No. 730,533. PATENTED JUNE 9, 1903.

J. F. HAMILTON.

EXHAUST NOZZLE.

APPLICATION FILED APR. 1, 1903.

NO MODEL.

Fig. 1.

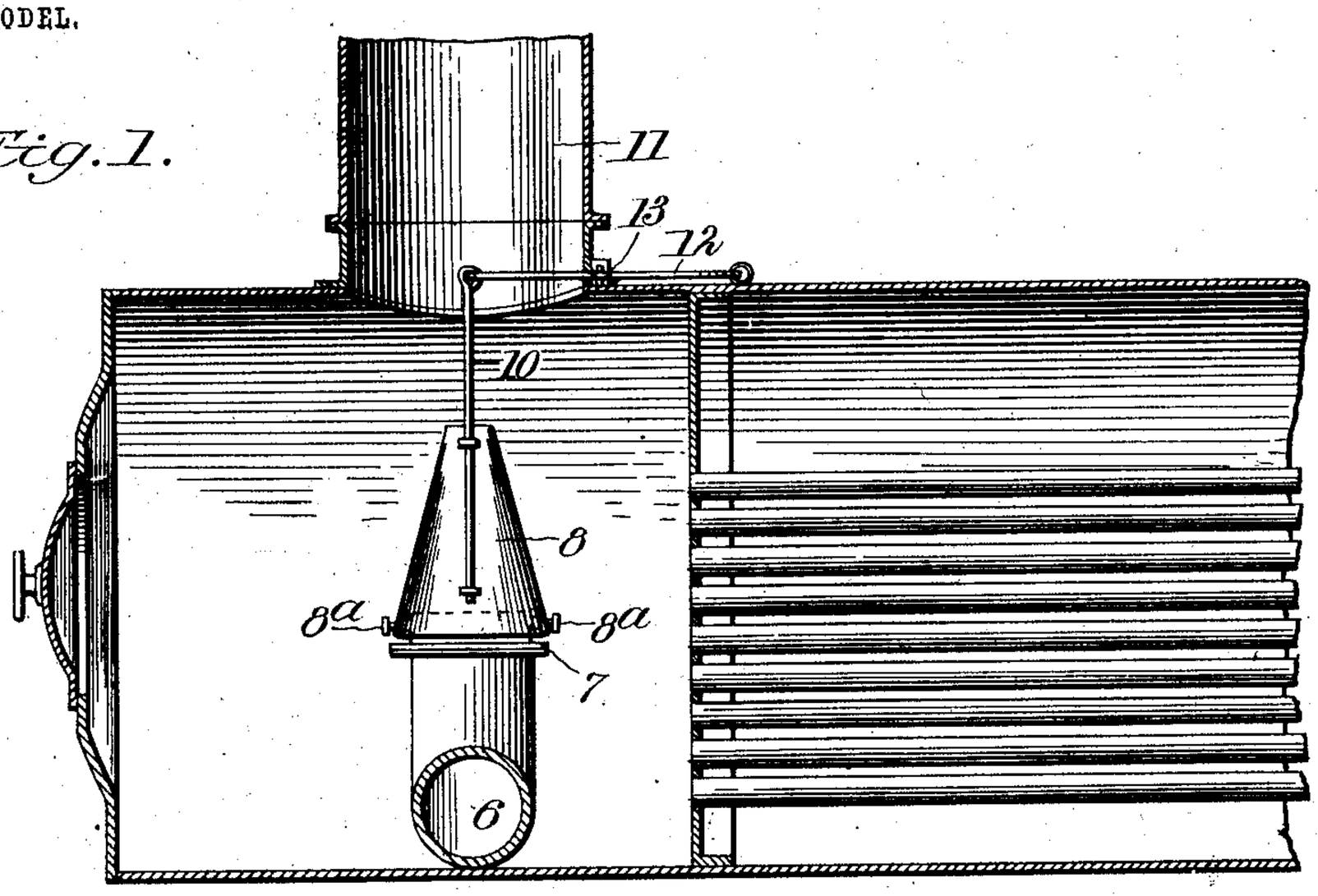


Fig. 2.

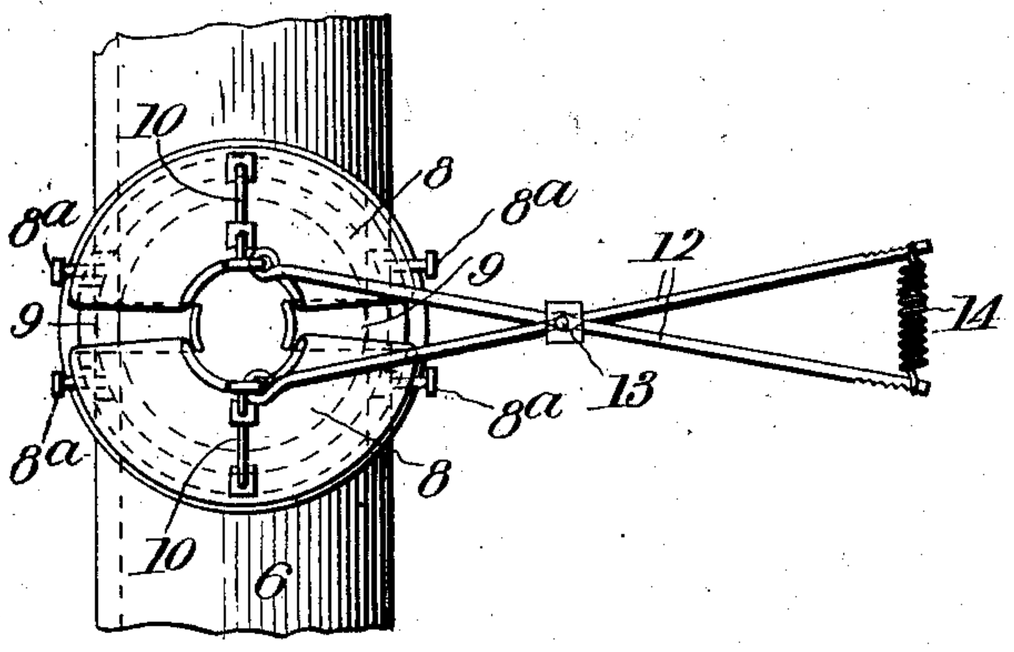
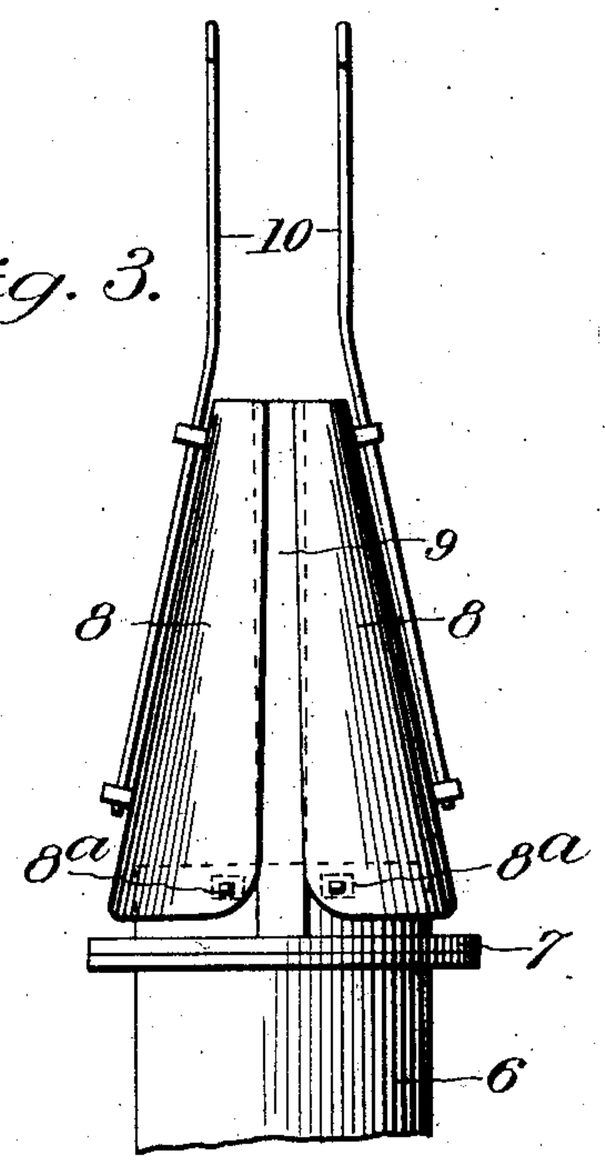


Fig. 3.



Witnesses
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No. 730,533. Patented June 9, 1903.

UNITED STATES PATENT OFFICE.

JOHN F. HAMILTON, OF WOLCOTT, INDIANA.

EXHAUST-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 730,533, dated June 9, 1903.

Application filed April 1, 1903. Serial No. 150,558. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. HAMILTON, a citizen of the United States, residing at Wolcott, in the county of White and State of Indiana, have invented certain new and useful Improvements in Exhaust-Nozzles; and I do hereby 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 make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to automatic exhaust-nozzles for traction and locomotive engines; and its object is to save fuel and gain power by an automatic regulation of the draft according to the volume and force of the steam-exhaust.

A further object is to produce an improved nozzle having a spring which normally tends to contract or close the nozzle-opening and which yields to permit the nozzle to open and not increase the draft under severe exhaust.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a section of the front end of a locomotive-boiler, showing my nozzle in elevation. Fig. 2 is a top view of the device. Fig. 3 is a front elevation of the nozzle removed from the boiler.

Referring specifically to the drawings, 6 indicates an exhaust-pipe from the cylinders, and my improved automatic nozzle is applied to the end thereof by means of a flanged coupling-ring 7, which screws onto the end of the said pipe. This ring supports the semicircular wings 8, which are pivoted to the ring at the bottom, as at 8^a, and under the influence of the draft and an opposing spring these wings open or close to vary the size of the nozzle. At each side between the wings is a stationary piece 9, secured at the bottom to the ring and serving to break the joints between the wings. At 10 are indicated rods which are secured to the wings and extend vertically above the same into the stack 11, where they are joined, respectively, to horizontal crossed levers 12, which project rearwardly through a hole in the stack near the base thereof. Where the levers cross, they are pivoted to a fixture 13. The other ends of the levers are connected by a spring 14 in tension, and the ends of the levers are notched, so that the spring may be adjusted thereon to vary the tension, the ends of the spring being bent into loops which receive the levers and engage in the notches.

The operation of the device is evident. Increased exhaust from the cylinders acts to open the nozzle by spreading the wings, which decreases the draft accordingly. When the exhaust falls, the spring acting through the levers closes the wings and contracts the nozzle, thereby increasing the draft accordingly.

What I claim as new, and desire to secure by Letters Patent, is—

The combination with the boiler, stack and exhaust-pipe, of the opposite curved wings movable to and from each other at the end of the pipe, the crossed levers connected to the wings and extending through the stack, and the spring connecting the outer ends of the levers.

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

JOHN F. HAMILTON.

Witnesses:
R. M. HAMILTON,
W. H. KERR.