

No. 678,119.

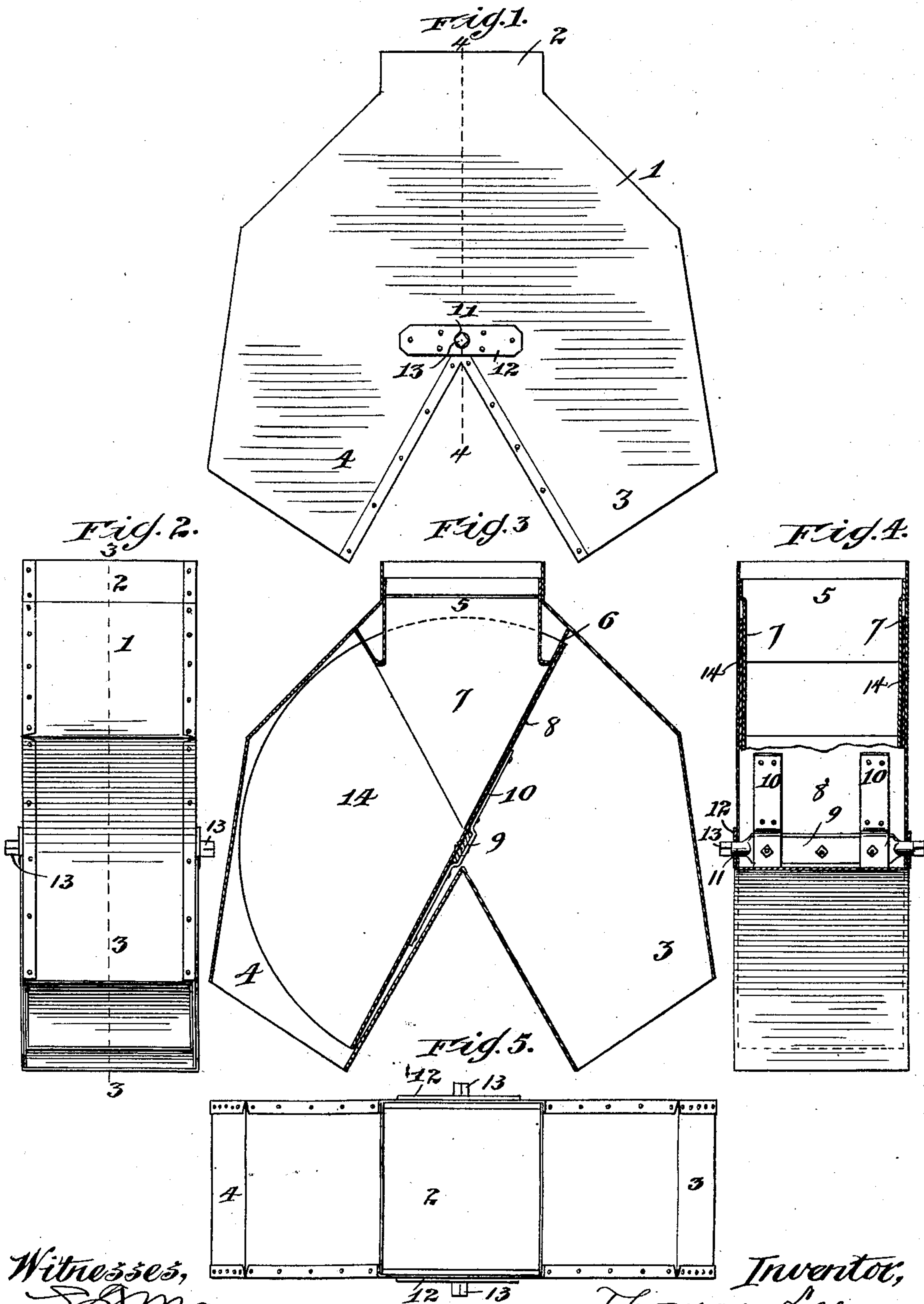
Patented July 9, 1901.

T. LEE.

SWITCH VALVE FOR PNEUMATIC CONVEYERS.

(Application filed Nov. 13, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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SWITCH-VALVE FOR PNEUMATIC CONVEYERS.

SPECIFICATION forming part of Letters Patent No. 678,119, dated July 9, 1901.

Application filed November 13, 1899. Serial No. 736,778. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LEE, a citizen of the United States, residing at Home City, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Switch-Valves for Pneumatic Conveyers, &c., of which the following is a specification.

This invention relates to switch-valves for pneumatic conveyers, &c., being designed for use more particularly in connection with such conveyers as are used, for instance, in the feeding of shavings, sawdust, and the like to boiler and other furnaces. It is customary in apparatus of this type to provide two diverging conduits, one of which leads to the furnace and the other to the shavings or dust room, a valve being located at the junction of these conduits with the main conduit, so that the material may be directed to the furnace when it is desired to feed the same, and by shifting the valve the material may be diverted from the furnace to the dust-room. Such valves as usually constructed consist of a plate pivoted at one of its margins at the point of meeting of the two conduits and swinging outward at its free margins toward either one of the conduits which it is desired to close. It has been found in practice that valves of this type are apt to become clogged by reason of the catching or lodging of shavings on the free margin of the valve, and thereby preventing it from closing. It has also been found that such valves are so acted on by the suction of the passing blast that when the valve is closed on the furnace side it will be open sufficiently to permit an induced current from the furnace to the dust-room, which current is apt to carry sparks from the furnace to the dust-room, and thus start a fire therein.

It is the object of my present invention to overcome the difficulties attendant upon such valves as heretofore constructed; and to this end my invention consists in certain novel features which I will now proceed to describe and will then particularly point out in the claim.

In the accompanying drawings, Figure 1 is a front elevation of a structure embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical sectional view

taken on the line 3 3 of Fig. 2. Fig. 4 is a similar view, partly in elevation, taken on the line 4 4 of Fig. 1; and Fig. 5 is a plan view.

In the said drawings, 1 indicates a suitable casing, having an inlet 2 at its top, at which point it is adapted to be connected with the main conduit through which the material is fed. Below its top the casing 1 diverges to form two outlet-passages 3 and 4, the former of which is connected with a conduit leading to the furnace, while the latter is connected with a conduit leading to the dust-room or other suitable point of discharge. Within the inlet-opening of the casing is located a collar 5, two sides of which are bent up, as indicated at 6, to meet the walls of the casing and form stop-flanges against which the valve may bear. The remaining two sides of the collar are offset from the adjacent walls of the casing, as indicated in Fig. 4 of the drawings, and extend downward in a tapering or V shape, forming guards 7, between which and the walls of the casing the side plates of the valve move.

8 indicates the valve proper, which is a plate of about twice the length of the ordinary valve, said plate being pivoted at its middle at the junction of the passages 3 and 4. I prefer to provide a pivotal axis in the form of a flat bar 9, secured to the valve-plate by straps 10 and having rounded extremities 11, which are mounted in bearings 12 on the casing, the ends of the axis being squared, as shown at 13, for the application thereto of a suitable handle or wrench by means of which the valve may be turned. At its lateral edges the valve proper is provided with semicircular side plates 14, arranged at a right angle to the body of the valve and fitting between the guard-plates 7 and the body of the casing, as hereinbefore pointed out.

It will be observed that my improved valve swings in a direction opposite to that in which the ordinary valve swings. In other words, to close either one of the passages my improved valve swings away from that passage, while to open it it swings toward it. By reason of this mode of operation the valve in closing the mouth of one of the conduits moves against the incoming current and is therefore not likely to have any shavings or the like find lodgment on its edge, as they will do when

the valves move along with the current in closing the passage. The stop-flanges 6 serve as abutments against which the valve may be closed, making the closure of the passage 5 practically air-tight. It will be observed that in the position of the parts shown, in which the valve is so arranged as to close that one of the passages which leads to the furnace, the suction due to the passage of the blast 10 tends to close the valve more firmly instead of tending to open it, as is the case with the ordinary valve, and the danger of sparks from induced currents is thereby done away with. The side plates and their guards serve to guide 15 the valve during its movement and prevent any clogging of the same by the accumulation of shavings or dust.

I claim—

A switch-valve for pneumatic conveyers, &c., comprising a casing having an inlet and 20 diverging outlet-passages, a collar mounted in the inlet and having two of its sides turned upward to form stop-flanges and its remaining two sides extended downward to form guard-plates, and a valve proper pivoted at 25 its middle at the junction of the outlet-passages, adapted to contact at its ends with the stop-flanges, and provided with semicircular side plates which fit between the guard-plates and the casing, substantially as described. 30

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