(No Model.) 2 Sheets—Sheet 1.

I. HAZELTON.

CAR HEATING APPARATUS.

No. 427,863. Patented May 13, 1890.

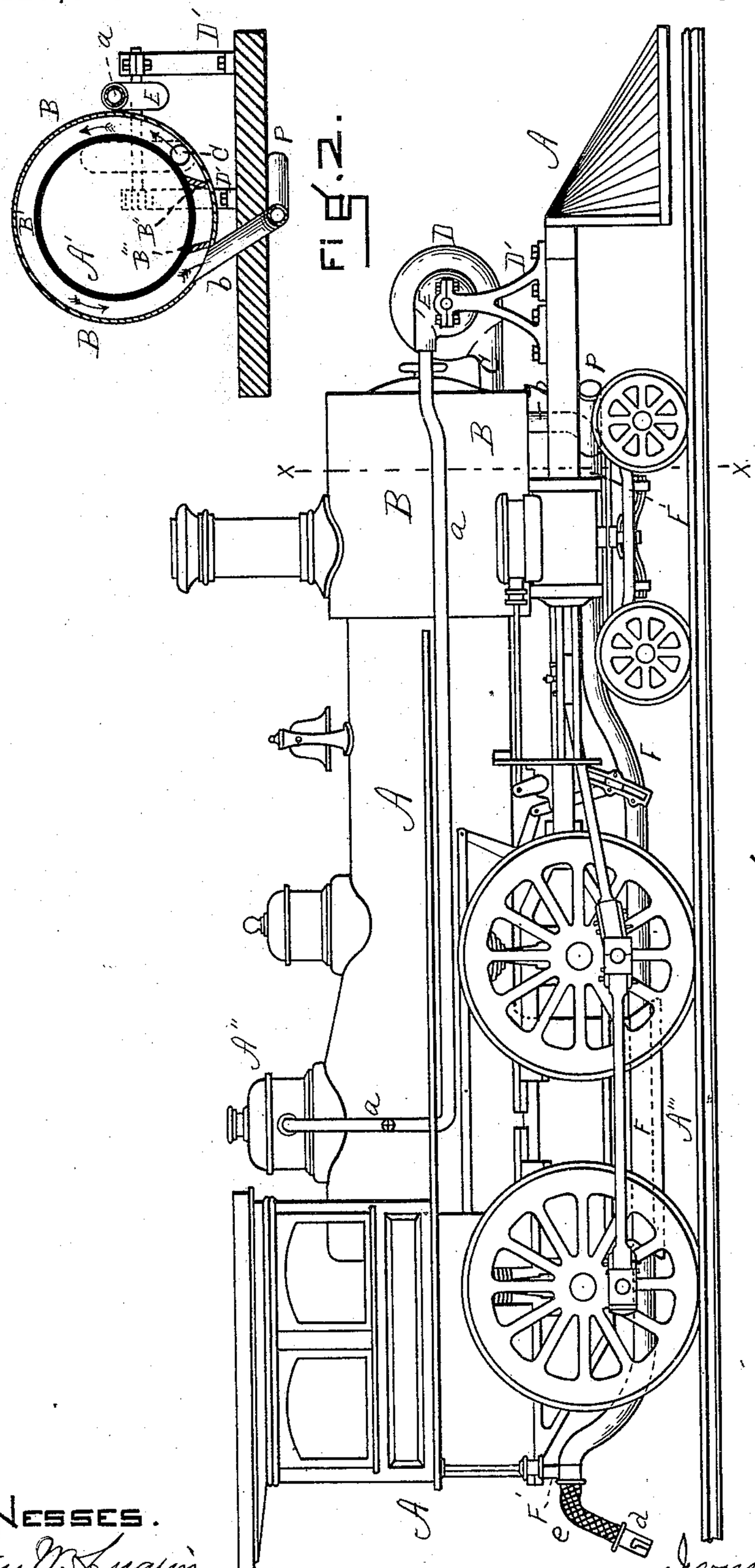

Fig. 2.

Fig. 1.

WITNESSES.

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INVENTOR

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By his Atty

Henry W. Williams.

(No Model.) 2 Sheets—Sheet 2.

I. HAZELTON.

CAR HEATING APPARATUS.

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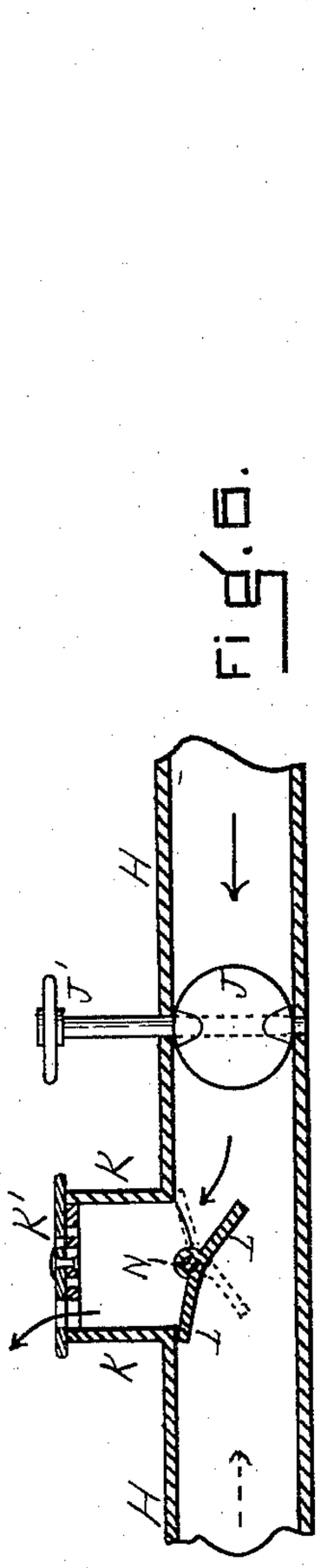

Fig. 6.

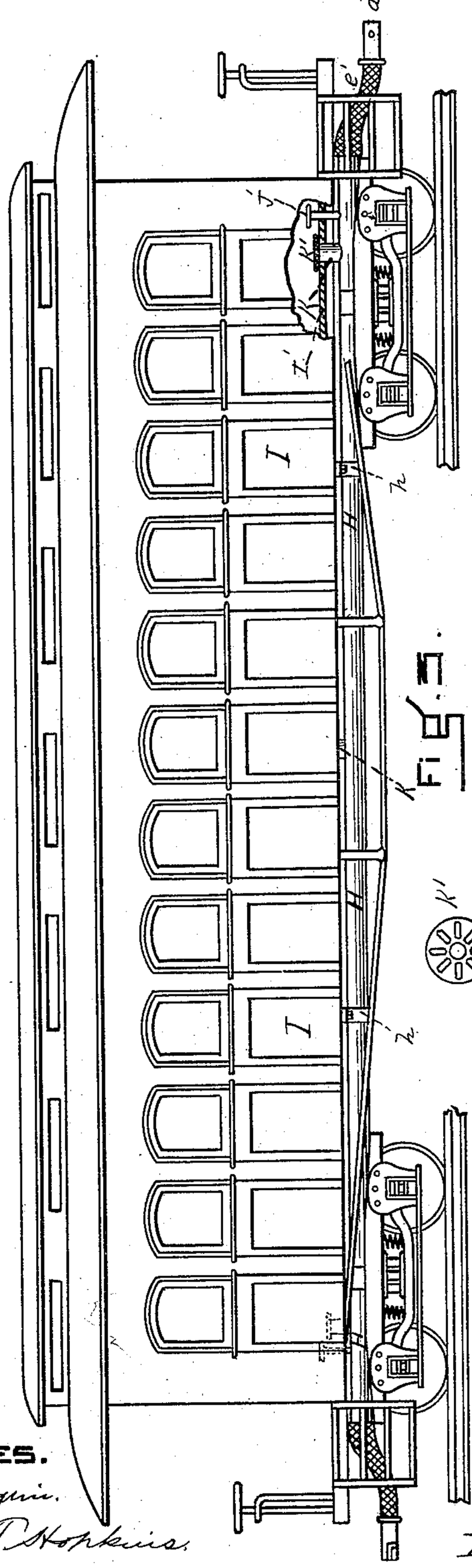

Fig. 3.

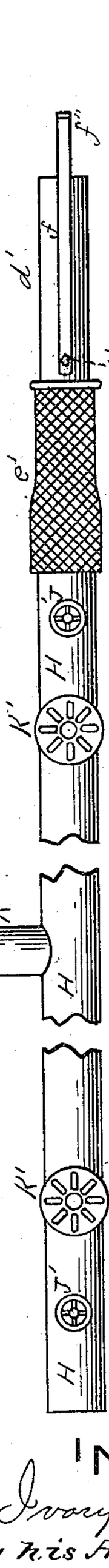

Fig. 4.

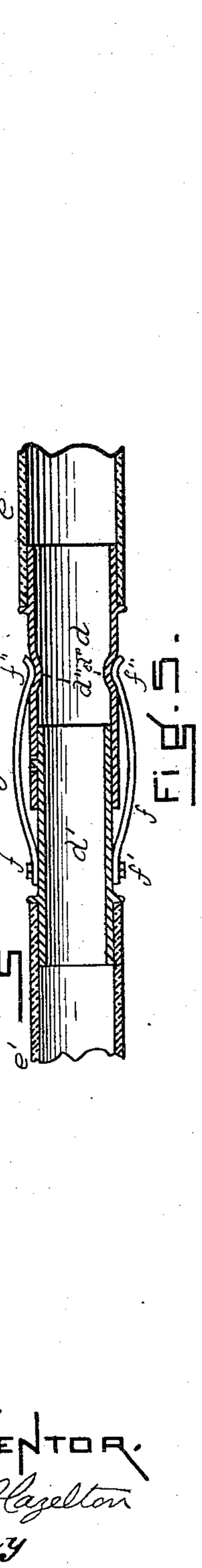

Fig. 5.

WITNESSES.

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INVENTOR.

Ivory Hazelton

By his Atty

Henry W. Williams

UNITED STATES PATENT OFFICE.

IVORY HAZELTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO SUSAN D. SHORT, OF SAME PLACE.

CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 427,863, dated May 13, 1890.

Application filed July 22, 1889. Serial No. 318,298. (No model.)

To all whom it may concern:

Be it known that I, IVORY HAZELTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Car-Heating Apparatus, of which the following is a specification.

This invention relates to that class of car-heaters in which the train of cars is heated from the locomotive, the heat in this instance being in the form of hot air. The nature of the invention is fully described below, and is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a locomotive fitted up with a portion of my invention. Fig. 2 is a cross vertical section taken on line *x*, Fig. 1. Fig. 3 is a side elevation of a passenger-car fitted up with a portion of my invention, a small portion of the car being represented as broken out the better to illustrate the device. Fig. 4 is an enlarged plan of that portion of the apparatus which is beneath a car removed therefrom, portions being broken out to save space in the drawings. Fig. 5 is an enlarged longitudinal vertical section of a connection or joint between cars. Fig. 6 is a detail longitudinal vertical section taken at a point where the hot air is conducted from a main flue into a register.

Similar letters of reference indicate like parts.

A represents an ordinary locomotive. B is a metallic structure or cylinder built around the smoke-arch (see Figs. 1 and 2) and connected by the pipe C with a blower D, supported by means of the standard D′, or in any suitable manner secured to the locomotive at its forward end. The same means supports a motor E, actuated by steam conducted thereto from the steam-dome A″ by means of the pipe *a*. A pipe *b* connects the chamber B′, formed by the structure B, with the flue F, which extends under the locomotive, through the ash-pit A‴, and is secured at its rear end at F′, as shown. At this point it is provided with a flexible tube *e*, whose rigid outer end *d* is provided with a bayonet-joint, whereby it may be secured to the rigid end of a tube secured to the tender. The tender is not shown in the drawings, but the other portion *d′* of the bayonet-joint is shown in Fig. 3 on a passenger-car.

Air is forced by means of the blower D (which is actuated by the motor E) into the chamber B′, where, being guided by the partition B″, it is forced around the smoke-arch, becoming heated thereby during the process, and is then guided by the partition B‴ into the pipe *b*, and thence to the flue F and to the train.

At the connections between the engine and tender, tender and car, and between cars, (see Figs. 1, 3, 4, and 5,) the bayonet-joint consists of or is a part of the rigid tubes *d d′*, which are connected to the main flues by flexible connections *e e′*, and the parts *d d′* are removably connected together by springs *f*, whose fixed ends are secured at *f′* to the part *d′*, and whose free ends *f″* lie in depressions *d″* in the part *d* of the joint.

Any suitable joint or pipe coupling may be used in place of the one described and illustrated, as this is not a part of the present invention.

Beneath each car is a large flue H, (see Figs. 3 and 4,) secured by hangers *h*, or other suitable means, to the car between the trucks and the outer edge. In this flue are dampers J, operated by hand-wheels J′, (see Figs. 3, 4, and 6,) which may extend up through the car-floor I′ at convenient points, and extending up from the flues are sub-flues K, leading into the car and provided with registers K′. Two sub-flues would preferably extend directly up into the car at opposite ends on one side of the aisle, (the main flue being one side of the center,) and a third would extend up from a horizontal branch flue K″ and enter the car in the middle of the aisle. At the entrance to each sub-flue (see Fig. 6) is balanced a bent valve L, of blunt inverted-**V** shape, said valve being supported centrally at its bend by a horizontal shaft N. The effect is that from whichever end the hot air approaches, the farther side or wing of the valve is lifted and closes, while the nearer side drops and catches and deflects the hot air into the sub-flue, and thence to the register. By this

means a car may be heated from either end, the bent or "wing" valves acting automatically.

By means of a branch or Y pipe P, Figs. 1 and 2, cold air may in the summer months be introduced instead of hot air.

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

The herein-described improved car-heating apparatus, consisting, essentially, of the following parts, viz: the structure or cylindrical box B, situated over the smoke-arch, the blower D in front of the smoke-arch and connected by means of a pipe C with the interior of the said box, the motor E, connected by a pipe *a* with the steam-dome, connecting-pipe *b*, flue F, flues H, placed beneath the cars and secured thereto outside the trucks, said flues being provided with branch flues K, having registers K′, which open into the cars, and the wing-valves L, hung horizontally at the points where the branch flues K connect with the main flues H from pivots which are placed transversely with the main flues, whereby the vertical branch flues are automatically opened to the approaching current of hot air passing through the horizontal main flues and closed at the opposite side in whichever direction the cars may be moving, and suitable flexible connections between the cars, substantially as set forth.

IVORY HAZELTON.

Witnesses:
HENRY W. WILLIAMS,
ARTHUR W. LUGINS.