

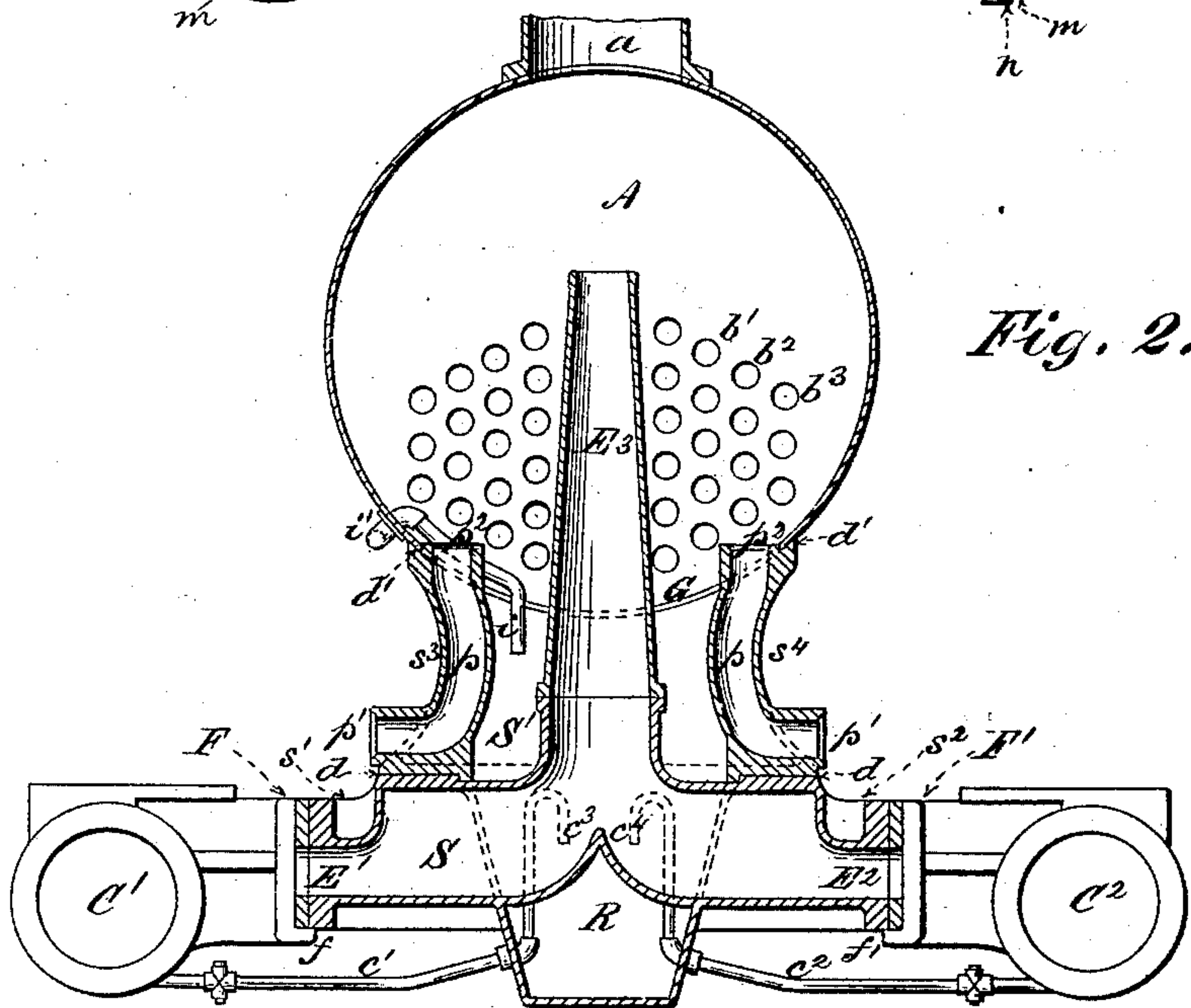
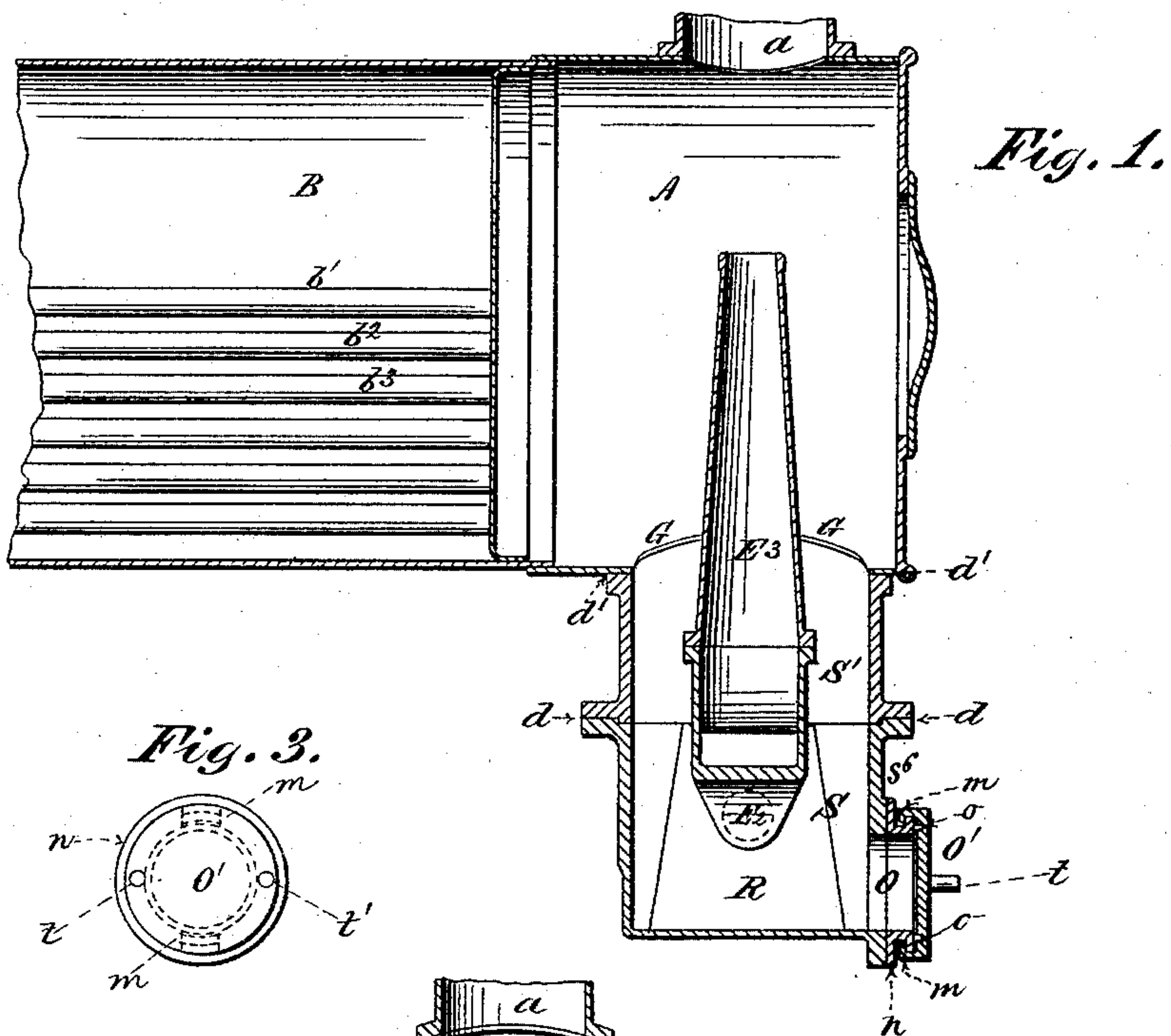
(No Model.)

J. D. CAMPBELL.

SADDLE FOR LOCOMOTIVE ENGINES.

No. 328,002.

Patented Oct. 13, 1885.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## SADDLE FOR LOCOMOTIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 328,002, dated October 13, 1885.

Application filed April 15, 1885. Serial No. 162,335. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN D. CAMPBELL, a citizen of the United States, and a resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Saddles for Locomotive-Engines, of which the following is a specification.

My invention relates to all classes of locomotive-engines, principally to that class of engines which are used upon elevated railways. In such engines great difficulty has been experienced in disposing of the surplus waters escaping from the cylinders and feeding apparatus, and in preventing them from falling from the engine during transit.

The object of my invention is, first, to provide a means for collecting and storing such waters and drawing off the same from time to time, as may be necessary, and, second, to so arrange the collecting apparatus that it will occupy the least possible space, and, as far as possible, all of what has usually been considered as waste space under the engine, and not needlessly increase the weight of the machine. This I accomplish by giving to the saddle of the engine a peculiar shape calculated to give it great strength, and by making the same hollow, thereby converting it substantially into a reservoir in which the waste waters are collected while the side walls of the same serve, as before, to support the smoke-box.

My invention will be best understood by reference to the accompanying drawings, which are to be taken as a part of this specification, in which—

Figure 1 is a longitudinal section of the saddle, the smoke-box, and the forward portion of the boiler; Fig. 2, a vertical cross-section of the saddle and smoke-box, and a front elevation of the engine-frame and steam-cylinders, and Fig. 3 a view of one of the details.

Similar letters refer to the same parts throughout the several views.

In Figs. 1 and 2, A represents the smoke-box of the engine, and *a* a portion of the smoke-stack.

B in Fig. 1 represents a portion of the forward end of the boiler, and *b' b<sup>2</sup> b<sup>3</sup>*, &c., Figs. 1 and 2, the tubes in its interior.

C and C<sup>2</sup>, Fig. 2, represent the steam-cylinders, and F and F' the side frames of the engine-carriage.

The saddle is made of cast-iron or other suitable metal, and is of the shape shown in Figs. 1 and 2. It is made in two horizontal sections, represented by the letters S and S' in those figures. The lateral side walls of the saddle have the peculiar curved shape shown in Fig. 2, while the front and rear walls are vertical. The thickness of the walls of the saddle will vary according to the weight of the smoke-box which it is designed to support. The lateral side walls may have any other shape that may be desirable, provided they have sufficient tensile strength to support the weight of the smoke-box. The two sections when superimposed upon each other make up the reservoir R, Figs. 1 and 2. The lower section of the saddle S is carried upon the flanges *ff'*, Fig. 1, of the lateral frame F F' of the engine, and the upper section, S', rests upon the upper surface, *d d'*, of the lateral side walls, *s' s<sup>2</sup>*, of the section S. The smoke-box rests upon the upper surface, *d' d'*, of the lateral side walls, *s<sup>3</sup> s<sup>4</sup>*, of the section S', and is carefully fitted over the same, as shown in the views.

In practice it is also necessary to shift the boilers of engines, especially of those operating upon elevated railways, and in so doing either to remove the saddle with the boiler from the engine-frame or to remove the boiler from its seat on the saddle. It is also necessary for various purposes to obtain access from time to time to the interior of the steam-exhaust ports. In the usual form of saddle the joints of the steam-ports must always be adjusted and made tight after replacing, whether the saddle is removed with the boiler or the boiler from the saddle. To obviate this difficulty, and to enable the boiler to be removed without disturbing the saddle upon its seat *ff'* upon the engine-frame, as well as the smoke-box upon the upper surface, *d' d'*, of the saddle, I construct the saddle in form of two horizontal sections, S S', superimposed upon each other, as shown in the views. By means of this construction much time and labor are saved and considerable ease in handling gained.

In the lateral side walls, *s<sup>3</sup> s<sup>4</sup>*, of the section S' are placed circular ports *p p* for supplying



the steam to the steam-chests, as is usual in the ordinary forms of saddles. The upper ends of the ports open into the smoke-box, and are connected with the supply-pipe at the points  $p^2$   $p^2$ , and connection with the steam-chests is effected by the usual form of fittings at the lower extremities,  $p'$   $p'$ , of the ports  $p$ , Fig. 2. The exhaust-steam from the cylinders enters from either steam-cylinder through openings in the side wall,  $s'$   $s'$ , of the lower section, S, of the saddle, and is carried into the center of the reservoir R in the saddle through the cylindrical pipes  $E'$  and  $E^2$ . These pipes come together in the center of the reservoir, as shown in Figs. 1 and 2, unite with the pipe  $E^3$ , forming a three-way joint, and pass up through an opening, G, in the bottom of the smoke-box into the same in the usual manner.

The connection between the cylinders and the reservoir R is effected by means of the pipes  $c'$   $c^2$ , which pass through the lower side walls of the saddle, as shown in Fig. 2, and terminate within the reservoir R in the curved necks  $c^3$   $c^4$ . (Shown by the dotted lines.) The waste water from the injector is carried to the reservoir R by means of the curved pipe  $i$   $i'$ . (Shown in Fig. 2.) This pipe is connected with the injector at the extremity of  $i'$ , passes in through the side walls of the smoke-box over the wall of the saddle, as shown by the dotted lines in Fig. 2, and through the opening G in the bottom of the smoke-box A into the reservoir R at  $i$ , where it discharges.

The discharge from the reservoir R is effected through the circular opening O in the front wall of the lower section, S, as shown in Fig. 1. The opening O is closed by a flanged cylindrical cover of cast-iron, O', fitting tightly over a rubber ring, o, tapped into the face of the flanged collar n, attached to the face of the wall  $s^6$  around the opening O. The rear edge of flange cover O' is provided with two lugs, m m, with projecting flanges fitting into corresponding nicks or cuts in the face of the flanged collar n n. These lugs and the nicks into which they fit are shown by the dotted lines in Fig. 3. The cover O' is provided with two handles, t t', for turning it.

In putting on the cover it is placed upon the flange in such position that the lugs pass through the nicks m m, and is then turned so that the projecting flanges of the lugs pass under the flange n. In this way the cover is held fast upon the rubber ring o o, and made water-tight. Any other form of water-tight cover may be substituted for the above described.

The mode of operation of the saddle is apparent from the foregoing description. During the operation of the engine the waste water condensing in the cylinders is blown over by the force of the steam, through the pipes

$c'$  and  $c^2$  into the reservoir R, and the overflow from the injector discharges into the same through the pipe  $i$ , where both are accumulated. At the end of each trip the reservoir is opened, and the water which has accumulated is drawn off, and the reservoir made tight again.

I am aware that locomotives have hitherto been constructed with hollow saddles supporting various parts of the engine, having reservoirs for collecting waters in their hollow interior. I therefore do not claim, broadly, a hollow saddle serving the purpose of a reservoir; but limit my invention to one composed of two horizontal and movable sections, which, when superimposed upon each other, form together in their hollow interior a waste-water reservoir.

What I do claim as my invention is—

1. In a locomotive-engine, a saddle supporting the smoke-box, composed of two horizontal hollow and movable sections superimposed upon each other and forming together a waste-water reservoir.

2. In a locomotive-engine, a saddle supporting the smoke-box, composed of two horizontal hollow and movable sections superimposed upon each other, and forming together a waste-water reservoir, and means for discharging said reservoir, substantially as described.

3. In a locomotive-engine, the hereinbefore-described combination of the saddle supporting the smoke-box, composed of two horizontal hollow sections forming together a waste-water reservoir, the steam-ports in the side walls of said saddle for conducting the steam from the boiler to the steam-chests, and means for discharging said reservoir, substantially as described.

4. In a locomotive-engine, the hereinbefore-described combination of the smoke-box, the saddle supporting the same, composed of two horizontal sections, the waste-water reservoir in the interior of the saddle, the frame of the engine supporting the saddle, and the steam-cylinders attached thereto, the ports in the side walls of the saddle for conveying steam from the boiler to the cylinders, the exhaust-steam pipes passing from the cylinders through the side walls of the saddle and through the waste-water reservoir into the smoke-box, and means, substantially as described, for conveying the waste water from the cylinders and feed apparatus to said reservoir and discharging the same.

Signed at New York city, in the county of New York and State of New York, this 10th day of April, A. D. 1885.

JOHN D. CAMPBELL.

Witnesses:

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