(No Model.)

E. SMALL.

APPARATUS FOR AND PROCESS OF MAKING COMMINUTED SOLDER.

No. 282,579. Patented Aug. 7, 1883.

Fig. 1.

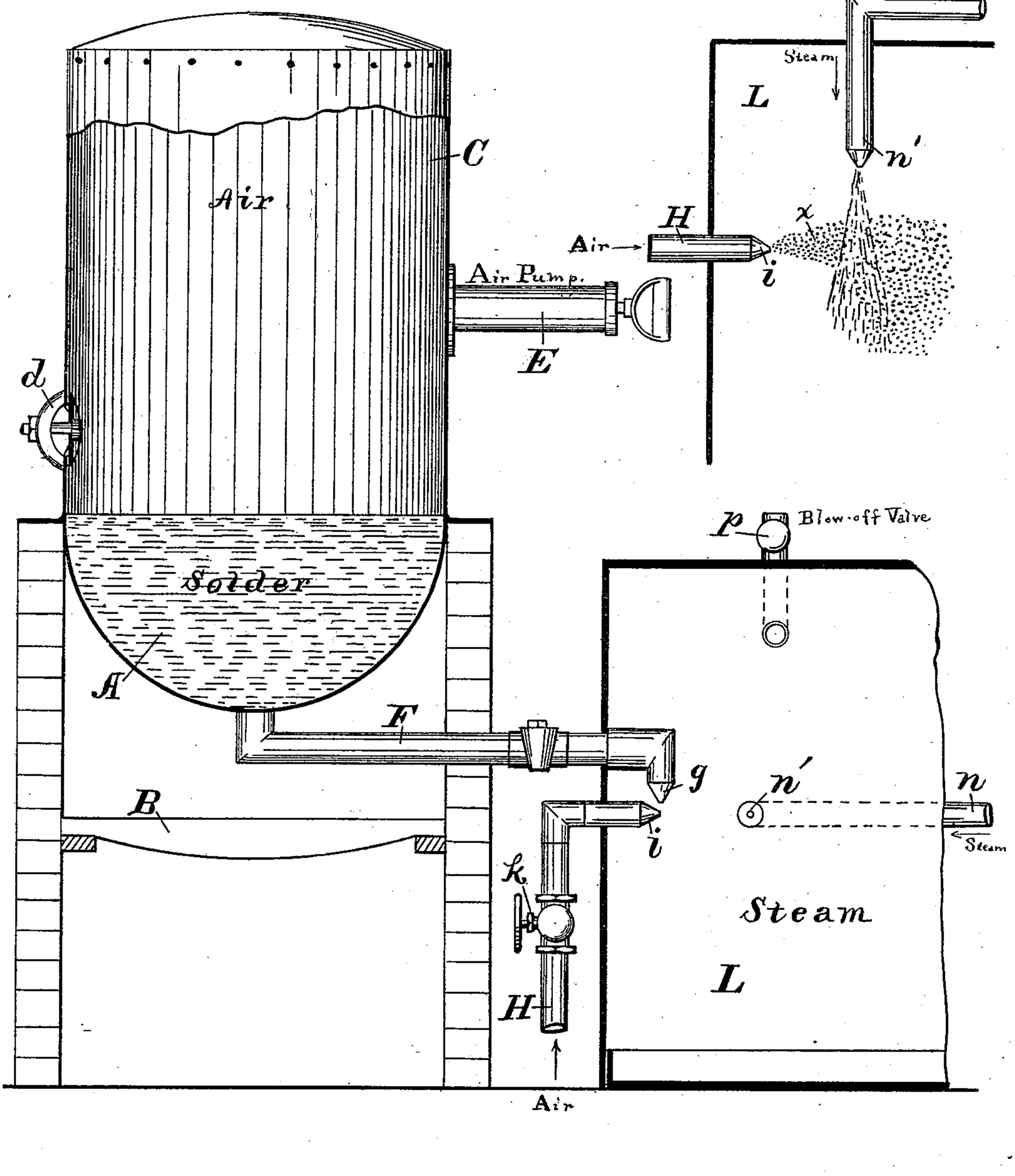

Fig. 2.

Witnesses:
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By his Atty.,
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UNITED STATES PATENT OFFICE.

EDWARD SMALL, OF BALTIMORE, MARYLAND.

APPARATUS FOR AND PROCESS OF MAKING COMMINUTED SOLDER.

SPECIFICATION forming part of Letters Patent No. 282,579, dated August 7, 1883.

Application filed June 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD SMALL, a citizen of the United States of America, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Apparatus for and Process of Making Comminuted Solder, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this invention is to provide an apparatus and process for making comminuted solder.

In the drawings hereto annexed, Figure 1 is a vertical section of the apparatus. Fig. 2 illustrates the position occupied by the nozzles on a horizontal plane.

The letter A designates a solder-melting receptacle; B, a furnace below, to heat the solder-receptacle. An air-chamber is formed above the solder-receptacle by a vertical cylindric case, C, closed up at its upper end. The case is provided near its lower part with an opening having suitable means to close it, by which to feed or enter the solder to be melted. In the present instance this opening and the device to close it are in the form of an ordinary hand-hole and cover, *d*.

An air-forcing device—in the present instance a pump, E—is in connection with the vertical case and the solder-melting receptacle below it, and is used to compress air into the air-chamber C.

A discharge-pipe, F, leads from the bottom of the solder-receptacle, and serves to carry off the molten solder. At the end of this pipe is a suitable nozzle, *g*, for discharging a fine stream of molten solder. This nozzle is detachable, so as to permit of ready removal, in order to enable one of different size to be attached.

A pipe, H, leading from a reservoir of compressed air, (not shown,) has a jet-aperture or fine nozzle, *i*, from which a blast of air issues. A cock, *k*, is provided to regulate the blast or to entirely cut it off.

A close chest or chamber, L, has a steam-pipe, *n*, entering one of its walls, whereby the said chamber is kept full of steam under slight pressure, a blow-off valve, *p*, at one side of the chest being arranged to open and allow the escape of steam whenever the given pressure (at no time great) is exceeded.

The nozzle *g* of the solder-discharge pipe and the nozzle *i* of the compressed-air pipe both enter through the walls of the close chest and discharge into the close chamber. These two nozzles, as well as the nozzle *n'* of the steam-pipe *n*, are arranged with special reference to each other to accomplish a certain end, which will now be explained. In the first place, the air-pressure in the case *c* upon the molten solder has the effect to drive the said solder through a nozzle, *g*, having a much smaller aperture than it would flow through were no pressure employed, and this insures a finer stream of the molten metal, the said stream entering the close chest containing steam under pressure. The nozzle *i* delivers a blast of air crosswise of the stream of molten metal, and has the effect to break the said stream and scatter particles *x* of solder in a horizontal direction through the enveloping steam under slight pressure; at the same time the nozzle of the steam-pipe *n* throws a jet of steam crosswise of the path of the flying particles of solder, and serves to effectually scatter and chill said particles, which then fall and accumulate at the bottom of the chest.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The process herein described of making comminuted or fine-grained solder, consisting of running molten solder in a fine stream, breaking the said stream into small particles by means of an air-blast, and throwing a jet of steam crosswise of the path of the flying particles, as set forth.

2. The process herein described of making comminuted or fine-grained solder, consisting of running molten solder in a fine stream into a close chest containing steam under slight pressure, and delivering a blast of air against the stream of solder, as set forth.

3. In an apparatus for making solder, the combination of a solder-melting receptacle, a steam-chest, a pipe from the receptacle to discharge a stream of solder into the chest, and a pipe to deliver an air-blast against the said stream, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD SMALL.

Witnesses:

JNO. T. MADDOX,

CHAS. B. MANN.