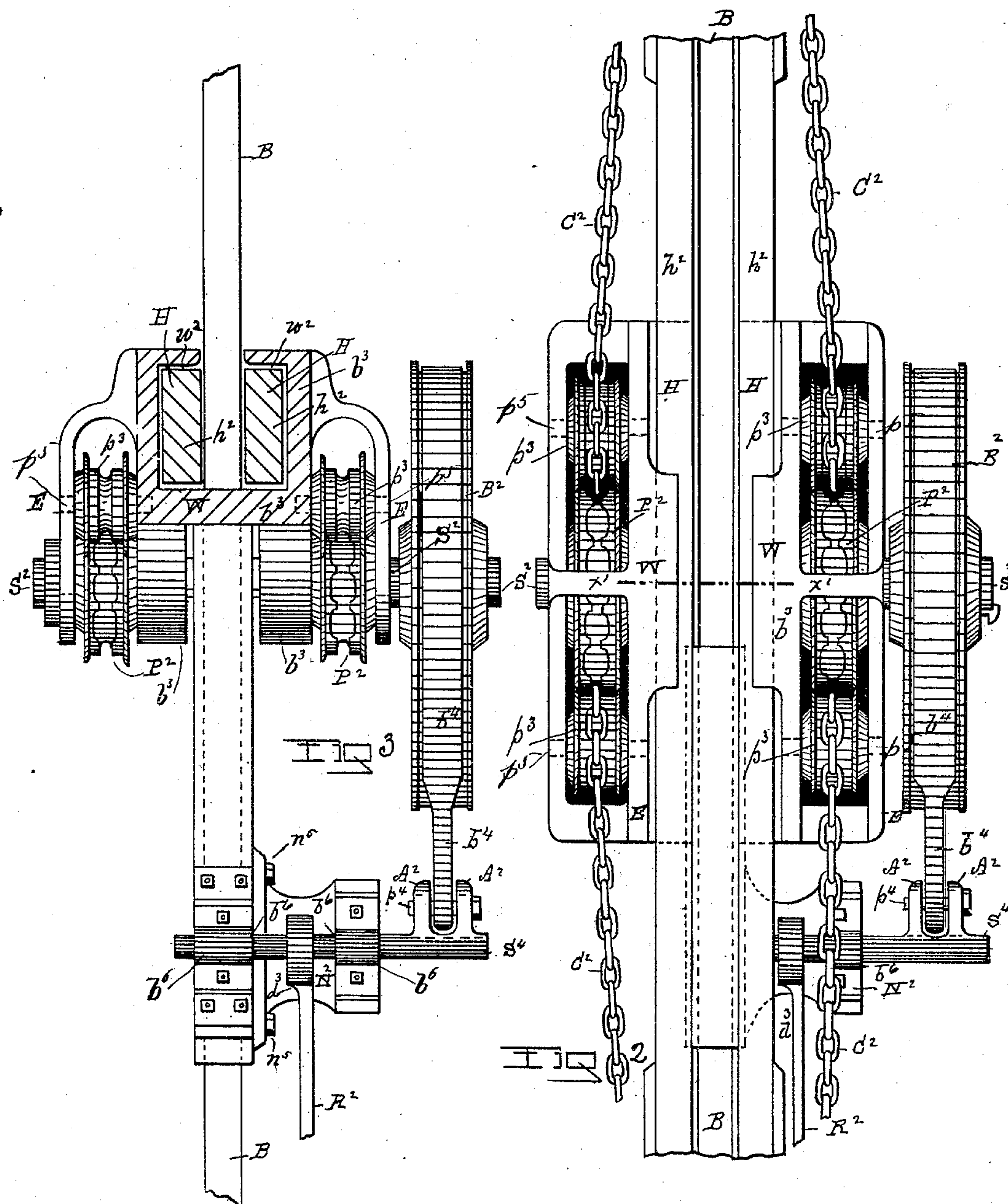
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WITNESSES

William A. Sweet

Charles S. Brintnall

INVENTOR

INVENTOR
John Van Patten by
Webbagan atty

UNITED STATES PATENT OFFICE.

JOHN VAN PATTEN, OF WEST TROY, ASSIGNOR OF ONE-HALF TO TIMOTHY J. SULLIVAN, OF ALBANY, NEW YORK.

DIPPER-DREDGER.

SPECIFICATION forming part of Letters Patent No. 473,535, dated April 26, 1892.

Application filed December 16, 1890. Serial No. 374,951. (No model.)

To all whom it may concern:

Be it known that I, JOHN VAN PATTEN, of the village of West Troy, county of Albany, and State of New York, have invented new and useful Improvements in Dipper-Dredgers, of which the following is a specification.

My invention relates to improvements in the construction and arrangement of the dipper-handles of steam-operated dredges. As heretofore made, the dipper-handles of that class of dredges, (in which the dipper has been constructed to have a scoop form with a hinged bottom that opens to dump,) when operated to ascend and descend, have generally been made to move in connection with a rack upon the dipper-handle and a pinion upon the boom; and my improvement upon this older construction consists (as will be more fully detailed hereinafter, in connection with its illustration) in providing the boom with a slide for the dipper-handle to move in, pivoted to the boom, and with steadying-chains, which at their ends are attached to the ends of the handle, and intermediately run on pulleys arranged on the slide at each side thereof, and with a brake upon the shaft of said pulleys to control the movement of the dipper-handle.

Accompanying this specification to form a part of it there are two sheets of drawings, containing three figures, illustrating my invention with the same designation of parts by letters and figures of reference used in all of them.

Of the illustrations, Figure 1 is a side elevation of a part of a dredge with my invention applied thereto. Fig. 2 is a top view of a part of the dipper-handle, the boom, the stay or steadying-chains, the pinions and pulleys on which they run, and the brake on the steadying-chains' pinion-shaft. Fig. 3 is a section taken on the line $x' x'$ of Fig. 2 through the dipper-handle and boom, with the other parts illustrated in connection therewith shown in elevation.

The several parts of the mechanism thus illustrated are designated by letters and figures of reference, and the functions of the parts are described as follows:

The letter D designates the dredge, and d^2 a part of its deck.

The letter B designates the boom, which at its lower end is pivoted to the dredge at b^2 .

The letter A' designates the A-frame, upwardly projected from the dredge-deck, and g^2 designates brace-rods which connect the boom with the A-frame.

The letter P designates a pulley that is pendent from the outer end of the boom by means of the downwardly-extended hangers l^2 and having its shaft S^{14} arranged or journaled in the latter, and C is a hoist-chain connected at its outer end to the dipper, said chain running on said pulley P, and thence to the guide 1 and pulley 2 on a support 3 on the A-frame, and thence to a hoist-drum. (Not shown.)

The letter N designates the dipper, made in a scoop form and having a drop-bottom d' hinged upon the lower or rear end of the dipper, where it is provided with a latch 4, that catches automatically in a catch 5 on the dipper to hold the bottom closed, and is opened by means of a cord k when being dumped, all of which parts are of the usual and ordinary construction.

The letter H designates the dipper-handle, which is made in two parts $h^2 h^2$, connected at their ends, one of the parts being arranged on each side of the boom, as shown in section at Fig. 3.

The letter W designates a slideway made with a body part b^3 , downwardly-projected ears E, and a slide-passage w^2 .

The letter S^2 designates a shaft arranged to pass through each of the ears E and the boom B. On this shaft the slideway turns to adapt itself to the movements of the dipper-handle as the latter is operated. Each part h^2 of the dipper passes through one of the slide-passages w^2 , as shown at Fig. 3.

The letters $P^2 P^2$ each designate a pulley arranged on the shaft S^2 between the slide-way-body b^3 and one of the ears E at each side of the handle.

The letters $p^3 p^3$ designate four pulleys—two at each side of the slide—each of which is provided with pintle-shafts p^5 , that at their

outer ends connect with one of the ears E at each side of the handle, and at their inner ends said pintle-shafts each connect with the slide-way-body part b^3 at each side thereof, as shown at Figs. 1 and 3.

The letters C^2 designate stay or steadying chains, of which there is one on each of the outer sides of the handle H. Each of the chains at its front end connects at c^4 with the end of the handle, and, as extended rearwardly, they each pass down over one of the pulleys p^3 and down under one of the pulleys P^2 to rise and pass over another of the pulleys p^3 , from whence they each extend rearwardly and are attached at c^3 to the handle H at each side of the latter. As thus arranged, when the dipper-handle moves in the slideway the chains c^2 at the outer sides of the handle move over the pulleys p^3 and under the pulleys P^2 at each side of the handle, and this chain connection acts to steady the movement of the dipper-handle when descending into the water or when actuated to rise.

The letter B^2 designates a brake-wheel that is arranged on and connected to the shaft S^2 , and b^4 a belt passing over the top and sides of said wheel with the lower ends of said belt connected to a pin p^4 , arranged in the ears A^2 upon the brake-shaft S^4 . This brake-shaft journals in bearings b^6 , attached to a plate N^2 , that is offset from and connected to the boom B at n^5 .

The letter d^3 designates a lever keyed to the brake-shaft S^4 , and R^2 a rod pivotally connected by a pin a^5 to the lever d^3 , and therefrom extended rearwardly to connect with the lever d^4 , that is pivoted at p^6 and provided with operating-handles h^4 h^5 , by which connection with said belt on the brake-shaft wheel B^2 the said belt may be caused to tighten upon said wheel, so as to control the movement of the steadying-chains upon the pulleys P^2 , and thus regulate and control the sliding of the dipper-handle H in the slide-ways w^2 .

As thus made and arranged, when the hoist-chain C is allowed to unwind from the drum and the dipper by gravity descends into the water to reach the bottom the dipper-handle H slides in the ways w^2 , the slide W turning on the shaft S^2 to adapt itself to the position of the dipper-handle, while the chains C^2 , as the handle descends, run over the pinions p^3 p^3 and under the pulley P^2 on the shaft S^2 at each side of the handle with the speed at which the handle moves regulated by the brake-wheel B^2 , as before described. The function of the steadying-chains being in a measure to check the too-sudden descent of the dipper-handle, they perform this function in part without the brake-wheel, the function of the brake-wheel being to furnish an additional means to control the movement of the handle. Hence I do not limit my combination, with the boom or slideway, of steady-

chains upon the handle, that in a measure, by means of pulleys on the slide, control the movement of the dipper-handle to their combination with the brake-wheel, the function of the latter being merely accessory. Furthermore, I do not limit my invention to the particular form of brake-wheel shown, as any other well-known means that will perform the same office in substantially the same manner may be used.

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

1. The combination, with the boom B, made with the slide W, pivoted thereto and having the pulley P^2 and pinions p^3 p^3 at each side, substantially as described, of the dipper-handle H, having the steadying-chains C^2 at each side thereof, each arranged to run on one of said pulleys P^2 and on two pinions p^3 p^3 , substantially in the manner as and for the purposes set forth.

2. The combination, with the boom B, of the slide W, made with the slide-passage w^2 and having the pinions p^3 p^3 at each side thereof, the shaft S^2 to pivot said slide to said boom, the pulley P^2 , arranged upon said shaft at each side of said slide-passage, the dipper-handle H, made to straddle said boom and arranged in said slide-passage w^2 , and steadying-chains C^2 , one arranged upon each side of said handle, each of said chains being at its ends connected to said handle and arranged to intermediately run upon one of the pulleys and on two of said pinions at each side of the handle, substantially in the manner as and for the purposes set forth.

3. The combination, with the boom B, of the slide W, made with the slide-passage w^2 and pivoted to said boom by the shaft S^2 , the pulley P^2 and pinions p^3 p^3 , arranged at each side of said slide-passage way, the brake-wheel B^2 , arranged on said shaft S^2 , said brake-wheel being provided with a brake-belt, and the dipper-handle H, made to straddle said boom and arranged within said slide-passage, said dipper-handle being at each side provided with a steadying-chain that at its ends connects with the handle and intermediately runs on one of said pulleys and on two of the pinions at each side of the slide, substantially in the manner as and for the purposes set forth.

4. The combination, with the boom B, of the slide W, made with the central slide-passage w^2 , and the pinions p^3 p^3 at each side thereof, the shaft S, arranged to pivot said slide to said boom, the pulleys P^2 , arranged on said shaft, one at each side of said slide, the brake-wheel B^2 , arranged on one end of said shaft and provided with a brake-belt operative to engage with said brake-wheel, substantially as described, the handle H, made to straddle said boom and arranged within said slideway, the steadying-chains C^2 C^2 ,

each at its ends attached to one of the sides
of said handle and arranged to intermedi-
ately run on one of said pulleys and on two
of the pinions at each side of said handle,
5 substantially in the manner as and for the
purposes set forth.

Signed at Troy, New York, this 12th day of

July, 1890, and in the presence of the two wit-
nesses whose names are hereto written.

JOHN VAN PATTEN.

Witnesses:

W. E. HAGAN,

CHARLES S. BRINTNALL.