

(No Model.)

J. C. BANSEMER & E. L. DAVIES.  
SLAG ESCAPE FOR TUYERES.

No. 426,702.

Patented Apr. 29, 1890.

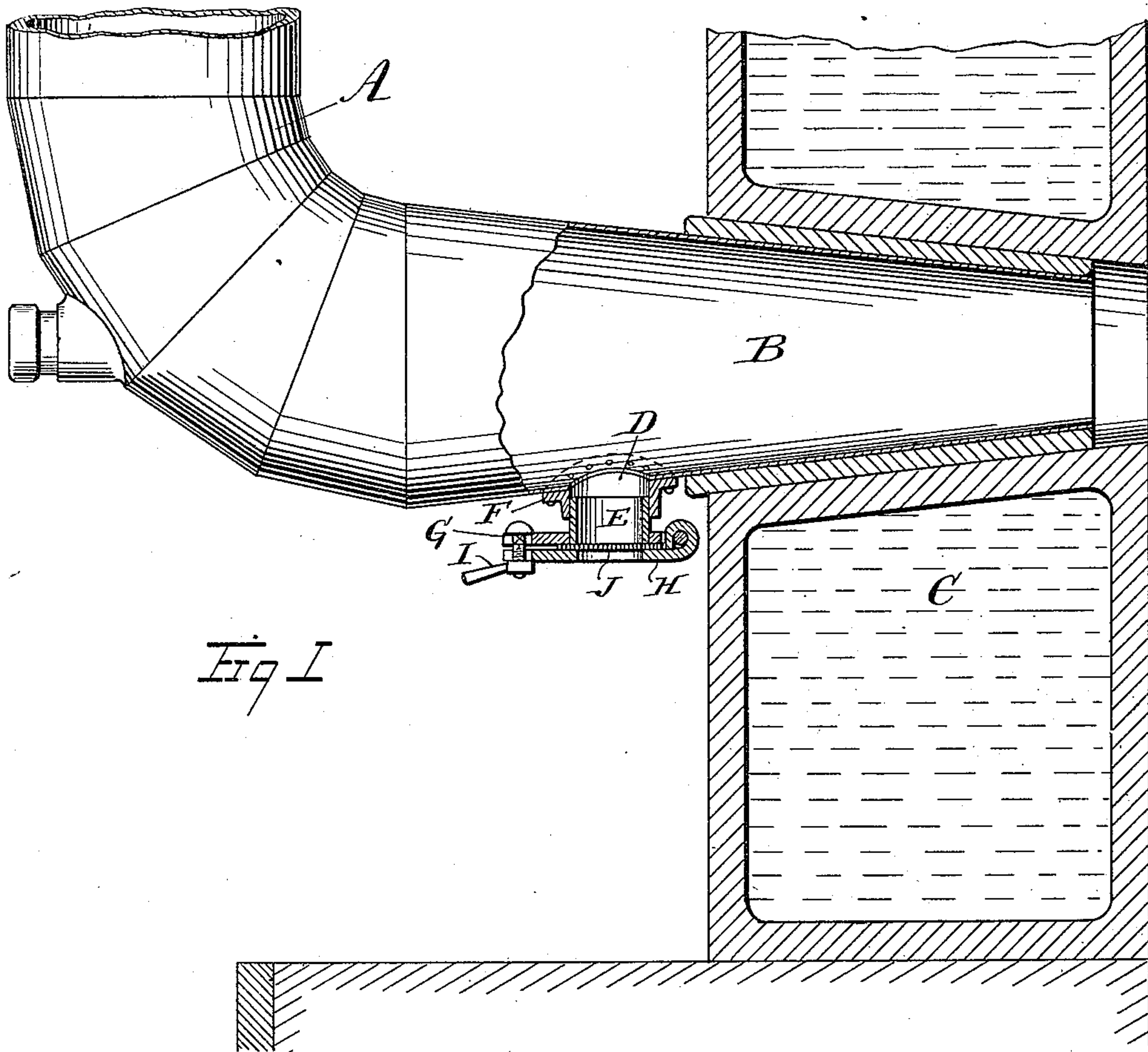


Fig 1

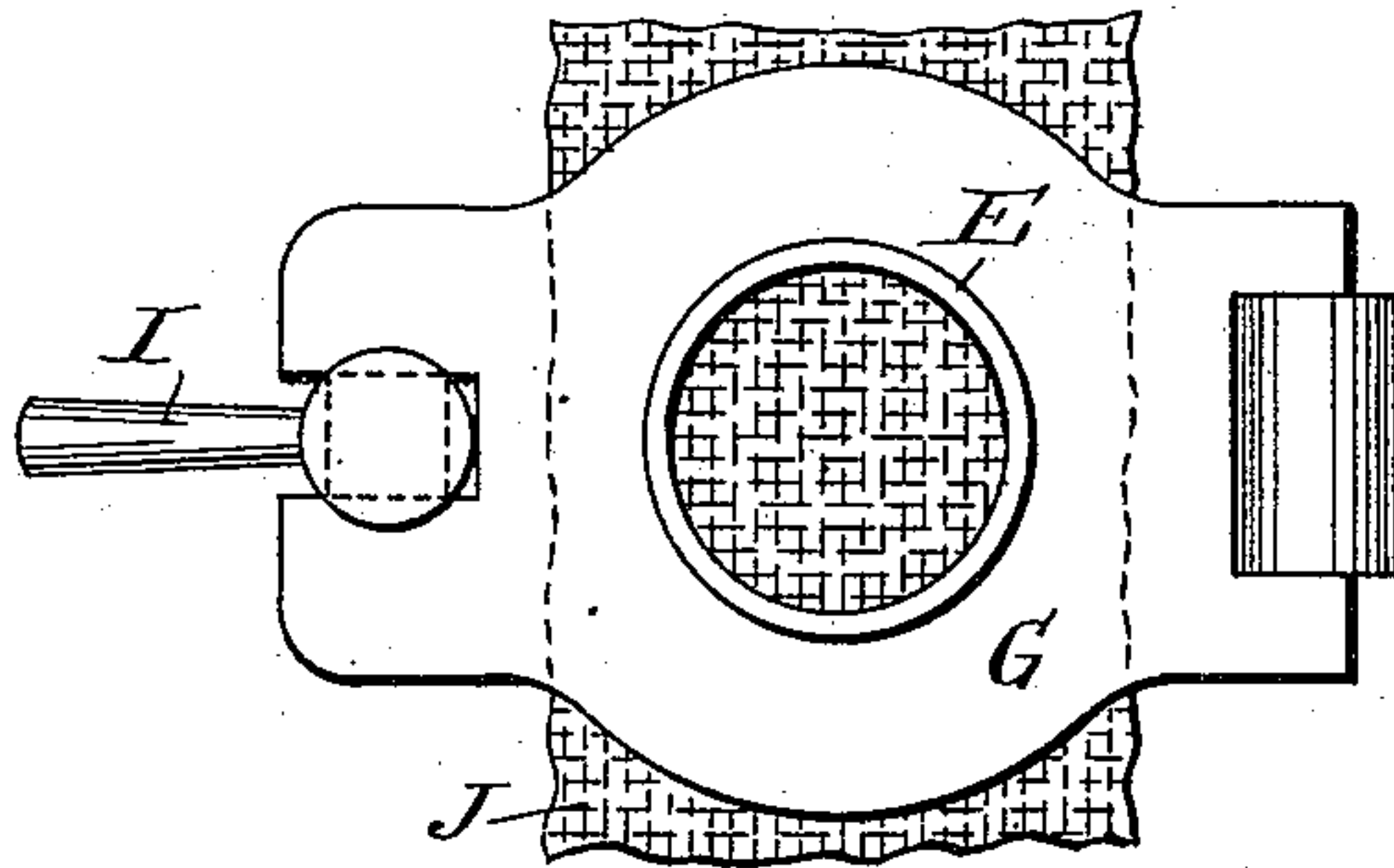


Fig 2

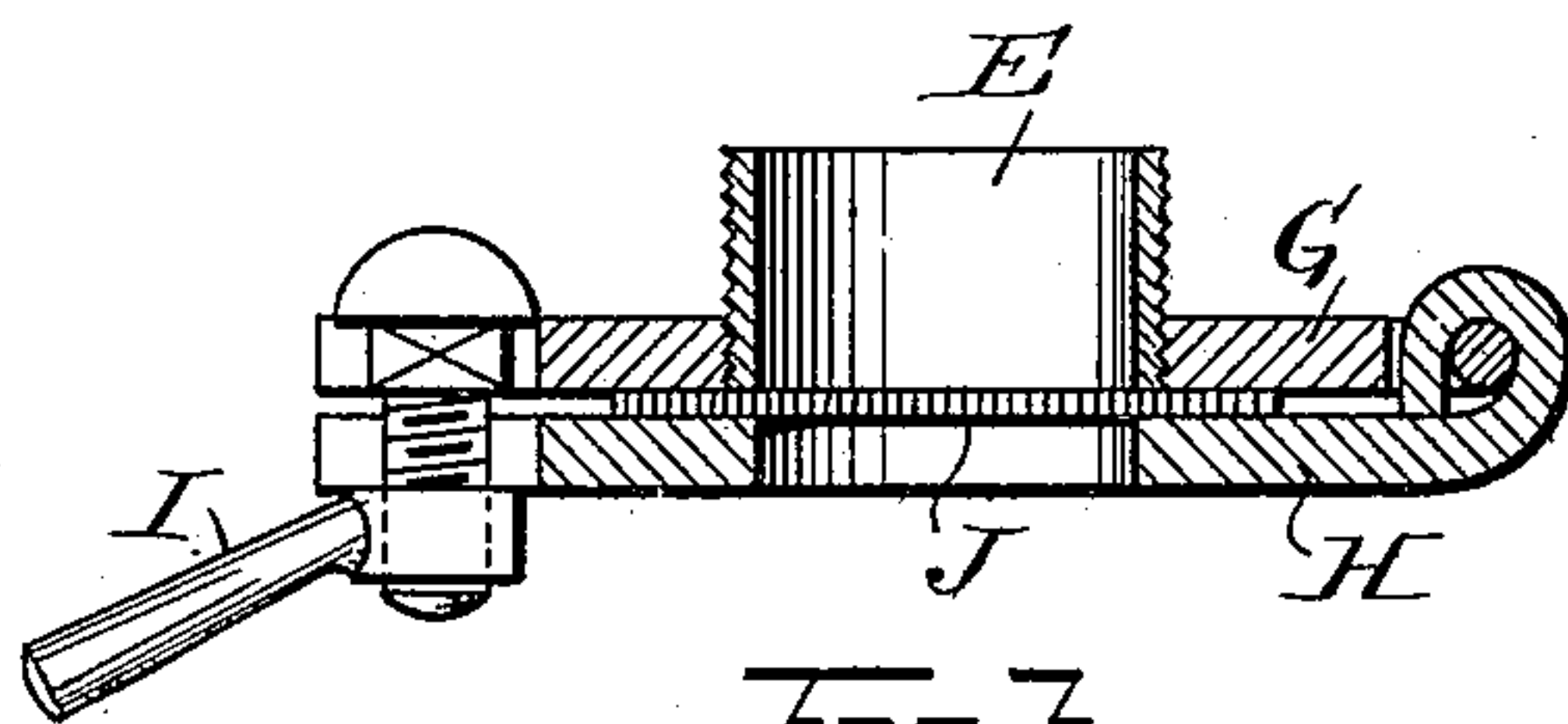


Fig 3

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# UNITED STATES PATENT OFFICE.

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## SLAG-ESCAPE FOR TUYERES.

SPECIFICATION forming part of Letters Patent No. 426,702, dated April 29, 1890.

Application filed October 24, 1889. Serial No. 328,087. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN C. BANSEMER and EDWIN L. DAVIES, of Great Falls, in the county of Cascade and Territory of Montana, have invented a new and Improved Slag-Escape and Alarm, of which the following is a full, clear, and exact description.

The invention relates to smelting-furnaces, and its object is to provide a new and improved slag-escape and alarm which is simple and durable in construction and very effective in operation, permitting a ready escape of the slag, keeping the blast-pipe and tuyere open, and giving an alarm when the slag rises above a normal level in the furnace.

The invention consists of a blast-pipe provided with an auxiliary outlet closed by a cover made of a sheet of muslin, canvas, paper, or other suitable material easily destructible by the slag.

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 sectional side elevation of the improvement as applied. Fig. 2 is an enlarged plan view of the improvement, and Fig. 3 is a sectional side elevation of the same.

In furnaces for smelting silver, lead, iron, copper, and other ores it frequently happens through carelessness of attendants or other causes that the slag in the furnace rises above its normal level and runs out through the tuyere into the blast-pipes, blocking them up solid and stopping the passage of the blast, necessitating much delay and disagreeable labor in cutting out the solid slag, whereby the pipes are frequently seriously injured.

The above-described objectionable and serious features in furnaces are entirely obviated by the invention presently to be described.

The blast-pipe A is provided with the usual contracted and horizontally-extending end B, passing into the usual entrance in the water jacket or wall of the furnace C to discharge the blast into the furnace.

In the bottom of the end B, on the outside

of the jacket or wall C, is formed an opening D, which leads into a downwardly-extending pipe or nipple E, secured to a flanged ring F, fastened by rivets or other means to the under side of the end B. On the pipe or nipple E is secured a flange G, flush on its bottom with the outer edge of the pipe E. On this flange G is hinged a plate H, provided with a central aperture adapted to register with the pipe E when the device is in use. The free end of the hinged plate H is adapted to be secured by a suitable device I to the flange G, and between the latter and the said plate H is placed a destructible cover J, made of a sheet of muslin, paper, canvas, sheet metal, or other suitable material and closing the lower end of the pipe E. The sheet or strip J may be made of any material which is sufficiently strong to resist the blast in the pipe A and easily destructible by molten slag.

The operation is as follows: When the device is in place, as shown in Fig. 1, and the slag in the furnace rises above its normal level, flows in a thin stream into the end B of the blast-pipe, to finally drop into the opening D and pipe S and onto the sheet J, which is quickly burned, melted, or otherwise destroyed by the hot molten slag, so that the latter flows down on the ground and escapes without settling in the pipe A and clogging up the same. At the same time the blast in the pipe E follows the slag and rushes through the opening formed by the destruction of the sheet J. The blast in escaping through the pipe S, makes considerable noise, thus giving an alarm. In case the end B and its bushing are cast in one piece the pipe E may form an integral part of the said end.

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

1. The combination, with a blast-pipe or tuyere having an auxiliary outlet, of a destructible cover held over the said outlet and serving to normally close the latter, substantially as shown and described.

2. The combination, with a short pipe or nipple opening into the bottom of a blast-pipe,

of a destructible cover held on the under side of the said pipe, substantially as shown and described.

5 3. The combination, with a short pipe or nipple opening into the bottom of a blast-pipe, of a destructible cover held on the under side of the said pipe and a clamping-plate for hold-

ing the said cover on the said pipe, substantially as shown and described.

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Witnesses:

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