

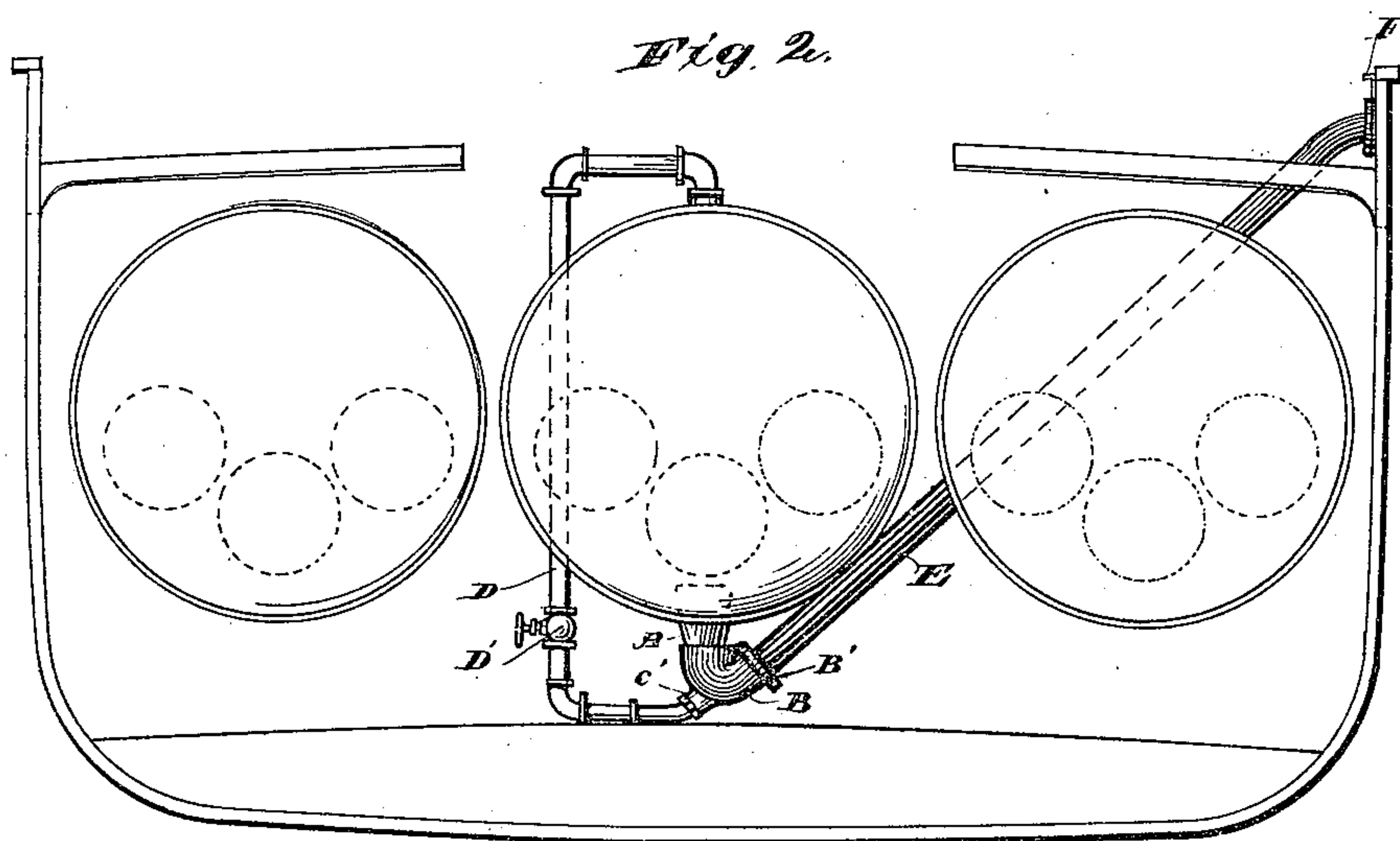
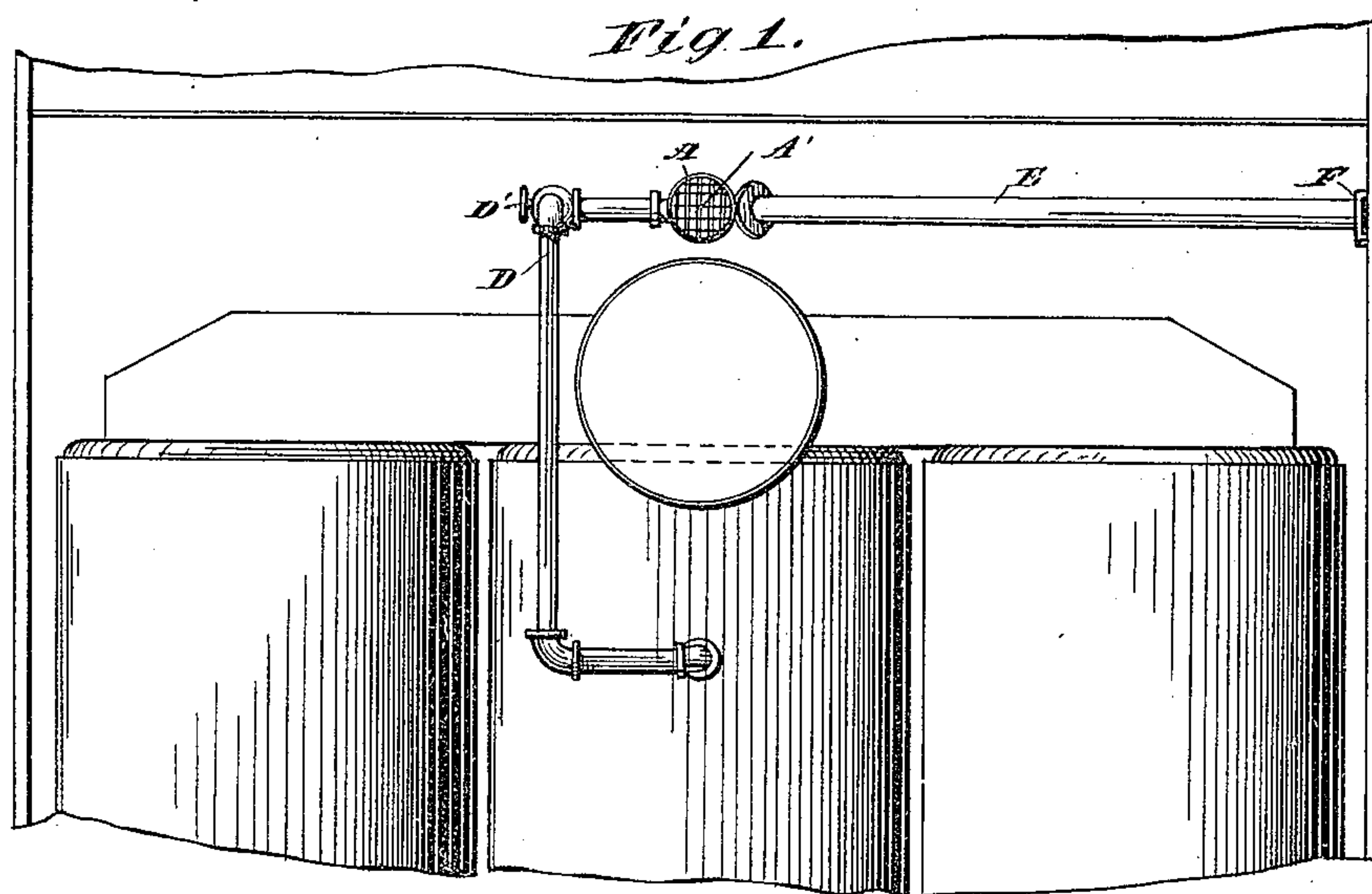
(No Model.)

2 Sheets—Sheet 1.

J. F. PANKHURST.
STEAM ASH EJECTOR.

No. 438,173.

Patented Oct. 14, 1890.



Witnesses.
H. H. Moore
Emma L. Jones

Inventor
John F. Pankhurst
by Wm M. Monroe,
Attorney.

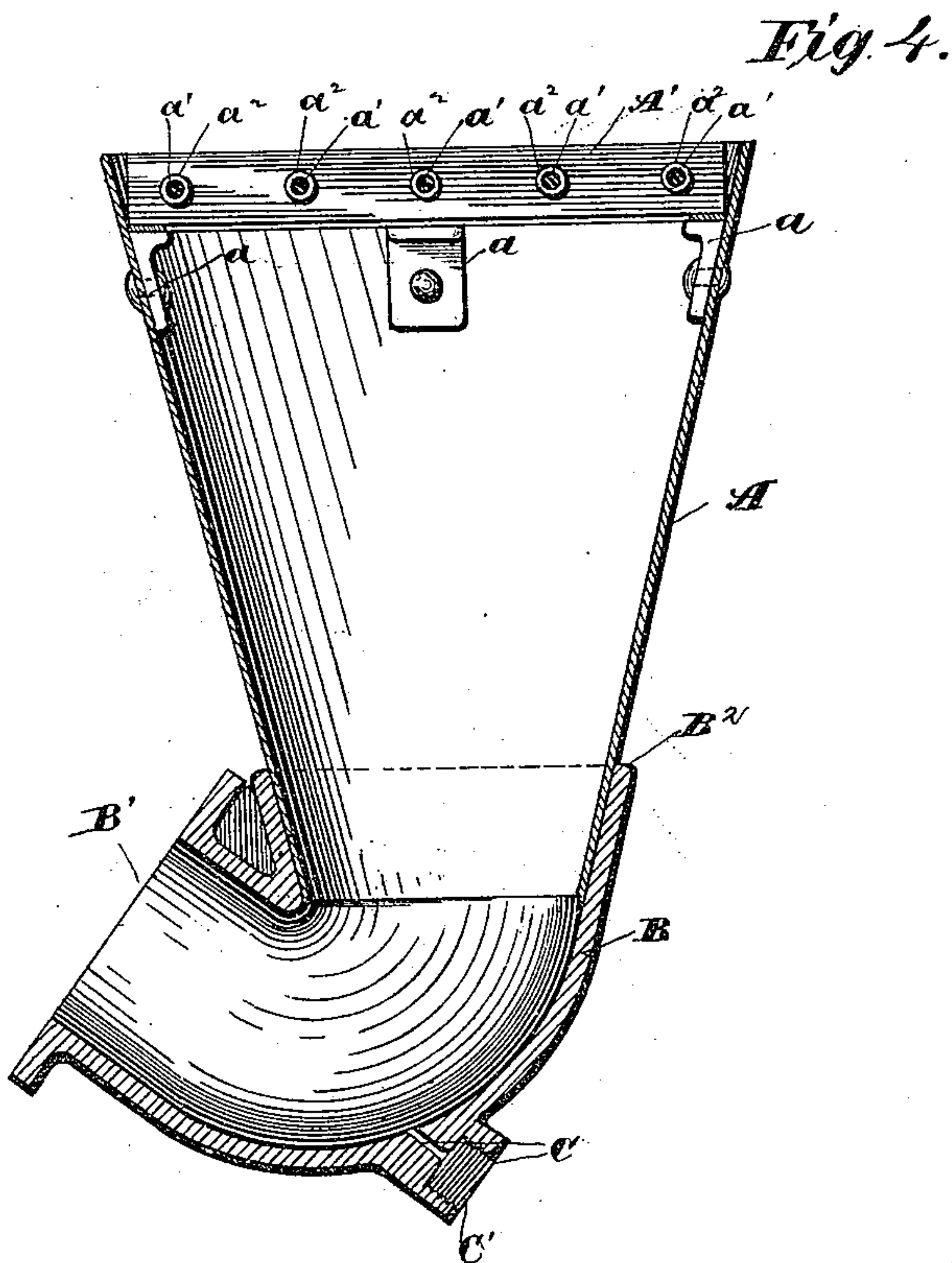
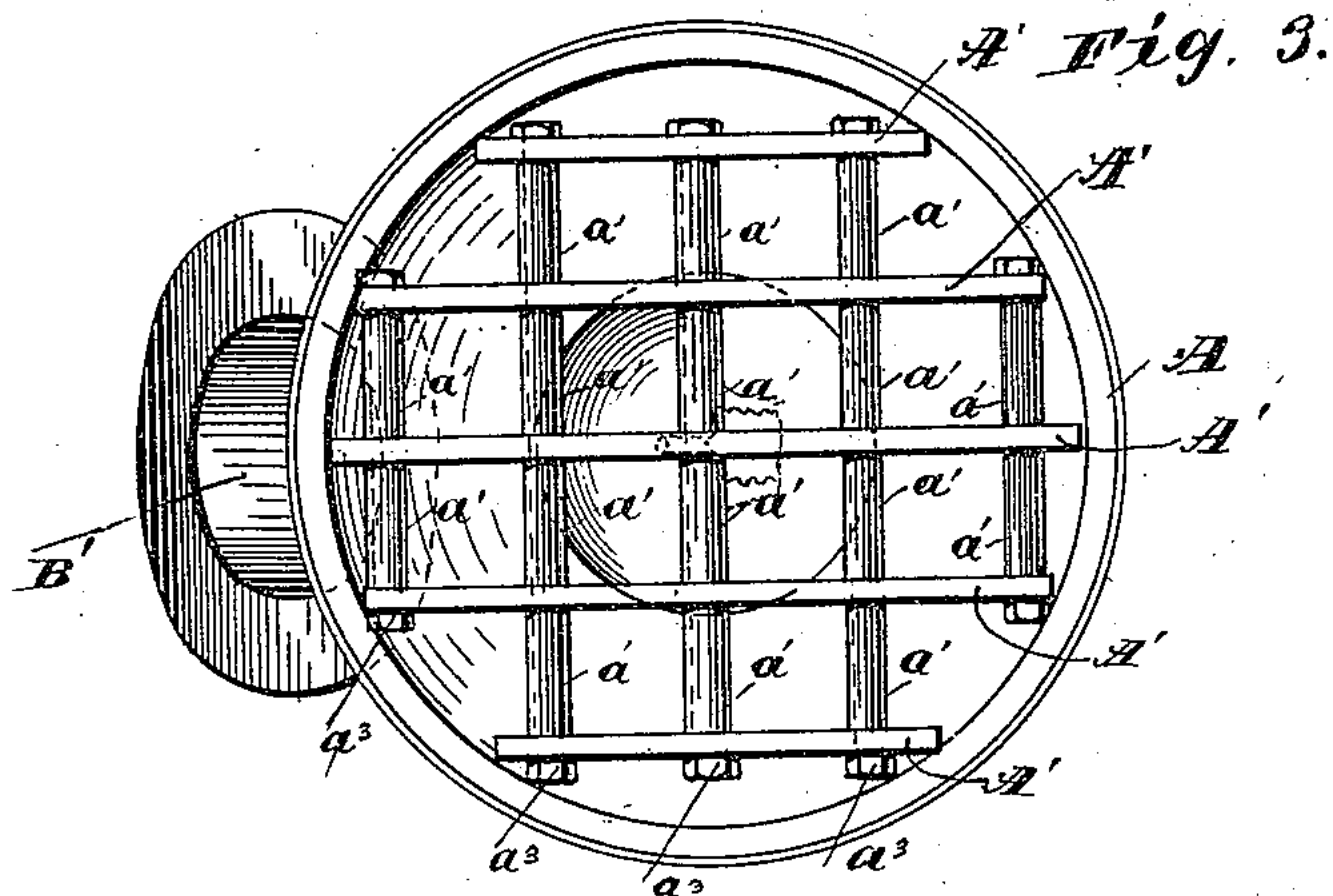
(No Model.)

2 Sheets—Sheet 2.

J. F. PANKHURST.
STEAM ASH EJECTOR.

No. 438,173.

Patented Oct. 14, 1890.



Witnesses
J. A. Moore
Emmal Jones

Inventor
John F. Pankhurst
Wm. M. Monroe,
Attorney.

UNITED STATES PATENT OFFICE.

JOHN F. PANKHURST, OF CLEVELAND, OHIO.

STEAM ASH-EJECTOR.

SPECIFICATION forming part of Letters Patent No. 438,173, dated October 14, 1890.

Application filed June 16, 1890. Serial No. 355,548. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. PANKHURST, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Steam Ash-Ejectors; and I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means whereby steam-power may be utilized to eject the refuse ashes and clinkers from the stoke-hole of a marine vessel; and its object is to provide a simple, forcible, and effective device for accomplishing this purpose, positive in its action, and not liable to become choked.

My invention consists in the combination and arrangement of the various parts and construction of details, as shown in the accompanying drawings, described herein, and more specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the front of boilers and ash-ejector as they would be arranged in the hold of a vessel. Fig. 2 is a cross-section of the vessel, showing a side view of ejector and pipe to the side with steam-connections. Fig. 3 shows a plan view of the ejector detached from its connections and enlarged. Fig. 4 is a vertical section of the ejector on center line.

Heretofore ashes and other refuse have been hoisted from the hold in buckets, or by similar apparatus, creating considerable discomfort from noise and dirt, and requiring considerable time and delay. It is also known that a form of water-ejector has been used for this purpose; but difficulty has been found in insuring efficient delivery.

My invention wholly accomplishes this purpose, and is constructed as follows: A is a conically-shaped hopper, provided with the peculiarly-formed grating A' at its open upper end, supported upon the ring and brackets. This hopper A receives the refuse ashes, the grating sifting out any portions which might become entangled in the pipe. The grating A' will be seen to be constructed of cross-bars A' on edge and connecting-bolts a', with sleeves a². This construction allows the

ashes to pass through readily, the sleeves turning upon the rods with little friction.

At the bottom of the conical receiver A is attached the cast-elbow B, tapered above to inclose the lower edge of the cone A, and having its outer opening pointing upward at the proper angle to discharge the ashes above the water-line.

At the turn of the elbow beneath the mouth of the cone and where the heaviest weight and thrust of the ashes are borne is placed the orifice of the steam-jet C, at the same angle of elevation as the outwardly-directed arm of the elbow and in the center line of its opening. In the rear of this jet-opening and communicating with it is placed the pipe-connection D, communicating with the boiler or steam-drum, as shown in Figs. 1 and 2. A valve, as D', is placed upon this pipe to control steam admission or cut-off. The ejector or outlet pipe E leads directly toward the side of the vessel, as shown in elevation in Fig. 2, so that the discharge will take place above deck. A valve, sliding in vertical guides, as F, may be used to prevent water from outside the vessel from entering the pipe.

In use, the conical receiver having been filled with refuse, the steam is admitted through the opening and rapidly forces out any material dropping into the elbow, besides creating a suction which draws downward anything remaining in the cone. The action of this form of ejector is prompt and certain, while inexpensive and durable in construction.

I do not claim the exact shape or size of the various parts, in which slight modifications may be made without departing from the spirit of my invention.

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

1. A vertically-arranged conical ash-receiver, in combination with a separate jet-receiver, the said jet-receiver being provided with a conical upper extension and curved discharge-passage continuous with the conical opening, a reduced inlet in the curved passage, and boss with threaded opening to the inlet, substantially as described.

2. In a steam ash-ejector, a vertical conical

ash-receiver A, provided with an interior annular ring near its upper enlarged extremity, cross-bars A', traversing the opening and resting upon the annular ring, separating-rollers
5 a' between the cross-bars A', bolts a², passing through the cross-bars A' and rollers a' and connecting them together, with a curved jet-receiver B, conical at its upper extremity to receive the lower end of the ash-receiver A, a
10 smooth curved lower passage connecting the vertical opening of the jet-receiver with a discharge-opening, and a perforated boss C, with opening into the curved surface, substantially as described.
15 3. In a steam ash-ejector, upper and lower vertical cones A and B, the upper cones being provided with transverse bars A and separating-rollers a' and snugly fitting within the lower cone at its upper extremity, the lower
20 cone being provided with a smooth curved

interior passage, and discharge-opening adapted to receive and discharge the contents of the upper cone, substantially as described.

4. In a steam ash-ejector, the combination of an upper receiving-cone and lower ejecting- 25 cone having a discharge-opening, the said upper cone being provided with transverse bars and rollers and detachable from the lower cone, substantially as described.

5. In an ash-ejector, two inverted conical 30 openings A and B, vertically arranged one above another, the lower cone terminating in a curved outwardly-opening passage and provided with a boss C and perforated inlet c, substantially as described.

JOHN F. PANKHURST.

Witnesses:

WM. M. MONROE,
F. H. MOORE.