

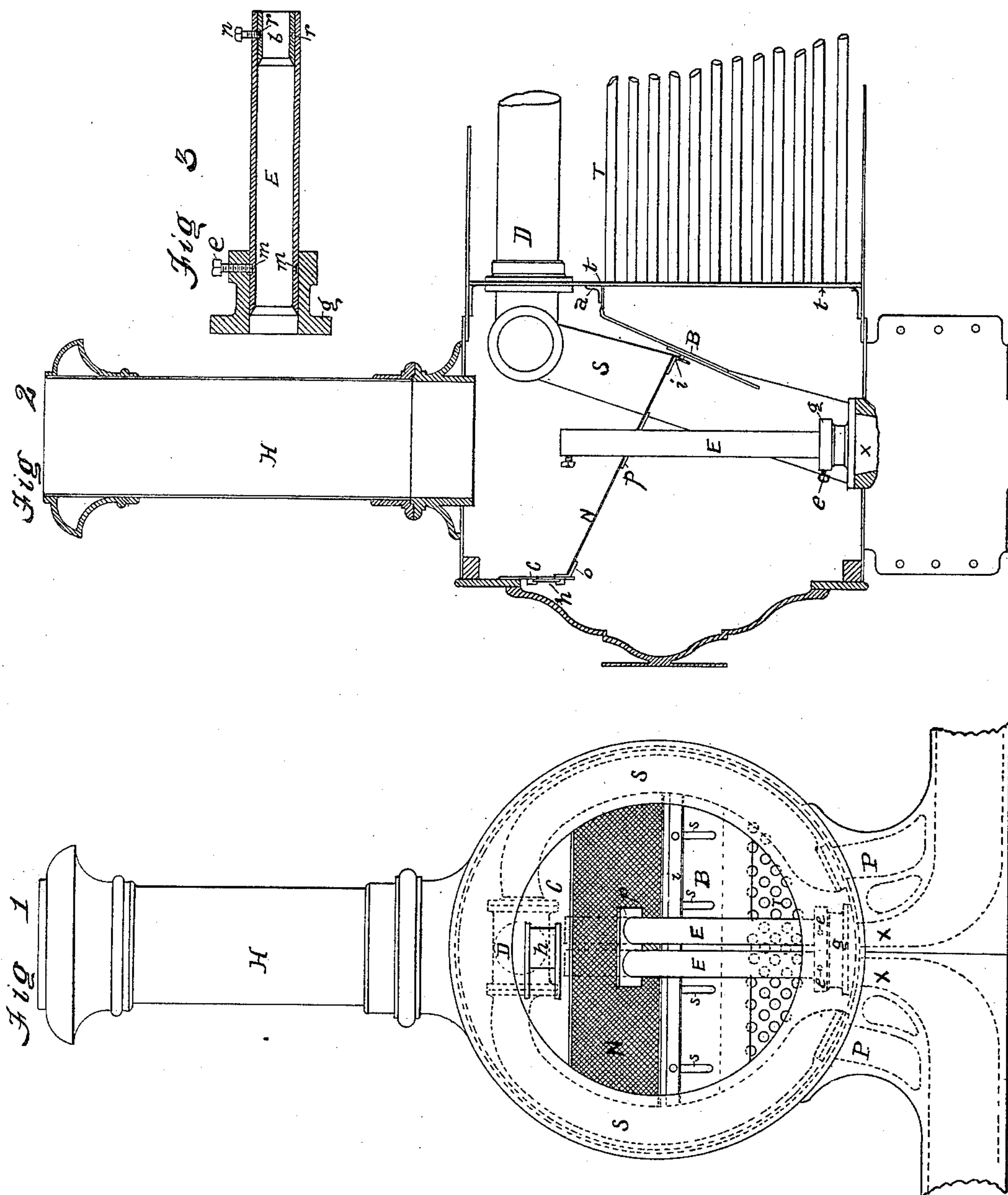
(No Model.)

J. D. CONNELL.

SPARK ARRESTER.

No. 339,268.

Patented Apr. 6, 1886.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES D. CONNELL, OF NEW ORLEANS, LOUISIANA.

SPARK-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 339,268, dated April 6, 1886.

Application filed December 26, 1885. Serial No. 186,693. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. CONNELL, a citizen of the United States, and a resident of the city of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Spark-Arresters for Locomotives, of which the following is a specification.

My invention relates to spark-arresters for locomotives which have a short smoke-box; and the objects of my invention are, first, to afford facilities by which locomotives equipped with a short smoke-box can be provided with an effective spark-arrester without extending the smoke-box; second, to provide a means by which locomotives having a short smoke-box can be equipped with a straight sheet-iron stack without extending the smoke-box, which replaces a heavy cast-iron diamond stack and materially reducing the weight of front of engine resting on engine-trucks, as also reduces the cost of construction; third, to afford facilities by which the combustion in locomotives equipped with a short smoke-box is materially improved, consequently the consumption of fuel is reduced, which fact is substantially and unequivocally demonstrated by the experiments and comparisons I have made; fourth, to afford facilities by which no cinders can accumulate in the smoke-box, rendering any devices for daily cleaning unnecessary; fifth, to provide a means by which the openings of exhaust-nozzles can be reduced or enlarged at pleasure; sixth, to afford facilities by which a locomotive having a short box can be equipped with a most effective spark-arrester, which improves the combustion with but nominal expense, as also reduces the weight on front end of engine; seventh, to provide a means by which all the parts of my device can be taken out and replaced with ease and dispatch. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end view of a locomotive equipped with my device, with the front door of smoke-box removed; and Fig. 2 is a longitudinal section through center of smoke-box. Fig. 3 is a detail of exhaust-nozzles on an enlarged scale.

Similar letters refer to similar parts throughout the several views.

The steam-pipes S, connecting the dry-pipe

D and steam-ports P of cylinder, are shaped to be placed against the sides of smoke-box, as shown. A baffling-plate, B, placed on an angle, as shown, is secured by the angle-bar *a* to the front tube-sheet, *t*, of boiler. This baffling-plate B is constructed in two sections and secured together by bolts placed in the slots *s*, so that the distance from bottom of baffling-plate to bottom of smoke-box can be regulated as may be desired. The wire-netting N is placed as shown on the drawings, it being secured by the angle-iron *i* to the baffling-plate B, and by the angle-iron *o* to the sheet-iron cover *c*. The sheet-iron cover *c* is secured to the inside of front frame of smoke-box, as shown, and has a hand-hole, *h*, in same to enable the workmen to secure nuts, &c., in erecting the device, as also to alter size of exhaust-nozzles E. The exhaust-nozzles E are made of wrought-iron tubing, to economize space and weight, and are secured by the set-screw *e* to the casting *g*, which is secured to top of exhaust-ports X of cylinder. The set-screw *e* fits into a recess, *m*, Fig. 3, turned in the pipe or exhaust-nozzle E, to keep same in position.

The netting N is secured around the exhaust-pipes E by the plate *p*. The netting N being of sufficient fineness to prevent large cinders from passing same, these large cinders are drawn against the netting N with sufficient force to break them up, when they pass through same and out of stack in fine particles.

A bushing, *b*, is placed in top end of the exhaust-nozzles E, and is secured by the set-screw *n*, fitting in the recess *r*, turned in the bushing *b*, as shown. The internal diameter of this bushing *b* can be of any size desired, and the size of opening from exhaust-nozzles can be changed, when desired, by changing this bushing, which operation can be easily and quickly performed by means of the set-screw *r* and hand-hole *h*, the bottom edge of pipes E and bushing *b* being beveled, as shown, to reduce friction.

H represents a straight sheet-iron stack.

T represents the tubes in the boiler.

Actual use of the device and comparison of the results of same with the same engine before being equipped has demonstrated the following facts: The engine equipped with this device steams very much easier and produces improved combustion, which is demonstrated

by the saving of at least twenty-five one-hundredths in fuel, and the engine throws no sparks. No cinders collect in front smoke-box, which never requires cleaning out.

5 My device can be placed in any short smoke-box without requiring any change of steam-pipes or other parts except the heavy cast-iron exhaust-nozzles, which are replaced by light wrought-iron pipes.

10 Having thus described the construction and advantages of my improved spark-arrester for locomotives equipped with short smoke-boxes, I claim as new and desire to secure by Letters Patent—

15 1. In a spark-arrester for locomotives, the combination of a short smoke-box with the baffling-plates B, secured by angle-iron *a* to front tube-sheet, *t*, of boiler, and constructed in

two sections and secured together by bolts working in slots *s*, wire-netting N, secured to 20 angle-irons *i* and *o*, the cover C, provided with the hand-hole *h*, and the exhaust-nozzles E, constructed of wrought-iron pipe, provided with casting *g*, set-screw *e*, plate *p*, bushing *b*, set-screw *n*, and recesses *r* and *m*, all substan- 25 tially as set forth, and for the purposes specified.

2. In a spark-arrester for locomotives, the wrought-iron exhaust-nozzles E, secured to casting *g* by set-screw *e*, and provided with recess *m*, and bushing *b*, set-screw *n*, and recess 30 *r*, all substantially as set forth.

J. D. CONNELL.

Witnesses:

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