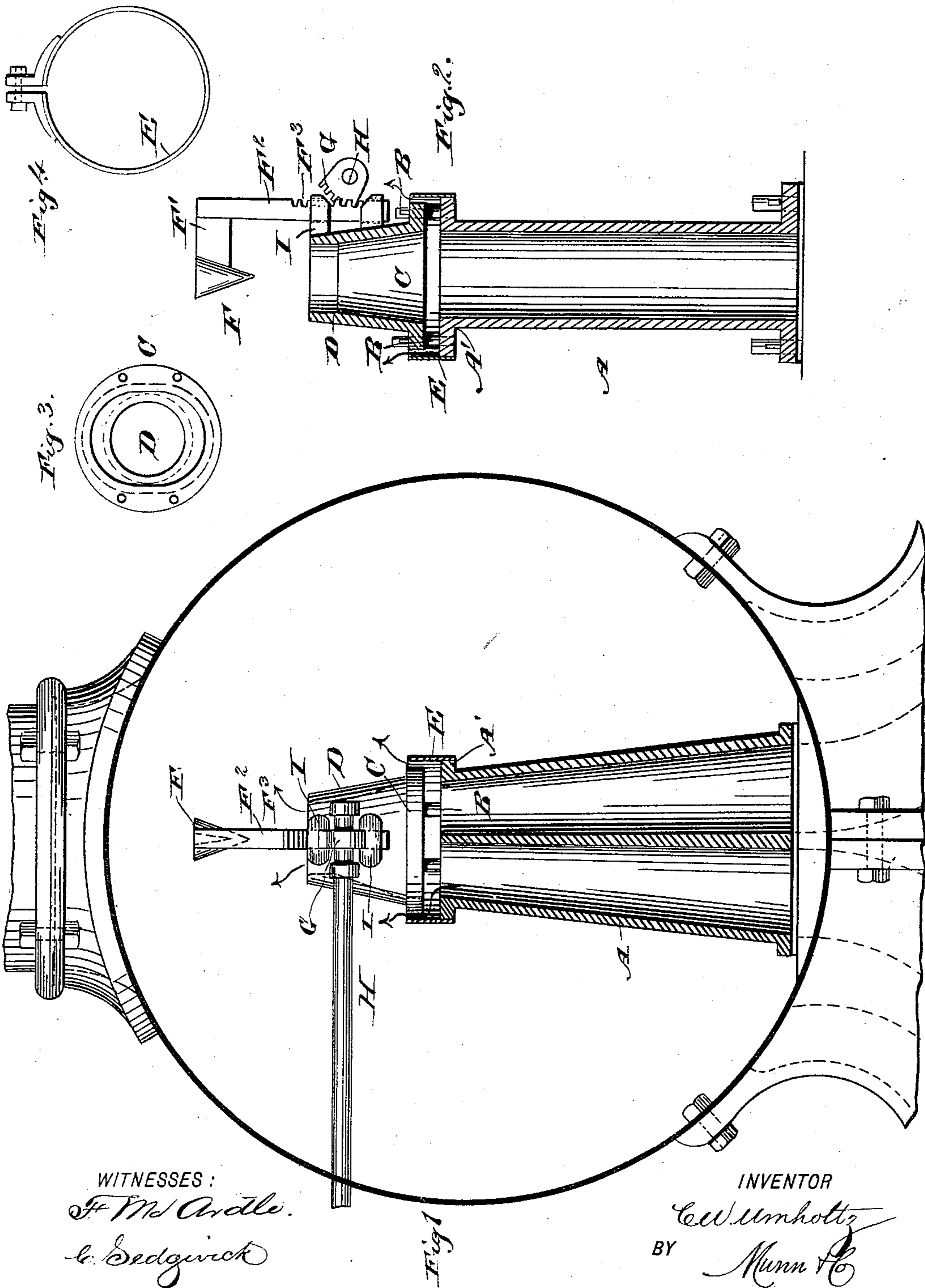


(No Model.)

C. W. UMHOLTZ.
EXHAUST NOZZLE.

No. 481,082.

Patented Aug. 16, 1892.



WITNESSES :

F. M. Ardele.
L. Sedgwick

INVENTOR

BY C. W. Umholtz
Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES W. UMHOLTZ, OF BRISTOL, VIRGINIA.

EXHAUST-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 481,082, dated August 16, 1892.

Application filed April 6, 1892. Serial No. 427,986. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. UMHOLTZ, of Bristol, in the county of Washington and State of Virginia, have invented a new and Improved Exhaust-Nozzle for Locomotives, of which the following is a full, clear, and exact description.

My invention is an improvement in that class of exhaust-nozzles for locomotives in which a main central passage and a supplemental surrounding passage are provided for the steam. I make the nozzle proper independent of and detachable from the stand-pipe and support it upon vertical pins projecting from the top of the latter, which is also provided with a vertical flange that surrounds the base of said nozzle, but is separated from it by a narrow space, which serves as the exterior or supplemental steam-passage. This construction and arrangement of parts provide a supplemental passage through which the steam has practically free exit, and also enables the nozzle proper to be readily detached when required for any purpose.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a transverse section of the improvement as applied. Fig. 2 is a sectional side elevation of the improvement. Fig. 3 is an inverted plan view of the nozzle proper, and Fig. 4 is a plan view of the stand-pipe flange.

The stand-pipe A of the locomotive is connected in the usual manner with the exhaust-passages leading from the locomotive-cylinders, and the said stand-pipe may be single or have a division-wall, as illustrated in Fig. 1. The top of the stand-pipe has a horizontal flange A', in which are set vertical pins or bolts B, and on these pins the base C of the tapered nozzle D is supported. The latter is thus adapted to be readily detached—as, for example, when worn out. The base-opening of the nozzle D corresponds to the size of the top opening of the stand-pipe A. The base C of the nozzle D is supported by the pins B a suitable distance above the top of the stand-pipe A, and a vertical passage-way is formed between the edge of the base C and a vertical flange E, clamped or otherwise secured to

the flange A' of the stand-pipe. Now it will be seen that the steam passing through the stand-pipe A enters the nozzle D, and part passes out through the upper contracted end; but a portion also passes through the passage-way formed between the upper end of the stand-pipe A and the base C. The steam passing through this auxiliary passage is directed upwardly by the vertical flange E, so as to create a vacuum around the volume of steam issuing from the top of the nozzle D, thus acting as an ejector for the latter, thereby causing ready escape of the steam into the stack of the locomotive.

In order to spread the steam issuing through the upper end of the nozzle D, I provide an inverted cone F, the axial line of which is in line with the vertical axis of the nozzle D. The cone F is made adjustable vertically, so as to move the same nearer to or farther from the upper contracted end of the nozzle D. For this purpose the cone F is supported on an arm F', projecting from a vertical bar F², provided with rack-teeth F³, engaged by a segmental gear-wheel G, held on a shaft H, under the control of the engineer, so that by turning the said shaft the segmental gear-wheel G moves the bar F² up or down, according to the direction in which the said shaft H is turned. The up-and-down motion of the bar F² causes a raising or lowering of the cone F, which latter thus moves farther from or nearer to the upper end of the contracted nozzle D to spread the steam issuing through the said nozzle accordingly. As shown, the bar F² is mounted to slide in suitable bearings I, projecting from the outside of the nozzle D.

It is understood that by the auxiliary passage between the top of the stand A and the base of the nozzle D only a light or no back-pressure will be experienced in the stand-pipe A and the locomotive-cylinders, as all the steam will find a ready outlet both through the contracted end of the nozzle and the said auxiliary passage-way. It is understood that the nozzle D is held in place on the pins B by suitable keys or other means engaging the pins B, as shown in the drawings.

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

In an exhaust-nozzle for locomotives, the

combination, with the stand-pipe A, having the lateral top flange A', provided with the pins B, and a vertical flange E, secured to the top flange, of the detachable nozzle D, having
5 a flanged base C, which is supported in fixed position upon said pins and surrounded by the said vertical flange, between which latter and said nozzle is an annular space serving
as a supplemental steam-passage, and the inverted cone F, the rack-bar, and toothed segment for adjusting it, as shown and described. 10

CHARLES W. UMHOLTZ.

Witnesses:

A. A. HOBSON,
JOHN A. FERG.