

E. POHL.

METHOD OF PRODUCING METALS IN A FINELY DIVIDED STATE.

(Application filed Oct. 28, 1901.)

(No Model.)

Fig. 1.

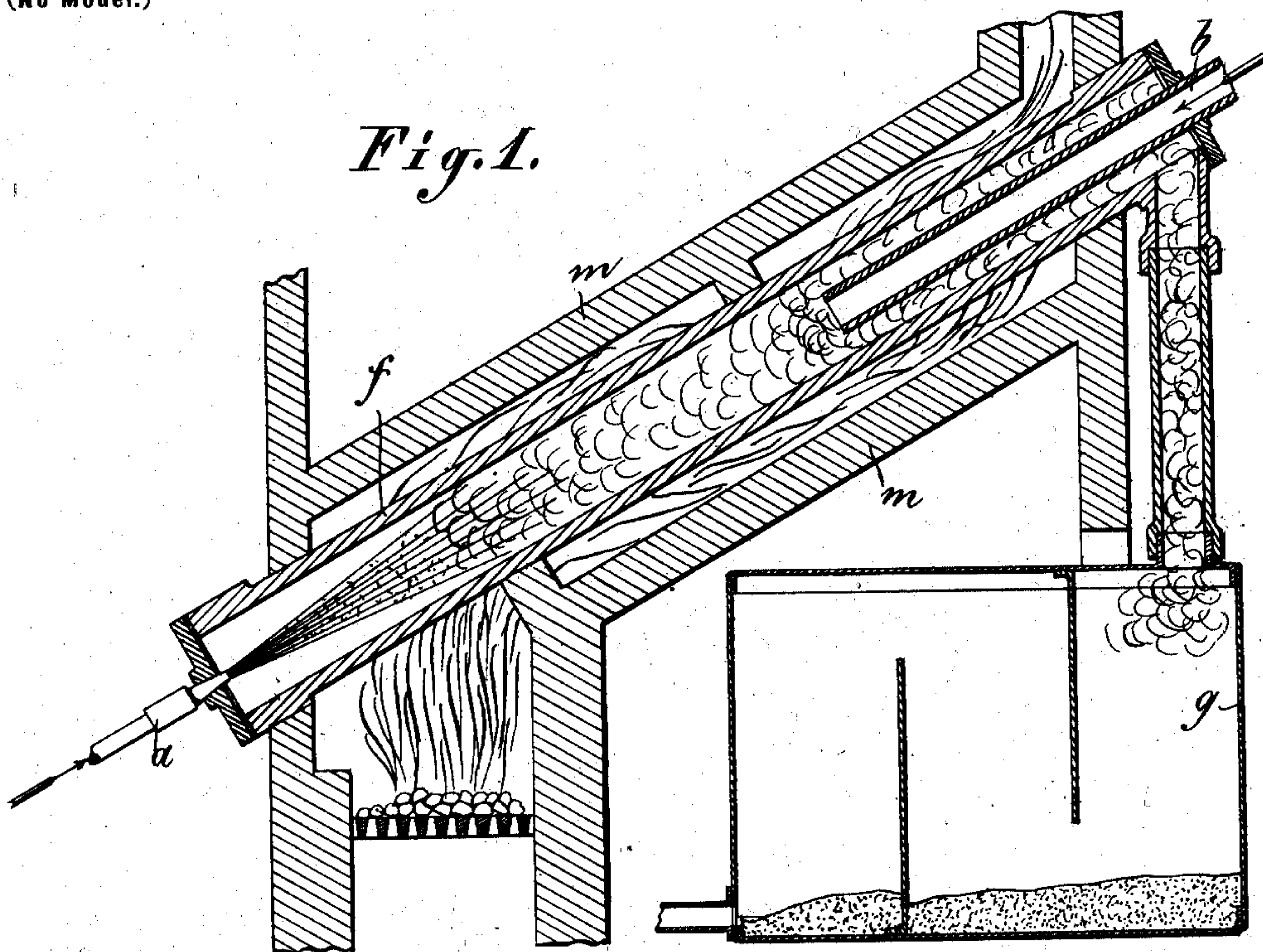


Fig. 2.

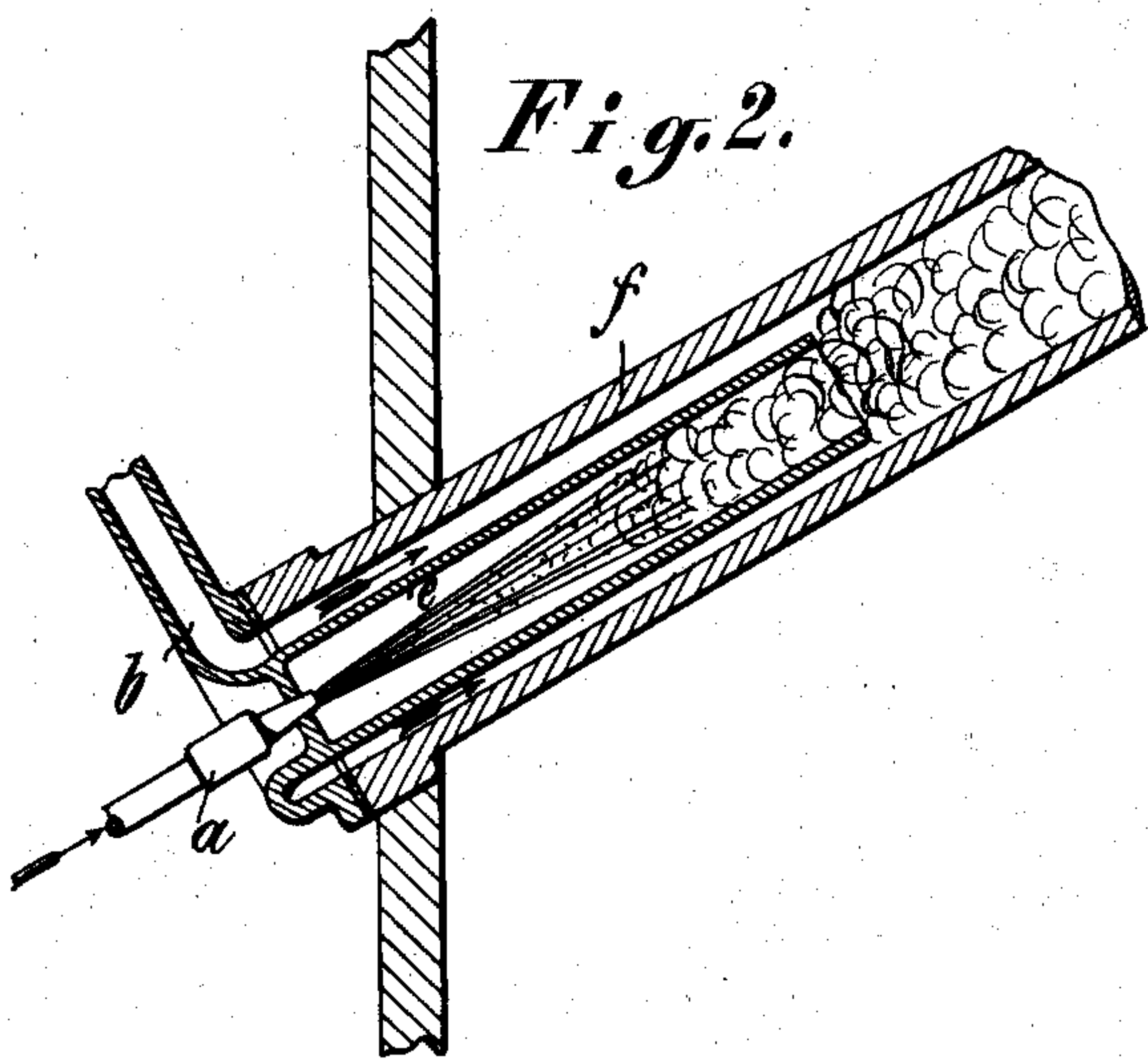
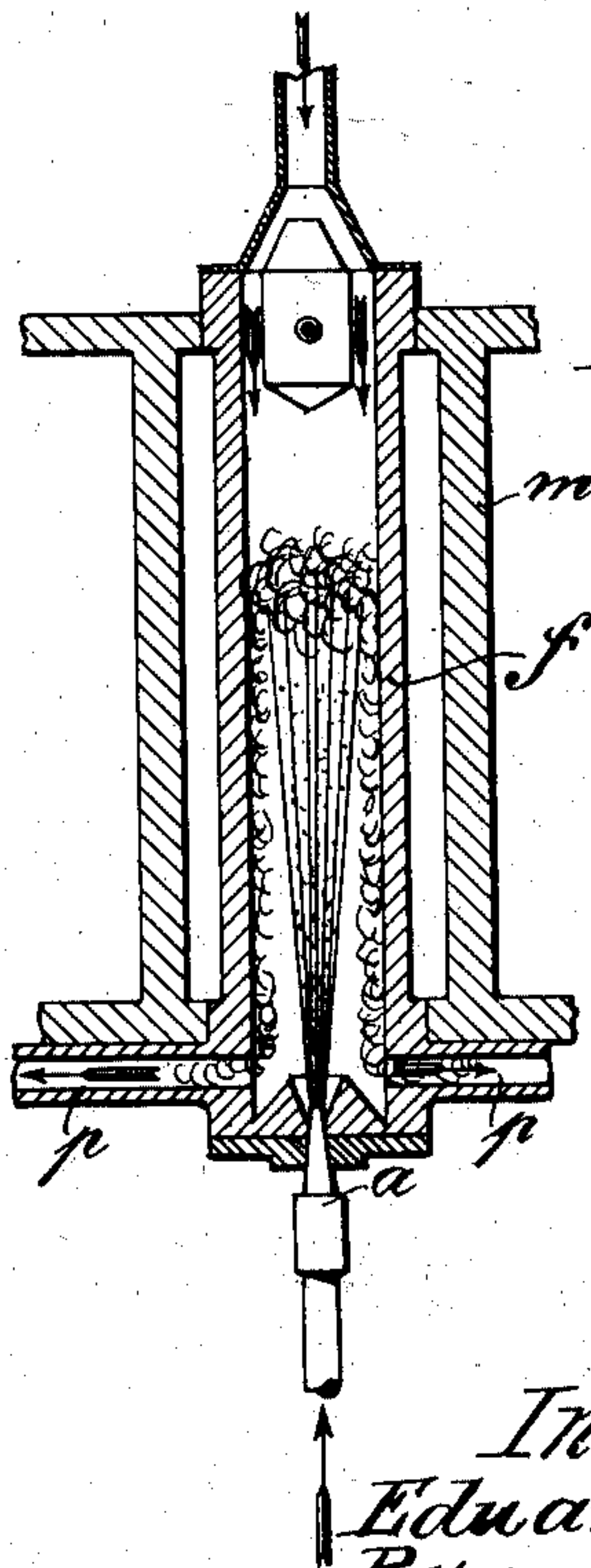


Fig. 3.



Witnesses.
S. O. Parker.
Robert G. Smith.

Inventor.
Eduard Pohl.
By James L. Norris.
Att'y.

UNITED STATES PATENT OFFICE.

EDUARD POHL, OF WEISSWASSER, GERMANY.

METHOD OF PRODUCING METALS IN A FINELY-DIVIDED STATE.

SPECIFICATION forming part of Letters Patent No. 706,475, dated August 5, 1902.

Application filed October 23, 1901. Serial No. 79,716. (No specimens.)

To all whom it may concern:

Be it known that I, EDUARD POHL, engineer, of Weisswasser, Upper Lusatia, in the German Empire, have invented certain new and
5 useful Improvements in Methods of Producing Metals in a Finely-Divided State, of which the following is a clear and distinct description.

The new process consists in smelting the
10 metal, dividing the molten mass into mostly fine drops by means of a suitable apparatus, evaporating these fine metallic drops in a retort or the like, and then condensing the vapors.

15 Hitherto very fine metallic powder has been produced by melting the metal and directly evaporating the molten mass, which causes the evaporation to take place slowly and at a very high temperature. Such objection is
20 overcome by the method hereinafter set forth, in which the evaporation proceeds more quickly and at a considerably lower temperature.

In order to describe the manner of carrying
25 out my process, I will refer to the evaporation of tin in order to obtain tin-powder in a most fine state.

For carrying out my process I use a muffle or retort furnace, in which the retort is heated to the required temperature. In the accompanying drawings such a furnace is represented by way of example.

Figure 1 is a longitudinal section through the furnace and retort, Fig. 2 showing part
35 of a retort-furnace in longitudinal section, and Fig. 3 is a sectional view of an upright retort.

The retort *f* is suitably mounted within the furnace and is provided with an arrangement for introducing and spraying the liquid
40 metal—a nozzle *a*. This latter is in connection

by means of a pipe or the like (not shown) with the apparatus (not shown) in which the molten metal is contained and from which the latter is forced into the retort either by
45 means of the pressure of steam, gas, or the like or by means of its own pressure if the molten-metal receiver is placed high enough above the retort. After the retort is heated to the required temperature the molten metal
50 is introduced by means of the nozzle *a*, thereby producing a spray of finely-divided metal. The temperature to which the retort is heated depends on the degree of the division of the metal drops and on the length of the way
55 they have to pass in the retort, larger drops requiring a higher temperature or a longer way. When treating tin according to the new process, I heat the retort to about light-red heat. The spray of metal drops is easily and
60 rapidly evaporated in the retort. If it is the object to obtain the metal in a most finely-divided metallic state, the vapors are condensed in the collector-chamber *g*. The metal is now so fine that it is advantageous to con-
65 dense and keep it under water or any other suitable liquid.

Having thus described my invention and in what manner the same is to be performed, I declare that what I claim is—
70

A process for producing metals in a finely-divided state consisting in smelting the material, spraying the smelted material into a retort heated to a suitable temperature, evaporating the spray, and then condensing the ob-
75 tained vapors.

In witness whereof I have hereunto set my hand in presence of two witnesses.

EDUARD POHL.

Witnesses:

WOLDEMAR HAUPT,
WILHELM BEER.