

(No Model.)

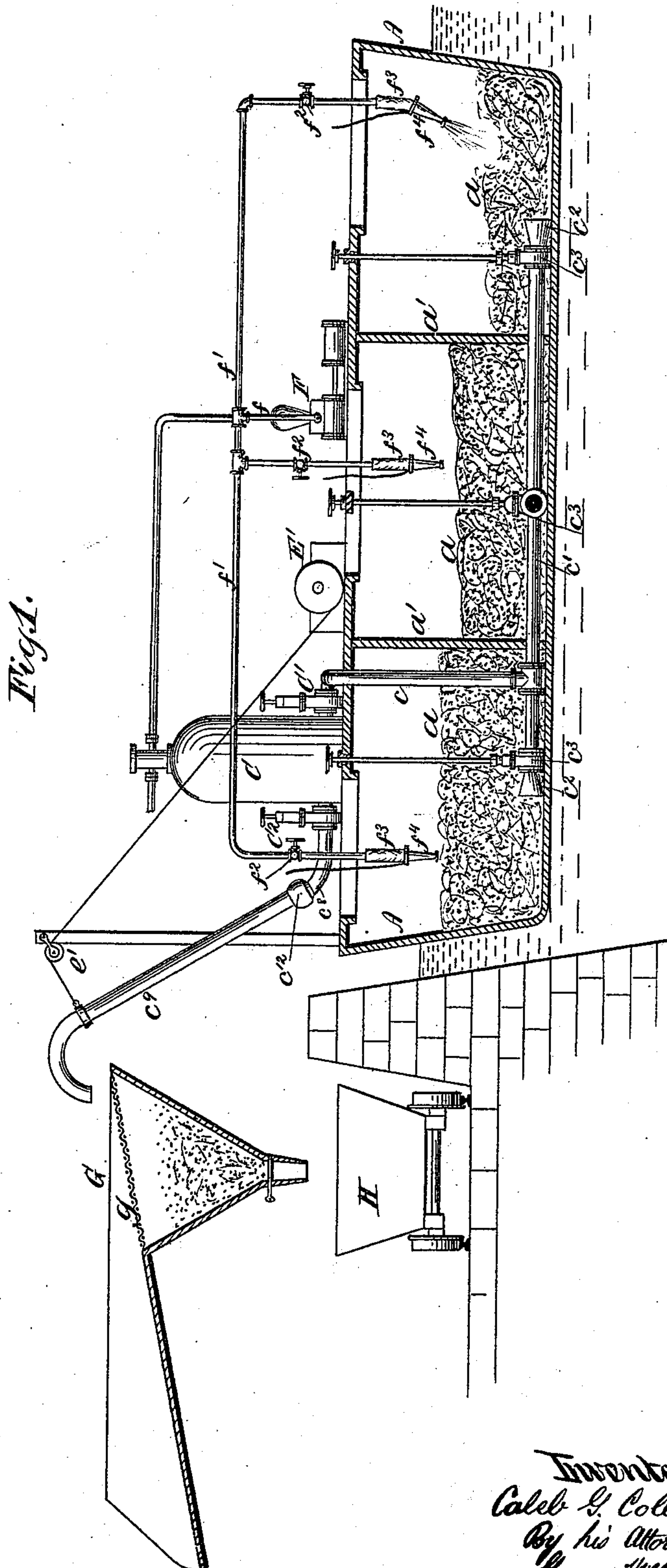
2 Sheets—Sheet 1.

C. G. COLLINS.

DEVICE FOR TRANSFERRING EARTH, ORES, &c.

No. 512,865.

Patented Jan. 16, 1894.



Witnesses:  
D. W. Gardner,  
G. J. Mink

Inventor:  
Caleb G. Collins,  
By his Attorney,  
George William Mink

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2 Sheets—Sheet 2.

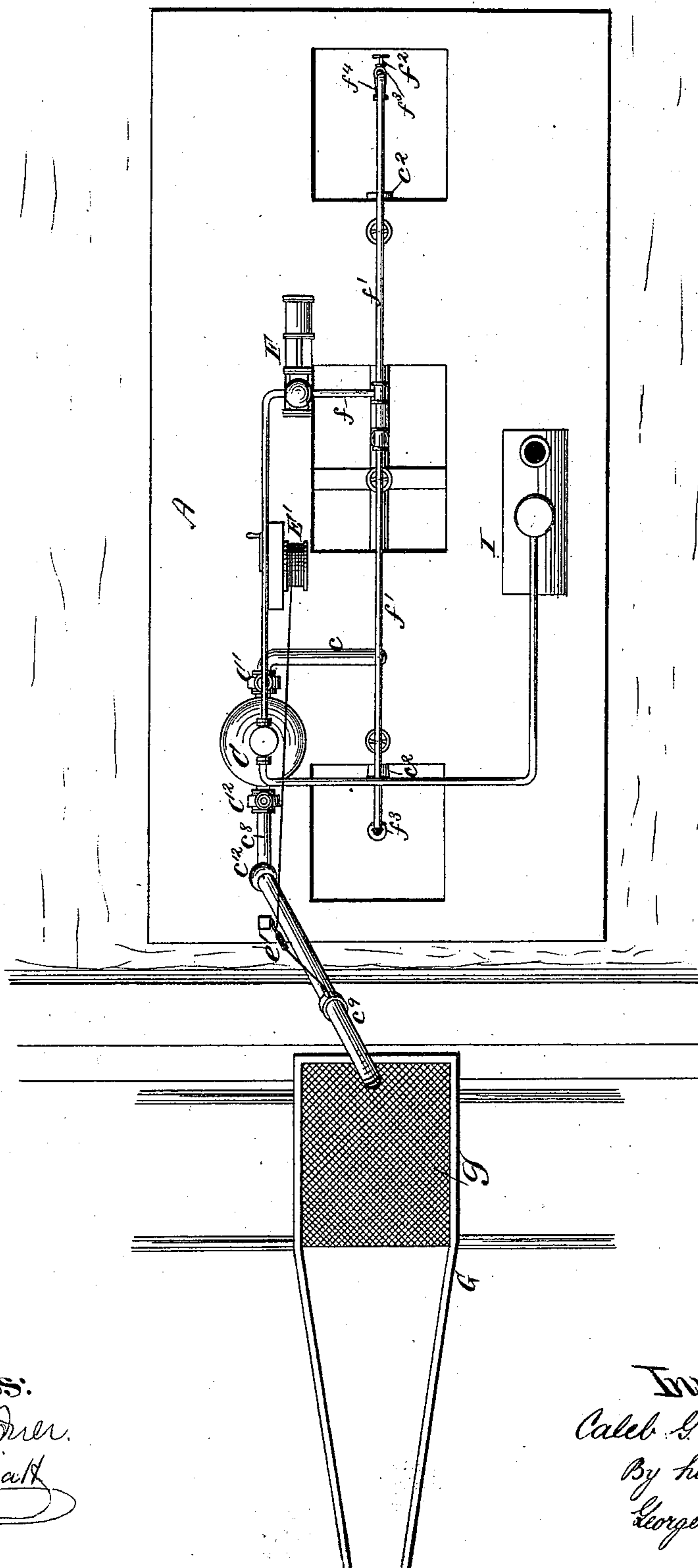
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*Fig. 2.*



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G. J. Miatt

Inventor:  
Caleb G. Collins,  
By his Attorney,  
George William Miatt



# UNITED STATES PATENT OFFICE.

CALEB G. COLLINS, OF WOODSBURG, ASSIGNOR TO C. AMORY STEVENS,  
OF NEW YORK, N. Y.

## DEVICE FOR TRANSFERRING EARTH, ORES, &c.

SPECIFICATION forming part of Letters Patent No. 512,865, dated January 16, 1894.

Application filed June 16, 1892. Serial No. 436,998. (No model.)

*To all whom it may concern:*

Be it known that I, CALEB G. COLLINS, a citizen of the United States, residing at Woodsburg, in the county of Queens and State of New York, have invented certain new and useful Improvements in Transferring Earths, Ores, Coal, &c., from Transporting-Receptacles, of which the following is a specification, sufficient to enable others skilled in the art to which the invention appertains to use the same.

My invention relates more especially to the unloading or transfer of earthy matter or products of nature from the receptacles in which such material has been transported.

While the invention may be advantageously employed in disposal of dredged or excavated material it is also equally applicable in the handling and transfer of any material not liable to injury from contact with water. Thus clay, sand, gravel, stone, coal, ores, &c., may be conveniently and economically transferred by my method from one receptacle to another, or unloaded from the receptacles in which they have been transported. Vessels, scows, cars or other receptacles or vehicles ordinarily used in transporting such material may thus be unloaded, the necessary apparatus being either permanently and independently situated at the point of discharge, mounted upon an independent vehicle or movable support, or mounted directly upon the vehicle in which material is transported as may be found most desirable or convenient, the relative arrangement and operation of the parts being substantially the same in either case.

My invention consists in the special combination and arrangement of parts herein after set forth for transporting and delivering material or substances not injured by contact with water.

In the accompanying drawings I illustrate the use of apparatus suitable for giving effect to my invention although I do not limit or restrict myself to any special form and construction of parts since it is obvious that various modifications in the apparatus, and in the relative arrangement thereof, may be effected without deviating from the essential features of my invention.

Figure 1, represents symbolically the essential features of my combination and arrangement of apparatus; Fig. 2, a plan of the same.

The operative parts requisite for carrying out my improvements are preferably situated directly upon the vehicle used for transporting the material as upon the vessel A.

A, represents a scow, or other vessel, the hold of which is loaded with material  $\alpha$ , which has been transported to the place for delivery, or discharge. In lieu of the scow A, any other vehicle might be substituted, as a railroad car, or any suitable receptacle capable of transportation. The conduit  $c$ , is supplemented by a lateral extension  $c'$ , extending longitudinally in both directions throughout the main lower portion of the boat A. The vessel is divided into water tight compartments, as indicated at  $\alpha'$ , the extension pipe  $c'$ , is provided with nozzles  $c^2$ , and valves  $c^3$ , in each, so that the material  $\alpha$ , from any given compartment can be removed independently of that contained in any other compartment. Thus by closing any two of the valves  $c^3$ , shown, and opening the remaining one, the material in which the latter is situated will be withdrawn. The steam vacuum transfer chamber or pump C, is connected with a suitable steam boiler I.

An inlet valve  $C'$ , is interposed between the conduit  $c$  and the steam vacuum transfer chamber C, and an exit valve  $C^2$  is likewise interposed between the latter and its discharge conduit  $c^8$ . The operation of these valves may be effected by steam as heretofore designed, or in any other suitable manner; and the admission of steam and water to form the vacuum, and subsequently of steam to expel the charge of material drawn in by the vacuum, is effected as heretofore, or by other suitable means.

Where the material  $\alpha$ , consists of excavated or dredged material which is to be discharged and distributed over a comparatively wide area the discharge conduit  $c^8$ , may be formed to act as a discharging spout; or an additional section  $c^9$ , may be employed connected with the steam vacuum transfer chamber discharge conduit  $c^8$ , by means of a flexible joint  $c^{12}$ . The discharge conduit may be so arranged as to discharge directly into a recep-



tacle, as into the inclined receiver G, the section  $c^9$ , being adjusted vertically with relation thereto, to compensate for the varying level of the boat A, by means of tackle  $e'$ , and  
5 hoisting mechanism E'.

Where the material to be discharged from the receptacle A, lacks the degree of softness or solution requisite in order to permit it to flow freely through the conduits and steam  
10 vacuum transfer chamber C, I provide means for introducing a supply of water to the material in the receptacle A, preferably by the use of a pump F, and pipes  $f, f', f^3, f^4$ , provided with valves  $f^2$ , which conduct the wa-  
15 ter to the material  $a$ , at points adjoining the mouths  $c^2$ , in the section pipe  $c$ . The sections  $f^3$ , of these water pipes are preferably flexible, or pipes are provided with flexible or universal joints, so that the nozzles  $f^4$ , may  
20 be readily adjusted to direct the streams of water against the points desired. Where the material  $a$ , is of a hard or tenacious character the water is pumped under sufficient pressure to cause the jets to break up and dis-  
25 tegrate the material to an extent sufficient to cause it to pass readily with the water through the suction pipe  $c$ , and the rest of the apparatus. Coal, ores, gravel, &c., may thus be loosened up and floated through the conduits  
30 and pumps, the water acting as a liquid vehicle or lubricant for the material, and preventing injury or obstruction to the apparatus. Where solid material such as coal, ore, &c., is thus unloaded it is obviously desirable  
35 that the water should be separated from the material as soon as it has performed the functions of a liquid vehicle, which I provide for by the use of the screen  $g$ , upon which the intermixed material and water is discharged.  
40 The water thus automatically separates itself from the coal or other material, which is then

discharged into the car H, or other receptacle in a comparatively dry state.

The practical advantages of my improved arrangement and operation of apparatus are 45 important. It will be seen that all parts are easy of access, and that the operation as a whole can be conveniently observed and controlled.

What I claim as my invention, and desire 50 to secure by Letters Patent, is—

1. The combination of a portable receptacle for transporting material substantially such as described formed with a plurality of water tight compartments, a suction pipe opening 55 into and connected with each of said water tight compartments, a steam vacuum transfer chamber and discharge conduit, a force pump and a plurality of water injection pipes arranged to direct jets of water against the ma- 60 terial in the said several water tight compartments, for the purpose and substantially in the manner described.

2. The combination of a portable receptacle for transporting material substantially such 65 as described formed with a plurality of water tight compartments, a suction pipe connected with and opening into each of the said water tight compartments, valves for independently opening or closing the suction pipe in the 70 several compartments, a steam vacuum transfer chamber and discharge conduit, a force pump, and a plurality of water injection pipes arranged to direct jets of water against the material in the said several compartments for 75 the purpose and substantially in the manner described.

CALEB G. COLLINS.

Witnesses:

ROBERT JOHNSTON,  
JOHN BAXTER.