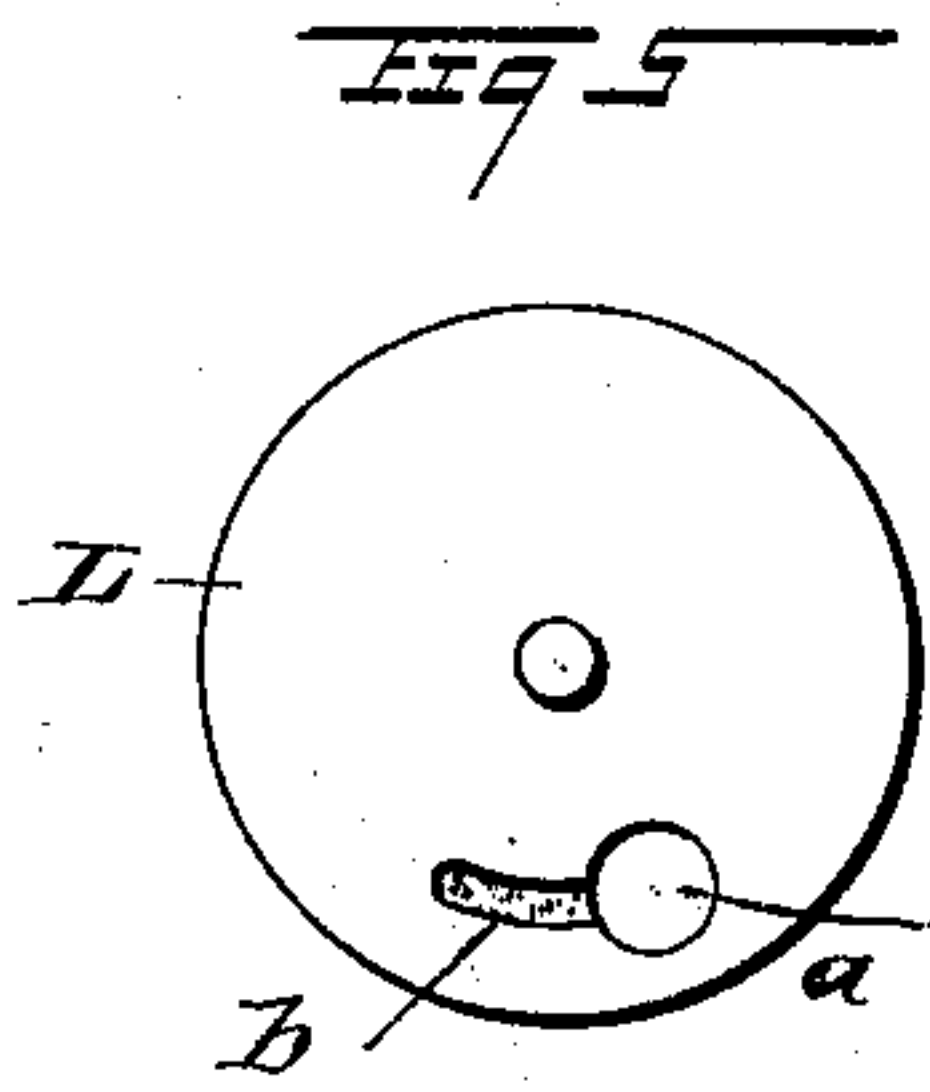
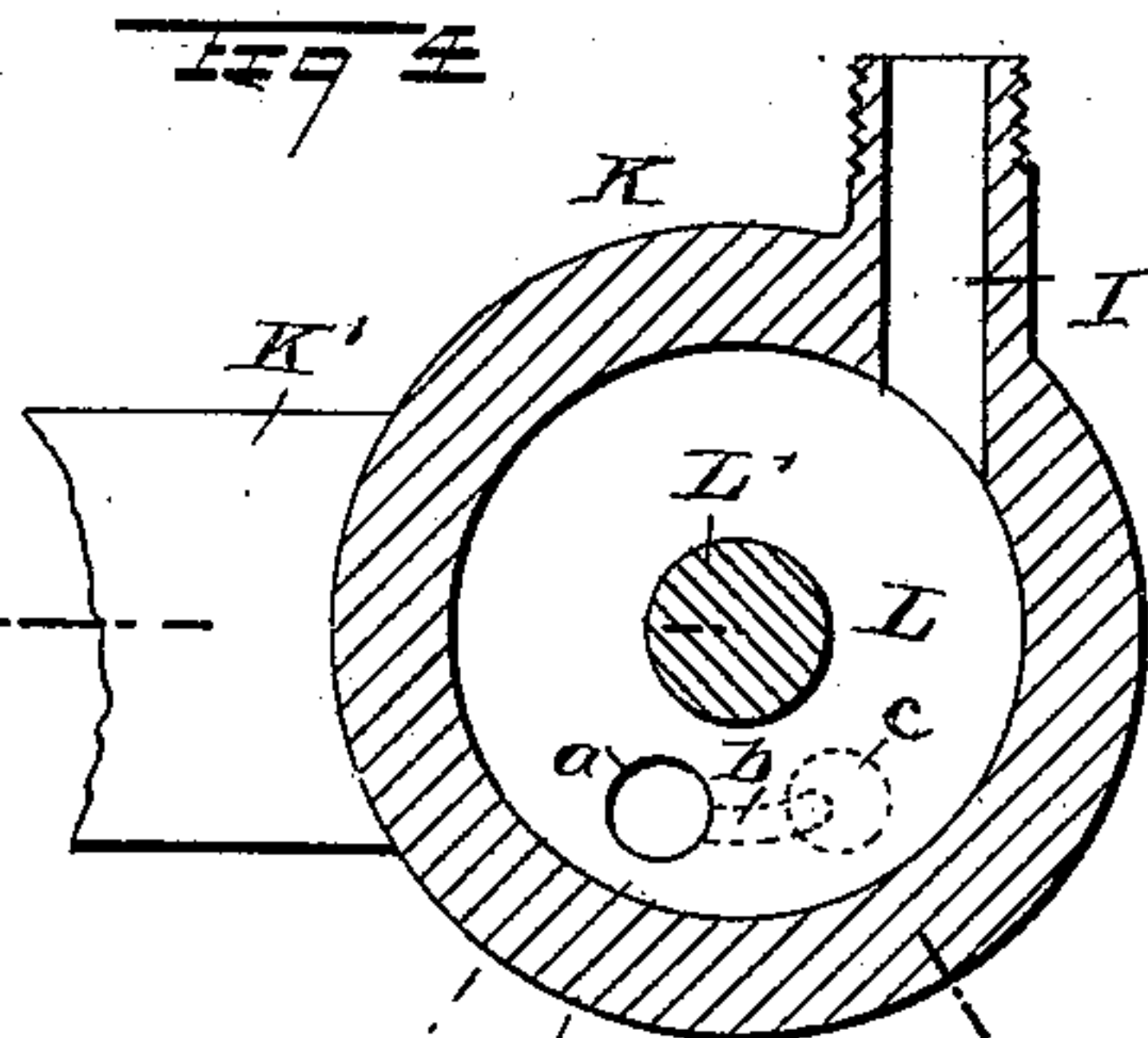
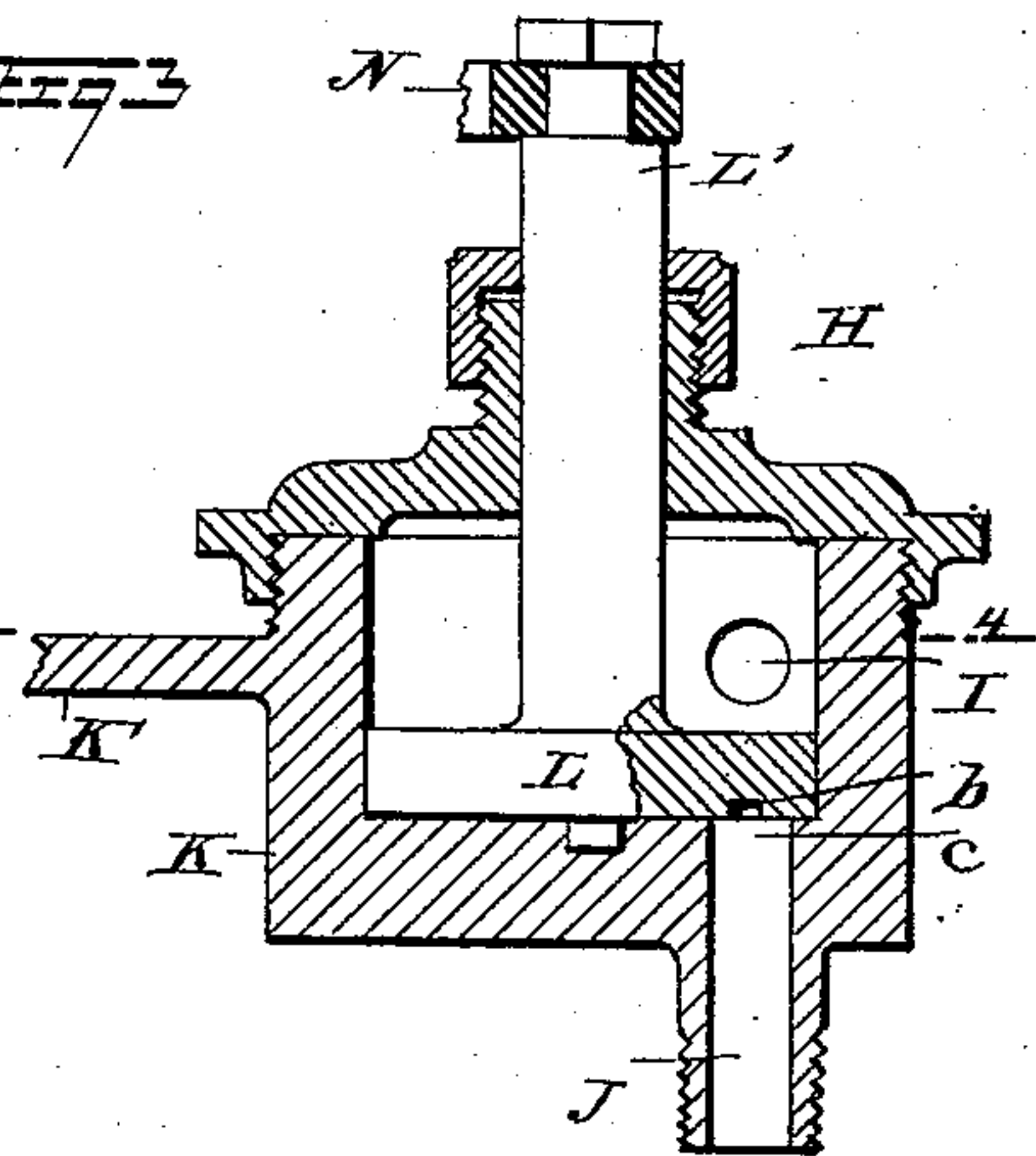
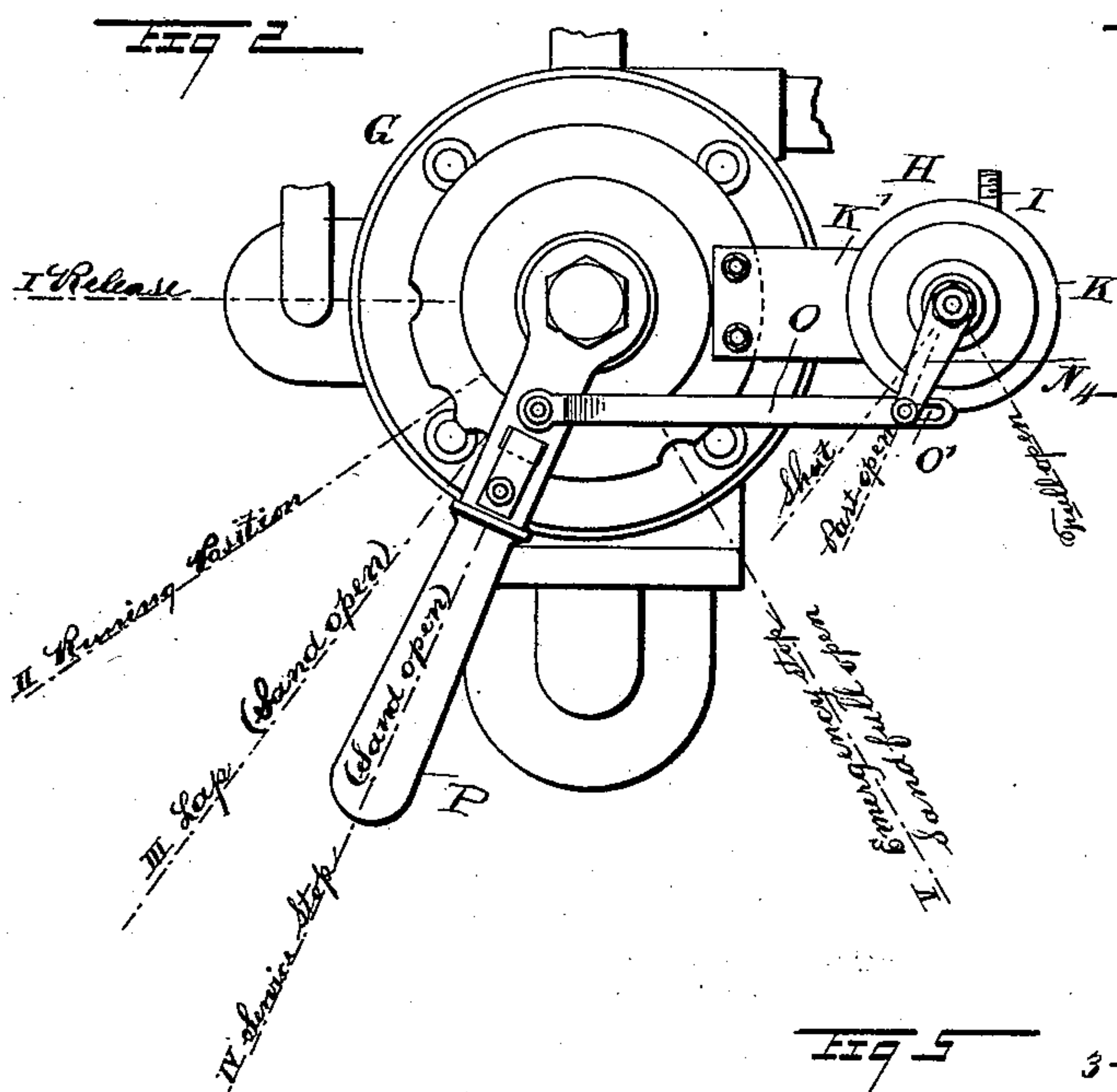
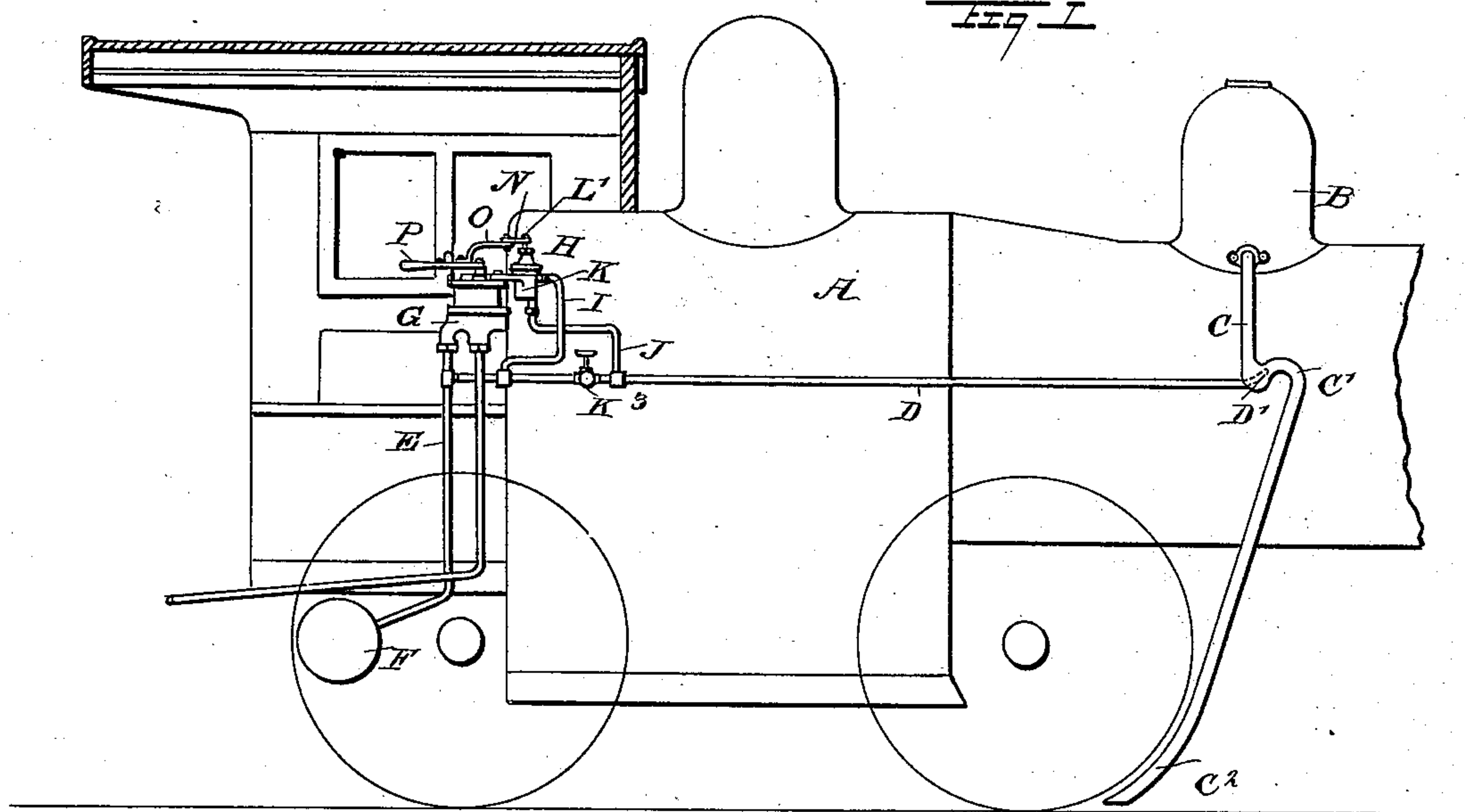


(No Model.)

O. P. MURRY & J. V. K. WALKER.
TRACK SANDING APPARATUS.

No 509,234

Patented Nov. 21, 1893.



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UNITED STATES PATENT OFFICE.

OLIVER PLUNKETT MURRY AND JAMES V. K. WALKER, OF PORTSMOUTH, VIRGINIA, ASSIGNORS TO THE AUTOMATIC TRACK-SANDING COMPANY, OF PORTLAND, MAINE.

TRACK-SANDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 509,234, dated November 21, 1893.

Application filed March 1, 1893. Serial No. 464,166. (No model.)

To all whom it may concern:

Be it known that we, OLIVER PLUNKETT MURRY and JAMES V. K. WALKER, both of Portsmouth, in the county of Norfolk and State of Virginia, have invented a new and Improved Track-Sanding Apparatus, of which the following is a full, clear, and exact description.

The invention relates to track sanding apparatus connected with an air brake system, and its object is to provide a new and improved sanding apparatus, which is simple and durable in construction, and automatically controlled from the engineer's valve in such a manner that when the brake handle is in "full release" or in "running" position, then the supply of sand to the track is shut off, and when the handle is moved to "lap" before applying the brakes, the sand commences to run to the track and is forced thereon as soon as the engineer's valve handle is moved to the fourth position known as "application of brake," and in case the handle is moved to the "emergency stop" a large quantity of sand is forced to the rail.

The invention consists of a valve operating in unison with the engineer's brake valve and controlling an air blast from the main air reservoir to the sand discharge pipe.

The invention also consists of certain parts and details, and combinations of the same, as will be hereinafter described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied, parts of the cab being shown in section. Fig. 2 is an enlarged plan view of the improvement as attached to the engineer's valve. Fig. 3 is an enlarged sectional side elevation of the improvement on the line 3—3 of Fig. 4. Fig. 4 is a sectional plan view of the same on the line 4—4 of Fig. 3; and Fig. 5 is an inverted plan view of the air blast controlling valve.

On the locomotive A is arranged the usual sand box B provided with an outlet pipe C

having a U-shaped bend C' and discharging at its lower end C² onto the track rail in front of the drive wheels. Into the bend C' of the outlet pipe C extends the contracted nozzle D' of a pipe D mounted on the locomotive A and extending longitudinally to the rear into the cab of the locomotive to connect at the rear end with the air pipe E connecting the main air reservoir F of the air brake system, with the engineer's valve G, of any approved construction.

The engineer's valve G controls and supports an air blast controlling valve H connected by the pipes I and J with the blast pipe D containing a valve K³ between the junction of the said pipes I and J with the blast pipe D. Thus, when the valve K³ is closed, air from the main reservoir F can pass through the pipe E, part of the pipe D, and pipe I into the casing K of the air blast controlling valve H, and from the casing the air can pass through the pipe J into the forward end of the pipe D to be discharged through the nozzle D', into the bend C', to force the sand down the pipe C onto the track rails. The passage of air through the valve casing K is controlled by a disk valve L mounted to turn in the casing K, and provided with a port *a* from which leads, on the under side of the disk valve, a channel or recess *b*, as plainly shown in Fig. 5.

The channel and port *a* are adapted to register with a port *c* leading to the pipe J, it being understood that the other pipe I opens into the valve casing K above the disk valve L; see Fig. 3. The valve stem L' of the disk valve L passes through the usual cap of the casing K to the outer end thereof, to support on its upper end, an arm N pivotally-connected with a link O pivoted on the handle P of the engineer's valve G. The casing K is provided with an arm K' bolted or otherwise secured to the cap of the engineer's valve G, as shown in Fig. 2. The pivot of the arm N passes through a slot O' in the link O, so that the latter has a slight motion without moving the arm N.

The operation is as follows: When the handle P of the engineer's valve G is in the first

or "release" position or in the second or "running" position, then the disk valve L has its port *a* as well as the channel *b*, cut off from the port *c*, so that air is shut off from the forward end of the pipe D. When the engineer moves the handle P from the third or "lap" position to the fourth or "service stop" position, then the link O moves the arm N a sufficient distance to cause the valve L to register by its channel *b*, with the port *c* (see Fig. 4) to permit air to pass from the main reservoir F through the pipe I into casing K, and through the port *a* and channel *b*, and port *c*, into the pipe J and thence to the air blast pipe D, which discharges the air through the nozzle D' into the bend C' of the sand discharge pipe C. The sand thus commences to run in the pipe C and is discharged at the lower end C² thereof, onto the track rails. As the engineer moves the handle P quickly from the third or "lap" position, to the fourth or "service" stop, the disk valve L is further turned so that the channel *b* extends completely over the port *c*, thus admitting more air to the pipe D, thereby causing a full air blast to issue through the nozzle D' into the bend C'. When the engineer has made the necessary reduction of the air pressure and restores the handle P to "lap" position, then the position of the valve L is not affected and remains open, as the link O by its slot O' does not disturb the position of the arm N.

In order to release the brakes, the operator moves the handle P back to the first or "release" position, so that the valve L again disconnects the port *a* and channel *b*, from the port *c*, whereby the air blast in the pipe D ceases and consequently sand is no longer discharged onto the track rails. In case the engineer moves the handle P to the fifth or "emergency" stop then the valve L is turned so that the port *a* registers fully with the port *c*, whereby a very strong and full air blast is had in the pipe D and consequently a large amount of sand is quickly forced down the pipe C onto the track rails. It will be seen that by this arrangement the air blast controlling valve L is fully controlled from the engineer's valve, that is, the engineer in manipulating the handle P of his valve automatically operates the air blast valve L, so that the engineer need not give any attention whatever to the track sanding apparatus.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In sanding apparatus, the combination with the sand pipe, a fluid pressure pipe leading thereto, and an engineer's valve, of a valve in the fluid pressure pipe, and operative connections between the said valve and the handle or stem of the engineer's valve, the engineer's valve having a limited movement independent of the valve in the fluid pressure pipe, substantially as described.

2. The combination with a pipe connected with the main reservoir, separate and inde-

pendent of the train pipe and discharging into the sand pipe, of a valve located in the first named pipe and having the axis of its movable part parallel with and independent of the axis of the engineer's valve, and a link connection between the handle or stem of the engineer's valve and the stem of the last named valve, substantially as set forth.

3. The combination with a single fluid pressure pipe discharging into the sand pipe, of a valve which controls the transmission of fluid pressure through said first named pipe, which valve is in a separate housing from the housing of the engineer's valve and is provided with a stem, and a link connecting said stem with the handle or stem of the engineer's valve of a fluid pressure brake system, substantially as described.

4. In a sanding attachment to an air brake apparatus, the circular valve casing having an outlet port in its bottom for connection with the sand pipe and a port thereabove for connection with a fluid pressure supply, of the disk valve resting on the bottom of the said casing, having a port to connect the first named ports, and a stem extending through the casing and having an operating arm or crank to connect with the handle or stem of the engineer's valve, substantially as described.

5. A locomotive attachment comprising a fluid pressure pipe to discharge into the track sanding pipe and provided with a valve having a crank arm on its stem, and a link having a sliding pivotal connection with said crank and adapted at its opposite end to be pivoted to the lever of the engineer's valve of an air brake mechanism, substantially as set forth.

6. A track sanding apparatus comprising an air blast controlling valve having a valve proper actuated from the handle of the engineer's valve, an air inlet pipe to the said valve proper and connected with the main reservoir, an air outlet pipe connected with the said valve, and an air blast pipe into which discharges the said air outlet pipe, the forward contracted end of the said air blast pipe discharging into the sand discharge pipe, substantially as shown and described.

7. A track sanding apparatus comprising a sand box, an outlet pipe leading therefrom and having a bend, an air blast pipe discharging with its contracted end into the said bend, an air blast controlling valve casing, having an outlet pipe connected with the said air blast pipe, a valve proper mounted to turn in the said air blast controlling valve casing and actuated from the handle of the engineer's valve, and a pipe connecting the said air blast controlling valve with the main reservoir, substantially as shown and described.

8. A track sanding apparatus provided with a valve having a port and a channel formed on the under side of the said valve and leading from the said port, the said channel and port being adapted to register with an outlet pipe, substantially as shown and described.

9. A track sanding apparatus provided with
an air blast controlling valve comprising a
valve casing adapted to be supported on the
engineer's valve, and provided with an air
5 inlet pipe and an air discharge pipe, a valve
mounted to turn in the said casing and hav-
ing a port, and a channel leading from the
said port at the under side of the valve, the
said port and channel being adapted to regis-
10 ter with the outlet pipe, and means, substan-

tially as described, for turning the said valve,
the said means being connected with and con-
trolled from the handle of the engineer's
valve, substantially as shown and described.

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Witnesses:

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C. F. SMITH.