

(No Model.)

2 Sheets—Sheet 1.

F. VON DECHEND.

PROCESS OF APPLYING TO PLASTER CASTS CONSERVING FLUIDS IN
ATOMIZED STATE AND THE APPARATUS USED.

No. 304,053.

Patented Aug. 26, 1884.

Fig. 1.

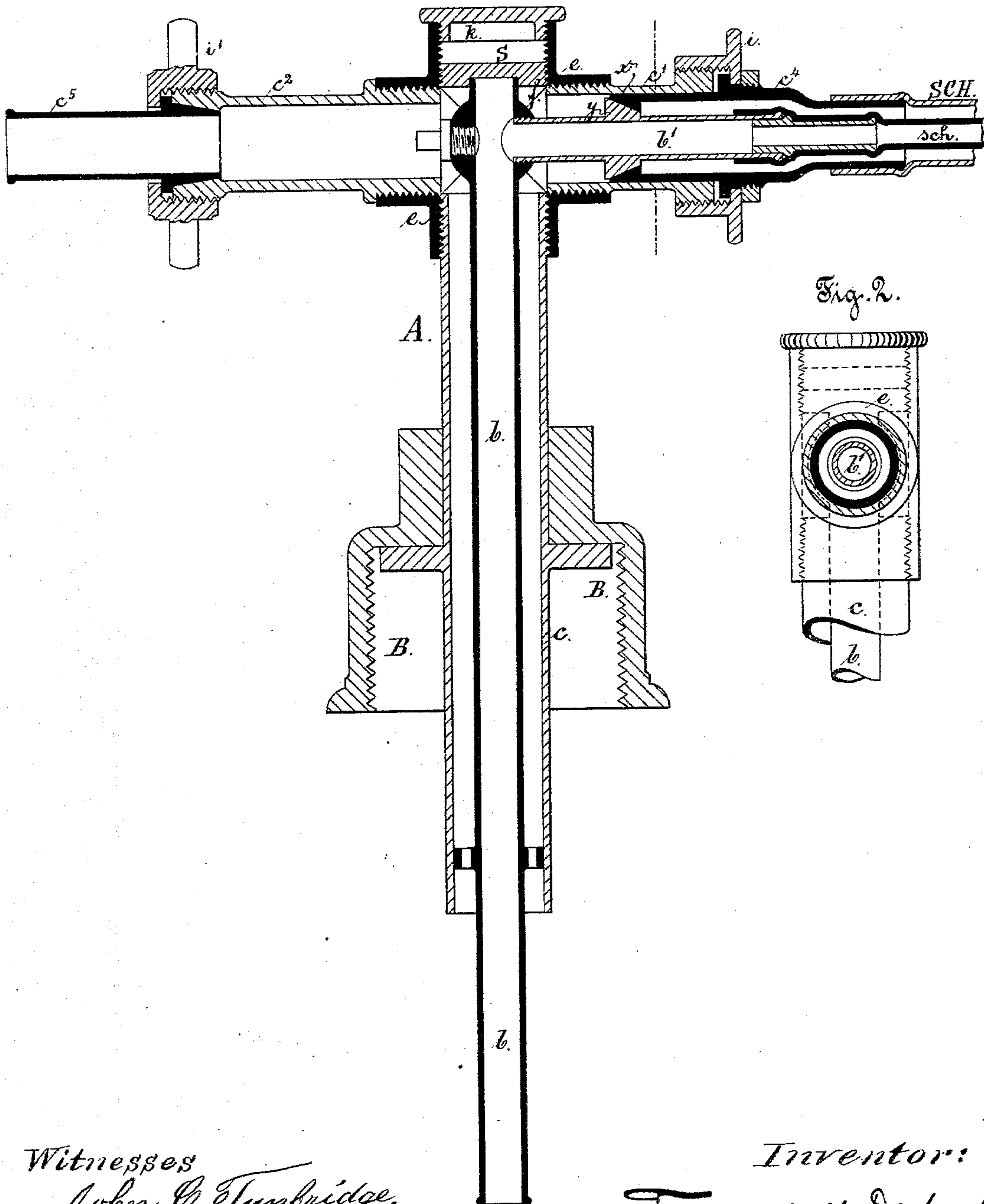
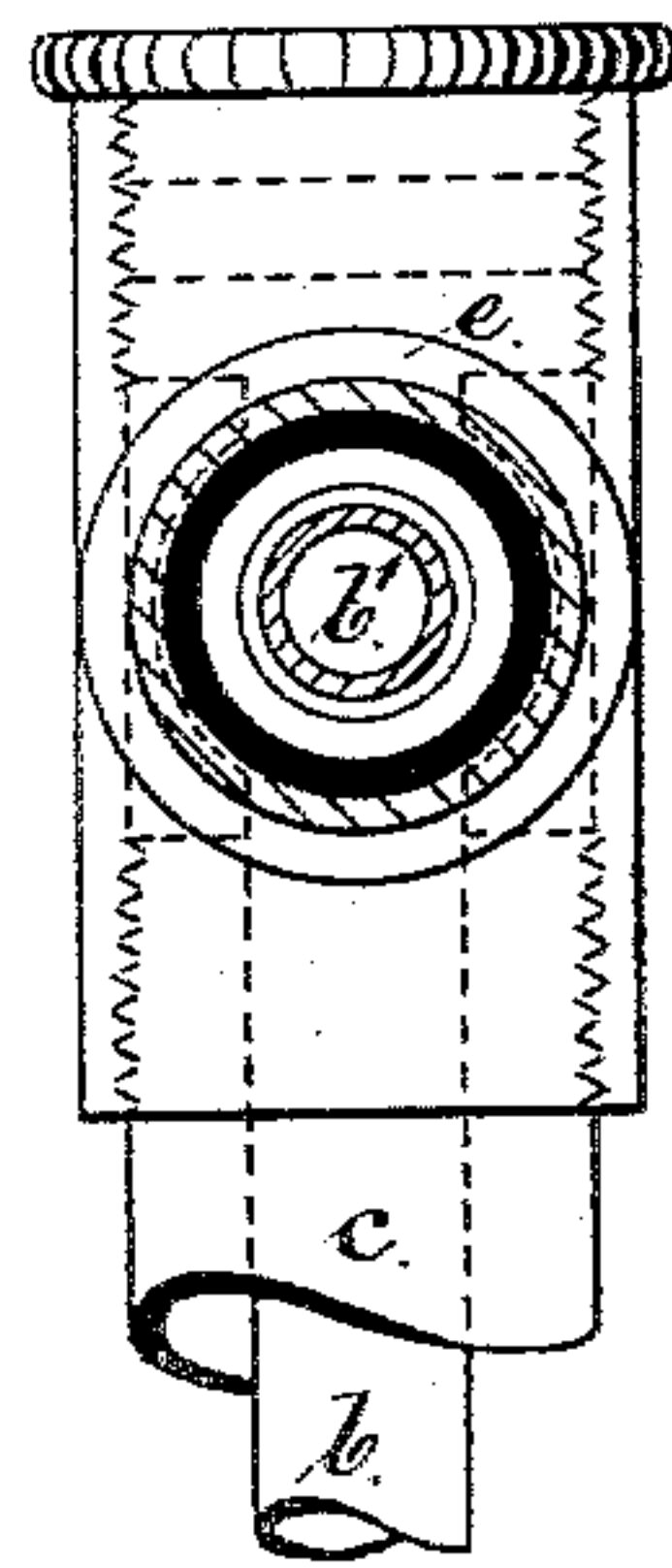


Fig. 2.



Witnesses

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Inventor:

Friedrich v. Dechend
by his attorneys
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(No Model.)

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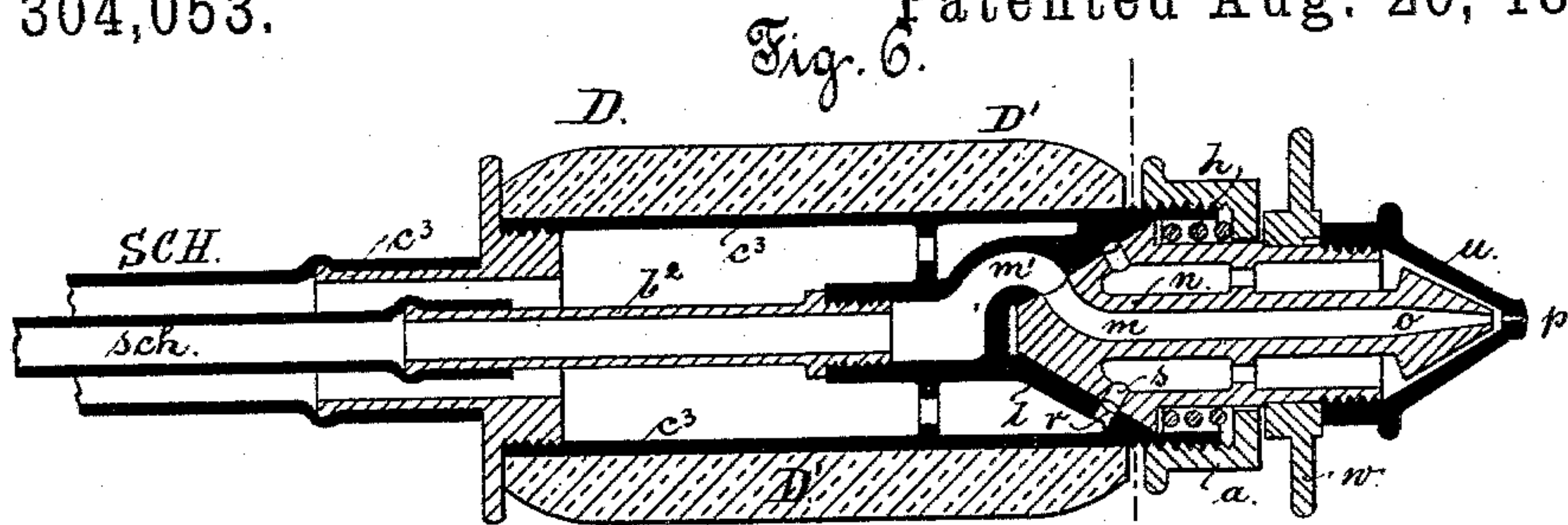


Fig. 5.

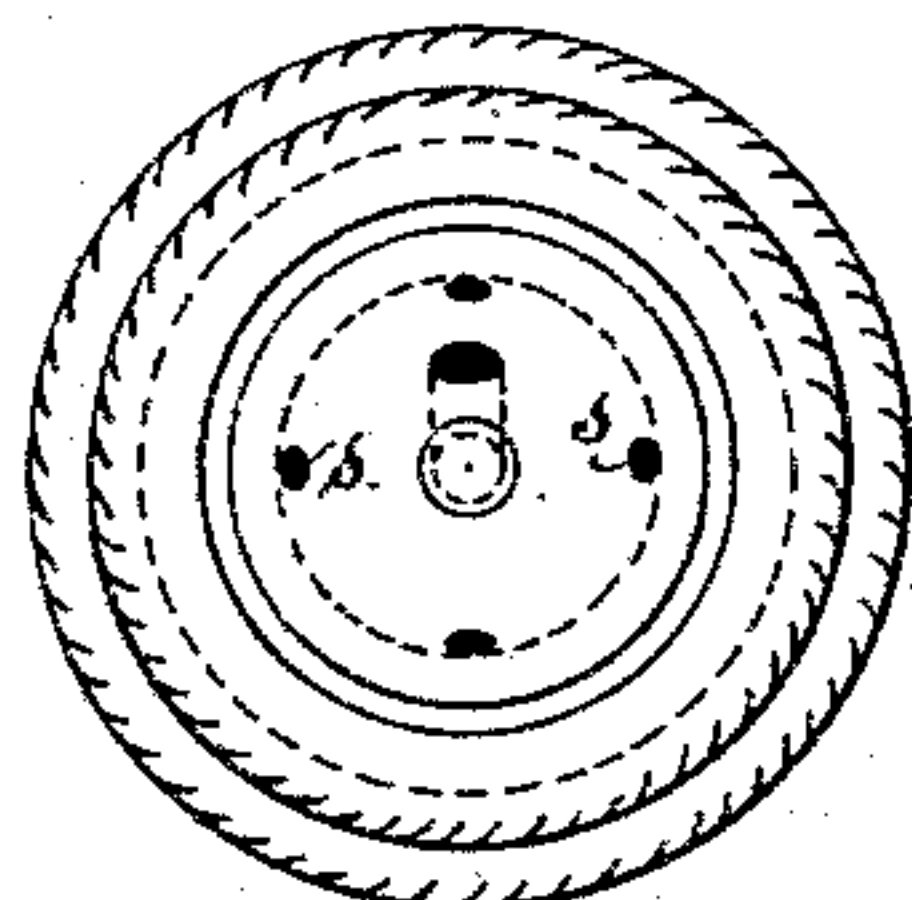


Fig. 7.

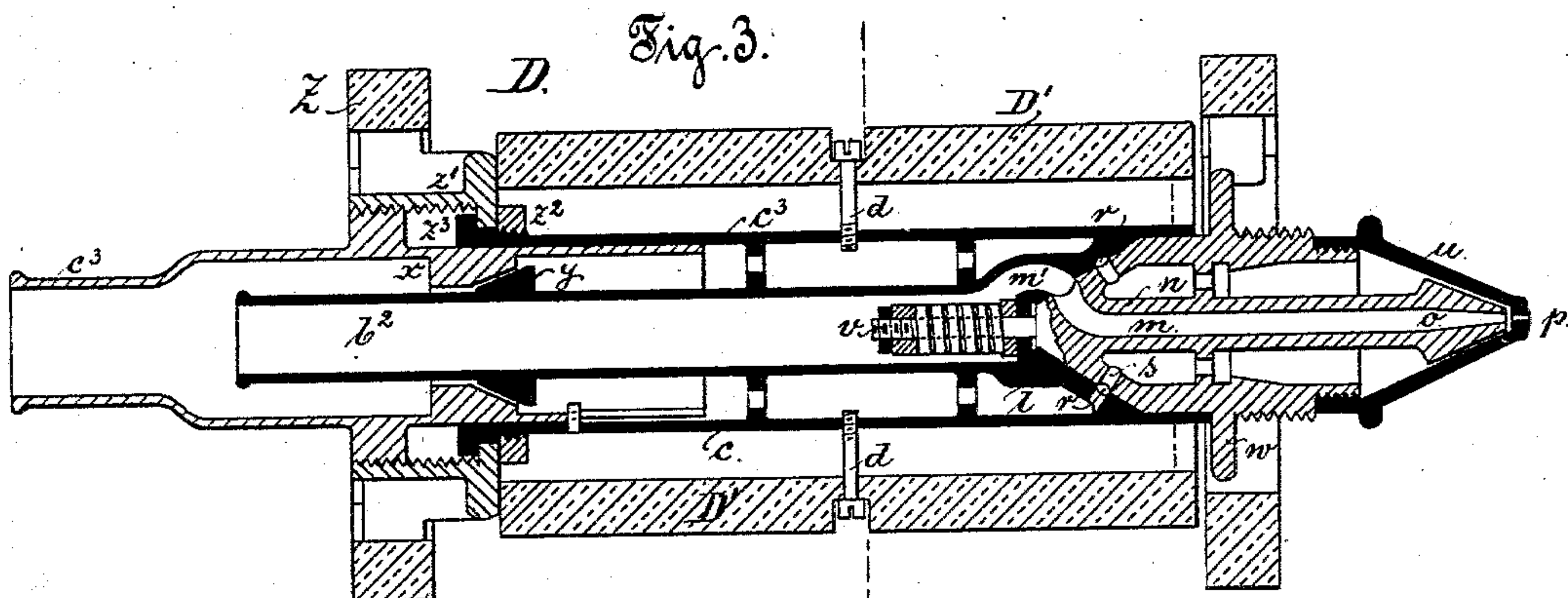
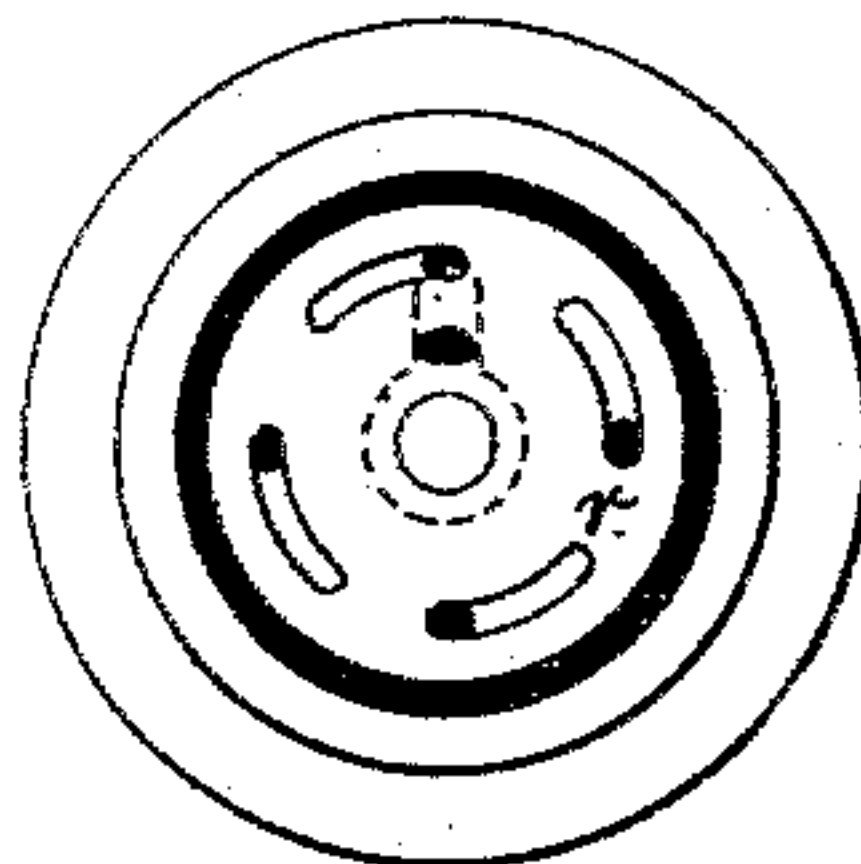
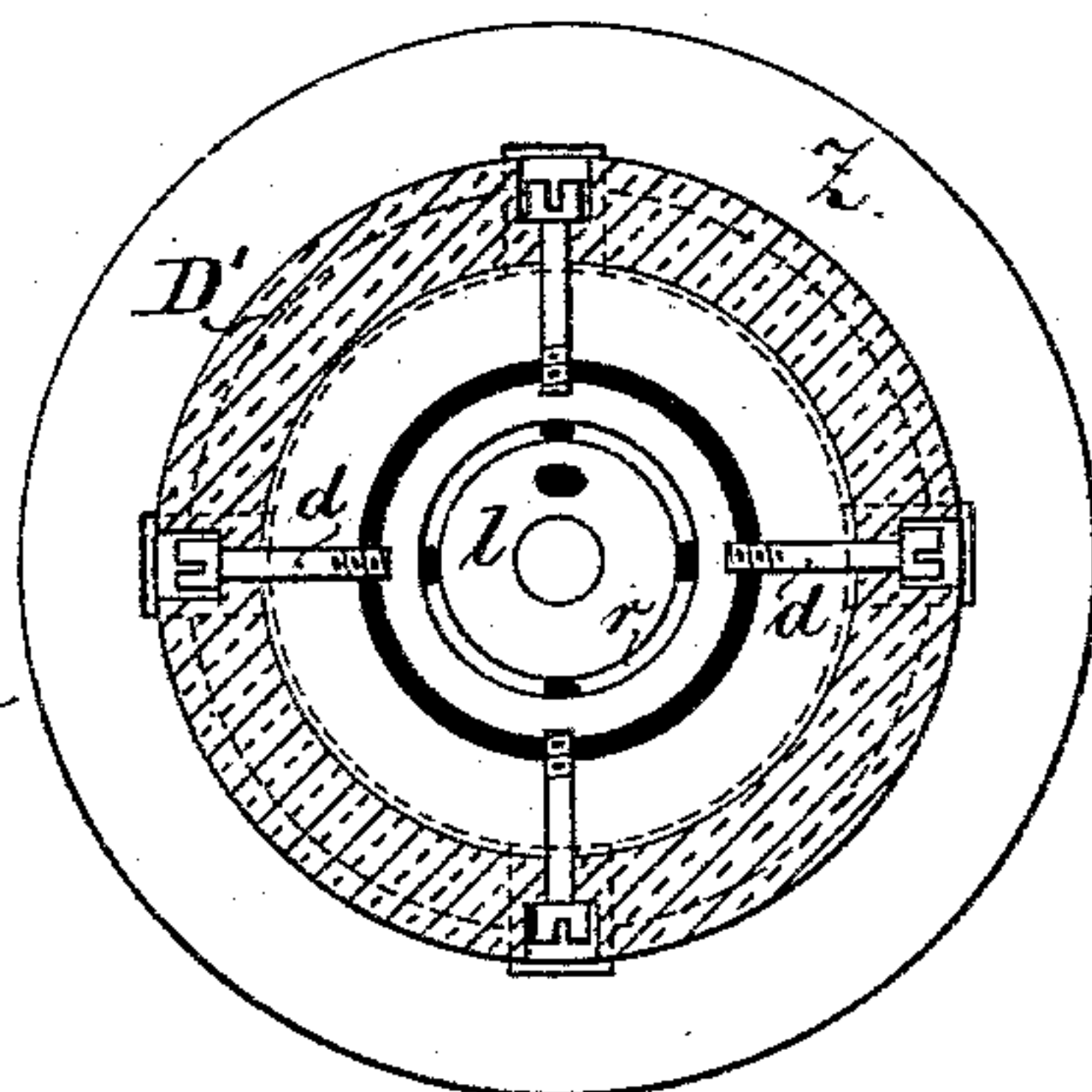


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRIEDRICH VON DECHEND, OF BERLIN, GERMANY.

PROCESS OF APPLYING TO PLASTER CASTS CONSERVING-FLUIDS IN ATOMIZED STATE, AND THE APPARATUS USED.

SPECIFICATION forming part of Letters Patent No. 304,053, dated August 26, 1884.

Application filed May 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH VON DECHEND, of the city of Berlin, in the Kingdom of Prussia, German Empire, have invented a new and useful Improvement in the Process of Applying to Plaster Casts Conserving-Fluids in Atomized State, and the Apparatus Used; and I do hereby declare the following to be a specification thereof, reference being had to the accompanying drawings, forming part of this specification.

Similar letters of reference in the figures indicate corresponding parts.

The object of the invention is a new process to apply to plaster casts the hardening and conserving fluids in an improved manner, and an apparatus by the use of which the process is carried out in a convenient and superior way.

Hitherto plaster casts—as statues, groups, architectural, and similar works—are hardened or prepared and finished or conserved by impregnating and washing them with fluids of certain and different composition. For this purpose the casts are immersed into a bath or baths of the proper fluids, or impregnated and washed with them, by applying the fluids by means of brushes or sponges. Both processes give more or less defective and irregular work, and are tedious and expensive on account of the sometimes large and unhandy tanks and other arrangements necessary specially for large casts, which in many cases cannot be treated at all with these implements, and for other reasons. The new process, avoiding all these inconveniences, consists in the application to the casts of the proper fluids in form of a more or less fine rain or spray by means of a suitable atomizer. For small objects, a common atomizer, the capacity of which is in accordance with the size and extent of them, may be used in the usual way to transfer the fluids in atomized state to the casts. For larger casts, which cannot be removed from their place, or only with difficulty and with the aid of expensive arrangement, the hitherto-used atomizers of the common construction are not powerful and efficient enough to throw the atomized fluids upon these objects in sufficient quantity and in suitable time. Therefore it becomes

necessary to use for this purpose an atomizer of a peculiar construction, which allows the operator to throw at will a finer or coarser rain or spray in any desirable direction upon the cast, or to stop the stream of the fluid or that of the air, or both, and control the quantity of the ejected fluid at any moment, whereby the proposed work can be executed easily, cheaply, and properly. Such atomizing apparatus may be constructed in different ways to answer; but that described hereinafter is recommended as being in every respect a first-rate atomizer and implement to carry out the new process.

In the accompanying drawings, Figure 1 represents a vertical axial cut of that part of the apparatus which is attached to the reservoir for the fluid. Fig. 2 is a cross-section and a view of one branch of this attachment. Figs. 3 and 4 show the nozzle in an axial cross-section. Figs. 5, 6, and 7 show a nozzle of a similar but simpler construction in axial cross-sections.

The apparatus consists of two parts—the attachment A, which is screwed by the union-nut B to a nipple of the reservoir (not shown in the drawings) which contains the fluid, and which is hermetically closed. The attachment A is composed of an outer pipe, *c*, the lower end of which communicates with the air-space above the fluid, while the top part branches in the pipes *c'* and *c''*. The latter branch, *c''*, connects by a coupling, *i'*, a hose-nipple, *c''*, and a hose to an air-pump, which latter devices are not represented in the drawings. To the branch *c'* a hose-nipple, *c'*, is attached by means of the coupling *i*, which serves also for actuating the valve *x* in regard to its seat *y*, as shown in the drawings; but this regulating-valve may be placed at the nozzle, as described afterward. A flexible hose, SCH, of suitable length is attached with one end to the nipple *c'*, and with the other to a nipple, *c''*, of the nozzle D. Inside of the upright pipe *c* and branch *c'* a narrower pipe, *b b'*, is provided. The upright portion *b* extends by means of a flexible hose to the bottom of the fluid-reservoir, while its top is closed by the disk S, secured in the cross-pipe *e* of the outer pipe, *c*, the opening of which is

closed by the plug *k*. The branch *b'*, screwed into a swell, *f*, of the pipe *b*, carries the above-mentioned valve-seat *y*, and has attached to its end, and lying inside the hose SCH, a rubber pipe, *sch*, which connects with an inner pipe, *b²*, of the nozzle D. The nozzle D—the second part of the apparatus—consists of an outer casing, *c³*, lined with hard rubber, D', or another non-conducting material, and ending in an inverted cone, *l*, which forms the seat for the cock *n*. These two pieces are kept together and in close contact by the nut *a*, screwing upon the end of the shell *c³*, and a spring, *h*, Fig. 6, or by an axial screw-bolt, *v*, of the piece *n*, running through the cone *l*, and furnished with nut and washer and interposed spring, as shown in Fig. 3. Upon the end of the piece *n* is fastened the hollow cone *u*, with a central spout-hole, *p*. Inside the cock *n* is provided a hollow stem, ending in a cone-shaped swell, which leaves only a narrow concentric space between itself and the inside of the cone *u*. The stem possesses an axial hole, *o*, opening on the back part of the cock *n* sidewise through its conical portion at *m*, where it communicates with the crooked end opening, *m'*, of the central fluid-pipe, *b²*. Into the inverted cone *l* is turned a groove, and holes *r* are drilled from it through the wall of the cone *l*. Opposite to the just-mentioned groove are drilled, also, holes *s* through the wall of the conical portion of the cock *n*. The space between the shell *c³* and the pipe *b²* is therefore always in communication with the interior of the cock *n* and the spout-opening *p*. The cock *n* can be turned by means of the hand-wheel *w*. By this turning motion the openings *m* and *m'* can be brought opposite to each other, as shown in the drawings, or only partly so, or separated from each other entirely. Hereby the stream of the fluid carried through the pipe *b²* and ejected through the pipe *o*, respectively, spurting through the spout-hole *p*, can be regulated in regard to the quantity, or shut up entirely. By means of the air-pump air is forced, not only into the reservoir above the fluid, and the latter forced through the pipes *b b' sch b² o* and ejected through the spout-hole *p*, but it is forced also into and through the pipes *c c' c⁴ SCH c³*, the hollow space of the cock *n*, and out through the spout-hole *p*, mixing it-

self with the fluid, which is transformed hereby to a more or less fine spray or rain. By opening more or less the valve device *x y*, by means of manipulating the regulating-coupling *i*, the quantity of the compressed air finally rushing out through the spout-hole *p* is regulated or shut off. In the latter case the fluid will be discharged through the spout-hole *p* in a full, solid jet. By turning the cock *n* by means of the hand-wheel *w* the quantity of the ejected fluid is regulated or shut off entirely. By combining the effects of these two regulating devices the operator has it in his hands to throw a finer or coarser spray or rain upon the casts, or to wash them with a solid jet, or to interrupt the feed of the air or of the fluid. As the arrangement of the regulating device *x y* at the branch pipe *c' b'*, sometimes far off from the nozzle D, may be inconvenient, this device can be arranged at the nozzle D itself. This construction is represented in Fig. 3. The valve *x*, forming a part of the hose-nipple *c³*, is adjusted to its seat *y*, provided upon the fluid-pipe *b²*, by means of the hand-wheel Z and the ring arrangement *z' z² z³*, as is easily understood from the figure. The wheel Z, as well as the wheel *w*, is provided with a rim of hard rubber or of any other heat-non-conducting material; also the nozzle D is lined with the same material, D', which is fastened to the nozzle D by the screws *d*, to protect the hands of the operator against burning in case hot fluids are used.

After having described my invention and the means to carry it into effect, I claim as new—

1. The process of applying the preparing or hardening and the conserving or finishing fluids to plaster casts in an atomized state, as spray or rain.

2. In an atomizer, the combination of the conduits *b b' sch b² o* with the outer conduits, *c c' c⁴ SCH c³*, disk S, cock *n*, valve *x y*, and outer cone, *u*, having aperture *p*, substantially as herein shown and described.

This specification signed by me this 18th day of March, 1884.

FRIEDRICH VON DECHEND.

Witnesses:

CARL T. BURCHARDT,
B. Roi.