

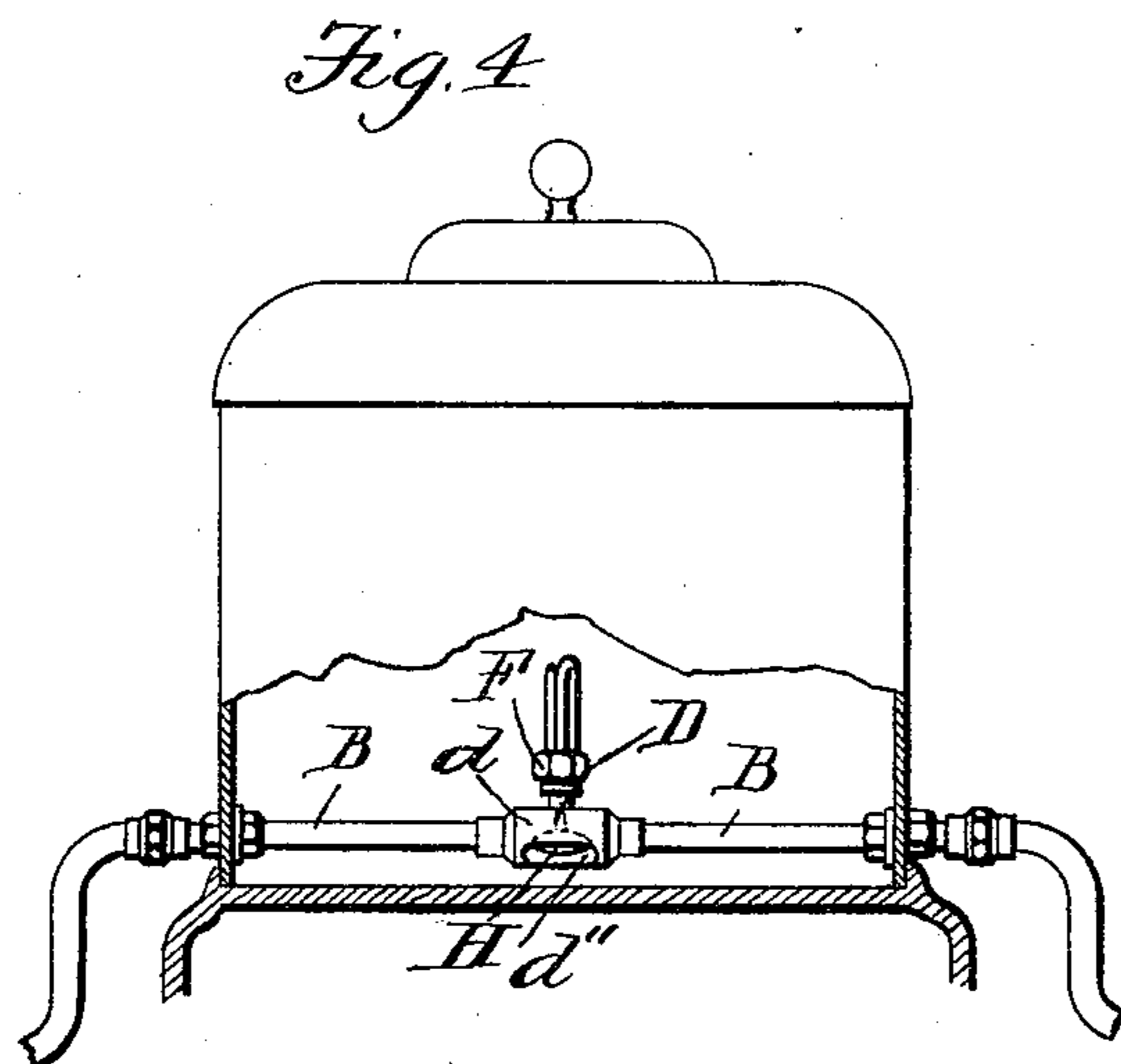
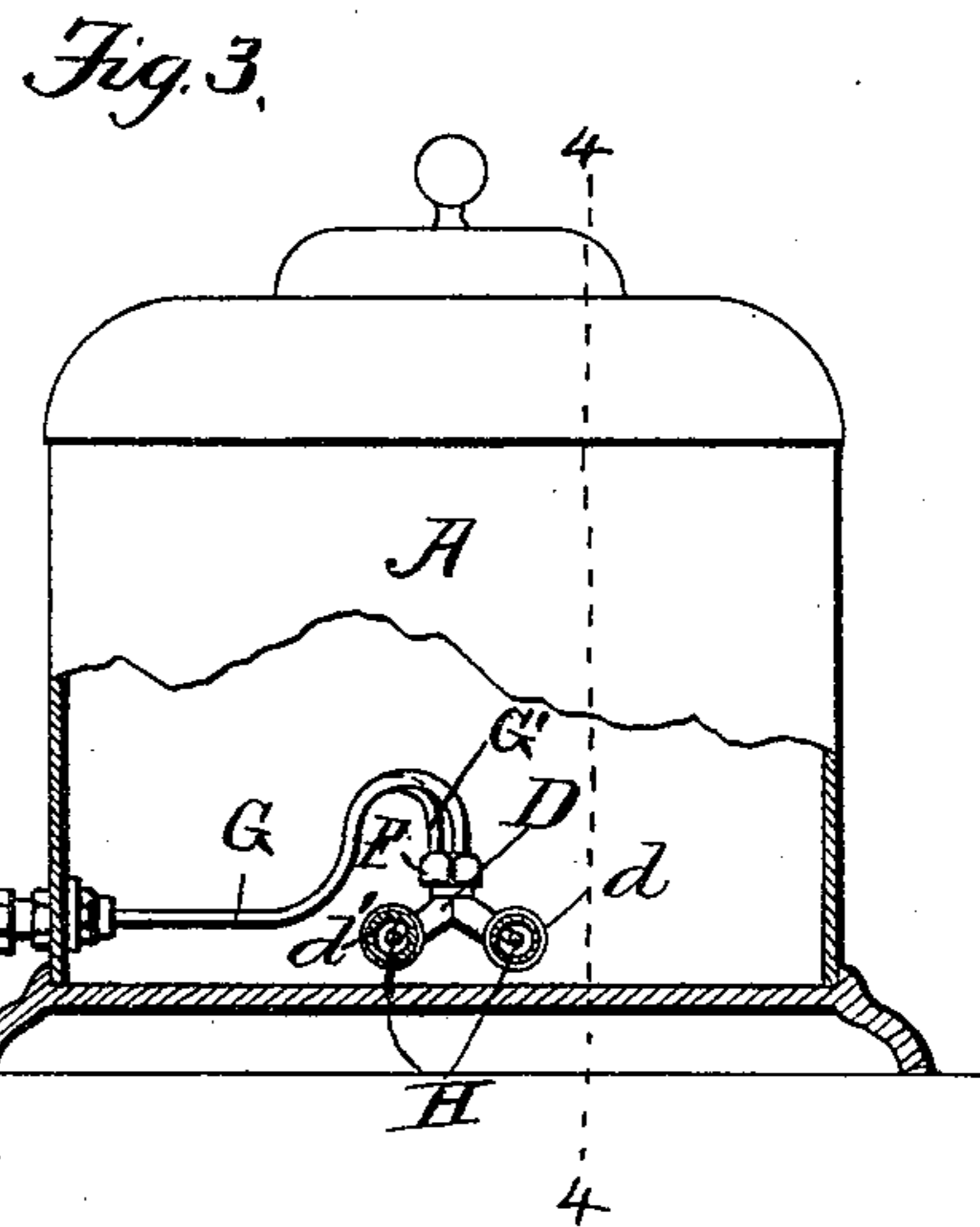
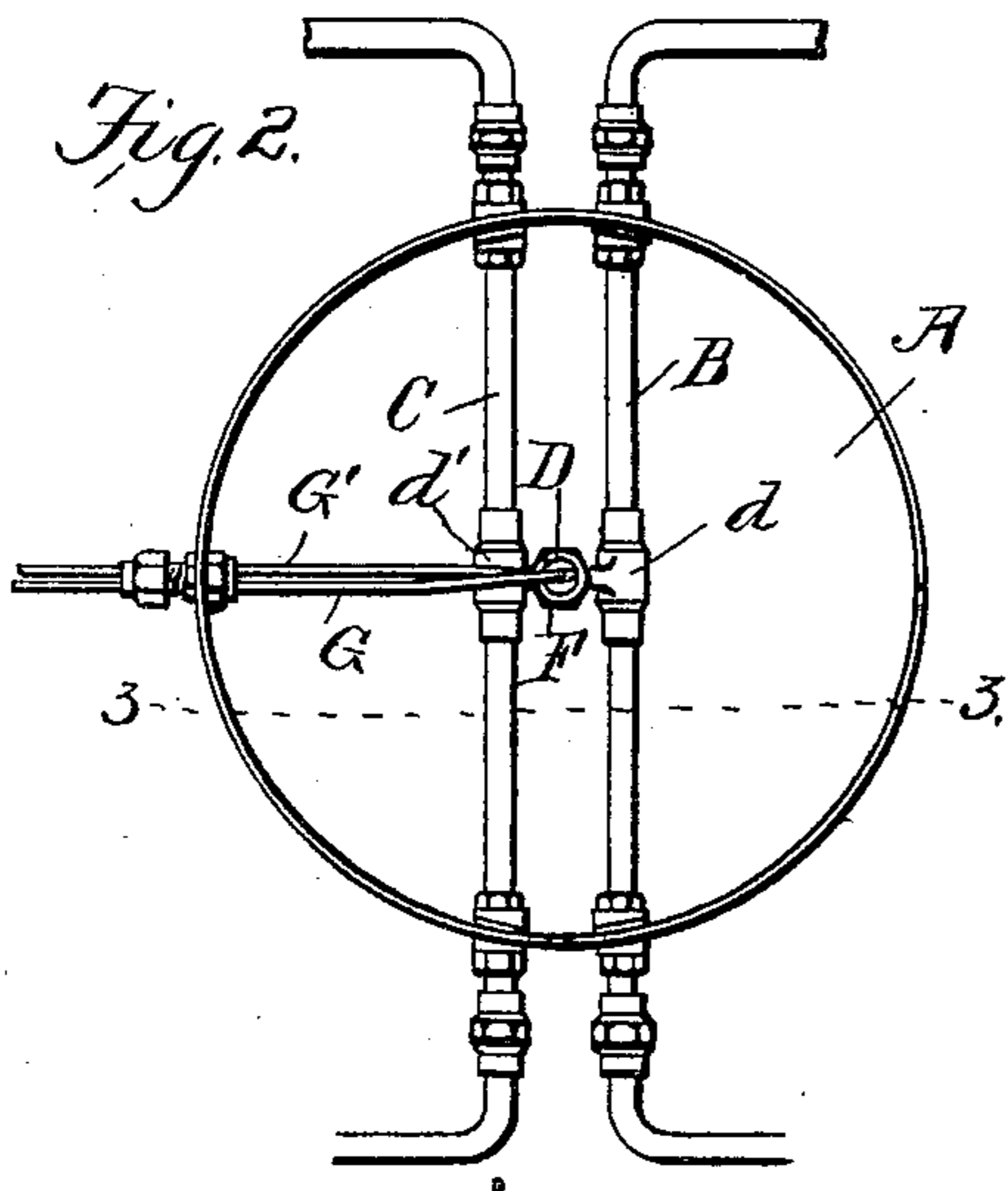
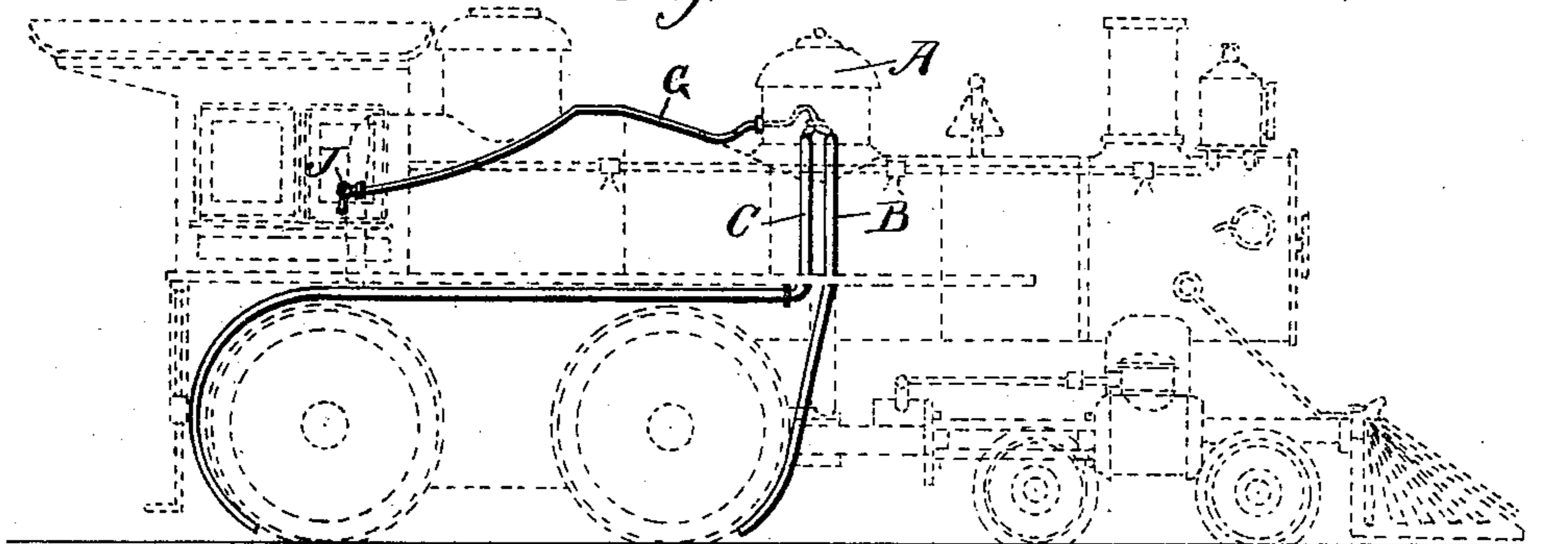
(No Model.)

2 Sheets—Sheet 1.

J. A. HOUSTON.  
TRACK SANDING APPARATUS.

No. 585,035.

*Fig. 1.* Patented June 22, 1897.



Witnesses:

G. A. Pennington.  
J. R. Cornwall

Inventor:

Jerome Adolph Houston  
by Lane Batewree  
his atty

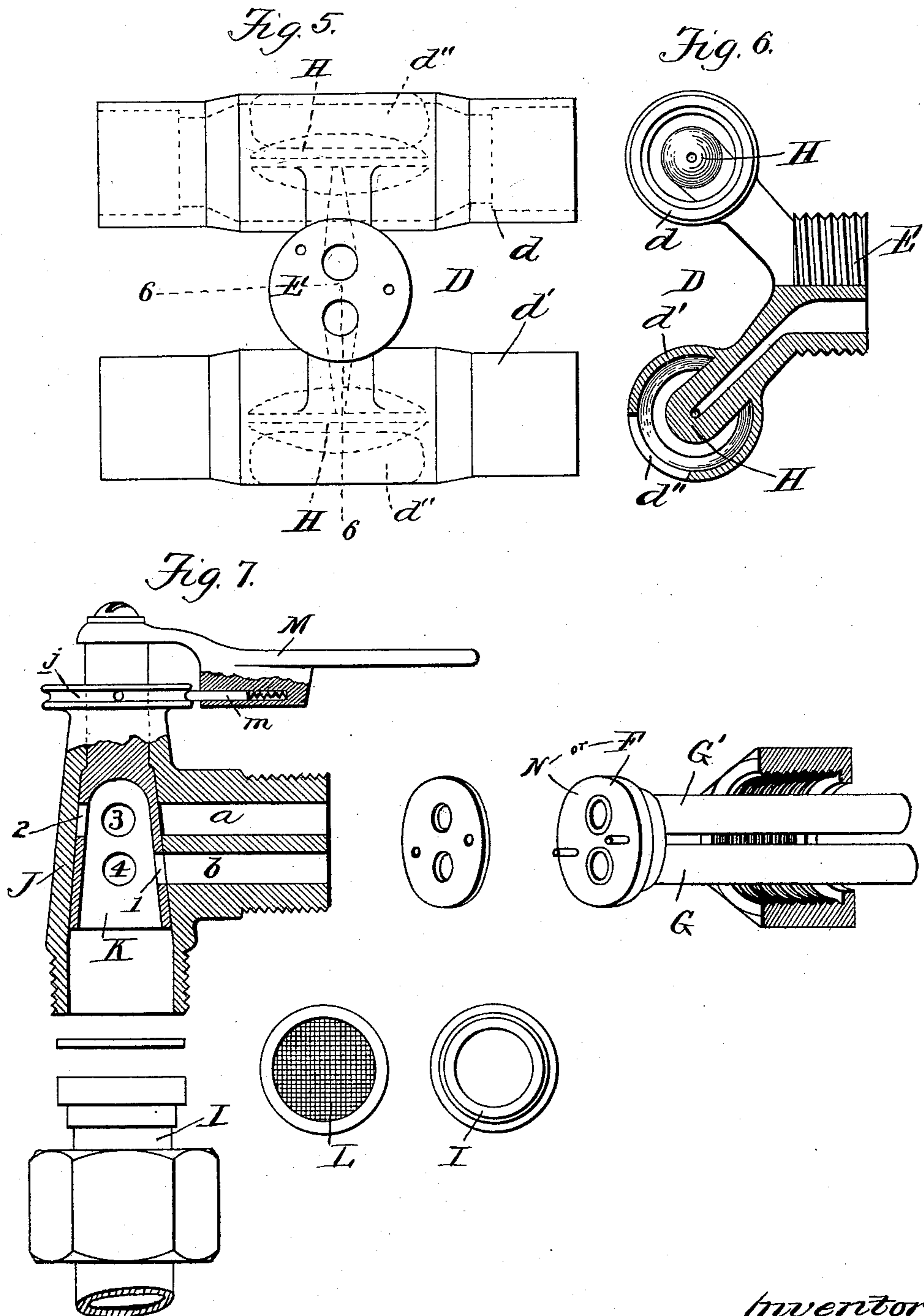
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2 Sheets—Sheet 2.

J. A. HOUSTON.  
TRACK SANDING APPARATUS.

No. 585,035.

Patented June 22, 1897.



Witnesses:  
G. A. Pennington  
G. R. Cornwall

Inventor:  
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# UNITED STATES PATENT OFFICE.

JEROME ADOLPH HOUSTON, OF SPRINGFIELD, MISSOURI.

## TRACK-SANDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 585,035, dated June 22, 1897.

Application filed March 8, 1897. Serial No. 626,369. (No model.)

*To all whom it may concern:*

Be it known that I, JEROME ADOLPH HOUSTON, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented a certain new and useful Improvement in Track-Sanding Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a view illustrating my improved sanding apparatus in position on a locomotive. Fig. 2 is a plan view of the sand-box with my apparatus in position. Fig. 3 is a sectional view on line 3 3, Fig. 2. Fig. 4 is a sectional view on line 4 4, Fig. 3. Fig. 5 is a plan view of the double nozzle. Fig. 6 is a sectional view of the same on line 6 6, Fig. 5. Fig. 7 is a sectional view of the engineer's valve for controlling the pressure, some of the parts of said valve being detached.

This invention relates to a new and useful improvement in track-sanding devices for railway-locomotives, the object being to provide a device of the character described which is simple, cheap, and effective and one which is within immediate control of the engineer.

The invention consists in details of construction and arrangements of the several parts comprising my apparatus, all as will hereinafter be described, and afterward pointed out in the claims.

In the drawings, A indicates the sand-box, of usual construction, into which the dry sand to be delivered to the rails is placed.

B indicates a sand-delivery pipe whose ends terminate above each rail, said pipe passing through the lower portion of the sand-box, thus making the pipe practically continuous.

C indicates the delivery-pipe, which I will call the "rear" delivery-pipe, whose ends terminate above the rails on each side and which pipe passes through the bottom of the sand-box, said pipe being practically continuous. These delivery-pipes B and C are designed to deliver sand to the rails, so that the engine will be enabled to grip the rails while going in either direction.

D indicates a coupling or casting which is shown more fully in Figs. 5 and 6. This coupling is practically divided into two branches, each branch forming a part of the

front and back delivery-pipes B and C. These branches, which are designated as *d* and *d'*, the former forming part of the front delivery-pipe and the latter a part of the back delivery-pipe, are each provided with one or more openings *d''*, which are preferably in the lower sides of said branches.

E indicates a threaded extension from which said branches lead, and to which extension is secured a head F, preferably by a union-coupling. This head F has arranged through it two pressure-supply ducts G and G', which communicate by ducts formed in the shanks of the respective branches with nozzles H, bored parallel with the axial line of said branches, said bore being open at each end of its nozzle and located centrally relative to said branches.

When pressure is supplied through either of the pipes G and G', or both, it passes through the ducts in the coupling D and out each end of the nozzle in opposite directions. This blast passes into the delivery-pipe, and in so doing creates a partial vacuum behind, which lifts or sucks the sand into the delivery-pipe, where it is drawn or forced out in opposite directions and delivered simultaneously to each rail. The nozzles are preferably of a length corresponding to the length of the opening or openings in the branches of the coupling D, so that no pressure from the blasts will be directed against the sand in the sand-box. By this construction I get excellent results, as very little pressure will create blasts of sufficient strength to draw up the sand, as gravity is the only element necessary to overcome.

Pressure is preferably taken from the main reservoir of the air-brake system through the medium of a pipe I, upon the end of which is secured a valve-casing J, containing a cone-shaped plug-valve K. I prefer to interpose a screen L between the pipe I and valve for obvious reasons. Valve K is operated by a suitable handle M, which is preferably provided with a spring-pressed pin *m*, coöperating with a notched track *j* on the valve-casing for determining the correct position of registration of the ports in the valve and the valve-casing. The valve is provided with four ports, which coöperate with two ports *a* and *b* in the valve-casing. Ports *a* and *b* communicate with pipes G and G', which are

mounted in a suitable head N and coupled to the valve-casing in any desired manner.

The manner of controlling and directing pressure from the source of supply to the nozzles is as follows: When the valve is in the position shown in Fig. 7, port 1 registers with port *b* and pipe G and directs pressure to the nozzle in the front delivery-pipe, pressure to the nozzle in the rear delivery-pipe being shut off at this operation. When port 2 is caused to register with port *a*, the pressure is shut off from the front delivery-pipe and is directed to the rear delivery-pipe. When ports 3 and 4 register with ports *a* and *b*, both delivery-pipes are operated. The valve is formed with a blind side to shut off communication with the ports *a* and *b*.

It will be noted that the construction of the hollow conical-shaped plug-valve is such that the pressure constantly holds it to its seat, and the operation of manipulating the valve will so grind it that a perfectly tight fit is insured at all times.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. In a sanding device, the combination with the sand-box, of a delivery-pipe for the sand, which pipe passes through the lower portion of said box, the ends of said pipe being located in juxtaposition to the rails, a coupling in the length of said delivery-pipe, an opening or openings in said coupling, and a nozzle arranged in the coupling opposite said opening, said nozzle directing blasts in opposite directions into the delivery-pipe, whereby, the sand in the box is sucked up and forced into and through the delivery-pipe in opposite directions to each rail; substantially as described.

2. In a sanding device, the combination with the sand-box, of a continuous delivery-pipe arranged through the lower portion thereof, the ends of said delivery-pipe ter-

minating above the rails, a coupling in the length of said delivery-pipe, said coupling having an opening or openings within the sand-box, a blast-nozzle in said coupling for directing blasts of air in opposite directions through the delivery-pipe, said nozzle being substantially the length of the opening in the coupling, and a valve for controlling said blasts, substantially as described.

3. The combination with a sand-box, of front and back delivery-pipes which pass through the lower portion of said box, of a coupling formed with two branches, said branches being respectively portions of the delivery-pipes, openings in the lower side of said coupling branches, nozzles in said branches, and two pressure-supply pipes leading to said nozzles, substantially as described.

4. The combination with a sand-box, of front and back delivery-pipes which pass through the lower portion of said box, a coupling formed of two branches, said branches being respectively portions of the delivery-pipes, openings in the lower side of said coupling branches, blast-nozzles in said branches opposite said openings, said nozzles being substantially the length of said openings, pressure-supply pipes leading to said nozzles, and a valve for admitting pressure to either or both of said supply-pipes; substantially as described.

5. In a track-sanding apparatus, the combination with the sand-box, of a divided coupling containing blast-nozzles, delivery-pipes, pressure-supply pipes leading to said nozzles, and a valve for controlling the pressure in said supply-pipes, said valve comprising a suitable casing, a hollow plug-valve within the casing which is seated by pressure, a handle for operating said valve, and means for determining the registration of the ports in the valve, with the ports in the valve-casing; substantially as described.

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this 23d day of February, 1897.

JEROME ADOLPH HOUSTON.

Witnesses:

QUINCY ALLEN,  
WM. MILLER.