

(No Model.)

3 Sheets—Sheet 1.

W. PEARSON.

AUTOMATIC DISTRIBUTION OF DISINFECTING LIQUIDS.

No. 560,922.

Patented May 26, 1896.

FIG. 1.

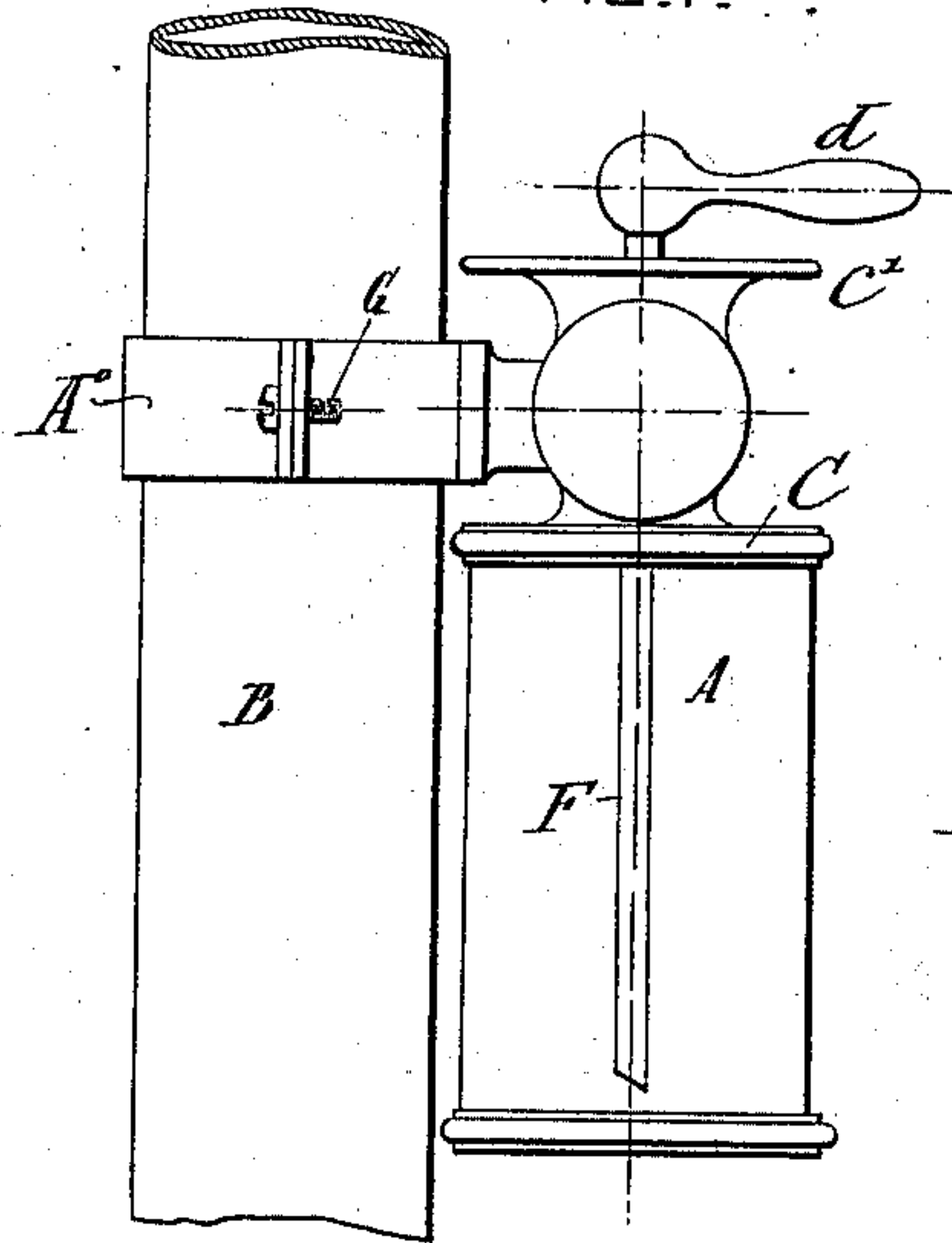


FIG. 3.

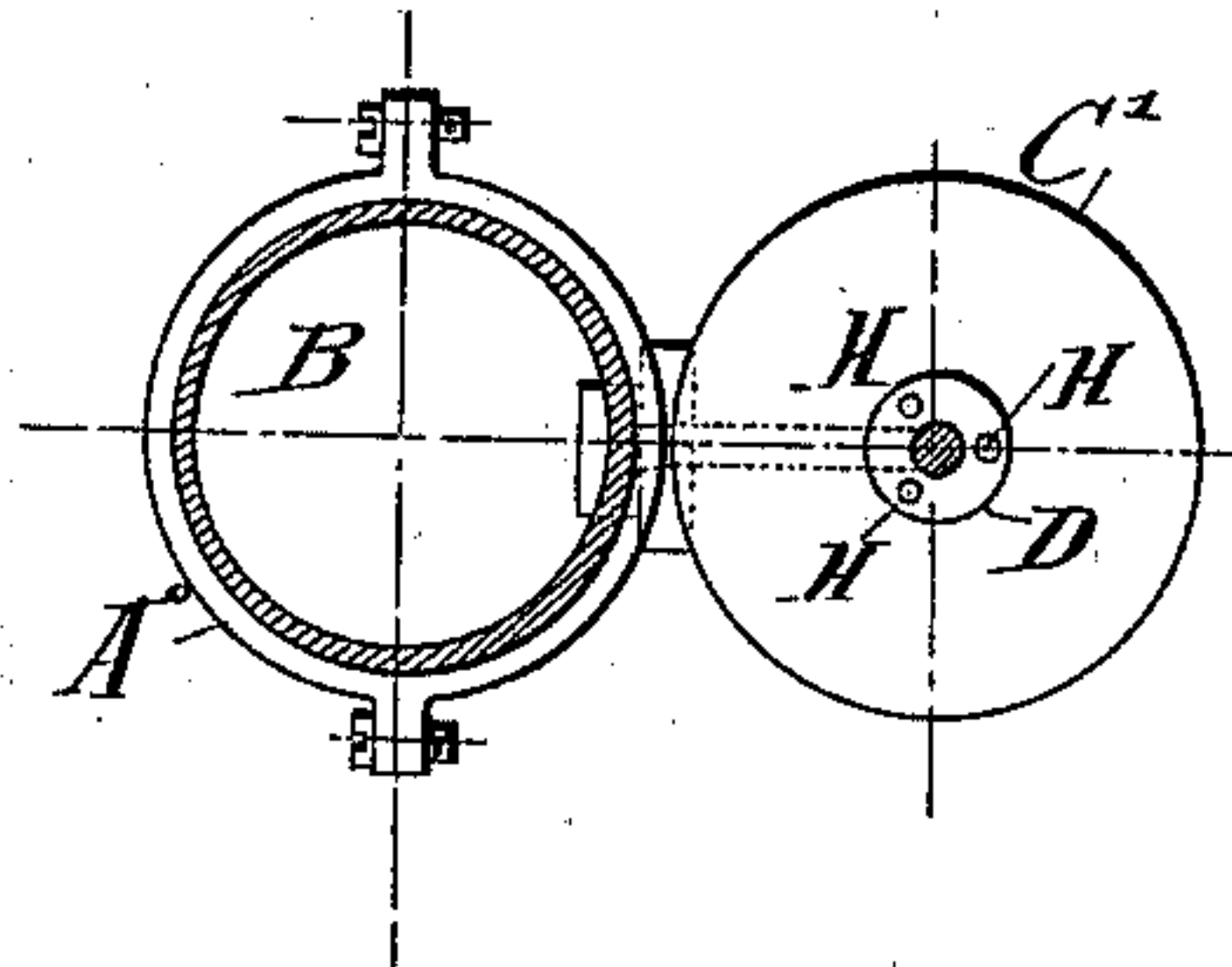
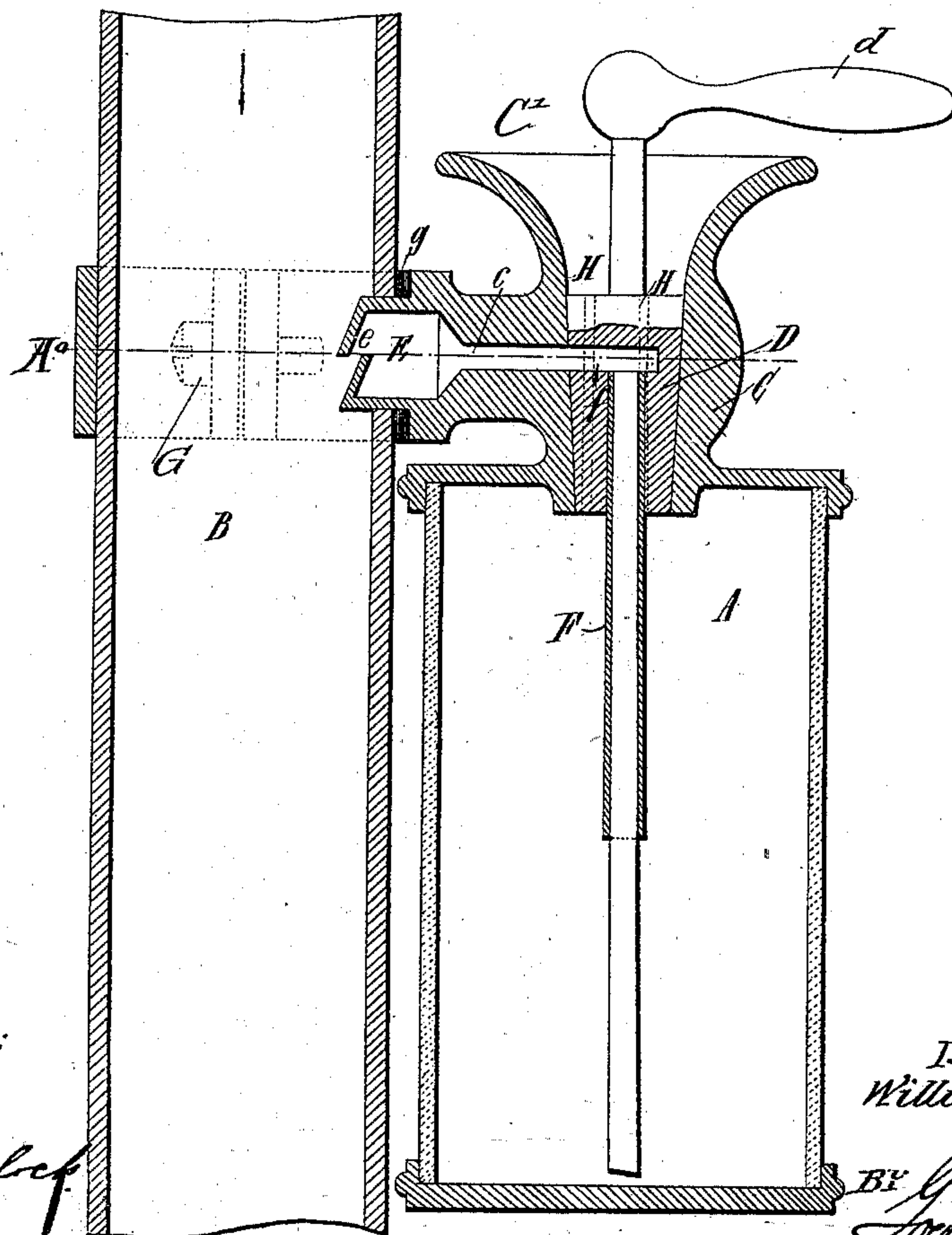


FIG. 2.



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FIG. 4.

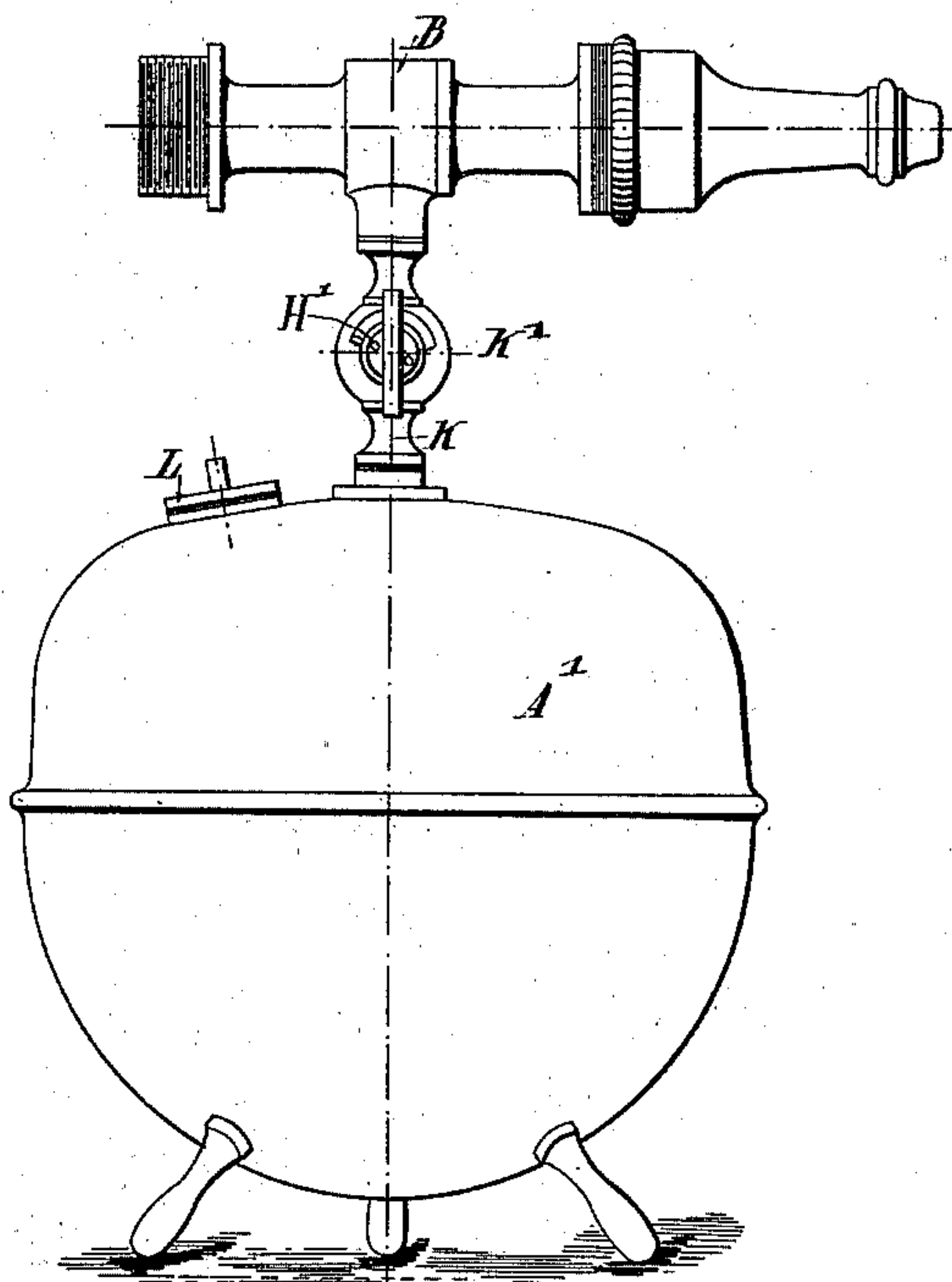
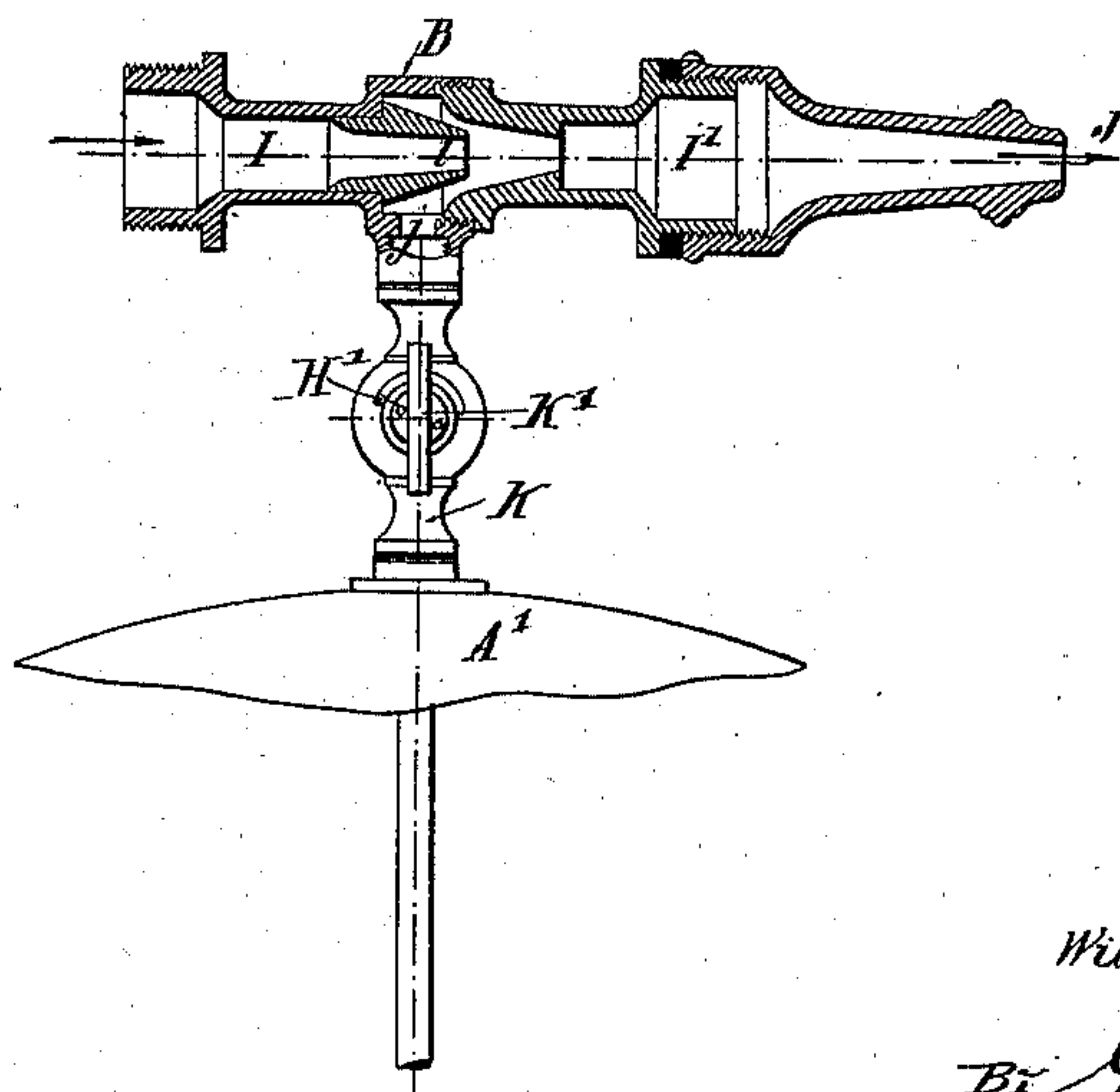


FIG. 5.



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FIG. 6.

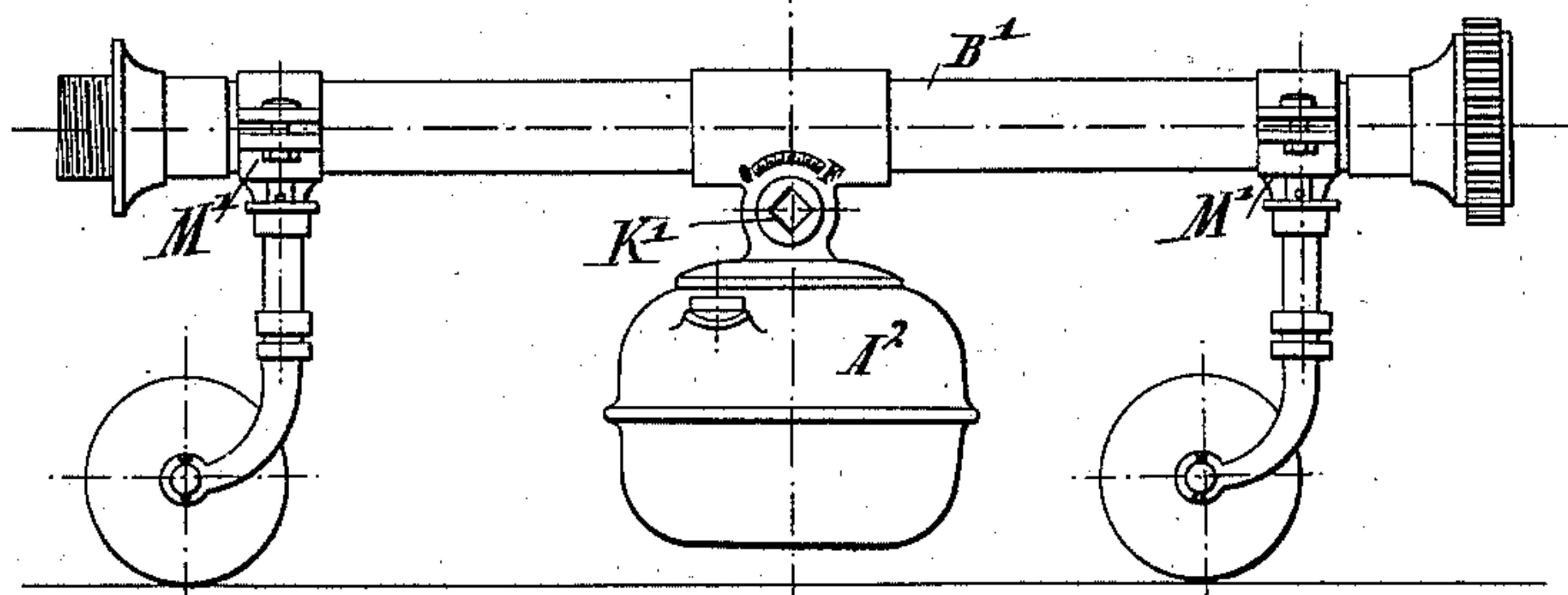


FIG. 7.

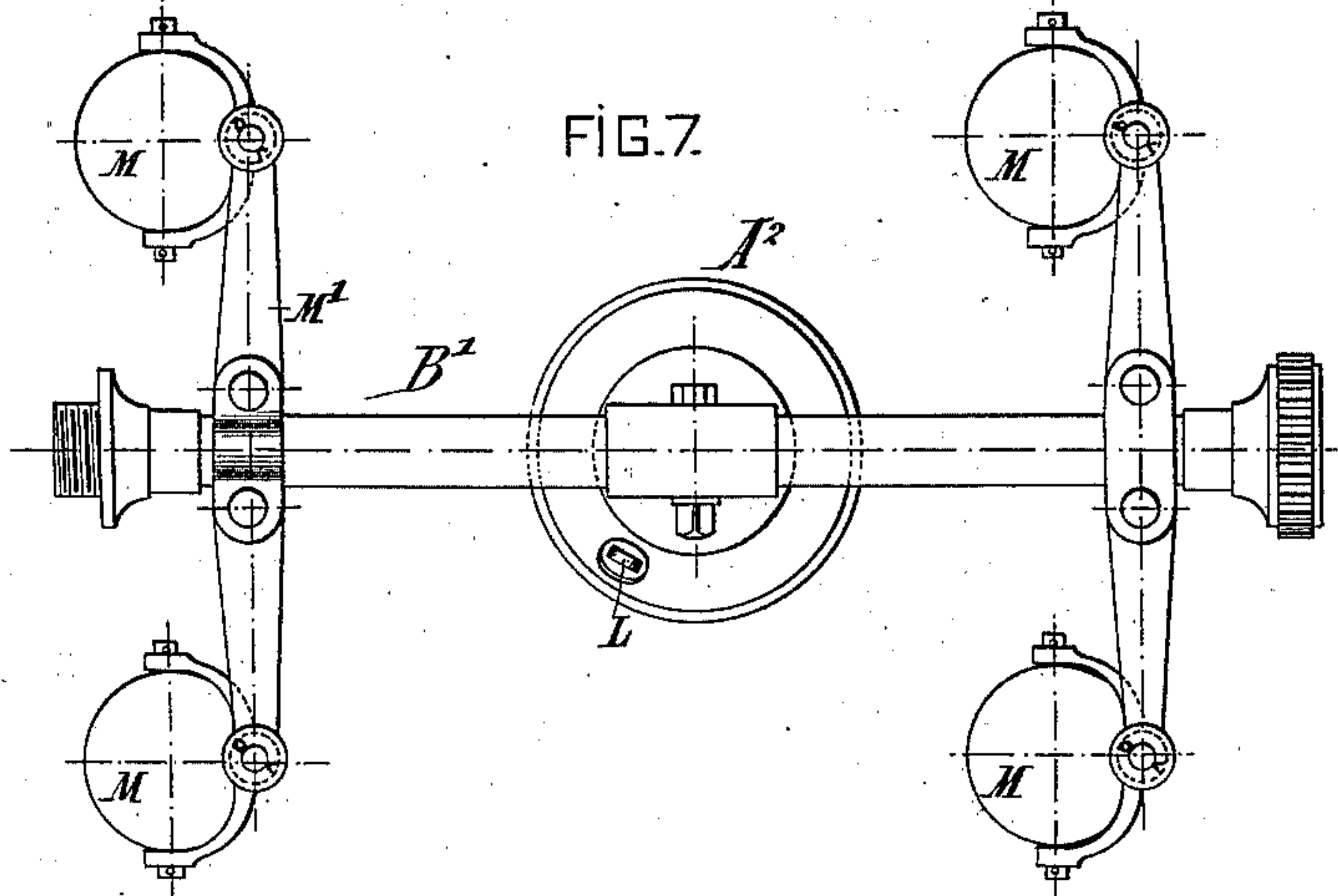


FIG. 8.

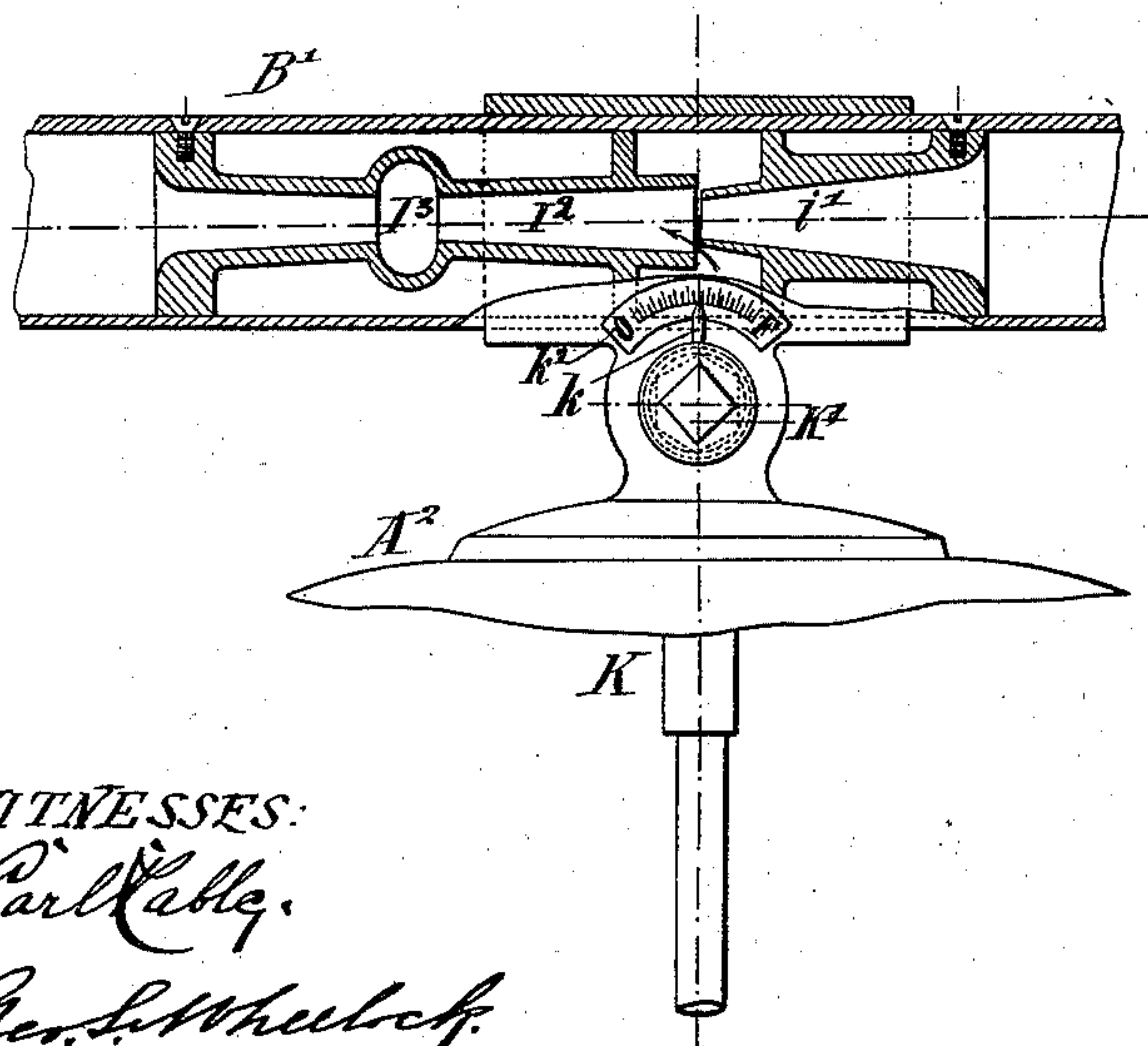
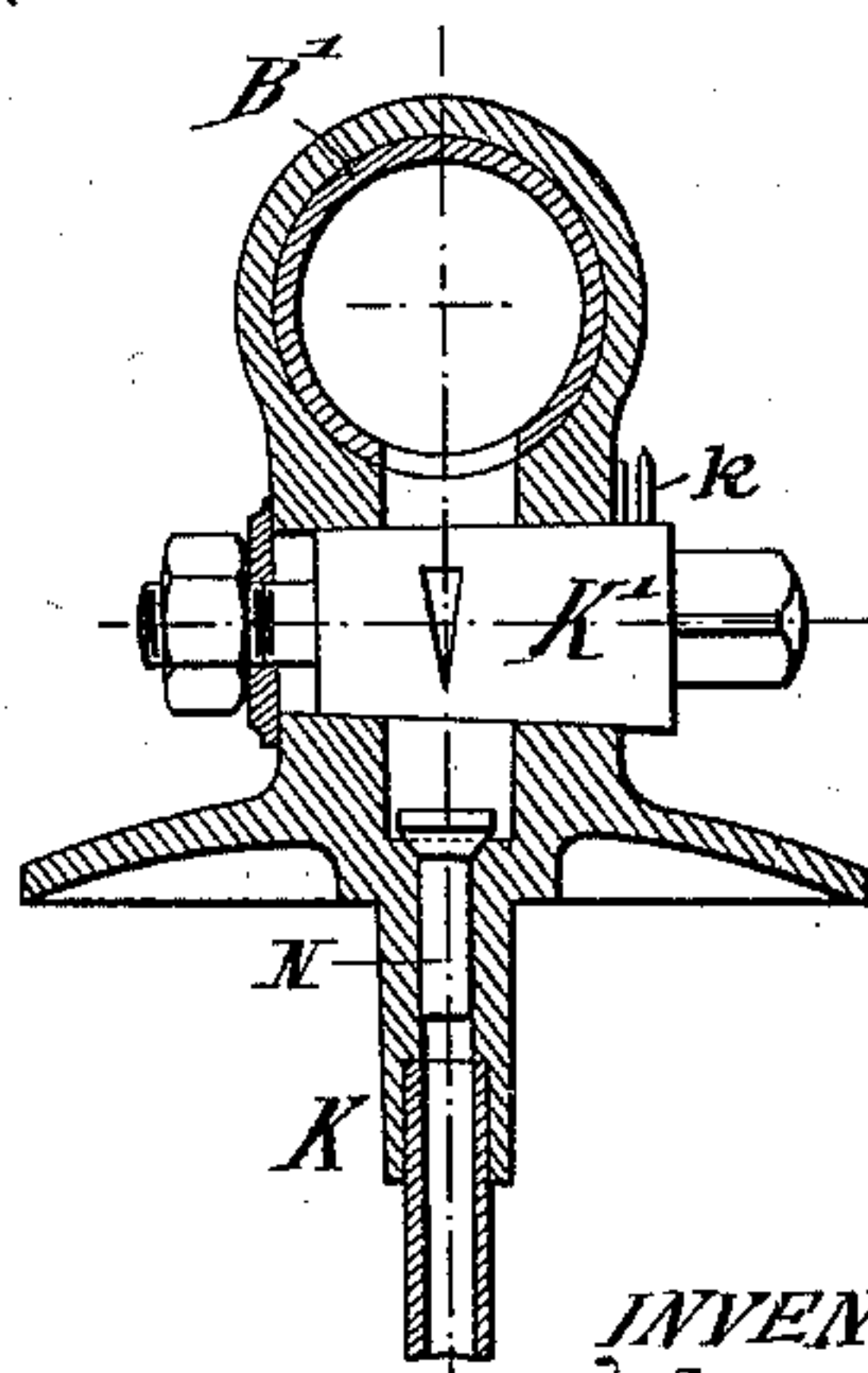


FIG. 9.



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AUTOMATIC DISTRIBUTION OF DISINFECTING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 560,922, dated May 26, 1896.

Application filed August 2, 1895. Serial No. 558,001. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PEARSON, a subject of the Queen of Great Britain, residing at Paris, France, have invented certain new and useful Improvements in Automatic Distributers for Disinfecting Liquids, of which the following is a specification.

This invention relates to an improved automatic distributor for disinfecting liquids which can be applied to sewage-pipes of all kinds whenever it is desired to disinfect the liquids drawn off. My improved automatic distributor is intended mainly for the waste-pipes of water-closets, caissons, &c., the sprinkling attachments of road-sprinklers, and for other structures or parts to which the distributor is adapted. According to the applications to which my automatic distributor is used, the form and dimensions of the same may be varied, as will be seen by the drawings forming a part of this specification, in which are represented a number of different applications of my automatic distributor—namely, first, the application of the same to the waste-pipe of a water-closet, sink, &c.; second, the application of the same on a larger scale to the waste-pipes of stable-yards, &c., and, third, the application of the same in case of a movable structure, such as are used for sprinkling of public streets and roads.

In the accompanying drawings, Figures 1, 2, and 3 represent, respectively, a side elevation, a vertical section on a larger scale, and a horizontal section on line 3 3, Fig. 1, of my improved automatic distributor applied to the waste-pipe of a water-closet or sink. Figs. 4 and 5 represent a side elevation and a detail longitudinal section of the distributor shown as arranged in a horizontal position and applied to the waste-pipe of a stable. Figs. 6, 7, 8, and 9 represent my improved distributor shown as applied to a sprinkler and in which one or more pipes are mounted on wheel-supports, so as to permit the sprinkler to direct the pipes for discharging the water.

Similar letters of reference indicate corresponding parts.

My improved automatic distributor for dis-

infecting liquids of waste-pipes is intended to supply the water that is conducted through the waste-pipes with a disinfecting liquid and is characterized by the automatic supply of the disinfecting liquid, which is contained in a suitable receiver, under the action of the suction produced on the same by the velocity with which the water or other liquid passes through the waste-pipe.

I will first describe the application of my automatic distributor applied to a vertical waste-pipe such as are used for water-closets, sinks, &c., and will then describe the other applications of the same.

The distributor shown in Figs. 1, 2, and 3 is composed of a receiver A, which is placed in proximity to and at any suitable point on the waste-pipe B. The receiver A can be made of any suitable material, but is preferably made of glass, so that the level of the disinfecting liquid in the same can be readily observed. It is closed at its upper part by a cap C, on which is mounted a funnel-shaped portion C', within which is closely fitted a plug D, which can be turned on its axis by means of a handle d. The cap C of the receiver A is connected by means of a pipe c with the waste-pipe B. The pipe c, instead of opening freely into the waste-pipe B, is formed with a chamber E, which is provided with an opening e on a level with the axis of the pipe c. The opening e, instead of opening straight into the waste-pipe B, is so arranged that it is located sidewise or laterally in the direction of the course of the water in the waste-pipe, as indicated in Fig. 2, so as to facilitate thereby the suction on the disinfecting liquid placed in the receiver A. The plug D carries a tube F, which extends into the lower part of the receiver A. This tube F is arranged at right angles to the pipe c, its upper end being in line with the pipe c, so that on turning the plug the transverse channel f at the upper end of the tube can be placed in register with the pipe c. The receiver A is supported on the waste-pipe by a ring-strap A°, which is composed of semisections that are connected by means of screws G, a suitable packing g being interposed between the waste-pipe and

the ring-strap A^o , so as to produce a tight connection between the pipe c and the waste-pipe B , as shown in Fig. 2. In the plug D are arranged perforations H , which extend from the top to the bottom of the plug, three being shown in the drawings, and which perforations connect the interior of the receiver A with the atmosphere and permit the entrance of air into the same, so that the disinfecting liquid can be permitted to be discharged into the waste-pipe by the atmospheric pressure.

In connection with the foregoing description of the distributor the functioning of the same can be readily explained.

When the current of water or other liquid passes through the waste-pipe B in the direction of the arrow, as shown in Fig. 2, the velocity of the liquid produces a partial vacuum, so that when the plug D is placed in such position that the upper channel f above the pipe F communicates with the channel c the disinfecting liquid is drawn from the receiver through the pipe F , through the channels f c into the larger chamber E , and from the same through the aperture e into the waste-pipe B , where it mingles with the liquid in the same in proportion to the velocity at which the liquid passes through the waste-pipe. The charging of the receiver A is accomplished either through the perforations H or, if preferred, by removing the plug D . It is obvious that the same distribution can be produced if the waste-pipe, instead of being vertical, as shown in Figs. 1, 2, and 3, is arranged horizontally. In this case an increased pressure, by which the liquid is forced to the waste-pipe, is required—as, for instance, in the waste-pipes of stables, courtyards, &c.—for the reason that the suction produced by the current would not be sufficient for supplying the disinfecting liquid. It is therefore necessary to connect the waste-pipe with the receiver which contains the disinfecting liquid in such a form that the velocity of the current is increased at the point of connection. This can be readily accomplished, as shown in Figs. 4 and 5, by making the suction device in the form of the apparatus known as “injectors.” The water or other liquid, according to the nature of the sewage, follows the arrow and arrives at I , Fig. 5, passes through the nozzle i , and expands in the chamber I' , and continues its course into the waste-pipe from nozzle J . The contraction of the current of liquid is produced at i' , and the expansion of the same in the chamber I' produces a vacuum in the annular space j , that surrounds the end of the nozzle i , and exerts thereby a suction on the disinfecting liquid in the receiver A' through tube K , so that a certain proportion of disinfecting liquid is mingled with the liquid drawn off through the waste-pipe. The quantity of disinfecting liquid which passes through the tube K is regulated by the stop-cock K' . The receiver A' is provided with an opening and screw-plug

L , through which the disinfecting liquid is introduced into the receiver. This plug is provided, like the plug D in the apparatus shown in Figs. 1, 2, and 3, with air-holes H' , so that atmospheric pressure can act on the liquid in the receiver A' .

The sprinkling of streets and roads is effected in many cities by means of metallic pipes which terminate in nozzles that can be moved in any direction, so as to direct the jet of liquid supplied by the pipes to any suitable point. Figs. 6 to 9 show the application of my improved distributor to such a sprinkler, in which the same is applied to the pipes of the movable sprinkler. In this case B' represents the pipes, which are mounted on horizontal supports M' , which are carried on spherical rollers M . The receiver A^2 , of metal or other suitable material, is suspended from the pipe B , as shown in Fig. 6, at the top of the receiver. On the pipe B an injector is arranged, which consists, as in the arrangement shown in Fig. 5, of the conical nozzles i' I^2 , the latter being provided with an enlarged chamber I^3 , as shown in Fig. 8, so as to produce, by the increased velocity imparted to the liquid, the suction on the disinfecting liquid in the receiver A . The proportion of the disinfecting liquid is regulated by a stop-cock K' , that is provided with a pointer k , that moves along a graduated scale k' , so as to facilitate the correct setting of the stop-cock. For the purpose of preventing the filling of the receiver A^2 with water or other liquid when the sprinkling operation is to be discontinued, or when the supply of water is arrested, a check-valve N is arranged in the suction-tube K , as shown in Figs. 8 and 9, which shuts the interior of the receiver from the pipe B in such a manner that it permits the escape of the disinfecting liquid, but prevents the entry of any other liquid into the receiver. The charging of the receiver A^2 is accomplished, as in the previous case, through an opening and screw-plug L , which is arranged on the upper part of the receiver, as shown in Figs. 6 and 7.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a main pipe through which passes a current of liquid, of a receiver containing a disinfecting liquid, said receiver being mounted on the pipe and connected therewith by a suitable aperture, a suction-tube extending into the receiver, an adjustable stop-cock in said suction-tube, an injector arranged in the main pipe and connected with the suction-tube, said receiver being provided with a perforated plug adapted to permit the disinfecting liquid to be acted on by the atmospheric pressure.

2. The combination, with the main pipe, of a receiver mounted on the same and connected therewith by a suitable aperture, an injector located in the main pipe and com-

municating with the suction-tube in the receiver, an adjustable stop-cock between the suction-tube of the receiver and the waste-pipe, and a check-valve in the suction-tube
5 of the receiver below the stop-cock, substantially as set forth.

In testimony whereof I have signed this

specification in the presence of two subscribing witnesses.

WILLIAM PEARSON.

Witnesses:

CLYDE SHROPSHIRE,
JOSEPH LECORTE.