

No. 667,948.

Patented Feb. 12, 1901.

J. G. NEUFFER, R. BENNETT, E. BOAS & J. HAIR.

PNEUMATIC SANDER FOR LOCOMOTIVES.

(Application filed Aug. 30, 1900.)

(No Model.)

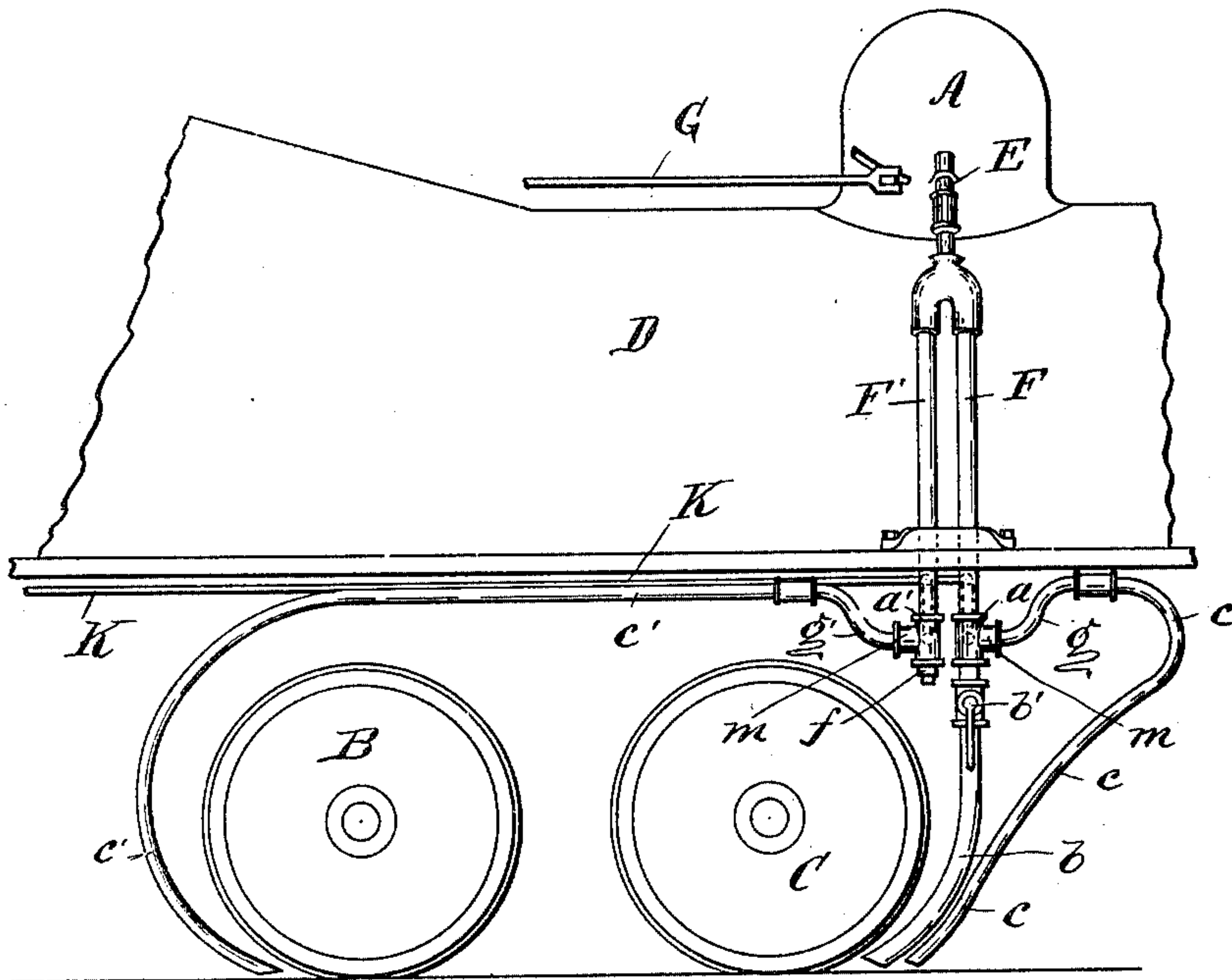


Fig. 1.

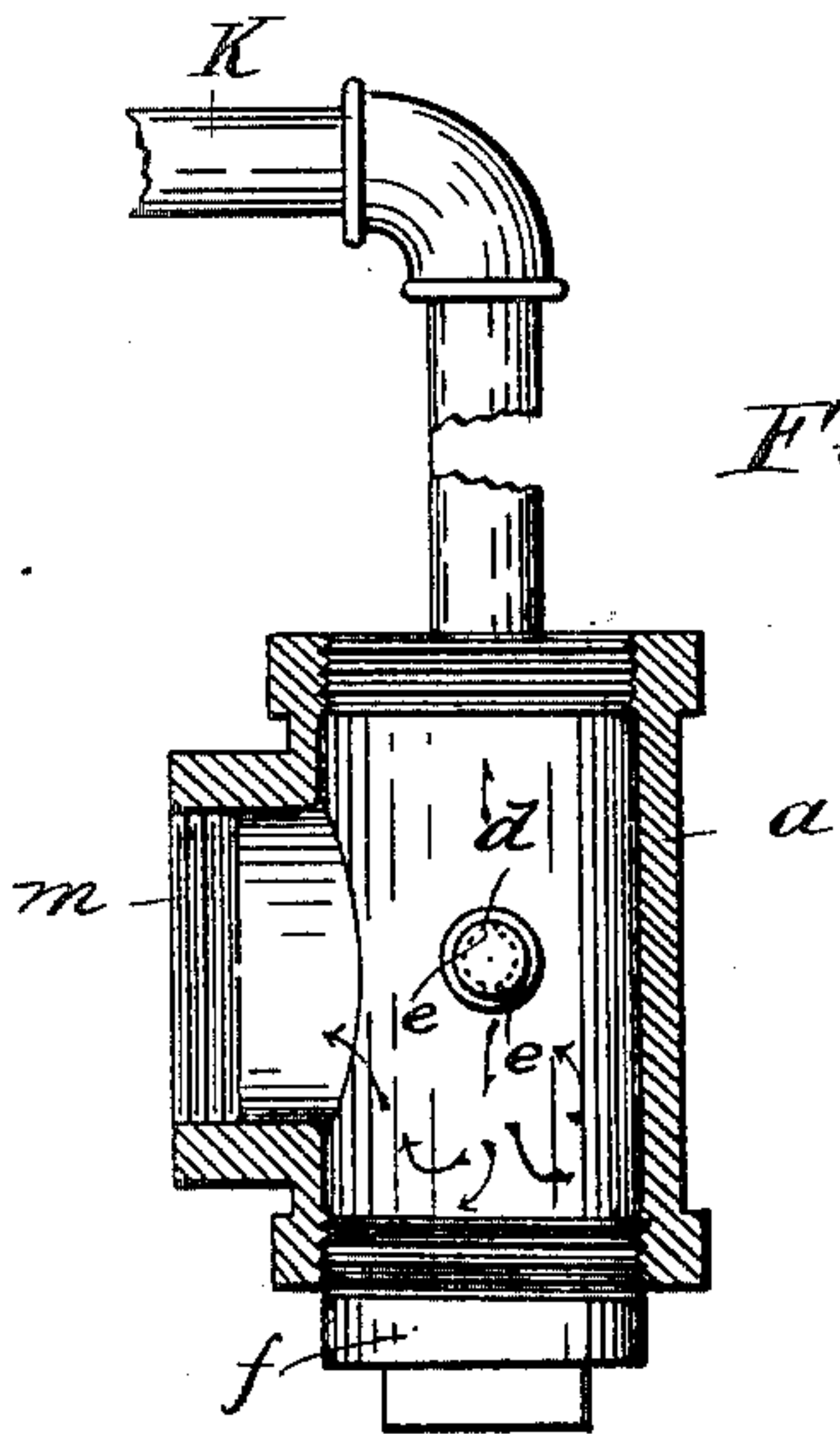


Fig. 2.

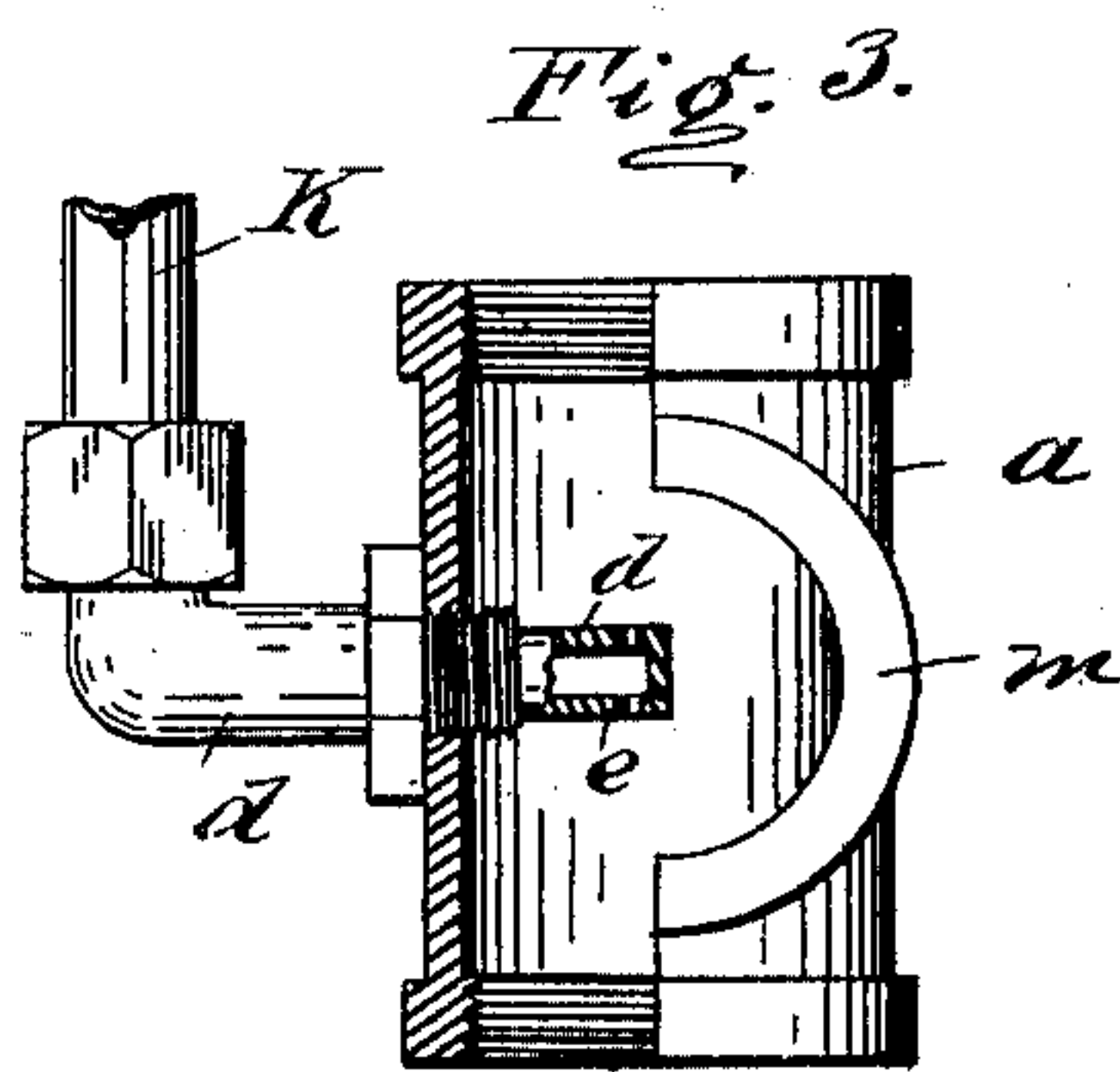


Fig. 3.

Witnesses.
George Heidmann
Ed. Haat

Inventors.
John G. Neuffer
Robert Bennett
Edward Boas
and John Hair
by Clarence E. Mellore
their Attorney.

UNITED STATES PATENT OFFICE.

JOHN G. NEUFFER, OF MADISONVILLE, OHIO, AND ROBERT BENNETT,
EDWARD BOAS, AND JOHN HAIR, OF WASHINGTON, INDIANA.

PNEUMATIC SANDER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 667,948, dated February 12, 1901.

Application filed August 30, 1900. Serial No. 28,619. (No model.)

To all whom it may concern:

Be it known that we, JOHN G. NEUFFER, residing at Madisonville, county of Hamilton, and State of Ohio, and ROBERT BENNETT, EDWARD BOAS, and JOHN HAIR, residing at Washington, county of Daviess, and State of Indiana, citizens of the United States, have invented a certain new and useful Improvement in Pneumatic Sanders for Locomotives, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of our specification.

The object of our invention is to furnish a simple mechanism whereby a blast of air may be used to discharge sand or other similar material on the rail, either in front of or behind the driver or drivers of a locomotive. We are aware of the fact that there are other devices on the market for accomplishing the same result; but they are more or less complicated in their structure and are liable to get out of order on that account.

The advantage of our sander over the others lies in its simplicity of construction and also in its cheapness of manufacture.

In the drawings like letters of reference refer to like parts of the mechanism.

Figure 1 is a side elevation of part of a locomotive with our improved sander attached. Fig. 2 is a section of the sand-chamber; and Fig. 3 is a second section of the sand-chamber, taken at right angles to the first section.

A is the usual sand-box of a locomotive, mounted upon the boiler D.

B and C are the driving-wheels.

A pipe E leads from the sand-box A, and the flow of sand into this pipe is controlled by the usual valve in the sand-box, (not shown in the drawings,) operated by the arm G, extending to the cab, so as to be under the control of the engineer or fireman. This valve is open when the pneumatic sander is in use. The pipe E is connected in any convenient manner to the two pipes F F', which have secured to their lower ends T-tubes *a* and *a'*, which for convenience we shall call the "sand-chambers." A pipe *b* extends from the lower end of the T-tube *a* down in front of the driver C and is provided with a hand-valve *b'* just below its connection with

said T-tube. The valve *b'* is also closed when the pneumatic sander is in use. The other T-tube *a'* is closed at its lower end by a plug *f* or in any other suitable manner. Pipes *c* and *c'*, secured to the stems of the T-tubes *a a'*, are curved upward, as at *g g'*, Fig. 1, and are then carried down, the one, *c*, in front of the driver C and the other, *c'*, behind the driver B. A tube *d* is screwed into each of the sand-chambers *a* and *a'* and projects into said chamber, as seen in Figs. 2 and 3. Said pipe *d* is closed at the end, but has two small ports *e e* on opposite sides. It should project far enough into the sand-chamber to bring the ports *e e* as nearly as may be in the center of the sand-chamber. Said ports are preferably diametrically opposite each other and in such position that the air escaping from one will pass up through the pipe F', loosening the sand, and the air escaping from the other will impinge against the plug *f* or valve *b'*, setting up currents, as shown by the arrows in Fig. 2. The other end of the tube *d* is connected in any manner to a pipe K, which leads to any convenient source of supply of air under pressure.

Having thus described our invention, we shall now describe its operation.

The valve in the sand-box being opened, the sand by its own weight flows through the pipe E into and through the pipes F F', filling them and also the sand-chambers *a* and *a'*, but is prevented from going farther by reason of the closed valve *b'* and the plug *f*. The reason for the upward curve of the pipes *c* and *c'* at *g* and *g'* is now apparent, since otherwise the sand would flow through said pipes by reason of gravity. When it is desired to sand the track, a blast of air is sent through the pipe K, whence it passes into the tube *d*. From thence it escapes through the ports *e e* into the sand-chamber. The air forced through the ports *e e* strikes the sand in the pipe F and impinges against the valve *b'*, producing currents, as shown by the arrows in Fig. 2, and forming a sort of whirlwind, which loosens the sand above and below and forces it from the sand-chamber through the pipe *c* to the rail.

Of course our device may be applied to any number of drivers by simply multiplying the

number of sand-chambers or T-tubes, with the corresponding connections to the sand-box and to the air-supply, and also the number of exit-pipes *c*. It is also ordinarily attached to both sides of the locomotive.

When the pneumatic sander is not in use, the valve *b'* is opened, making an open pipe from the sand-box to the pipe *b*. The sand will then flow from the sand-box down through the pipe *b* by reason of gravity, and the sanding of the track is controlled by the arm *G* in the ordinary manner.

We do not wish to limit ourselves in the application of our pneumatic sander to a locomotive, since, as is readily apparent, it may be applied to any sort of car or other vehicle that travels on rails.

What we desire to claim as new and to cover by Letters Patent is—

1. In a pneumatic sander, a sand-chamber with an exit and a source of sand-supply, a tube projecting into said chamber, said tube being closed at the end and having side ports, and means for forcing air through said tube, whereby the sand is discharged upon the rail, substantially as described.

2. In a pneumatic sander, a sand-chamber with an exit and a source of sand-supply, a tube projecting into said chamber, said tube

being closed at the end and having side ports, diametrically opposite, and means for forcing air through said tube, whereby the sand is discharged upon the rail, substantially as described.

3. In a pneumatic sander, a sand-chamber and a source of sand-supply, an exit-pipe leading to the rail, a tube projecting into the sand-chamber, said tube being closed at the end and having side ports, and means for forcing air through said tube, whereby sand is discharged upon the rail, substantially as described.

4. In a pneumatic sander, a sand-chamber, a sand-box, a pipe connecting said sand box and chamber, a pipe leading from said chamber to the rail, a tube projecting into said chamber, said tube being closed at the end and having ports at the side, and means for forcing air through said tube, whereby the sand is discharged upon the rail, substantially as described.

JOHN G. NEUFFER.
ROB. BENNETT.
EDWARD BOAS.
JNO. HAIR.

Witnesses:

JOHN DANIELLS,
CLAUDE RODARMEL.