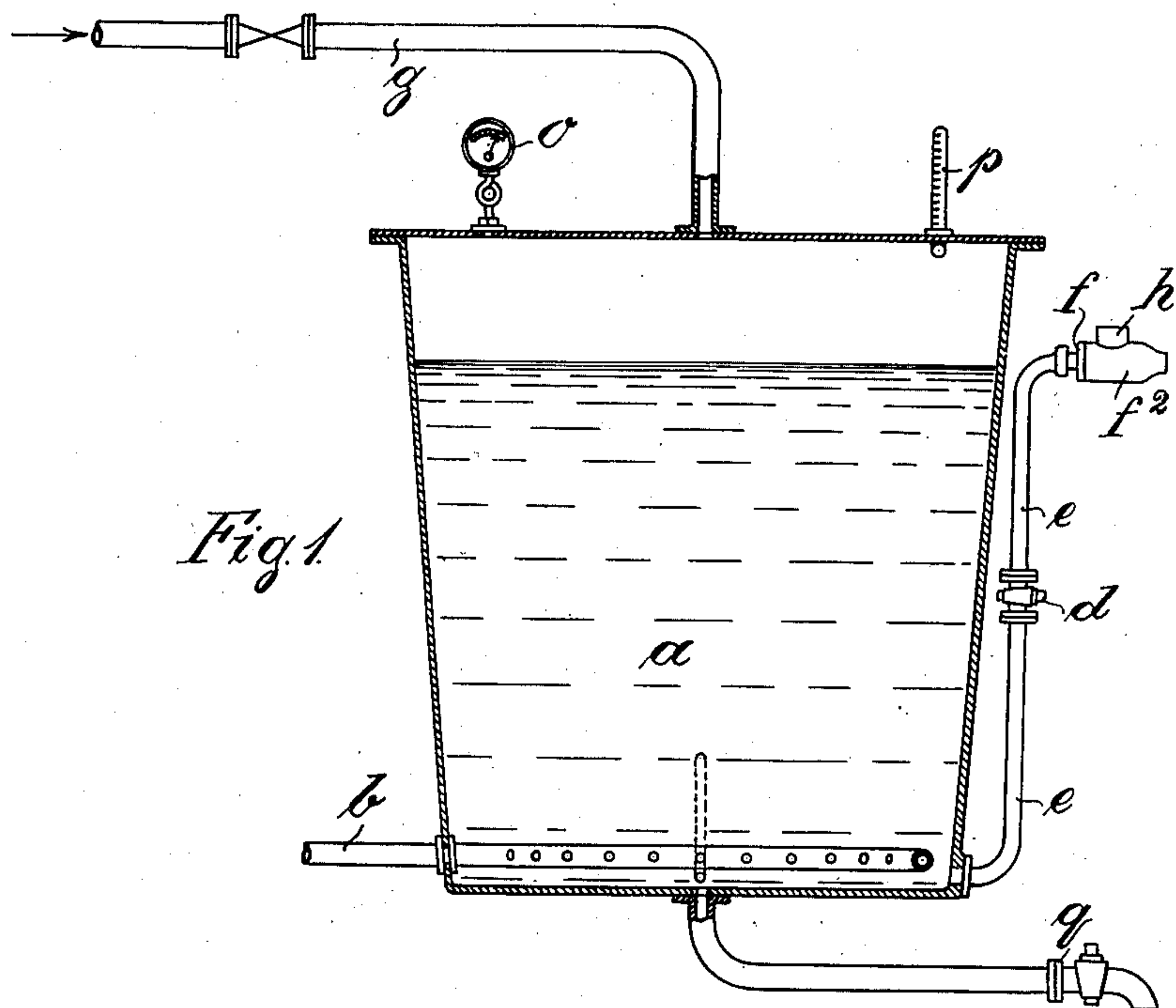


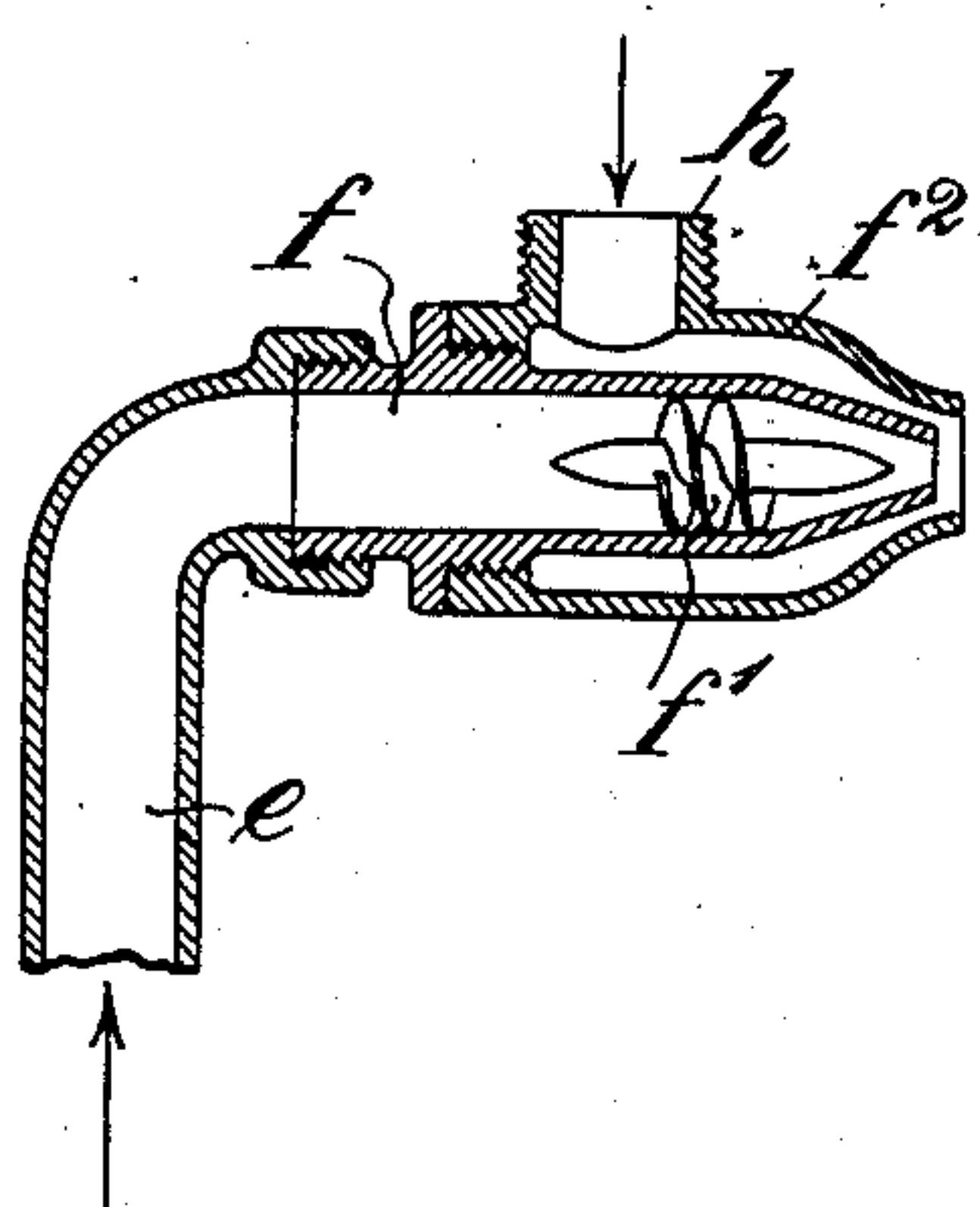
W. LÜRING.  
 PROCESS FOR THE PRODUCTION OF SOAP POWDER.  
 APPLICATION FILED DEC. 8, 1908.

940,398.

Patented Nov. 16, 1909.



*Fig. 1.*



*Fig. 2.*

Witnesses:  
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*Alfred Lyons.*

Inventor:  
*Wilhelm Lüding.*  
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# UNITED STATES PATENT OFFICE.

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## PROCESS FOR THE PRODUCTION OF SOAP POWDER.

940,398.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed December 8, 1908. Serial No. 466,461.

To all whom it may concern:

Be it known that I, WILHELM LÜRING, a subject of the King of Prussia, and resident of 9 Klagesmarkt, Hanover, in the German Empire, have invented a certain new and useful Process for the Production of Soap Powder, of which the following is a specification.

This invention relates to a process for the production of soap powder and the like by blowing a hot liquid solution of soap or the like under pressure into a large space or room and is an improvement of the process described in U. S. Patent No. 890078 filed November 11, 1907, by Wilhelm Lüring.

The object of the present invention is to improve the process described in the said patent.

At the moment when the hot solution under pressure emerges from the nozzle the sudden expansion causes a reduction of temperature which lowers the temperature in some cases so as to be insufficient to effect complete evaporation of the solvent. According to the present invention this defect is removed by applying heat to the hot solution the moment it leaves the nozzle, that is to say, at the moment of its expansion. In this expanded state the heating medium (superheated steam or hot air) is very effective as the particles of the hot solution in this expanded state offer a larger surface for coaction with the heating gaseous fluid. The gaseous fluid is preferably introduced in an annular stream around the spraying nozzle of the hot liquid and this arrangement has the effect of materially assisting the spraying action and the transmission of heat from the hot gaseous fluid to the hot liquid. The gaseous fluid preferably employed is steam on account of the considerable quantity of heat which it may store. The steam employed may be low pressure steam of one atmosphere or thereabout and superheated to about 300° C. The hot liquid, however, may be under a very much greater pressure and owing to the method of introducing the heating medium to the hot liquid at the point of its expansion the difference in pressure between the steam and the liquid does not interfere with the efficient operation.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a diagram of the entire apparatus employed and Fig. 2 is a cross section

showing a suitable form of spraying nozzle and steam supply device.

In carrying the invention into effect the solution containing the substances to be transformed into powder or the liquid soap or the like is heated in a vessel *a* by means of a coil or the like *b*. Steam or air under pressure is constantly supplied through the pipe *g* to the upper end of the vessel. The hot solution under pressure is led from the vessel *a* by a pipe *e* controlled by a cock *d* to a nozzle *f* which is conveniently of the form shown in section Fig. 2. In this figure the pipe *e* opens into a nozzle body *f* in which a suitable spreader *f'* is arranged. Around the nozzle body *f* there is a mantle *f''* provided with a pipe connection *h*. Superheated steam of about one atmosphere pressure and 300° C. temperature is led to the pipe *h* and passes out in an annular stream around the opening of the nozzle *f*. The liquid in the vessel *a* may be maintained at a pressure of 3 atmospheres or over. The vessel *a* is also provided with a suitable pressure gage *o* and thermometer *p* as well as a blow off pipe *q* for facilitating cleaning.

I claim:—

1. A process for producing a powder from a hot high pressure liquid, consisting in spraying said liquid while maintaining the high pressure, and assisting the spraying and transmitting heat to the high pressure liquid by a hot gaseous fluid free from moisture introduced just at the point where the hot high pressure liquid begins to spray and expand.

2. A process for producing a powder from a hot high pressure liquid, consisting in spraying said liquid while maintaining the high pressure, and assisting the spraying and transmitting heat to the high pressure liquid by a hot gaseous fluid of lower pressure but free from moisture introduced just at the point where the hot high pressure liquid begins to spray and expand.

3. A process for producing a powder from a hot high pressure liquid, consisting in spraying said liquid while maintaining the high pressure, and passing an annular current of superheated steam of lower pressure than the high pressure liquid to join said high pressure liquid just at the point where the said liquid begins to spray and expand.

4. The improvement in the art of producing dry powder from a hot high pressure



liquid by spraying said liquid while maintaining the high pressure, consisting in transmitting dry heat and assisting thereby the spraying by means of a hot gaseous fluid of lower pressure to the hot high pressure liquid at the point where said liquid begins to spray and expand.

5 The improvement in the art of producing dry powder from a hot high pressure liquid by spraying said liquid while maintaining the high pressure, consisting in

transmitting dry heat and assisting the spraying by means of an annular current of superheated steam of lower pressure at the point where said high hot pressure liquid begins to spray and expand. 15.

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

WILHELM LÜRING.

Witnesses:

J. M. BOWCOCK,  
LOUISE KATHON.