

No. 636,640.

Patented Nov. 7, 1899.

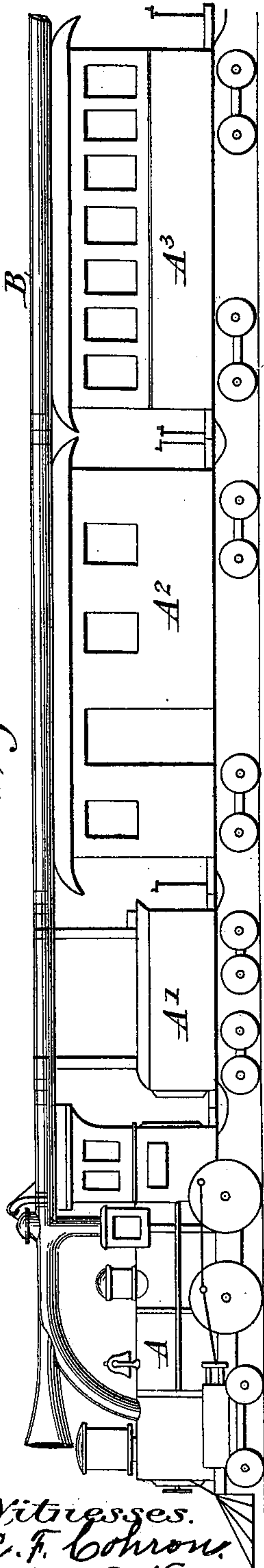
W. H. DANA.

VALVE FOR SMOKE CONVEYERS AND SPARK ARRESTERS.

(Application filed Mar. 6, 1899.)

(No Model.)

Fig. 1.



Witnesses.
C. F. Bohron.
Julius F. House.

Fig. 2.

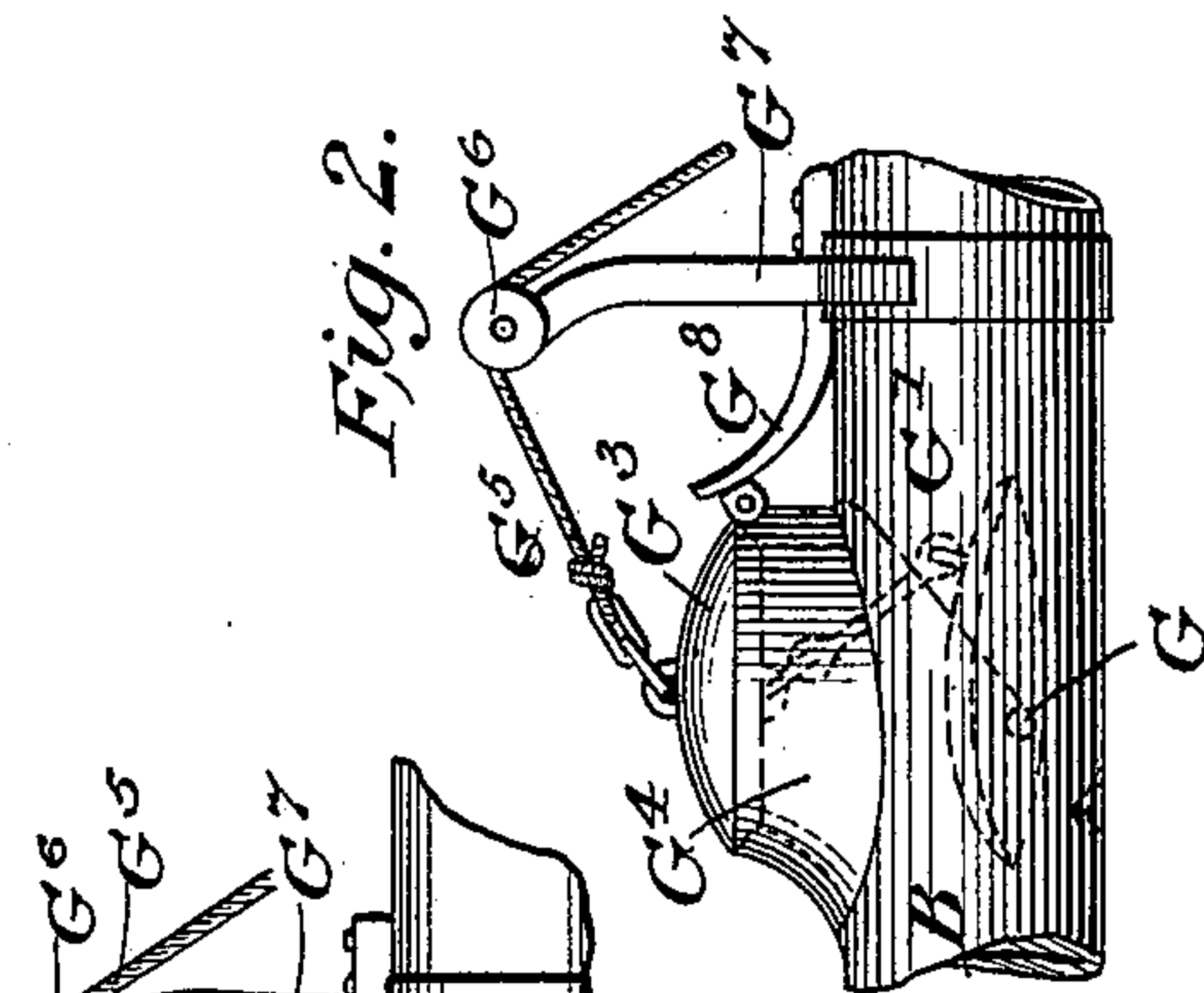
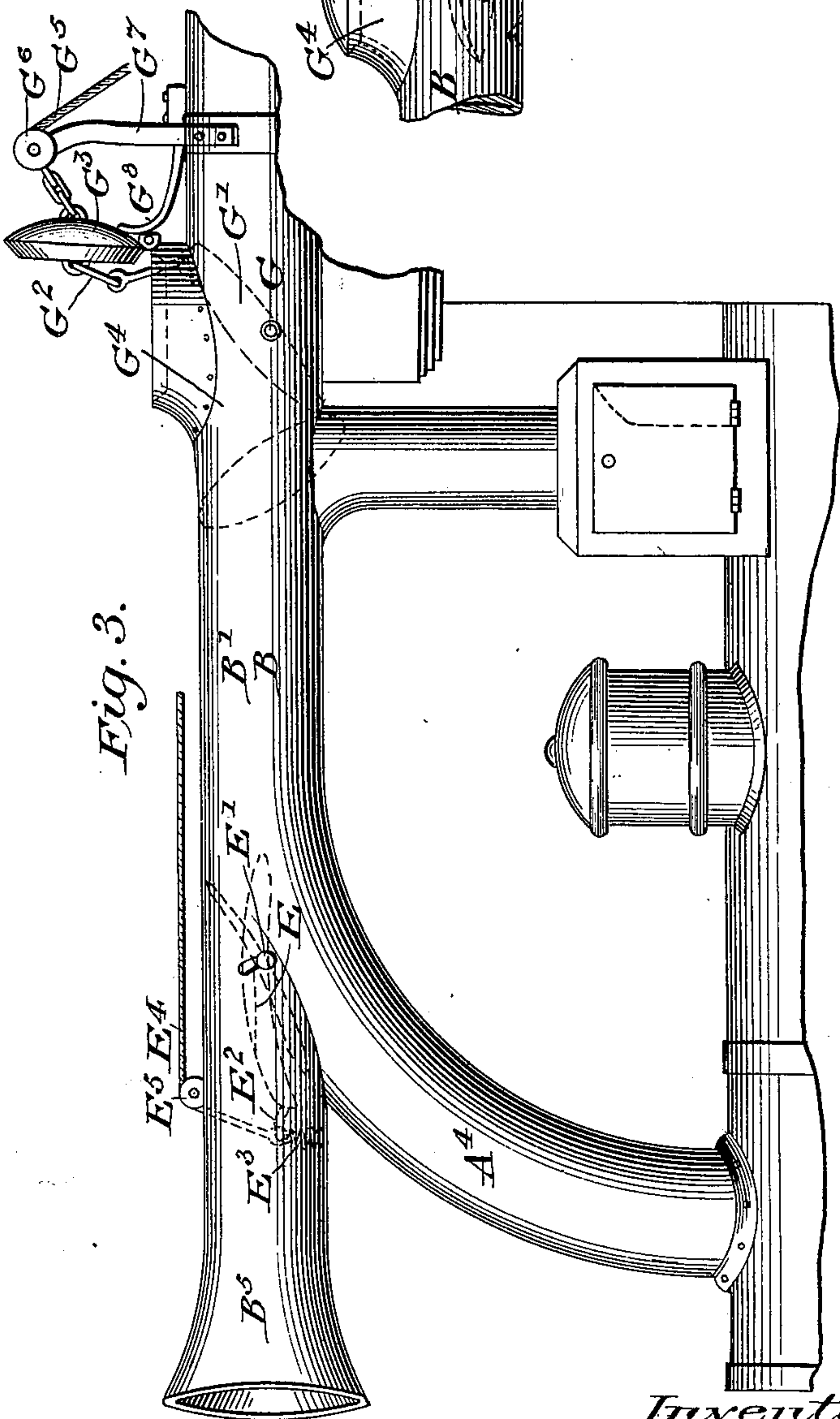


Fig. 3.



Inventor.
William H. Dana.

UNITED STATES PATENT OFFICE.

WILLIAM H. DANA, OF DALLAS, TEXAS.

VALVE FOR SMOKE-CONVEYERS AND SPARK-ARRESTERS.

SPECIFICATION forming part of Letters Patent No. 636,640, dated November 7, 1899.

Application filed March 6, 1899. Serial No. 708,054. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DANA, of Dallas, in the county of Dallas and State of Texas, have invented certain new and useful
5 Improvements in Valves for Smoke-Conveyers and Spark-Arresters, of which the following is a full, clear, and exact description.

The invention relates to railroad-trains drawn by locomotives using coal, wood, or
10 like material as fuel.

The object of the invention is to provide new and improved valves to be used in connection with smoke-conveyers and spark-arresters, arranged for perfect draft and to arrest
15 the sparks and cinders issuing from the locomotive smoke-stack and to convey the smoke and gases generated by the combustion of the burning fuel in the locomotive to the rear end of the train, so that the passengers in the cars
20 do not inhale the obnoxious smoke and gases and are not annoyed by sparks and cinders, as heretofore experienced in railway traveling.

The invention consists of novel features
25 and parts and combinations of the same, as will be described hereinafter and then pointed out in the claim.

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

Figure 1 is a side elevation showing the improvements as applied. Fig. 2 is an enlarged side view of the improvement showing the
35 valves closed. Fig. 3 is an enlarged side view of the improvement showing the valves open.

As illustrated in Fig. 1, the improvements are shown as applied to a train consisting of the locomotive A, tender A', and cars A² and
40 A³, with a conveyer-section B' of the conveyer B continuous with the upwardly and rearwardly curved smoke-stack A⁴ of the locomotive A, so that the smoke, gases, and sparks and cinders incident to the burning of the
45 fuel in the locomotive pass upward through the said smoke-stack and into and through the tube B, as shown in the drawings. The valve G' is arranged hung at the middle on a transversely-extending shaft G, journaled
50 in suitable bearings in the side of the section B', by a link G² to the hinge-cover G³

for an upwardly-extending outlet G⁴ for the section B', so that when the said cover is opened the link G² swings the valve G' into an inclined position to close the section B' at
55 this point, so that the forward position thereof connects with the outlet G⁴ to permit the smoke and gases to pass up the valve G' and through the outlet to G⁴ to the outer air. The hinged cover G³ is connected with one end of
60 a rope G⁵, passing over a pulley G⁶, journaled on bracket G⁷, attached to the section B'. The rope G⁵ extends into the cab of the locomotive to be under the control of the engineer, so as to enable him to pull the rope G⁵ and
65 swing the cover G³ open and the valve G' closed for the purpose above mentioned. A spring G⁸, carried by the bracket G⁷, presses on the hinge end of the cover G³, so that when the engineer releases the pull on the rope G⁵
70 the spring G⁸ will force the cover G³ shut. The cover in swinging downward causes the link G² to swing the valve G' back into its former open position, as indicated in full on
75 Figs. 1 and 2. When the valve G' is closed, as described, the engineer also closes the valve E to shut off the air-draft from the funnel B⁵, so that the smoke and gases are discharged only from the outlet G⁴.

When desired, air may be admitted to the
80 front end of the tube B to insure a proper draft for the smoke and gases to be carried rapidly and rearwardly through the tube B and discharge the same at the rear end of the train. For this purpose and to assist valve
85 G in the perfect working of its functions I provide the forward end of the section B' of the tube B at its junction with the smoke-stack A⁴ with a funnel-shaped air-inlet B⁵, normally closed at its inner end by a valve E,
90 having its fulcrum at the middle of the valve in the form of a transversely-extending shaft E', journaled in suitable bearings in the sides of the funnel. The forward end of the valve E is provided with an arm E², drawn by a
95 spring E³, attached to the funnel-bottom, to hold the valve normally in a closed position. The arm E² is also connected with one end of a rope E⁴, extending upwardly through an
100 opening in the top of the funnel and passing over a pulley E⁵, journaled on the funnel at the outside thereof, the rope then extending

into the cab of the locomotive to be under the control of the engineer, so that when it is desired to create a draft in the tube B by the outside air then the engineer pulls the rope 5 E⁴ and swings the valve E into an open horizontal position, as indicated in Fig. 3. It is evident that as the train moves forward air passes readily through the funnel B⁵ into the section B' of the tube B and through the re- 10 maining sections to assist in carrying smoke and gases to the rear end of the train. When the engineer desires to back up the train or in making up the train or while remaining under train-sheds, he closes the valve E and 15 opens valve G, which opens cover G³, and the smoke and gases are passed out at outlet G⁴ to the outer air, it being expressly understood that while the train is *en route* the valves B and E are open to convey the smoke and gases 20 to the rear end of the train.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

The combination with a locomotive smoke-stack, of a sectional conveyer-tube connected 25 to said stack, the conveyer-tube extending over the locomotive, tender and cars, an outlet in the locomotive-section, a spring-pressed cover for said outlet, a valve in said section, a link connection between the cover and the 30 valve, and means for raising the cover, whereby the opening of the cover operates the valve to cut off communication between the locomotive-section and the rear sections of the conveyer-tube. 35

To the above I herewith sign my hand in the presence of two witnesses.

WILLIAM H. DANA.

Attest:

L. E. BURGESS,
A. R. RODGERS.