

No. 692,815.

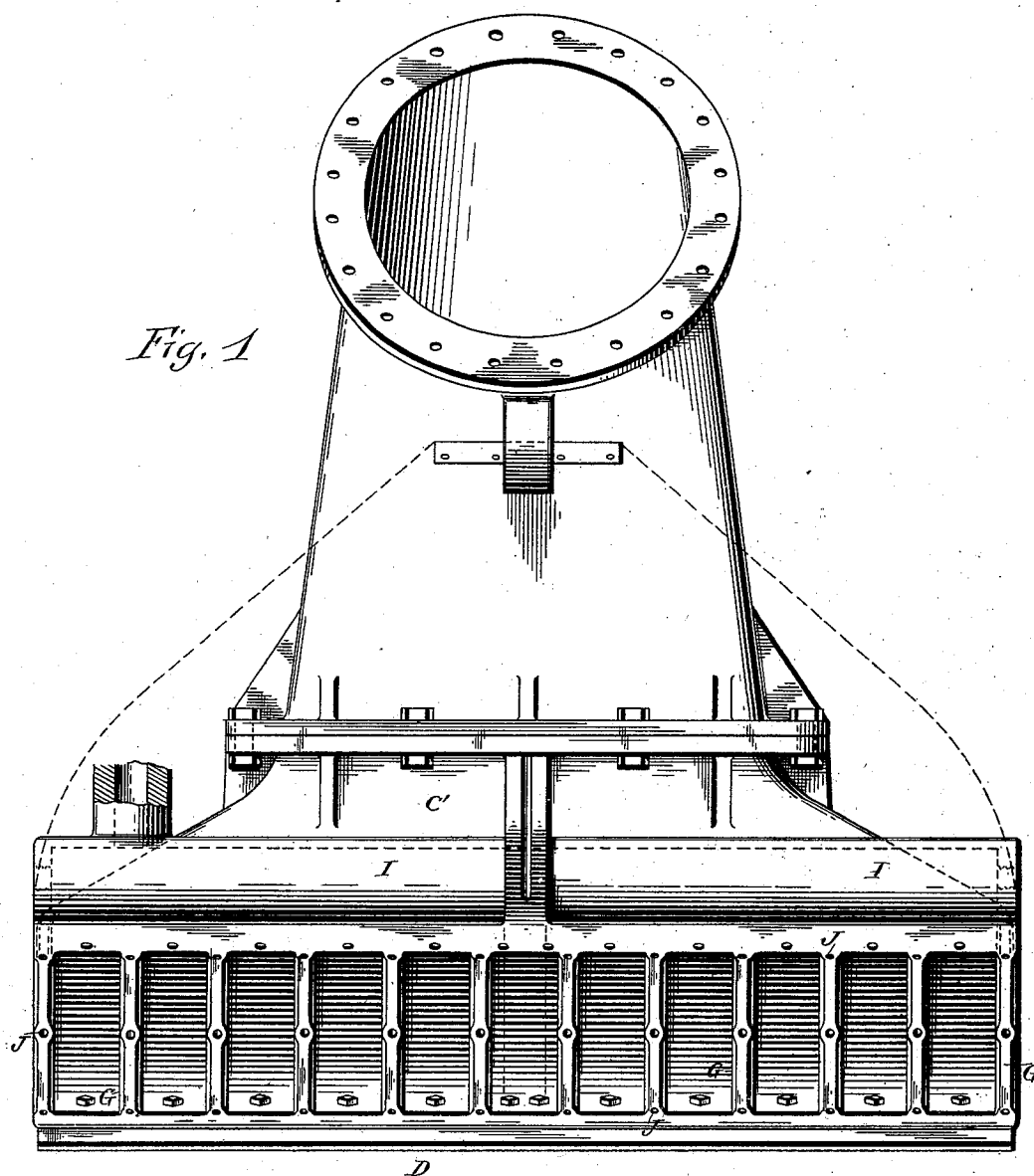
Patented Feb. 11, 1902.

L. W. BATES.  
MOUTHPIECE FOR SUCTION DREDGES.

(Application filed July 19, 1900.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES  
*D. C. Johnson*  
*D. E. Purdie*

INVENTOR:  
*Lindon W. Bates,*  
*by Dodge and Sons,*  
*Attorneys.*

No. 692,815.

Patented Feb. 11, 1902.

L. W. BATES.  
MOUTHPIECE FOR SUCTION DREDGES.

(Application filed July 19, 1900.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 2

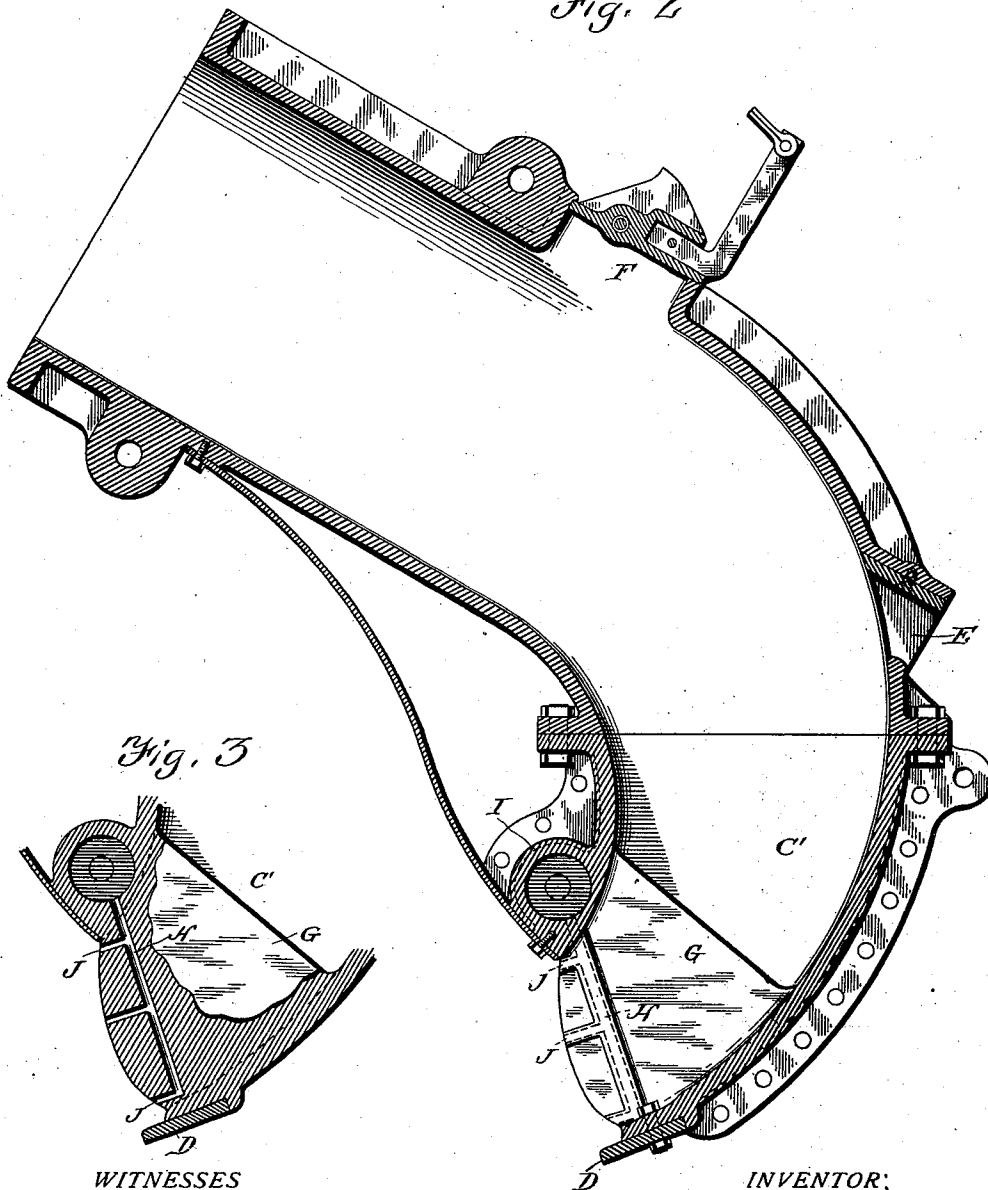
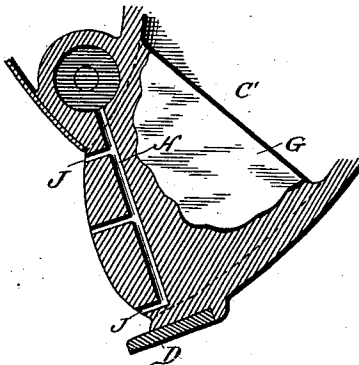


Fig. 3



WITNESSES

*D. E. Curdine*  
*D. E. Curdine*

INVENTOR:

*Lindon W. Bates*  
*by Dodge and Sons*  
*Attorneys*

No. 692,815.

Patented Feb. 11, 1902.

L. W. BATES.  
MOUTHPIECE FOR SUCTION DREDGES.

(Application filed July 19, 1900.)

(No Model.)

3 Sheets—Sheet 3.

*Fig. 4*

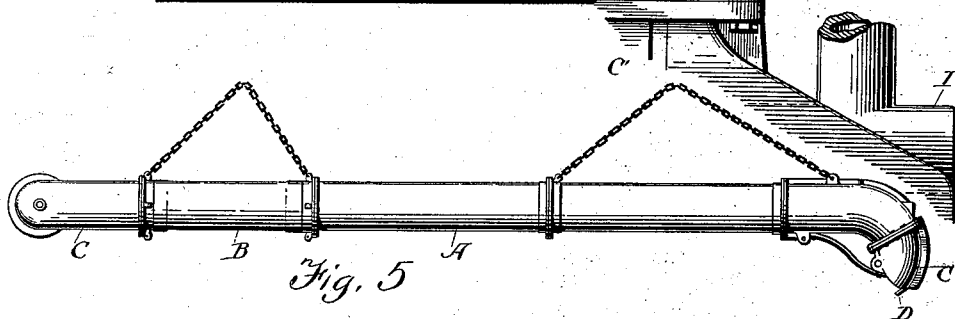
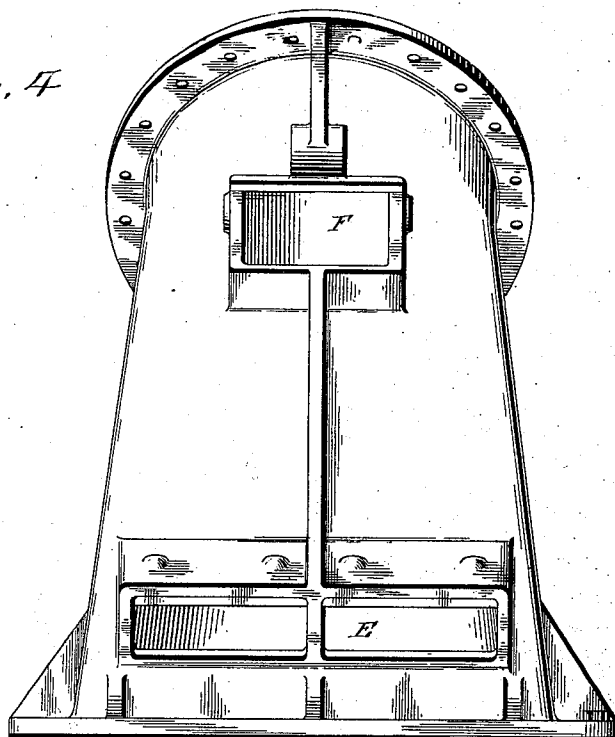


*Fig. 5*

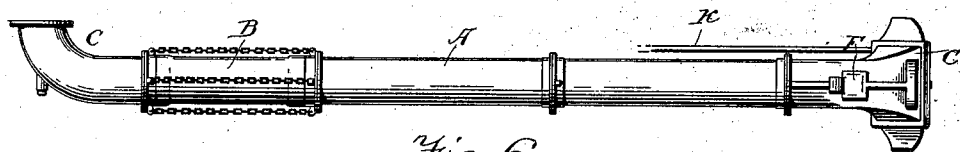


*Fig. 6*

WITNESSES

*D. C. Johnson*  
*D. E. Purdine*

INVENTOR:

*Lindon W. Bates,*  
*by Dodge and Sons,*  
*Attorneys.*

# UNITED STATES PATENT OFFICE.

LINDON WALLACE BATES, OF CHICAGO, ILLINOIS.

## MOUTHPIECE FOR SUCTION-DREDGES.

SPECIFICATION forming part of Letters Patent No. 692,815, dated February 11, 1902.

Application filed July 19, 1900. Serial No. 24,252. (No model.)

*To all whom it may concern:*

Be it known that I, LINDON WALLACE BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mouthpieces for Suction-Dredges, of which the following is a specification.

My present invention pertains to improvements in drag-mouthpieces for trailing suction-dredges, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein—

Figure 1 is a front face view of the mouthpiece, showing my invention applied thereto; Fig. 2, a transverse sectional view; Fig. 3, a detail sectional view showing the passages formed in the ribs or septa; Fig. 4, a rear elevation of a portion of the mouthpiece; and Figs. 5 and 6, side elevation and top plan view, respectively, of the mouthpiece and its connections.

The object of this invention is to provide means for loosening the soil in the way of the mouthpiece as it is dragged across the bottom, and thus assist the action of the cutting edge by further disintegrating the material detached by said edge, whereby the removal of material by the suction-pipe is facilitated. This is attained by employing a series of water-jets working in conjunction with the trailing mouthpiece.

Referring to the drawings, A designates the trailing pipe, connected by a suitable flexible joint B to the intake C, connected with the suction-pump. To the lower end of said pipe A there is connected a hollow mouthpiece C', provided with a cutting edge D. The mouthpiece is, as is usual in such cases, provided with relief-ports E and F and with such other accessories as are necessary to make up a proper and efficient working device. Within the lower open end of the mouthpiece there is formed a series of ribs or septa G, having formed near the outer edge thereof a channel or passage H, which at its upper end is in communication with pipe or conduit I, extending longitudinally across the entire length of the mouthpiece, as is best indicated in Figs. 1 and 3. Communicating with channel H and extending out to the forward edge

of the ribs or septa are openings J. Pipe or conduit I is connected with a pipe K, Fig. 6, which in turn is connected by suitable flexible joints with a pump located upon the dredge.

It is manifest that the water, which is forced out under pressure in a series of jets through openings J, will tend to cut away the material with which it comes into contact and will also to a greater or less extent disintegrate the material loosened by cutter D. From this it will be seen that not only is the material which is loosened by the cutter broken up, but that a certain amount of the material with which the jets come into direct contact will also be disintegrated.

In practice it is found that the use of water-jets increases the capacity of a dredge of this type.

Having thus described my invention, what I claim is—

1. A mouthpiece for trailers of suction-dredges provided with a cutting edge; and a series of water-jets located in a plane above said cutting edge and arranged to act in conjunction therewith, said jets being directed outwardly in substantially parallel lines with said edge away from the mouthpiece.

2. A mouthpiece for trailers of suction-dredges provided with a series of outwardly-projecting ribs; outwardly-extending passages formed in said ribs; and means for forcing water under pressure through said passages outwardly in practical alinement with the passages.

3. A mouthpiece for trailers of suction-dredges having a series of ribs formed therein; outwardly-extending passages formed in said ribs; means for forcing water under pressure through said passages; and a cutter also carried by said mouthpiece.

4. A mouthpiece for trailers of suction-dredges provided with a series of ribs formed therein; a series of outwardly-extending passages formed in said ribs; a pipe or conduit extending across the entire width of the mouthpiece, and communicating with said passages; and means for supplying water under pressure to said pipe or conduit and causing the jets to be projected away from the mouth.

5. A mouthpiece for trailers of suction-

dredges provided with a series of ribs formed therein; outwardly - extending channels formed in said ribs; a pipe or conduit extending across the mouthpiece and communicating with said passages; means for forcing water into said pipe or conduit and out of the openings; and a cutter carried by said mouthpiece.

6. In combination with a suction-pipe A, a mouthpiece carried thereby; a knife carried by said mouthpiece; a series of ribs formed in the mouthpiece; outwardly - extending

channels formed in said ribs; a conduit extending across the mouthpiece and communicating with said channels; a pipe K connected with said conduit; and connections between said pipes A and K and the dredge.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LINDON WALLACE BATES.

Witnesses:

PERCY E. MATTOCKS,  
EDMUND S. SNEWIN.