

(No Model.)

H. A. & I. H. ROGERS.
HYDRAULIC AIR BLAST APPARATUS.

No. 549,022.

Patented Oct. 29, 1895.

Fig. 1

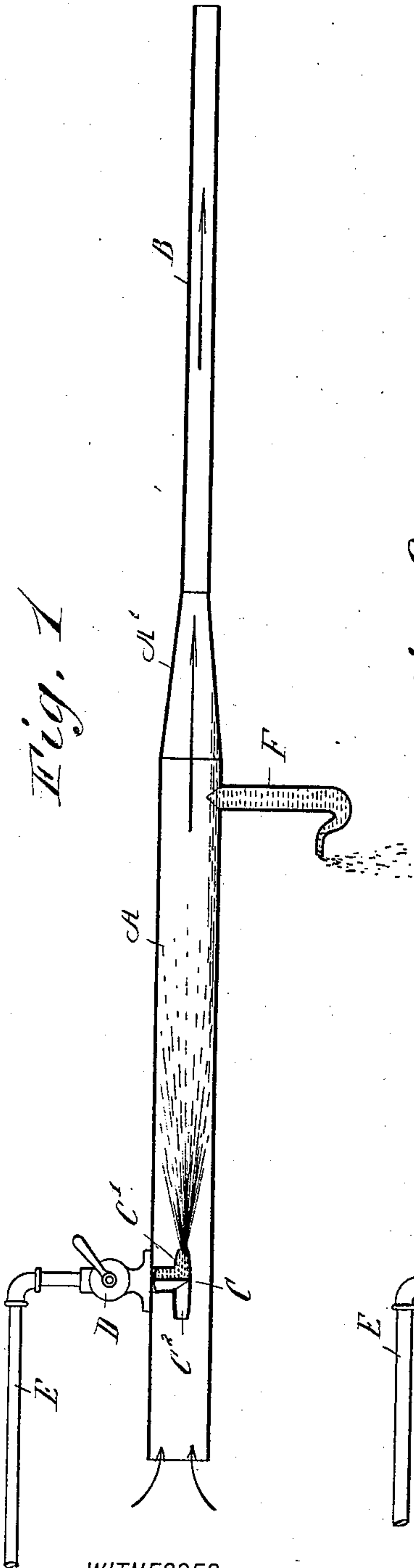


Fig. 2

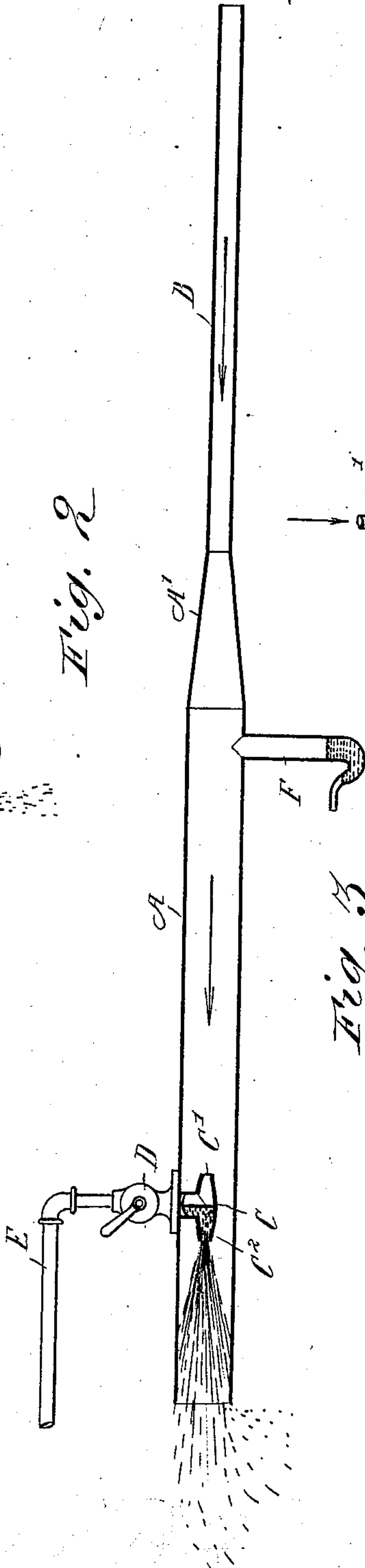
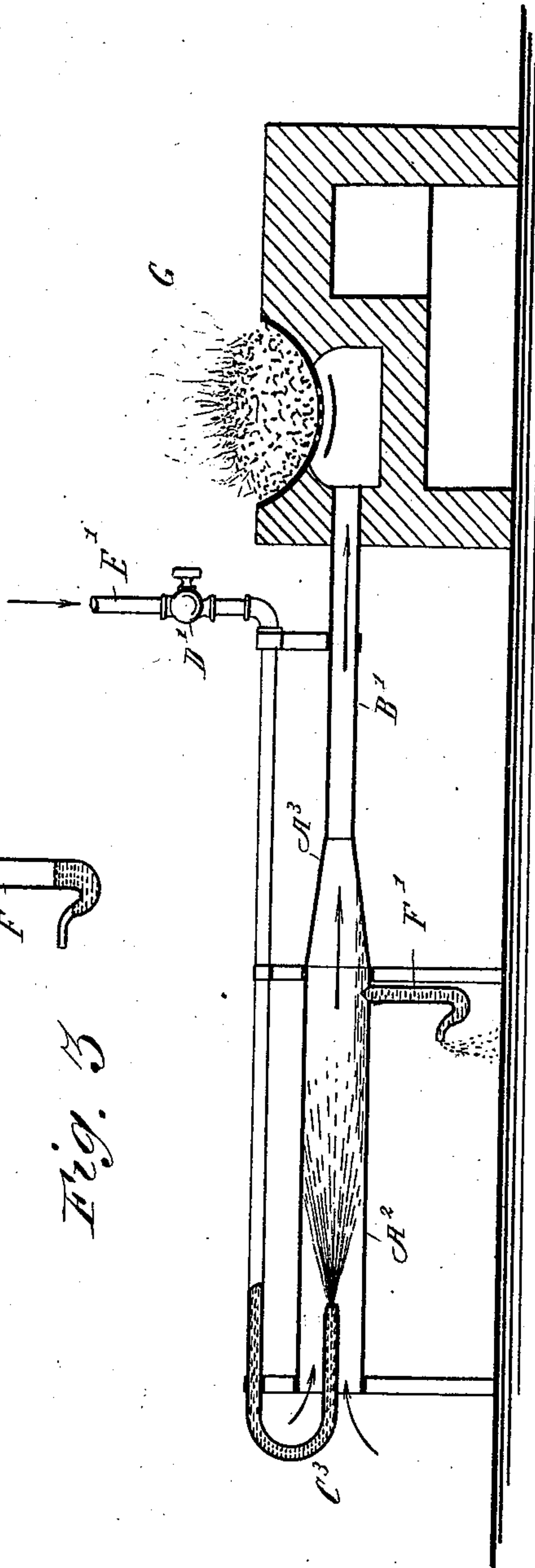


Fig. 3



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HENRY A. ROGERS AND ISAAC H. ROGERS, OF BINGHAM CAÑON, UTAH TERRITORY.

HYDRAULIC AIR-BLAST APPARATUS.

SPECIFICATION forming part of Letters Patent No. 549,022, dated October 29, 1895.

Application filed August 17, 1894. Serial No. 520,619. (No model.)

To all whom it may concern:

Be it known that we, HENRY A. ROGERS and ISAAC H. ROGERS, of Bingham Cañon, in the county of Salt Lake and Territory of Utah, have invented a new and Improved Hydraulic Air-Blast Apparatus, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved hydraulic air-blast apparatus which is comparatively simple and durable in construction and designed for furnishing at a comparatively low cost air to buildings, forges, mines, and other places for ventilating and other purposes and also for removing foul air from mines, &c.

The invention consists in certain parts and details and combinations of the same, as will be hereinafter fully described, and pointed out in the claim:

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

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a similar view of the same with the nozzle-valve reversed, and Fig. 3 is a sectional side elevation of the improvement as applied to a forge.

The improved air-blast apparatus is provided with a horizontally-disposed cylinder A, open at one end and formed at the other end with a contracted nozzle A', leading into a pipe B, connected with the mine-shaft, building, or other place to be ventilated. In the front end of the cylinder A is arranged a double nozzle C, having the two branches C' and C², extending centrally in the cylinder A and in opposite directions, as plainly illustrated in the drawings.

The double nozzle C is connected with a valve D, arranged on the outside of the cylinder A and connected with the water-supply pipe E, connected with a suitable source of water supply under pressure. When the valve D is in the position illustrated in Fig. 1, then the nozzle branch C² is cut off from the water supply, while the other branch C' is connected with the water supply, and consequently water passing through the pipe E and valve D to the said nozzle branch C' is delivered in a spray into the cylinder A in the direc-

tion of the contracted end A'. When the valve D is turned into the position shown in Fig. 2, then the nozzle branch C' is cut off, while the other nozzle branch C² is connected with the water supply, so that water under pressure is sprayed from the branch C² in an outward direction through the open end of the cylinder A.

In the bottom of the cylinder A is arranged a water-outlet pipe F for carrying off the water accumulated in the cylinder A. The lower end of the pipe F is preferably formed with a trap to seal the end of the pipe to prevent the escape of air from the cylinder A.

When it is desired to force air into a mine-shaft, building, or other place, then the valve D is moved into the position shown in Fig. 1, so that air is drawn in through the open end of the cylinder A by a jet of water escaping in an inward direction from the nozzle branch C', and this air in passing through the sprayed water thus becomes cooled and refreshing and is finally forced through the contracted end A' into the pipe B, which delivers the pure, cooled, and moistened air to the desired place. When it is desired to exhaust foul air, for instance, from a mine-shaft, then the valve D is turned into the position shown in Fig. 2, whereby the outwardly-moving jet of water draws the air through the pipe B and cylinder A, thus exhausting the foul air from the desired place.

As illustrated in Fig 3, the device is applied to a forge G, and in this case the cylinder A² has its contracted outlet A³ connected with a blast-pipe B', discharging into the forge under the grate, as is plainly shown in the said figure. Into the open end of the cylinder A² extends a bent nozzle C³, provided with a valve D', connected with the water-supply pipe E', so that water under pressure can pass into the nozzle C³ to be sprayed in an inward direction in the cylinder A² to cause suction of air into the open end of the cylinder A² and then a mixture with the water, so that finally the moistened air passes through the pipe B' to the burning fuel on the grate of the forge G. The cylinder A² is provided with a water-outlet pipe F', similar to the water-outlets above described.

It will be seen that by the apparatus de-

scribed pure fresh air can be readily furnished for mines, and by the same device foul air can be withdrawn from the mine whenever desired.

5 Having thus described our invention, we claim as new and desire to secure by Letters Patent—

10 A hydraulic air blast apparatus, comprising a straight hollow cylinder open at one end and contracted at the opposite end, an air pipe connected to said contracted end, and a

water nozzle located in the cylinder and provided with two branches extending in opposite directions from the median plane of the nozzle and longitudinally of the cylinder, 15 substantially as described.

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Witnesses:

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