

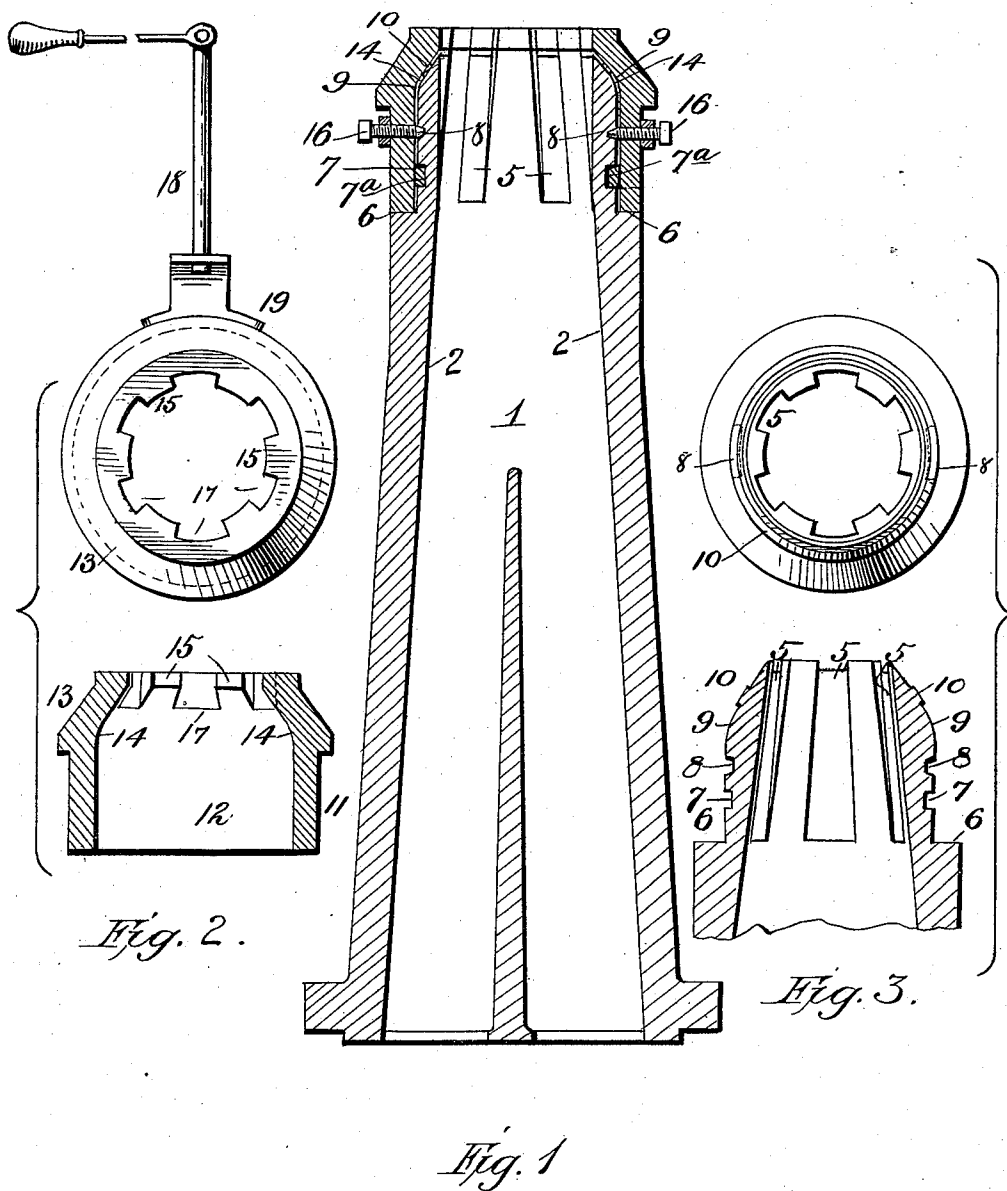
No. 660,948.

G. J. CARLISLE.
REDUCING CAP FOR NOZZLES.

Patented Oct. 30, 1900.

(Application filed July 30, 1900.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE J. CARLISLE, OF ASHLEY, INDIANA, ASSIGNOR OF ONE-HALF TO
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REDUCING-CAP FOR NOZZLES.

SPECIFICATION forming part of Letters Patent No. 660,948, dated October 30, 1900.

Application filed July 30, 1900. Serial No. 25,285. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. CARLISLE, a citizen of the United States, residing at Ashley, in the county of Steuben and State of Indiana, have invented new and useful Improvements in Reducing-Caps for Nozzles, of which the following is a specification.

My invention relates to nozzles; and the object of the same is to provide a reducing-cap for the same which shall be simple in construction and efficient in operation.

The specific class of nozzles for which my invention is designed is one for use on the exhaust-pipe of a locomotive. By the use of my improvement the amount and force of the exhaust into the smoke-stack are under the control of the engineer at all times. This is particularly desirable when different kinds of coal are used. When using dirty or slow-burning coal, the nozzle would be set for a minimum exhaust corresponding to a maximum draft; but when clean free-burning coal is used it is set to correspond to a maximum exhaust or minimum draft.

In the drawings which accompany this specification and of which they form a part, Figure 1 is a longitudinal section through my nozzle with cap on it. Fig. 2 is a plan view and longitudinal section of the cap. Fig. 3 is a plan view and longitudinal section of the top portion of the nozzle.

Like numerals of reference designate like parts wherever they occur in the different views.

My device is composed of two principal parts—the nozzle and the reducing-cap—and these will be taken up and described in the order named.

The numeral 1 designates the nozzle, which is fitted when in use to the exhaust-pipe of a locomotive; but of course it is not restricted to being used in this connection. The bottom portion of the nozzle is frusto-conical in outer and inner contour. The inner wall 2 slopes gradually toward the axis up to a point to the mouth. Cut in the top of the nozzle parallel to the axis and continuing down until they run out are grooves 5. The grooves correspond to grooves in the cap, as will appear hereinafter. The outer contour of the top of the nozzle 1 is varied, and comprises

shoulder 6, formed on it to support the cap, a groove 7 for a packing-ring 7^a, transverse grooves 8 to accommodate a set-screw seated in the cap, and a rounded portion 9, provided with an annular projection 10, adapted to fit the inner contour of the cap. The transverse grooves 8 are of a length just equal to the width of the longitudinal grooves 5.

The reducing-cap is designated by the numeral 11. It comprises a lower or cylindrical portion 12 and an upper or conical portion 13. The portion 12 fits over the packing-ring 7^a on the nozzle and rests on the shoulder 6. Seated in the portion 12 are a pair of set-screws 16, which extend into the grooves 8, thus holding the cap on and limiting its motion. Formed in the portion 13 are a series of grooves 17, which cut it longitudinally, are parallel to the axis, and continue down until they run out. These grooves 17 are equal in cross-section to the grooves 5, with which they are adapted to register. The portion 13 is also rounded out at 14 to correspond with the portion 9 of the nozzle and is surmounted by a straight portion 15.

When my device is fitted to the exhaust-pipe of a locomotive, it is connected directly to the cab by suitable means for operating it, such as a rod 18, fitted with a handle, and connected to a lever-arm which extends into the cinder-box and connects with the reducing-cap at 19. When the maximum rapidity of exhaust is required, the rod 17 is pulled, the arm 19 actuated, and the reducing-cap turned so that the grooves register. The groove 8 is positioned so as to limit the movement of the cap and compel it to stop at just the right point by limiting the travel of the set-screw 16. When the minimum exhaust is required, the rod 18 is pushed and the cap turned so that the ridges between the grooves 17 and the grooves 5 are brought in line. The grooves 8 will limit the movement in the same manner as before, since they are equal in length to the width of the grooves 5 and 17. For degrees of exhaust intermediate the maximum and minimum the cap would be set at intermediate positions.

Having described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. In a nozzle, the combination, substantially as described of a nozzle provided with interior grooves traversing it longitudinally, the outer contour of said nozzle being rounded
5 off on an arc and being broken by an annular projection, and a reducing-cap mounted to turn on said nozzle and constructed to fit over the same and provided with grooves constructed to register with the said interior grooves in
10 said nozzle.

2. In a nozzle, the combination, substantially as described, of a nozzle provided with interior grooves traversing it longitudinally, an exterior groove cutting said nozzle transversely and of a length equal to the width of
15 one of said grooves, a reducing-cap mounted

on said nozzle and provided with interior grooves adapted to register with the said interior grooves in said nozzle, a set-screw seated in said reducing-cap and adapted to extend
20 into the said transverse groove in said nozzle to limit the movement of said cap, and means for turning said cap to register said interior grooves or to throw them out of register.

In testimony whereof I have hereunto set
25 my hand in presence of two subscribing witnesses.

GEORGE J. CARLISLE.

Witnesses:

CHARLES H. BRUCE,
P. MCGLOIN.