

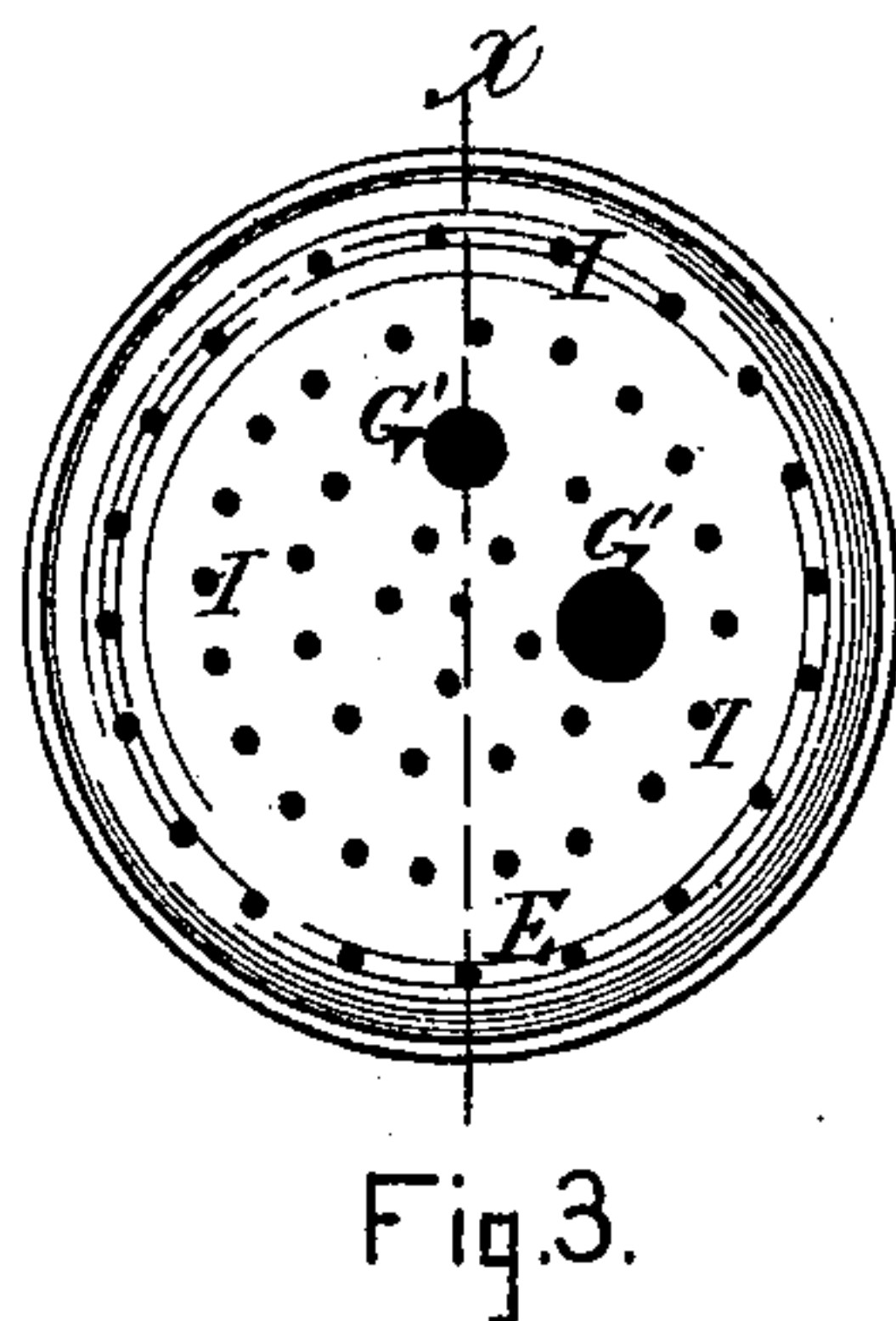
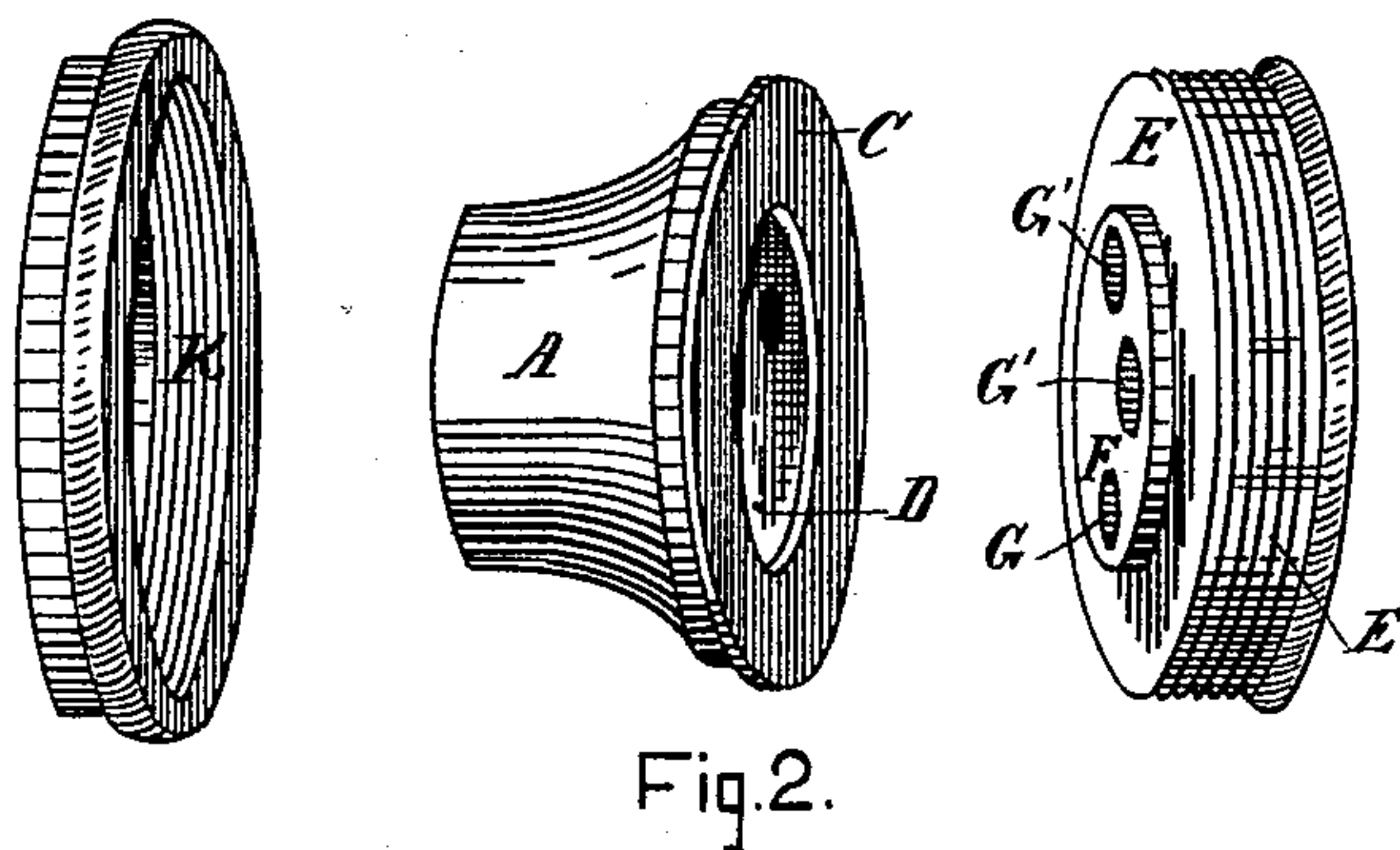
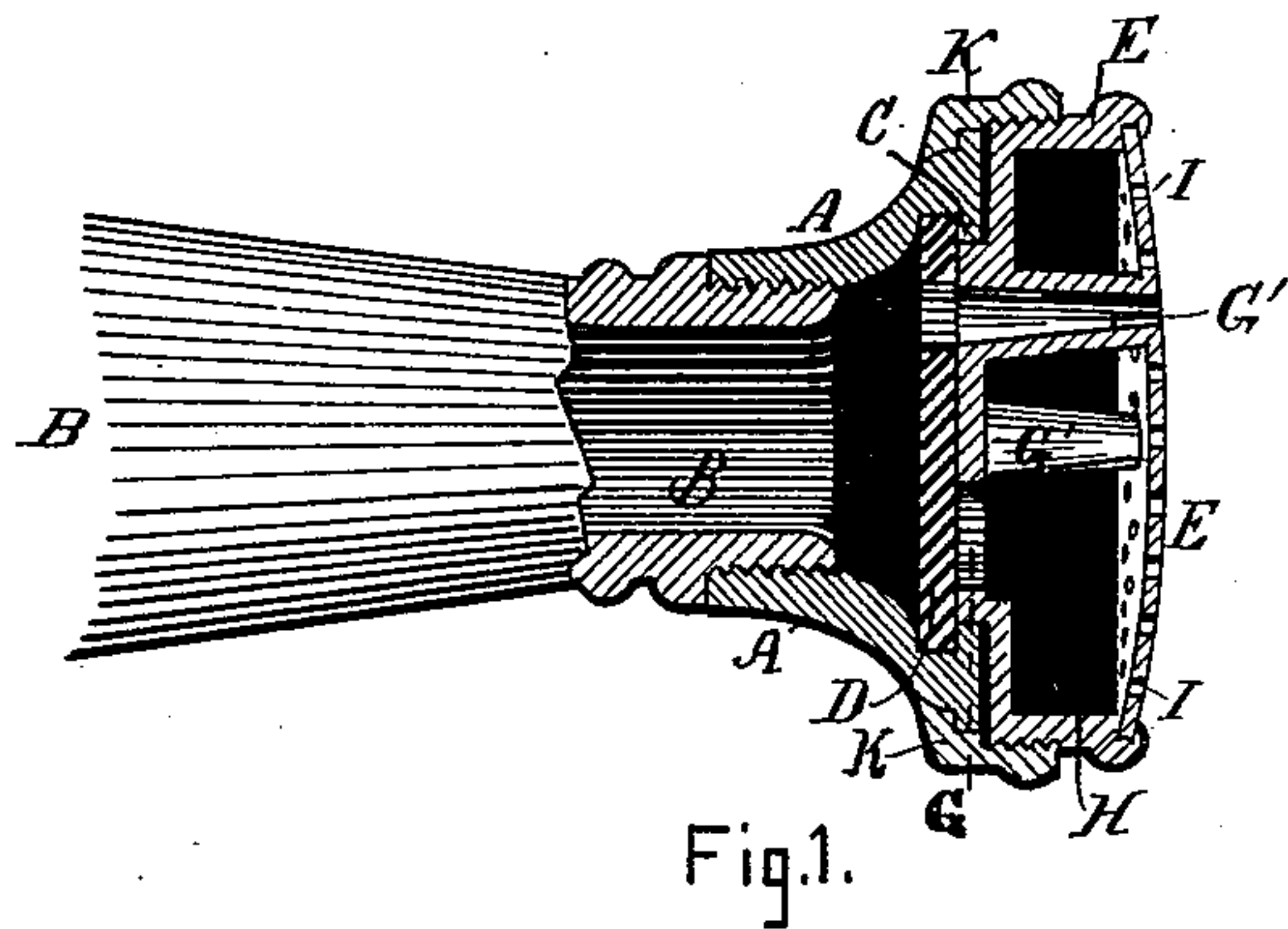
(Model.)

F. E. HALL.

HOSE NOZZLE.

No. 246,673.

Patented Sept. 6, 1881.



Witnesses.  
C. G. Rye  
E. A. Phelps.

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# UNITED STATES PATENT OFFICE.

FRANK E. HALL, OF NEWTON, MASSACHUSETTS.

## HOSE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 246,673, dated September 6, 1881.

Application filed January 31, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, FRANK E. HALL, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Hose-Nozzles; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

My invention relates to a nozzle or sprinkler arranged to discharge at will, without a cock or a ground joint, and through a smooth disk or head, a stream of a desired size, or numerous small streams constituting a spray.

A distinguishing peculiarity of my improvement is an eccentrically-perforated disk, preferably of vulcanized rubber, held self-packed by the water-pressure in a flanged chamber in rear of the sprinkler.

Another novel feature is the sprinkler disk or head, having two or more tubes running entirely through it from front to rear, and numerous minute perforations through its face into an interior recess, which has a single opening connecting it through the rear wall with the disk in the flanged chamber, said opening and said tubes being about equidistant from the axis and arranged to come separately and successively before the single perforation through the rubber disk.

These two essential parts of my apparatus are united by a threaded flange, either a separate clamping-ring, as shown in Figs. 1 and 2, or formed integral with one of the parts and arranged to screw onto the other.

The parts and combinations of parts original with me are specified in the appended claims.

The drawings represent a nozzle embodying the various features of my invention, Figure 1 being a longitudinal section through the device; Fig. 2, a perspective view of the parts detached, and Fig. 3 a front view of the sprinkler-head.

In the drawings, A is a flaring chamber, formed with a screw-thread for attachment to a tube or hose-pipe, B.

C is a flange, formed integral with the chamber A, and partially closing its outer end.

D is a flexible disk, by preference pure packing sprung through the central opening in the flange C into the chamber A, and having a

single perforation large enough only for the passage of the largest stream desired, and located out of the center, about as shown.

E is the sprinkler-head, preferably a hollow casting, and having a cylindrical hub, F, on its rear face to enter and approximately fit the opening in the front of the chamber A, so as to prevent serious leaks by the contact of the disk with the face of the hub. Such contact, enforced by the pressure of the water, prevents escape of the liquid, except through the holes provided for it.

Two or more openings are formed in the hub eccentric to its axis, one, G, leading into the hollow interior H of the head, and the other or others, G', extending as a tube or tubes of varying caliber entirely through the head, that the water may be discharged from them through the outer face. Said face has also numerous minute perforations, I I, through it into the hollow interior, so that the water entering this recess through the opening G will escape as a spray through such perforations.

The hub F on the head E is not indispensable, for the rubber disk D may be formed to protude through the opening in the flange C, or a flat disk of moderate thickness will curve forward under the ordinary water-pressure, and will come in contact with the plane rear face of the head E, unless the flange C is excessively thick. Escape of the water, except through the proper openings, will therefore be prevented.

The chamber A and the perforated head E are shown as held together by means of a threaded and flanged ring, K, which is slipped on over the small end of the chamber A, and screwed upon the head E; but, if preferred, the ring may be slipped over the part E and screwed upon the part A, suitable changes in shape or size being made.

From the above description it will be obvious that by simply rotating the head E and ring K together the water will be shut off when the solid parts of the head or hub are in front of the perforation in the disk D, and when the apertures G or G' come before it the water will escape either through the tubes running from the apertures G' G' or through the perforations I I from the recess H and opening G. The aperture in the disk being at one



side of the center, the several openings G G', each at an equal distance from the center, will, by the rotary movement, come into line with said aperture. The disk is not clamped between movable plates at all, but lies loosely in the chamber A, held by the water-pressure in close contact with the flange C and hub F or head E. Leaks are thus effectually prevented without any ground joints, and tapering or other cocks are entirely dispensed with. The simplicity and perfection of my apparatus are apparent.

I am aware that the patent to Bowen, granted October 13, 1874, shows and describes a sprinkler-head having a rigid singly-perforated casting rotated within it by a cog-wheel on the inner end of a projecting shaft, or held tightly against the hollow cap by an inclosed spiral spring. I disclaim such construction as foreign to my invention.

I claim as of my invention—

1. The flanged chamber A C and the eccentrically-perforated disk D, of flexible material, held self-packed by the water-pressure within said chamber, in combination with the hollow sprinkler-head E, having numerous minute perforations in its front face, a water-inlet in its rear face, and one or more tubes running directly through from rear to front, said inlet

and tubes being equidistant from the axis with the perforation in the disk D, for the purpose set forth.

2. The chamber A, and the flexible disk D inclosed therein, held stationary with relation to said chamber, and having a single perforation aside from its center, in combination with the hollow head E, perforated and tube-traversed, as described, having two or more water-inlets in its rear face, and arranged to be rotated upon the chamber A so as to bring said inlets successively before the perforation of said disk, for the purpose set forth.

3. The combination, in a hose-nozzle, of a hollow tube or chamber, a flexible transverse disk, having a single perforation eccentrically arranged as a water-way, and a hollow head adapted by rotation in front of and in contact with said disk to throw either a spray or a solid stream or to shut off the flow altogether, the direct water-pressure serving to pack the joint and prevent leakage, substantially as set forth.

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

FRANK E. HALL.

Witnesses:

E. A. PHELPS,  
A. H. SPENCER.