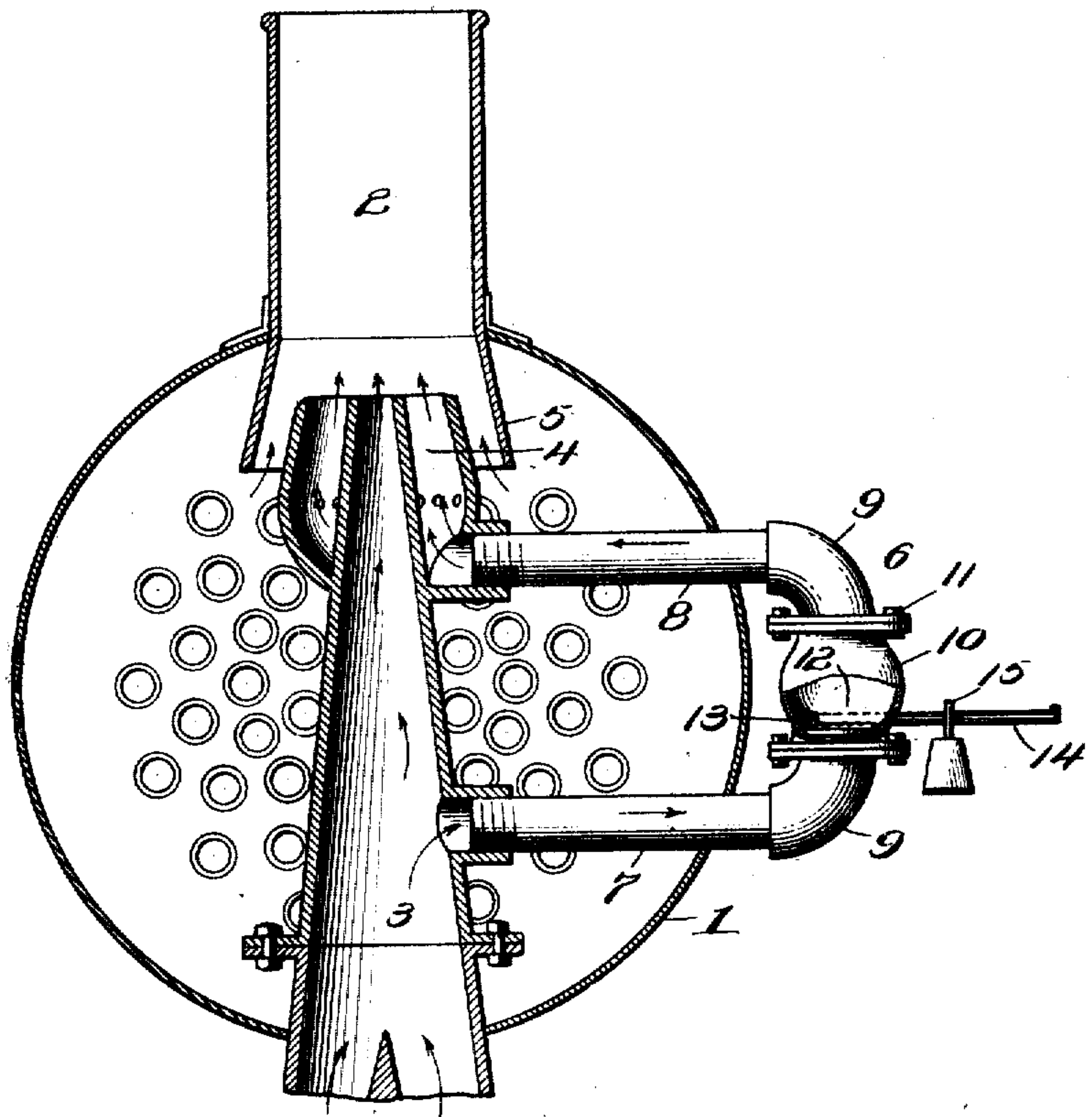


M. SPEICHER.
LOCOMOTIVE EXHAUST.
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947,689.

Patented Jan. 25, 1910.



Inventor
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Witnesses
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UNITED STATES PATENT OFFICE.

MATHIAS SPEICHER, OF CARBONDALE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
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LOCOMOTIVE-EXHAUST.

947,689.

Specification of Letters Patent. Patented Jan. 25, 1910.

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To all whom it may concern:

Be it known that I, MATHIAS SPEICHER, a citizen of the United States, residing at Carbon-
dale, in the county of Lackawanna and
5 State of Pennsylvania, have invented new and useful Improvements in Locomotive-Exhausts, of which the following is a specification.

This invention relates to improvements in
10 locomotive exhausts, the object of the invention being to combine with the smoke nozzle through which the engine exhausts a supplemental nozzle and a valved bypass leading from the smoke nozzle to the supplemental
15 nozzle and automatically operative to regulate the draft and prevent back pressure, as hereinafter described and claimed.

The accompanying drawing is a transverse sectional view of the smoke box of a
20 locomotive and of a smoke and exhaust nozzle provided with my improved regulating devices.

The locomotive smoke box is indicated at 1 and the smoke stack at 2. In accordance
25 with my invention I provide the upwardly tapering smoke nozzle 3 which is located in the smoke box and through which the engine exhausts with a supplemental nozzle 4 which is at the upper end of the smoke nozzle 3, extends around the same and is disposed in the flared lower extension 5 of the smoke stack. Said supplemental nozzle also
30 tapers upwardly. A bypass 6 is also provided which extends from the smoke nozzle at a point near its lower end to the supplemental nozzle 4. This bypass is here shown as comprising a lower pipe 7, an upper pipe 8, respectively coupled to the smoke nozzle and the exhaust nozzle, elbow-couplings 9 at
40 the outer ends of said pipes and a valve casing or body 10 which is bolted to the flanges of the said couplings as at 11 and connects them together. In the said valve casing or body is an upwardly opening valve disk or
45 element 12 which is here shown as pivoted on one side as at 13 and the pivot of which is here shown as provided on one end, ex-

teriorly of the valve casing or body with a lever arm 14 on which is mounted an adjustable weight 15. Within the scope of my in-
50 vention, the valve may be of any suitable construction and provided with any suitable form of yielding means to normally keep the valve closed, and I do not desire to limit myself in this particular, the form of valve
55 herein illustrated being used merely for the purposes of this specification. It will be observed that the portion of the bypass in which the valve is located is disposed exteriorly of the smoke box so that the valve
60 and its adjustable weight are rendered easily accessible. Normally, the valve closes the bypass. Under normal conditions the valve remains closed. In the event of a considerable
65 increase of steam pressure, which would increase the back pressure on the engines, and hence impair the efficiency and reduce the power thereof, some of the steam will leave the smoke nozzle, pass through the by-
70 pass, open the valve to the required extent and finally be discharged through the supplemental nozzle and the smoke stack and hence decrease the draft of the furnace and
75 automatically regulate the same as will be understood.

What is claimed is:—

A smoke and steam exhaust nozzle for locomotives, having a supplemental nozzle, a bypass leading from said exhaust nozzle to said supplemental nozzle, the intake end of
80 said bypass being spaced from said supplemental nozzle, a valve in said bypass arranged to open toward the supplemental nozzle, and yieldable means to normally close
85 said valve and permit the opening thereof by abnormal increase of steam pressure in the exhaust nozzle.

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

MATHIAS SPEICHER.

Witnesses:

L. I. BUNSELL,
ROBERT CRAIG.