

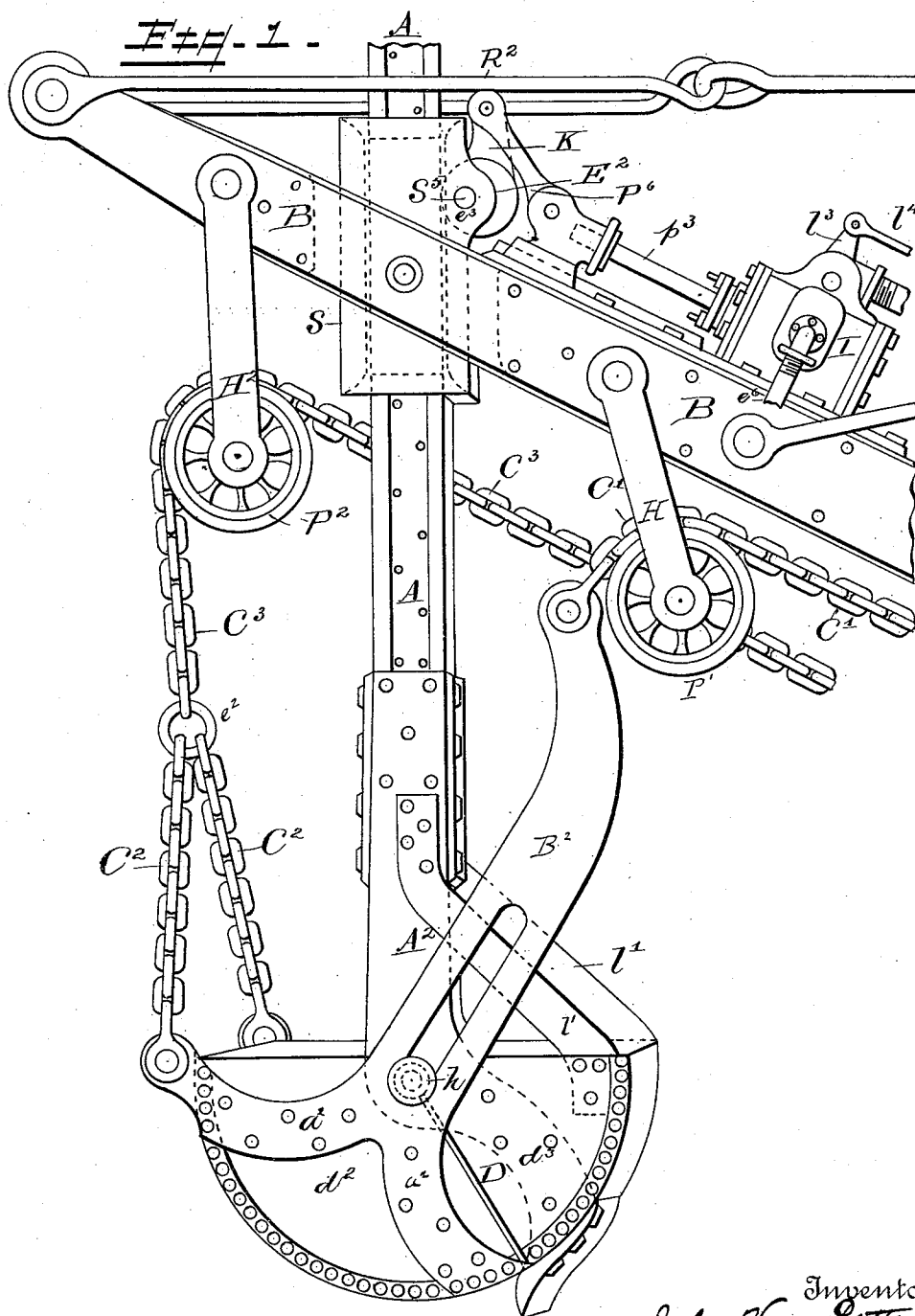
(No Model.)

2 Sheets—Sheet 1.

J. VAN PATTEN.
DIPPER FOR DREDGES.

No. 469,728.

Patented Mar. 1, 1892.



Witnesses
Albert B. Blackwood
Jas. A. Blackwood

Inventor
John Van Patten
by W. E. Hagan,
Attorney.

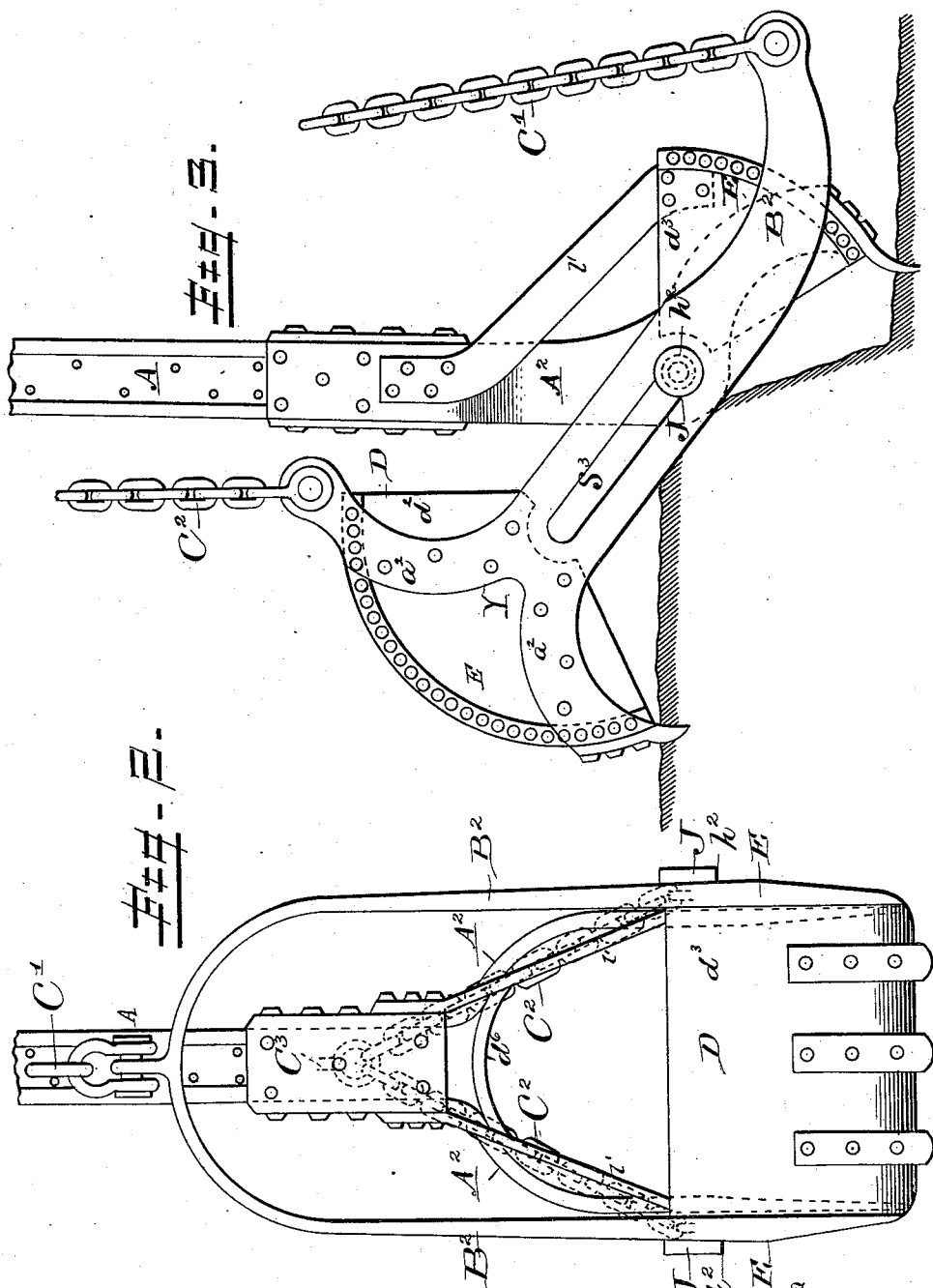
(No Model.)

2 Sheets—Sheet 2.

J. VAN PATTEN.
DIPPER FOR DREDGES.

No. 469,728.

Patented Mar. 1, 1892.



Witnesses

Albert B. Blackwood
Jas. H. Blackwood

Inventor
John Van Patten
by W. C. Hagan.

Attorney

UNITED STATES PATENT OFFICE.

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

DIPPER FOR DREDGES.

SPECIFICATION forming part of Letters Patent No. 469,728, dated March 1, 1892.

Application filed December 6, 1890. Serial No. 373,852. (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 a new and useful Improvement in Dippers for Dredges, of which the following is a specification.

My invention relates to dippers for dredges and of that class of the latter that are made in two parts and are arranged upon the lower end of the dipper arm or handle whereon they are operated to open and close and to be raised or caused to descend, and which are commonly called "clam-shell dippers." As heretofore made this class of dredge-dippers had been operated upon the lower end of two arms or handles that moved in guides as the dippers were raised or caused to descend, with the dipper parts opened out as they descended and closed after they entered the soil to be removed. As heretofore operated the arms or handles of this class of dippers moved freely in their guides, and the dippers entered the soil to be removed from their weight alone and without any means to hold them down excepting gravity. Consequently dippers of this class could only be used to remove soft and yielding earth, into which they would settle from their weight. To construct a dipper of this class so that it will be held down by an arm to adapt it to dig in gravel and other hard and compact earth of a river-bottom is the object of my invention. To accomplish these results a new construction of dipper is made, and means is also provided by which the dipper-arm can be held down in contact with the river-bottom when the two-part dipper is making excavation, as will be more fully described hereinafter in connection with its illustration and detailed in the claims.

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 of reference used in all of them.

Of the illustrations, Figure 1 is an elevation of a part of a dredge-boom in which the dipper-arm and dipper are operated. This view also shows the mechanism for holding down the boom during the operation of dig-

ging, and it illustrates, also, my improved two-part dipper with the latter shown as closed. Fig. 2 is a side view of the two-part dipper illustrated as closed with part of the dipper-arm also shown together with the connections which the dipper parts make with said arm. Fig. 3 is a side elevation of the dipper with the latter opened and in position to fill, this figure showing, also, part of the dipper-arm and parts of the operating-chains.

The several parts of the apparatus thus illustrated are designated by letter reference and the function of the parts is described as follows:

The letter D designates the dipper, which is made in two parts d^2 and d^3 . The dipper part d^3 is rigidly secured to the lower end of the dipper-arm A by means of two arms A^2 , that from where connected to the lower end of the boom curve outwardly as extended downwardly to be secured to the sides of said rigid dipper part d^3 . Each of these arms A^2 is provided with a journal J, that projects from the outer side of each, these journals being preferably made by means of a rod or bar passing through each of them and the interior of the intermediate dipper part d^3 , so as to project beyond the outer face of the arms A^2 , with the journals each provided with a head h^3 .

The letters V V designate braces that extend from the lower end of the boom to connect with the outer corners of the dipper part d^3 .

The dipper parts d^2 and d^3 each have a concave interior with vertical ends E, that form, when closed so as to be in contact, a semi-cylindrical part. The swinging dipper part d^2 is provided with a bail B^2 , whose downwardly-extended arms a^2 a^2 are forked at Y for connection to the sides of the dipper part d^2 . Each of these bail-arms a^2 a^2 is slotted at S³ to receive one of the journals J, on which the dipper part d^2 turns and slides when operated by the bail-chain C' or the chain C³, connecting with the swinging dipper part. The chain C' of the bail B^2 passes over a pulley P', that is arranged in a hanger H, that is downwardly projected from the boom B, and this chain runs to a drum. (Not shown.)

The letters C^2 C^3 designate branch chains that connect with the outer edge of the swinging dipper part and as they extend upwardly they connect by means of an eye e^2 with the lower end of the chain C^3 , which latter chain passes over a pulley P^2 , that is arranged on a hanger H , that is downwardly projected from the boom B and from thence runs to a drum. (Not shown.) When the chain C^3 is drawn upwardly and the tension on the chain C' released, the chain C^3 causes the swinging dipper part to rise, its bail-arms turning and sliding on the journals J until it assumes the position shown at Fig. 3, and when the tension upon the chain C^3 is released and the bail-chain C' is drawn upon then the swinging dipper part is caused to descend into the earth with an excavating capacity to fill itself and draw enough of the material toward and so as to fill the stationary dipper part as it closes in contact with it, in which condition the arm A is operated to rise and the dipper parts are separated to dump by operating the chain C^3 .

The letter d^6 designates a brace connecting the bail-arms a^2 a^2 .

The letter B designates the boom that is projected from the deck of the dredge proper, the latter not being shown, and R^2 a stay-rod running from the outer end of the boom to the dredge.

The letter S designates a slide that is made with an interior adapted for the vertical passage of the dipper-arm A in rising or descending.

The letter E^2 designates an eccentric arranged on a shaft S^5 , having its bearings in ears e^3 , made on the side of the slide S . This eccentric is arranged in an opening made in the side of the slide S , and its function is to engage with the side of the dipper-arm A within the slide to clutch and hold said arm when down and when the dipper is digging and to move away from such engagement when the dipper is to be raised. This eccentric is operated by a crank K on the said eccentric, said crank connecting by means of a pitman p^6 with the piston-rod p^3 of the steam-cylinder I , the latter being provided with an entry-valve operated by a lever l^3 and rod l^4 and having an exhaust e^6 . While I have shown the eccentric operated by a steam-piston, it may be operated by other means, all that is required being to operate the crank K so as to force the cam-face of the eccentric to make a rigid engagement with the dipper-arm within the slide S . To raise the dipper-arm, any of the well-known means employed for that purpose may be used.

The dipper thus constructed and arranged is operated as follows: The dipper-handle being allowed to descend with the dipper open, as shown at Fig. 3, and the clutch or eccentric

being operated to hold it down in contact with the material to be excavated, power being applied to pull on the chain C , the dipper parts d^2 on its lower edge dig into the earth, so as to crowd it therethrough into contact with the dipper part d^3 and to fill itself, as well as the latter, when the dipper parts close, when the eccentric is released from its grip on the dipper-arm and the latter is raised to be dumped by operating the chains C' C^3 to open out the dipper part d^2 .

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

1. The dipper D , made in two parts, one of which is secured to a support and the other part constructed with and connected to a bail, having in each of its two arms a slot, a journal for each of said slots on which the bail and connected dipper part may turn and slide, an operating-chain connected to the bail, and an operating-chain connecting with the turning and sliding dipper part, substantially in the manner as and for the purposes set forth.

2. The combination, with the arm A , having the downwardly-extended arms A^2 , each provided with a journal J , of the stationary dipper part d^3 , rigidly connected to said arms A^2 , the swinging dipper part d^2 , having a bail B^2 , which at its lower end is secured thereto, with each of the two arms of said bail slotted to receive one of said journals, and the operating-chain C' , attached to the said bail, and the chain C^3 , connecting with the outer edge of the swinging dipper part, substantially in the manner as and for the purposes set forth.

3. The combination, with the arm A , having the downwardly-extended arms A^2 , each provided with a journal J on its outer face, of the dipper part d^2 , connected to said arms, the bail B^2 , made with slotted arms adapted to turn and slide on said journals, substantially as described, the swinging dipper part d^2 , attached to the lower end of said bail-arms, the chain C^3 , connected with said swinging dipper part, and the chain C' , connecting with said bail, substantially in the manner as and for the purposes set forth.

4. The combination, with the arm A , its downwardly-extending arms A^2 , each provided with a journal J , and the two-part dipper D , of the boom B , made with the slide S , and the eccentric E^2 , provided with an operating crank-arm K , substantially in the manner as and for the purposes set forth.

Signed at Troy, New York, this 10th day of July, 1890, and in the presence of the two witnesses whose names are hereto written.

JOHN VAN PATTEN.

Witnesses:

W. E. HAGAN,
CHARLES S. BRINTNAIL.