

No. 830,959.

PATENTED SEPT. 11, 1906.

W. H. BATES.
EXCAVATOR DIPPER.
APPLICATION FILED FEB. 28, 1906.

2 SHEETS—SHEET 1.

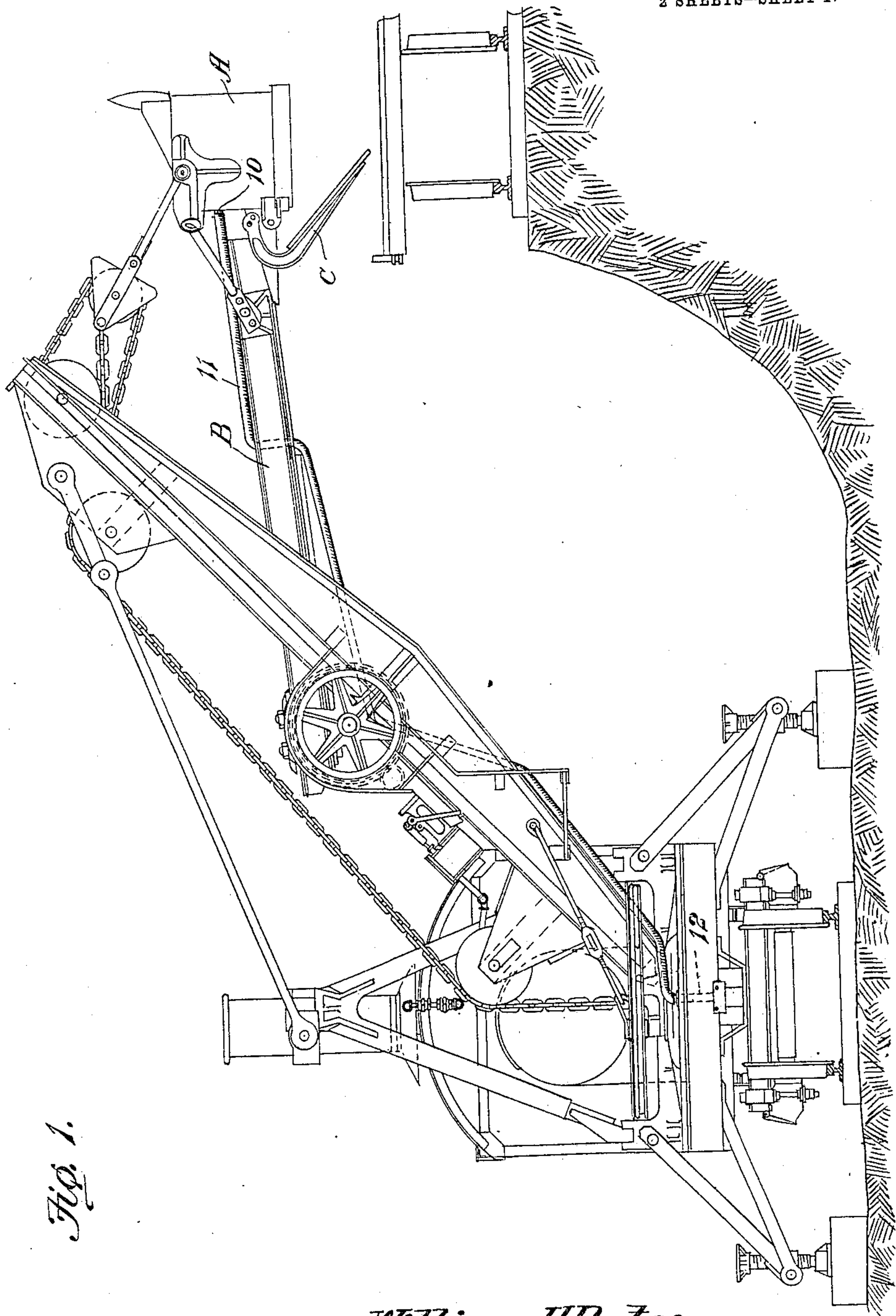


Fig. 1.

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INVENTOR.

WITNESSES:

E. J. Stewart
J. E. Parker

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C. A. Snow & Co.

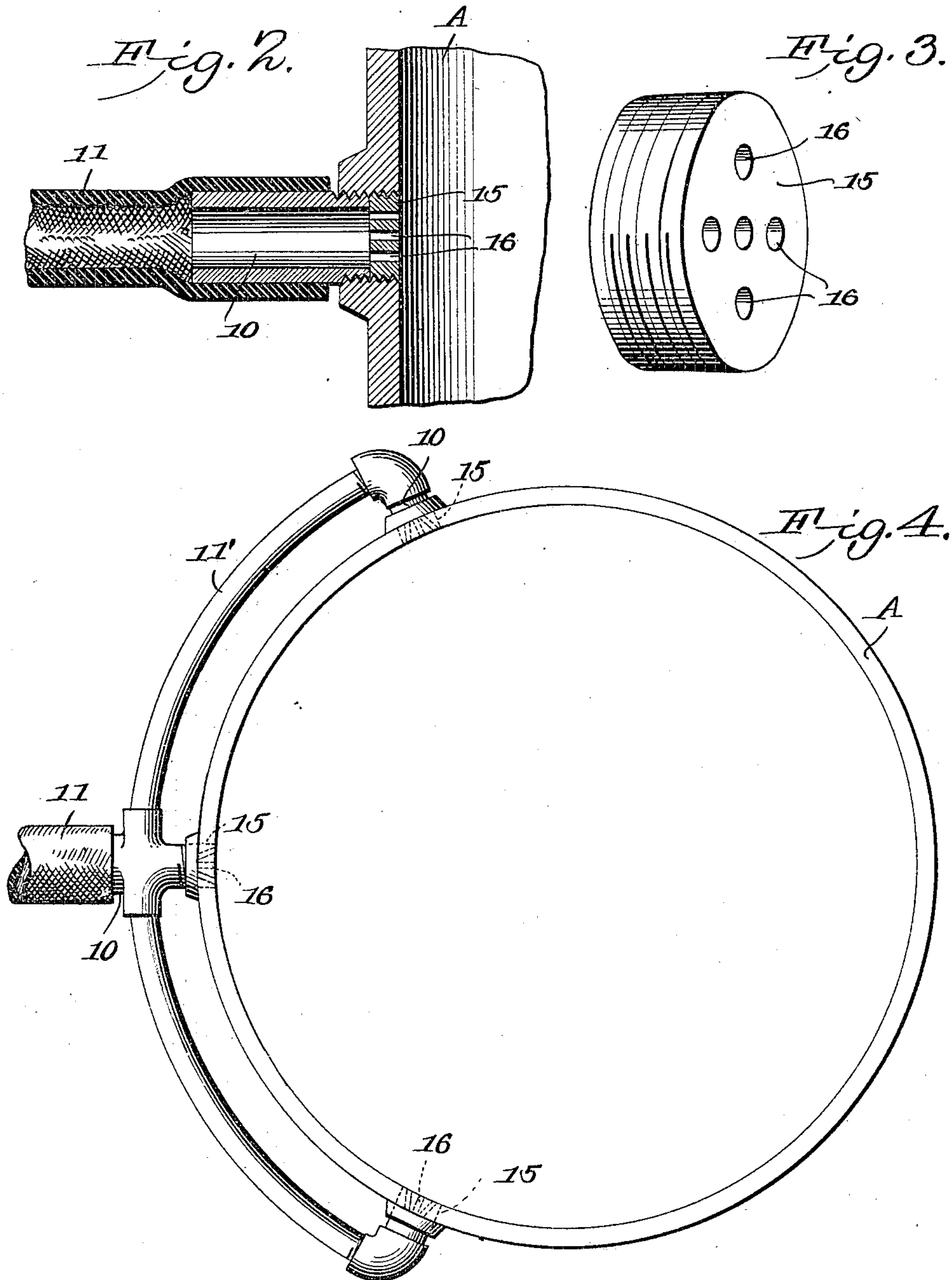
ATTORNEYS

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E. J. Stewart
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William H. Bates, INVENTOR.
By *C. A. Snow & Co.* ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM HURBERT BATES, OF CULEBRA, PANAMA.

EXCAVATOR-DIPPER.

No. 830,959.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed February 28, 1906. Serial No. 303,482.

To all whom it may concern:

Be it known that I, WILLIAM HURBERT BATES, a citizen of the United States, residing at Culebra, Panama, have invented a new and useful Excavator-Dipper, of which the following is a specification.

This invention relates to excavating apparatus of that general type in which a dipper or shovel is employed to excavate the dirt or other material, and especially to devices of that class in which the bottom of the dipper is movable to open position to allow the discharge of the contents by gravity. In operating these dippers, especially where soft clay or similar material is being excavated, there is considerable difficulty in effecting the discharge of the entire contents of the dipper at each operation, and in ordinary practice a percentage of the material will remain within the dipper to be carried back for the next excavating movement, with the result of increasing the work and materially reducing the capacity of the apparatus.

The principal object of the present invention is to provide for the discharge of all or practically all of the contents of the dipper each time the bottom of the dipper is moved to open position.

A further object of the invention is to provide means for conveying a fluid within the dipper and discharging the same adjacent to the inner wall thereof for the purpose of dislodging the material.

A still further object of the invention is to provide an excavating-dipper with a load-discharging apparatus in the form of a stream of water or other fluid which is directed against the material clinging to the inner wall of the dipper.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation showing a commercial form of excavating apparatus provided with a load-dislodging device arranged in accordance

with the invention. Fig. 2 is a sectional elevation, on an enlarged scale, showing the connection of the fluid-supply with the dipper. Fig. 3 is a detail view of the perforated distributing-plug. Fig. 4 is a plan view showing the employment of a plurality of fluid-distributing devices in connection with a single dipper.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The excavating apparatus illustrated in Fig. 1 includes a dipper A, and dipper-handle B, carried by and operated in the usual manner, the dipper being provided with a pivoted bottom member C, which is opened for the purpose of discharging the load. In carrying out the present invention the rear wall of the dipper is provided with a threaded opening in which is screwed a nipple 10, and this nipple is connected by a tube 11 to a fluid-supply pipe 12, placed adjacent to the turntable of the machine, the tube 11 being formed wholly or partly of flexible material, so that it may readily follow the movements of the dipper-handle and boom and always remain connected to the source of supply. The source of supply is preferably a water-tank; but under some circumstances compressed air may be utilized. This fluid, whatever its nature, is forced through the tube 11 and the nipple 10 to the interior of the dipper and there acts to assist in dislodging the load. In order to more effectually distribute the current of fluid, the inner end of the threaded nipple-receiving opening is also arranged to receive a plug 15, that is provided with a plurality of openings 16, so that the fluid will be directed outwardly and downwardly, the object being of course to dislodge any material that may tend to cling to the wall of the dipper.

In the construction shown in Fig. 4 a number of plugs 15 are employed, and these are connected by auxiliary tube or pipe sections 11', and in this case the water or other fluid is distributed over a correspondingly increased area.

In all cases the faces of the plugs 15 or other water-distributing devices are flush with the inner wall of the bucket, so that no obstruction will be offered to the passage of the dirt.

The illustration in the present case has been confined to the application of the inven-

tion to dippers or buckets of an ordinary type now in extensive use; but in the manufacture of new buckets provision may be made for discharging the water or other fluid to better advantage, and it is to be understood that any desired means of distributing the water may be employed without departing from the invention, which is intended to cover, broadly, the application of a fluid for the purpose of dislodging the material that tends to cling to the wall of an excavator dipper or bucket.

I claim—

1. An excavating-dipper or the like, means carried by the dipper for introducing a jet or stream of fluid into said dipper adjacent to the wall thereof.

2. An excavating-dipper or the like, and means carried by the dipper for directing a jet of water, in the direction of the discharge-opening in the dipper, adjacent to the wall thereof.

3. An excavating-dipper or the like, and means carried by the dipper for directing a

jet of fluid around the inner wall of the dipper to dislodge the excavated material.

4. An excavating-dipper or the like, and a fluid-supply pipe connected to and movable with the dipper.

5. An excavating - dipper, a handle, a swinging boom carrying the handle, and a fluid-supply pipe leading along the boom and connecting the dipper to a source of fluid-supply.

6. An excavating-dipper or the like, a fluid-supply pipe connected thereto, a nipple leading from the pipe through the wall of the dipper, and a perforated distributing-plug, the face of which is flush with the inner wall of the bucket.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM HURBERT BATES.

Witnesses:

F. H. SAMPSON,
RODOLFO AYARZAT.