

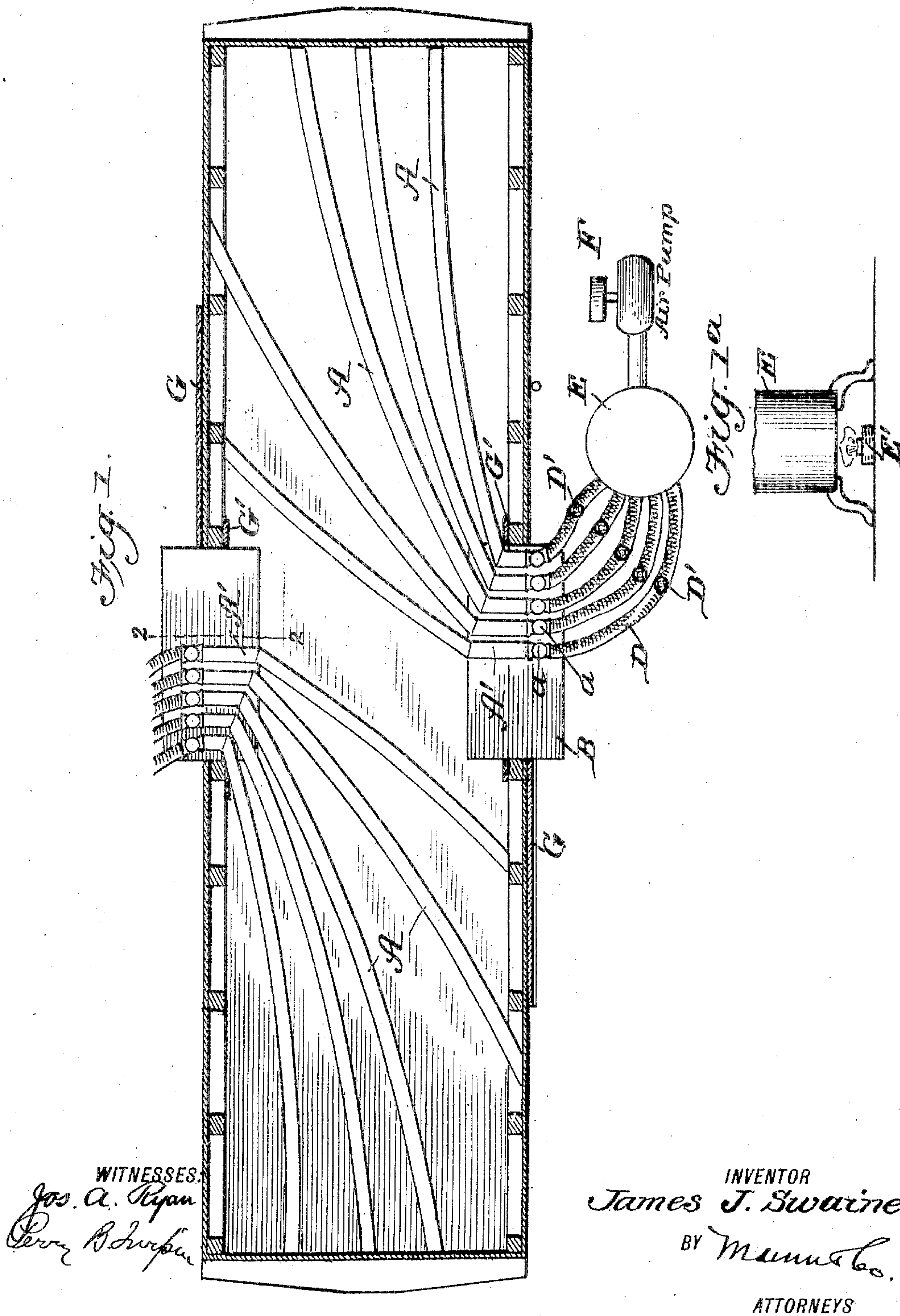
No. 776,872.

PATENTED DEC. 6, 1904.

J. J. SWAINE.
GRAIN DRIER FOR CARS.
APPLICATION FILED APR. 11, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



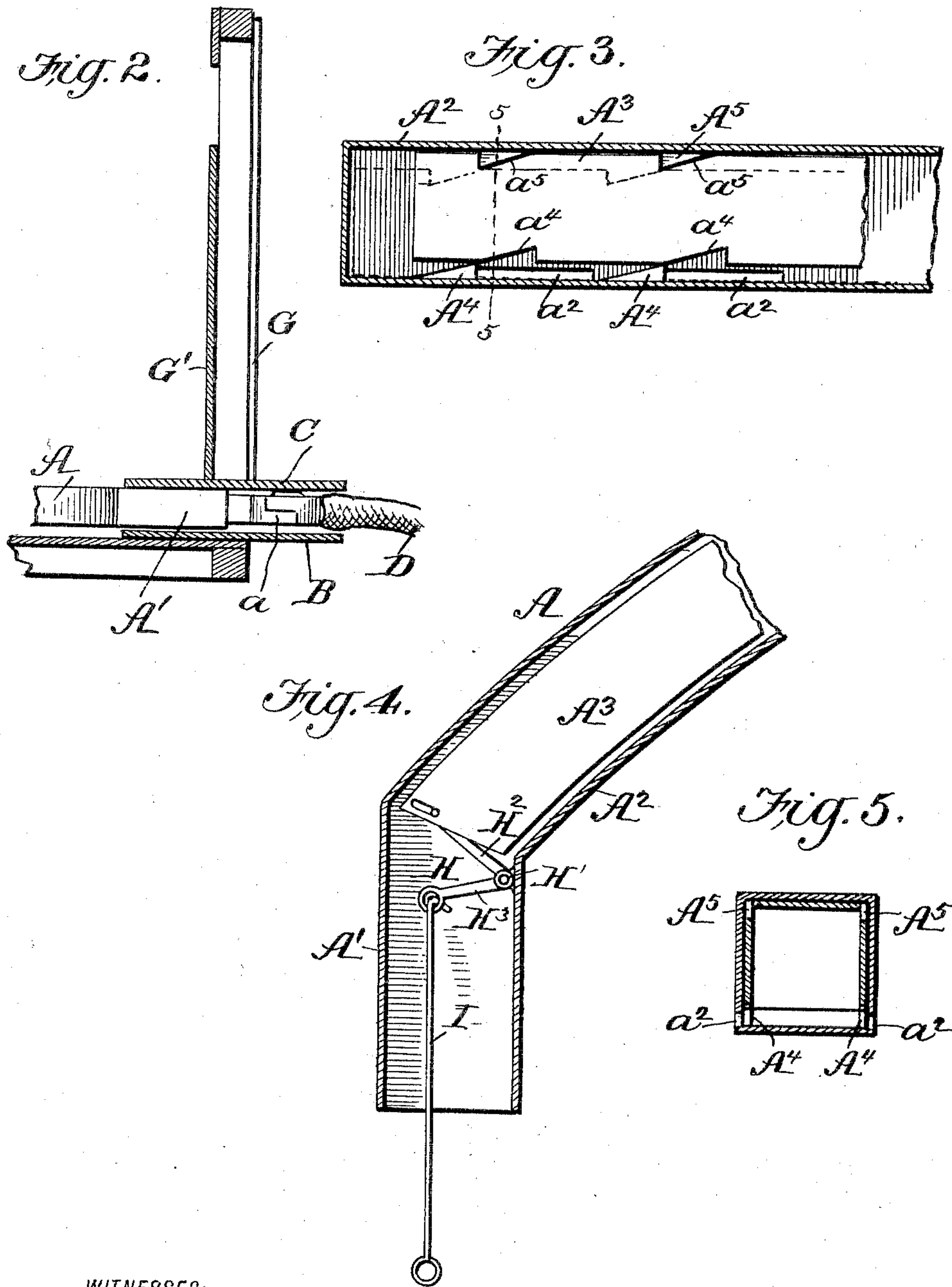
No. 776,872.

PATENTED DEC. 6, 1904.

J. J. SWAINE.
GRAIN DRIER FOR CARS.
APPLICATION FILED APR. 11, 1904.

NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:
Jos. A. Ryan
Perry B. Hopkin

INVENTOR
James J. Swaine
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES JOHN SWAINE, OF BALTIMORE, MARYLAND.

GRAIN-DRIER FOR CARS.

SPECIFICATION forming part of Letters Patent No. 776,872, dated December 6, 1904.

Application filed April 11, 1904. Serial No. 202,668. (No model.)

To all whom it may concern:

Be it known that I, JAMES JOHN SWAINE, a citizen of the United States, and a resident of Baltimore, in the State of Maryland, have made certain new and useful Improvements in Grain-Driers for Cars, of which the following is a specification.

This invention is an improvement in grain-driers especially designed for use in drying the grain in cars; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a sectional plan view of a car provided with my invention. Fig. 1^a is a detail side view. Fig. 2 is a vertical cross-section drawn through the base and top plates between which the outer ends of the air-conduits project. Fig. 3 is a detail longitudinal section of a portion of one of the air-conduits, and Fig. 4 is a detail view illustrating the means for operating the inner or valve pipe of the conduit. Fig. 5 is a section on line 5 5 of Fig. 3.

In carrying out my invention I provide, preferably in series, air-conduits A, which may be curved longitudinally, as shown, and may be forced lengthwise along the bottom of the car beneath the load of grain therein. These conduits are provided at their outer ends with elbows A', which project laterally between base-plates B and top plates C and are provided with couplings *a*, by which they may connect with hose-pipes D, leading to a tank E, in which pressure may be established and maintained by means of any suitable blower or air-pump F, operated in any desired manner. The hose-pipes D are provided with independent valves D', so the pressure to any one of the series of conduits A may be regulated or cut off as desired. The air may be heated whenever desired, to which end a jet E' or other suitable heating means may be employed. The main portions of the conduits A extend laterally from the inner ends of the elbows A', so such elbows may project directly out at the side of the car, and the main portions may extend generally in the longitudinal direction of the car, as best shown in Fig. 1. In applying the invention for use in a car

the outer door G of the car may be opened and the inner door G' be cut away at its lower end for a sufficient height to permit the introduction of the conduits. Previous to cutting the inner door, which may be effected by sawing in the usual manner, I introduce the base-plate B beneath the inner door, such plate B projecting laterally beyond the side of the car to form a rest for any grain that may pass out through the opening formed for the conduits A. The top plate C may then be introduced and be supported in any suitable way from the base-plate B until one or more of the conduits are introduced, when the latter will support the top plate C, as will be understood from the drawings. I prefer to curve the body portions of the conduits longitudinally, so they may be readily introduced and forced lengthwise beneath the load of grain. In forcing the conduits into the car any suitable means—such, for instance, as a block and tackle—may be employed for exerting the desired pressure to force such parts to place.

The conduits are provided with suitable air-outlets, and it is manifest that the air supplied thereto under pressure will pass up through the load of grain and will thoroughly dry the same.

By preference the conduit includes an outer pipe A² and an inner pipe A³, the latter being movable longitudinally in the outer pipe and arranged when moved in one direction to close the air-vents *a*² in the outer pipe, thus forming a valve for said openings, and when moved in the opposite direction to adjust clear of said openings *a*² so the air may pass freely out of the latter, the adjustment of the inner pipe to close the air-vents being effected in introducing the conduit so the grain will not pass through the vents *a*² into the outer pipe A² as the conduit is being introduced into the body of grain to be dried. In effecting this operation I prefer to provide the outer pipe A² at its bottom with inclined projections or blocks A⁴, on which the inner pipe A³ rests, so that when the inner pipe is movable longitudinally to the position shown in full lines, Fig. 3, it will rise clear of the vents *a*² and being adjusted to the other position, (indicated in dotted lines in said figure,) the inner pipe

A^3 will close the vents a^2 , as will be understood from such figure of the drawings. In securing this operation it is preferred to notch the under side of the pipe A^3 at a^4 to coincide with the wedges A^4 of the outer pipe, and to insure the downward movement of the inner pipe when adjusted to the dotted-line position referred to I prefer to provide wedge-blocks A^5 at the upper side of the outer tube A^2 and to notch the upper side of the inner tube at a^5 to receive said blocks, this construction sufficing to positively move the inner pipe downward when the same is adjusted to its dotted-line position. In cases where the specific gravity of the inner tube is sufficient to insure its downward movement this upper wedge A^5 and notch a^5 may not be necessary; but I prefer it in order to render the operation of the device positive at all times.

For moving the inner pipe A^3 longitudinally within the outer pipe I employ the bell-crank levers H , pivoted at H' , in connection with the outer pipe A^2 , having an arm H^2 connected with the inner pipe to move the latter when the lever H is rocked and having another arm H^3 , adapted to be engaged by a hooked handle-rod I so the latter may be inserted within the elbow A' when the latter is uncoupled at a to move the inner pipe A^3 in one direction or the other, as may be desired.

By the described construction it will be noticed I am able to introduce air, heated or otherwise, to the body of grain at the bottom of the latter and throughout the area of the base of the grain, so the air circulating up through the mass of grain will thoroughly dry the same.

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

1. The combination with a car having an opening for the introduction of an air-conduit, of an air-conduit adapted for application to and removal from the car and projecting at its inner end into the car, and a base-plate also adapted for application to and removal from the car and underlying the outer end of said conduit and projecting laterally to form an extension of the floor of the car, adjacent to the opening for the introduction of the air-

conduit, sufficient to prevent the wasting of the material through the opening for the introduction of the air-conduit.

2. The combination with a car having a doorway, of ventilating-tubes inserted through the doorway of the car adjacent to the floor thereof, and means above and below said ventilating-tubes adjacent to the doorway whereby to prevent the escape of the contents of the car through the opening for the insertion of the ventilating-tubes, substantially as set forth.

3. The combination with a car having a doorway extending to its floor, and ventilating-tubes inserted through said doorway adjacent to the floor, of base and top plates arranged within the doorway below and above the ventilating-tubes and extending outwardly beyond the side of the car, substantially as and for the purposes set forth.

4. The combination in an air-conduit for grain-driers of the outer pipe having air-vents, the inner pipe movable longitudinally and vertically into and out of position to close said vents and means for raising and lowering the inner pipe as it is moved longitudinally substantially as set forth.

5. The combination in an air-conduit for grain-driers of the outer pipe having air-vents, the inner pipe, movable longitudinally into and out of position to close said vents and wedge-blocks by which to lift the inner pipe as it is moved longitudinally substantially as set forth.

6. In a grain-drier for cars, a conduit having a main portion consisting of an outer pipe provided with air-vents, an inner pipe movable longitudinally and transversely in said outer pipe, devices whereby the longitudinal movement of the inner pipe may move it transversely into and out of position, to close the vents in the outer pipe, and a bell-crank lever for giving the longitudinal movement pivoted to the outer pipe, said bell-crank lever having an arm connected with the inner pipe.

JAMES JOHN SWAINE.

Witnesses:

SOLON C. KEMON,
PERRY B. TURPIN.