

G. S. BRAINERD.
Variable Exhaust for Locomotive.

No. 202,145.

Patented April 9, 1878.

Fig. 1.

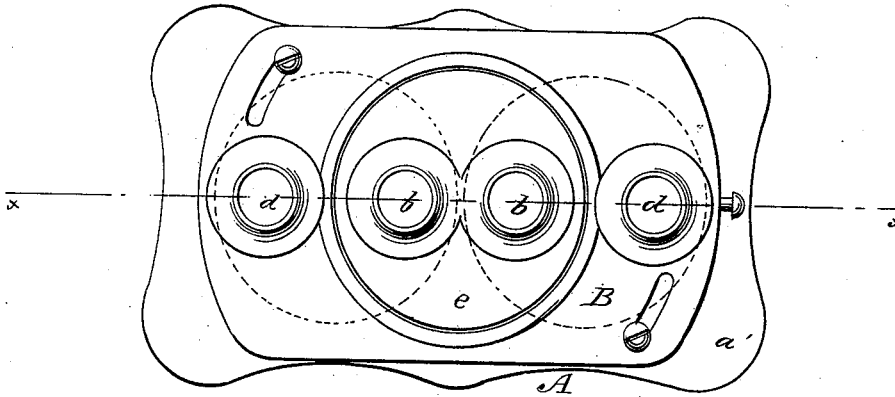


Fig. 2.

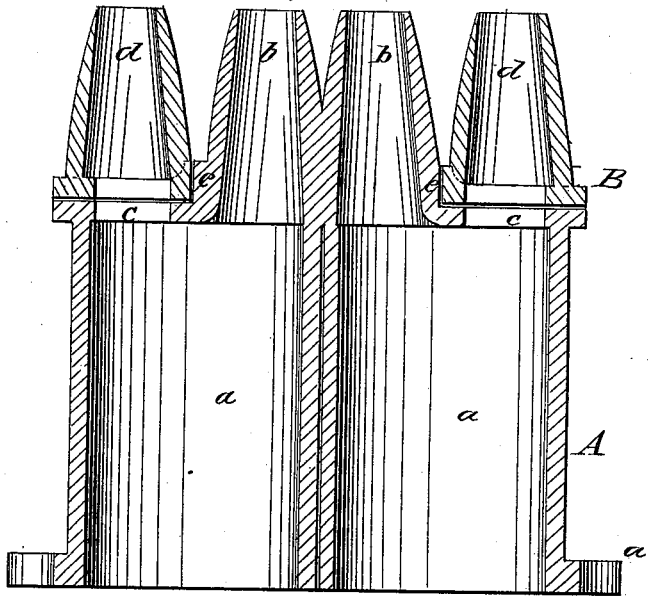
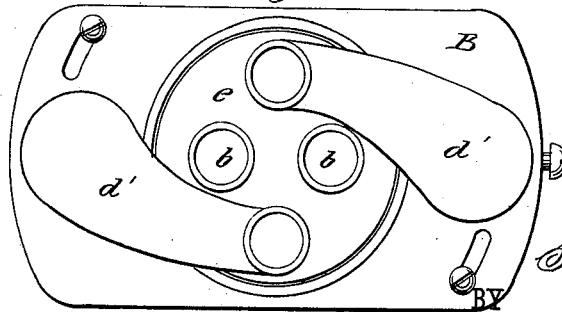


Fig. 3.



WITNESSES:

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IMPROVEMENT IN VARIABLE EXHAUSTS FOR LOCOMOTIVES.

Specification forming part of Letters Patent No. **202,145**, dated April 9, 1878; application filed March 7, 1878.

To all whom it may concern:

Be it known that I, GEORGE SEGUR BRAINERD, of St. Albans, in the county of Franklin and State of Vermont, have invented a new and Improved Variable Exhaust for Locomotives, of which the following is a specification:

Figure 1 is a plan view of my improved variable exhaust. Fig. 2 is a vertical section taken on line *xx* in Fig. 1. Fig. 3 is a plan view of a modified form of my improvement.

Similar letters of reference indicate corresponding parts.

My invention relates to blast-nozzles for locomotives and other engines; and it consists in a casting adapted to the center casting of the locomotive, and having in its head or upper end exhaust nozzles and ports, and having a movable plate carrying exhaust-nozzles for controlling the exhaust.

Referring to the drawing, A is a casting having two passages, *a*, which coincide with the exhaust-passages of the center casting of the locomotive. These passages are open at the bottom, and the casting is secured to the center casting by bolts passing through the flange *a'*.

In the top of the casting there are two ports, *c*, one in each passage *a*. At the center of the top of the casting A there is a boss, *e*, from which two nozzles, *b*, project vertically. These nozzles are in communication with the passages *a*. Upon the top of the casting A is placed a plate, B, which is apertured to receive the boss *e*, and is provided with two noz-

zles, *d*, which are similar to the nozzles *b*, and are placed so that by turning the plate B the nozzles *d* may be made to coincide with the ports *c*.

The motion of the plate B is limited to the opening and closing of the ports by slots in the plate and studs projecting from the casting A through the said slots.

When the plate B is turned so that the nozzles *b d* are in a straight line, the nozzles *d* coincide with the ports *c* and the exhaust escapes from all of the nozzles; but when it is desired to concentrate the exhaust so as to produce a blast, the ports *c* are closed by turning the plate B, the said plate being provided with an operating-rod that extends to the cab of the locomotive.

The modification represented in Fig. 3 consists in the elongated and curved nozzles *d'*, which extend to the center line of the exhaust-nozzle.

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

The combination, with the casting A, having the fixed exhaust-nozzles *b* and ports *c*, of the nozzles *d*, arranged on plates B and made adjustable to said ports, as and for the purpose specified.

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Witnesses:

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