

(No Model.)

2 Sheets—Sheet 1.

W. H. MOOR.

SMOKE AND CINDER CONDUCTOR FOR RAILWAY TRAINS.

No. 477,565.

Patented June 21, 1892.

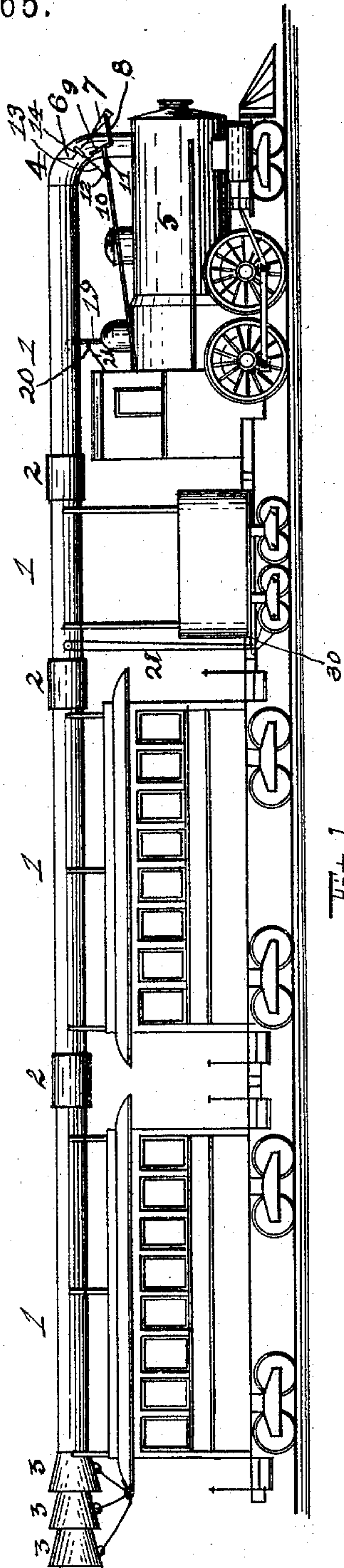


Fig. 1.

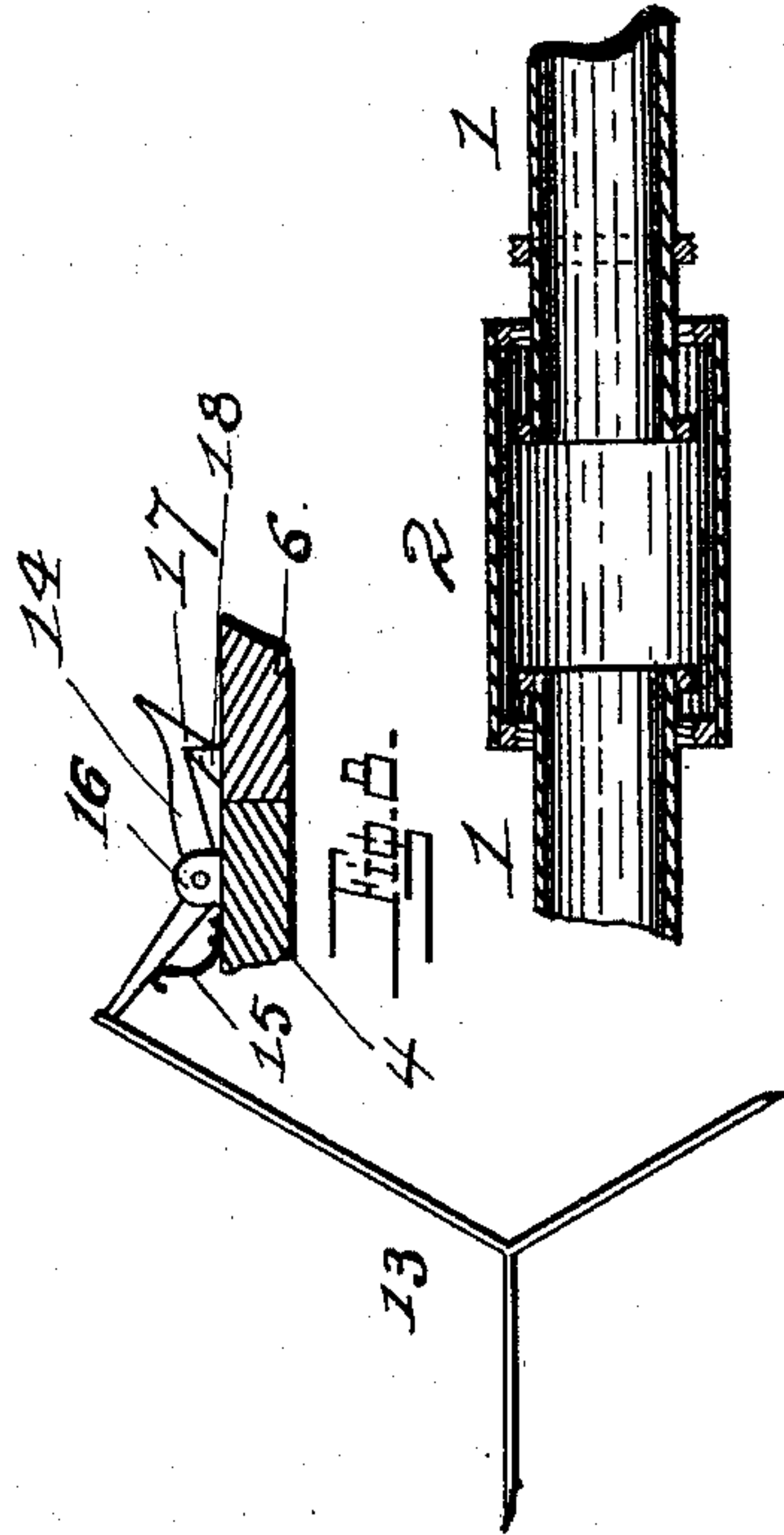


Fig. 2.

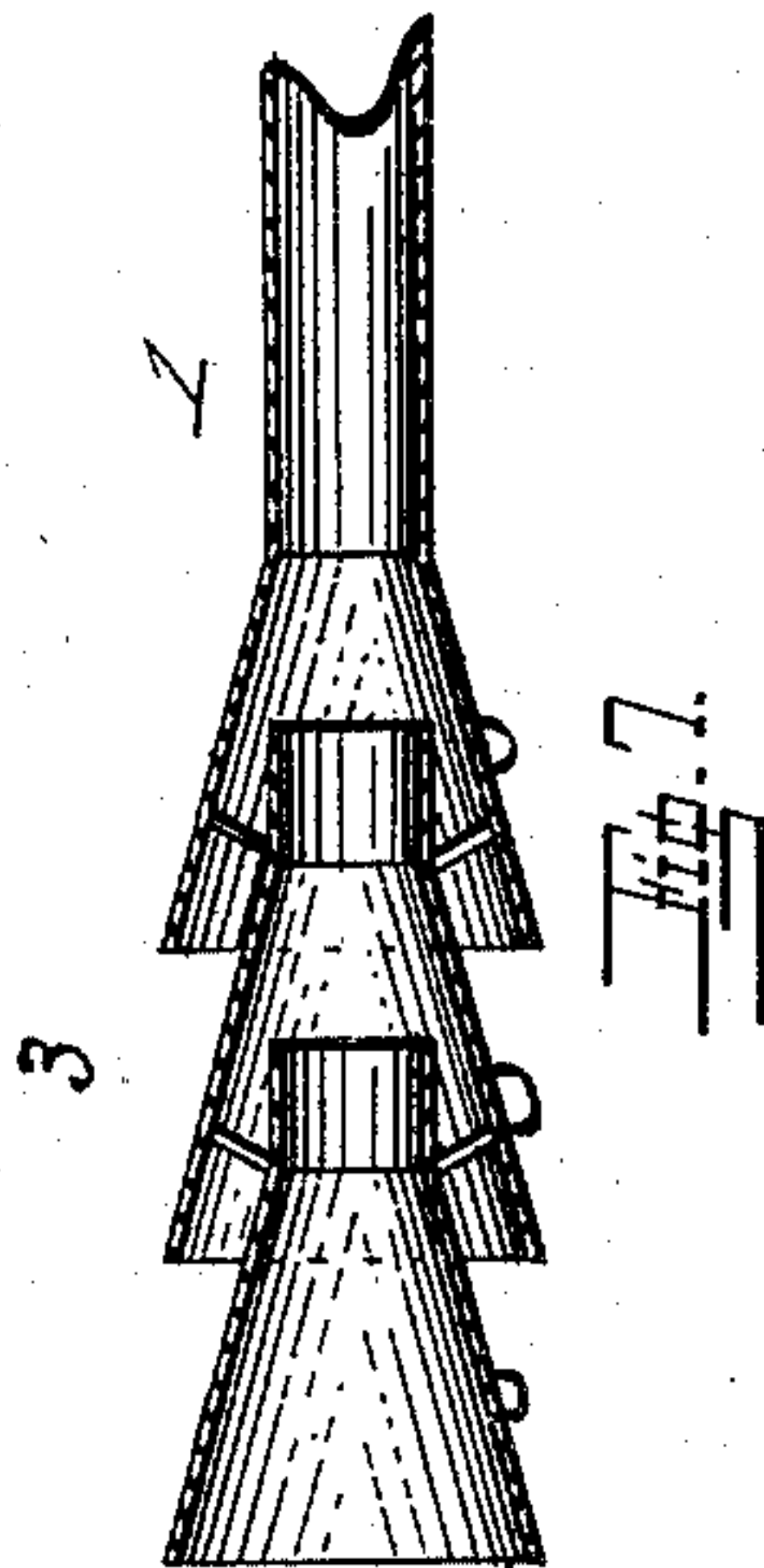


Fig. 3.

Witnesses

L. A. Hayden
Thos. B. Fredericks

Inventor

William H. Moor
By his Attorneys.
C. A. Woodson

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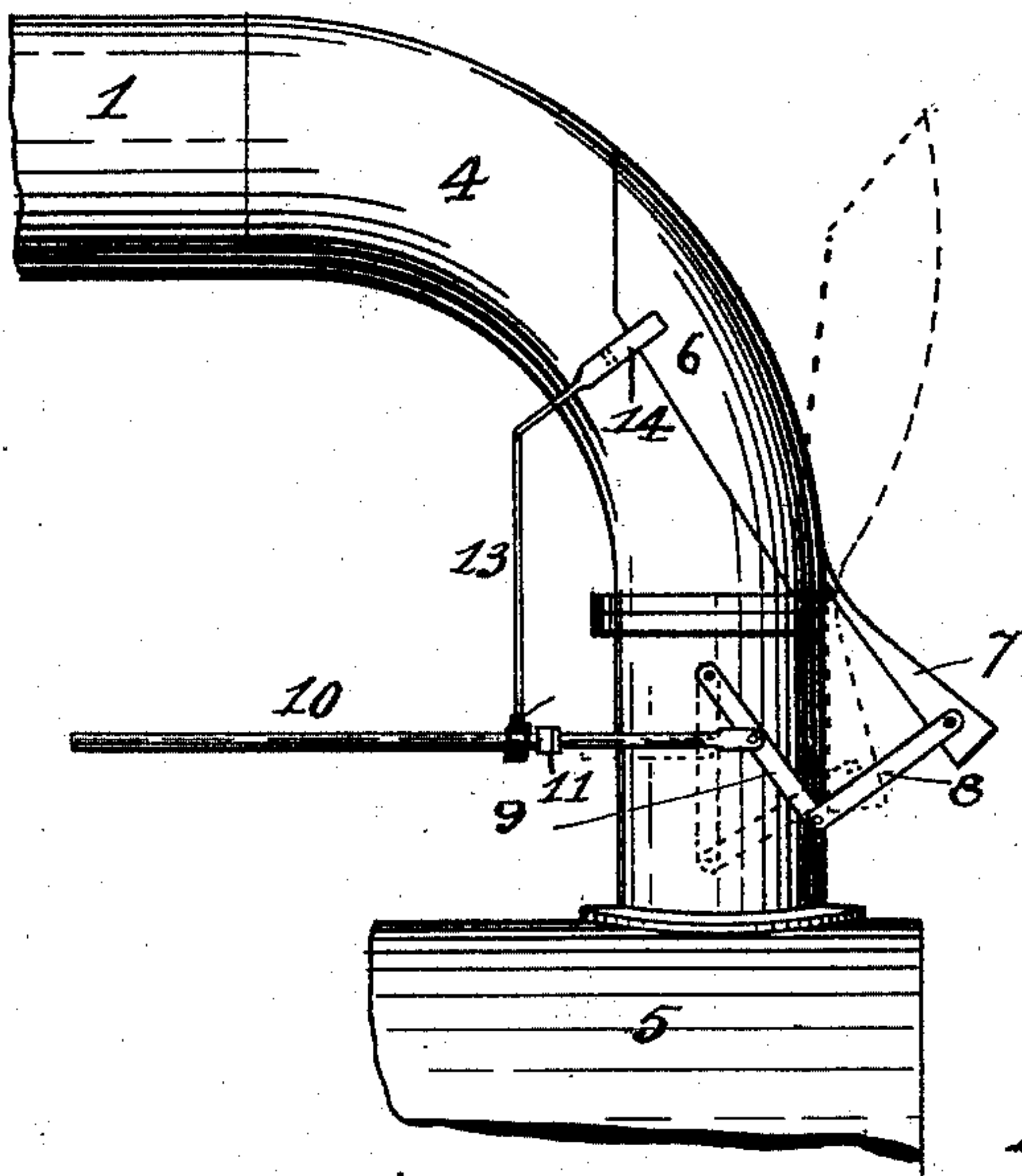


Fig. 2.

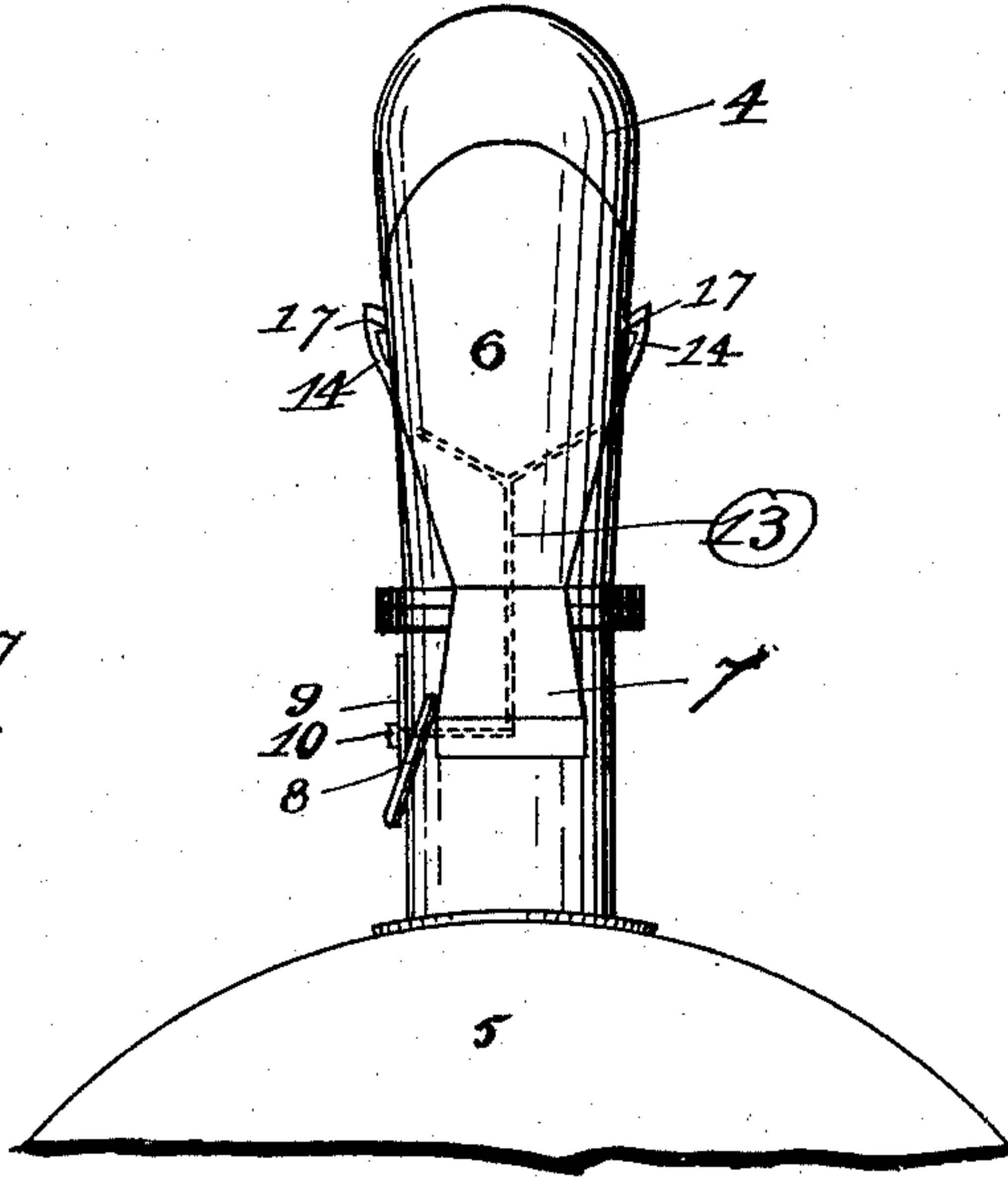


Fig. 3.

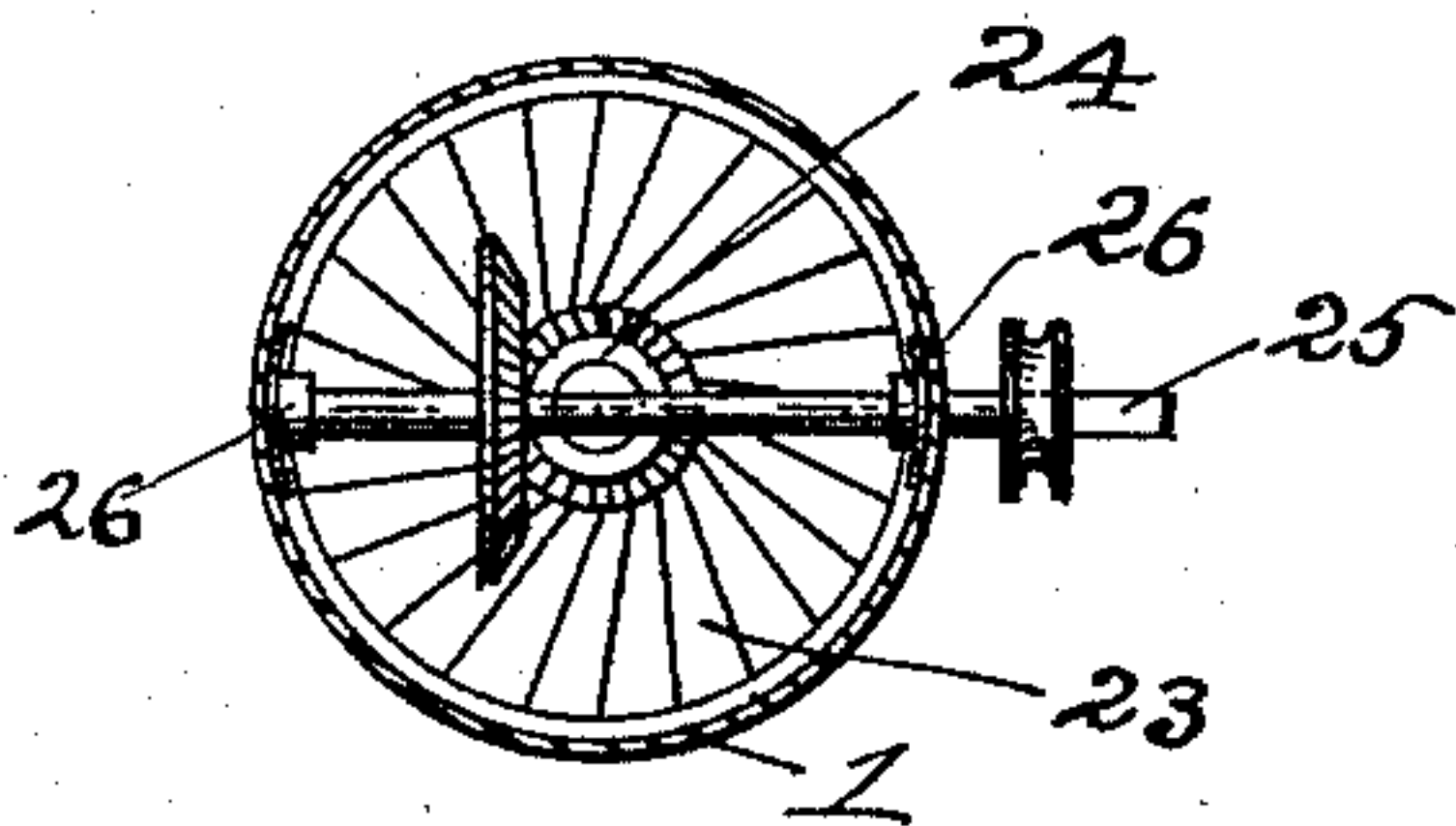


Fig. 4.

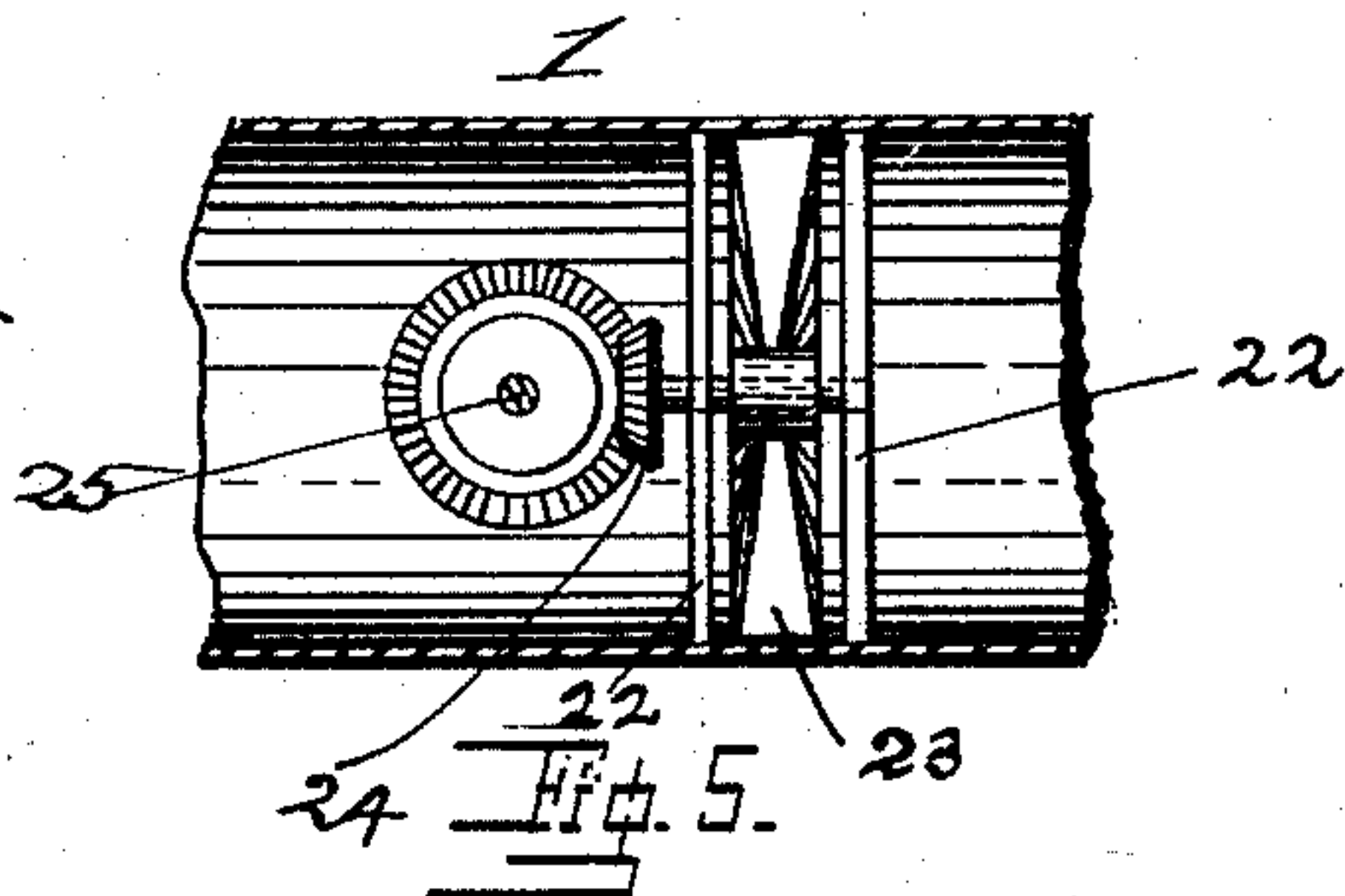


Fig. 5.



Fig. 6.

Witnesses

L. F. Hayden
Thos. B. Frederic.

Inventor

William H. Moor,
By his Attorneys.

Ad. Woodson.

UNITED STATES PATENT OFFICE.

WILLIAM H. MOOR, OF ATLANTA, GEORGIA.

SMOKE AND CINDER CONDUCTOR FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 477,565, dated June 21, 1892.

Application filed October 12, 1891. Serial No. 408,506. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MOOR, of Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful
5 Improvements in Smoke and Cinder Conductors for Railway-Trains; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
10 make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in
15 smoke and cinder conductors for railway-trains and in means for operating same, the invention consisting of a conduit, means for causing a draft therein while the train is in motion, means for cleaning same while at
20 rest and of allowing an independent escape of the smoke when the locomotive is at rest or backing, the details of all of which are hereinafter fully described.

In the accompanying drawings, Figure 1 is
25 a side elevation of a railway-train with this invention attached, showing the location and exterior appearance of each part. Fig. 2 is a side elevation of the connection with the boiler-front or smoke-box and the means for
30 providing exit for the smoke when the locomotive is stationary or backing. Fig. 3 is a front view, looking from the right in Fig. 2. Fig. 4 is a face view detail of the exhaust-fan in the conduit. Fig. 5 is a sectional view
35 thereof, the section being taken vertically and longitudinally of the conduit. Fig. 6 is a detail of the deflecting-rollers of the tender deflecting the fan-driving belt. Fig. 7 is a detail of the compound suction-funnel. Fig.
40 8 is a detail of the device for locking the smoke-door in its closed position. Fig. 9 is a detail in vertical longitudinal section of the conduit-union.

In the figures corresponding reference
45 characters are employed in the designation of like parts in all the views.

The conduit 1 is in sections about the length of a car, a union 2 of some approved form being employed to join the same at the
50 ends. Said union should be of such form as will be easily connected and disconnected, elastic, compressible, and flexible, as an al-

most universal joint is necessary at this place and as it is requisite that very little time be consumed in coupling and uncoupling the
55 conduit. On the back end of this conduit is the funnel 3, which may be duplicated to any desired extent, as required, the functions of said funnels being the production of a partial vacuum within the conduit and the conse-
60 quent draft or suction.

The front end of the conduit is connected with the boiler-front or "smoke-box" by means of the curved funnel 4, which tapers in size from the usual size of a straight smoke-stack
65 to the preferably-larger diameter of the conduit, which obviously is advantageous to the operation of the device for the reason that as the exhaust traverses this funnel there must be no additional back-pressure caused there-
70 by, and the sudden intermittent exhaust must be converted into a steady draft in the car-pipes, otherwise a throbbing noise will be transmitted from said car-pipes into each car they pass over; also, the friction of a pipe
75 the same size of the smoke-box opening would be deleterious to the draft. Couplings of any approved pattern may be employed in joining the conduit and said funnel and in fastening the latter to the boiler 5. A hole
80 is cut on the front side about in the bend of the funnel directly over the opening from the smoke-box, and a cover 6 is hinged by its lower end to the said pipe in such a position as to close practically hermetically the said
85 opening in the funnel 4. A counterbalance-weight 7 should be attached to the lower end of said cover, so as to facilitate the opening of the same, said weight serving also as a lever in the construction shown, to which the pit-
90 man 8 is connected, its other end being connected to the lever 9, pivoted in a suitable position on the side of the smoke-stack or the adjacent part. It is seen that this door opens out into a position in front of its opening in
95 such a manner as to shield the conduit from drafts of air entering the front end when the locomotive is stationary, the objection to said draft being that smoke and steam would be thereby caused to sluggishly pass from the
100 back end of the conduit, there to be blown in various directions and mostly enter the back door or windows of the last car, generally a sleeping-car or parlor-car, this without

in any way interfering with the outlet for smoke when the locomotive is stationary. Connected to the lever 9, nearer its pivotal point than the point of connection of the pitman 8, is a rod 10, which extends backwardly over the boiler into the cab, a swivel 11 being placed therein near the lever 9, so that the said rod 10 may be partially revolved, and thus cause the lever 12, projecting sidewise from said rod, to swing downwardly, and by pulling on the cord 13 (best shown in Fig. 8) depress the back ends of the levers 14 against the springs 15, which said levers are pivoted in lugs 16 on the side of the funnel 4 and having barbs 17 on their ends, engage the lugs 18 on the cover or door 6, and thus disarrange same and allow the opening of said door by a longitudinal movement of the said rod 10.

Extending from the steam-dome upwardly into the conduit, and thence backwardly in the form of a nozzle, preferably, is a pipe 19, cut by a valve 20, operated by the stem 21, extending into the cab. By turning steam into the conduit through said pipe a circulation is caused therein which will force smoke and cinders from the conduit when the locomotive is stationary, besides materially assisting, if necessary, the other exhausting agents when in motion.

Journalled upon cross-bars 22 within the conduit is an exhaust-fan 23, which is revolved by means of a bevel-pinion 24 upon its shaft and a bevel spur-wheel upon the transverse shaft 25, journalled in bearing-boxes 26 in the conduit sides. A pulley 27 on the said shaft 25, exteriorly of the conduit, carries and is driven by a belt 28, which passes downwardly over the sheaves 29, carried upon an arm 30, secured to the tender, and over a pulley on the near axle of the said tender, whereby the

said fan is driven at a proper speed. Of course this fan might be driven by other means; but this described means is at present thought to be preferable.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a device of the class specified, a curved pipe connected at its lower end to the smoke-box and at its upper end to a backwardly-extending pipe, and an opening and door therein vertically over the opening into the smoke-box, said door acting as a cinder-deflector and to close said opening and removable when worn, and a counterbalance-weight projecting downwardly past the pivotal point of said door, forming a counterbalance-weight and a motion-limiting stop for said door in opening, substantially as and for the purpose specified.

2. In a device of the class specified, the conduit having a hole therein, a door adapted to close said hole, a spring-pressed barbed lever pivoted to said pipe and engaging said cover-door, a rock-shaft extending to the cab, having thereon a lever 12, and a cord or chain connected to said barbed lever and to said lever 12.

3. In a device of the class specified, the conduit, an opening therein for exit of smoke, a door adapted to close said opening, an extension 7 thereon, the pitman 8, connected thereto and to the lever 9, the lever 9, and the rod 10, all combined, arranged, and operating substantially as and for the purpose specified.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

WILLIAM H. MOOR.

Witnesses:

A. P. WOOD,
A. A. WOOD.