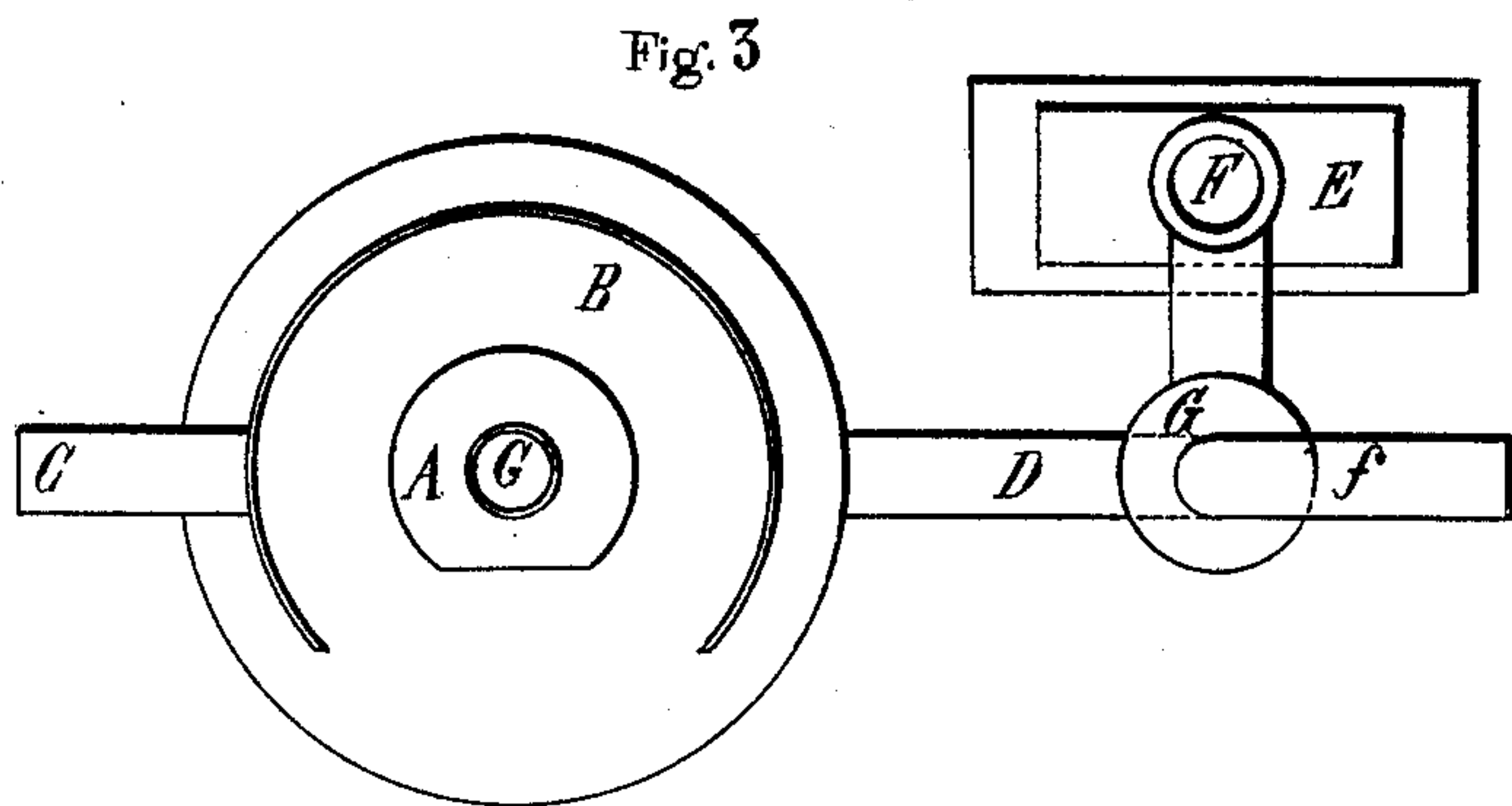
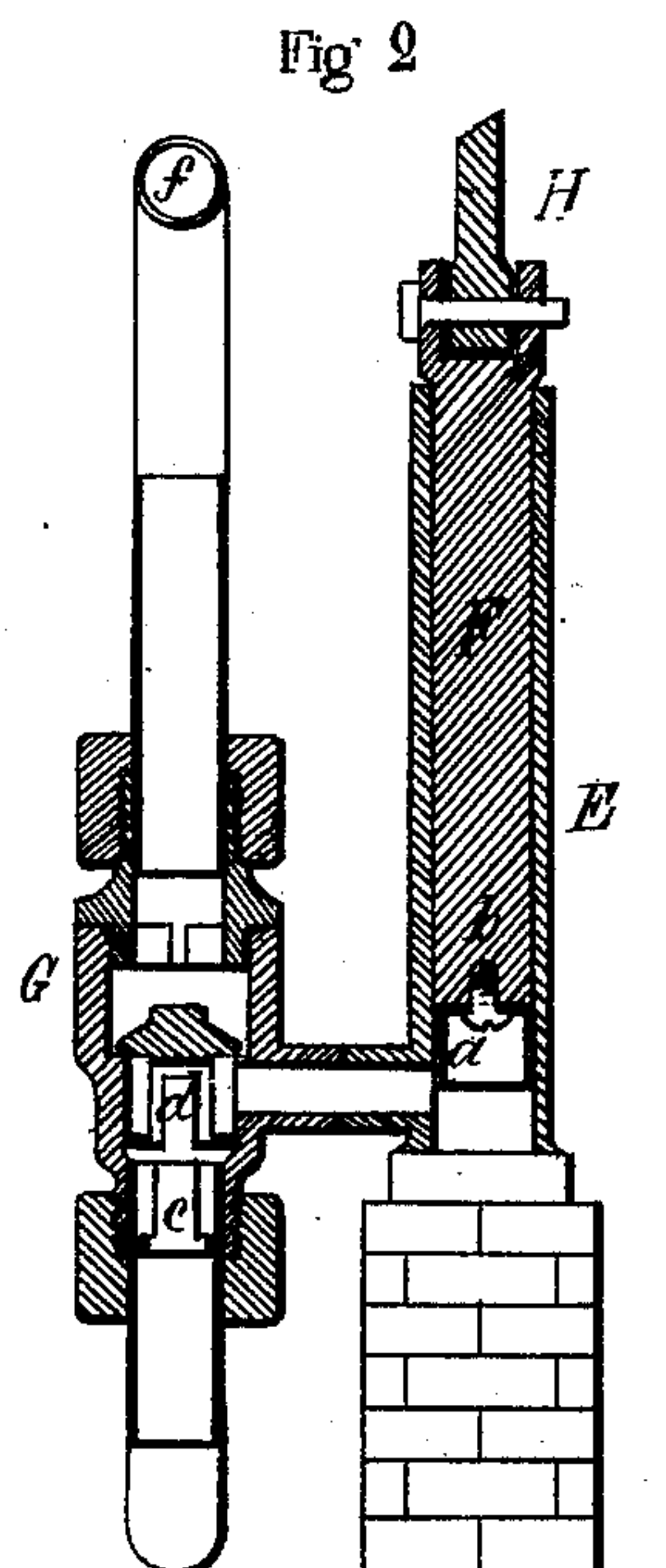
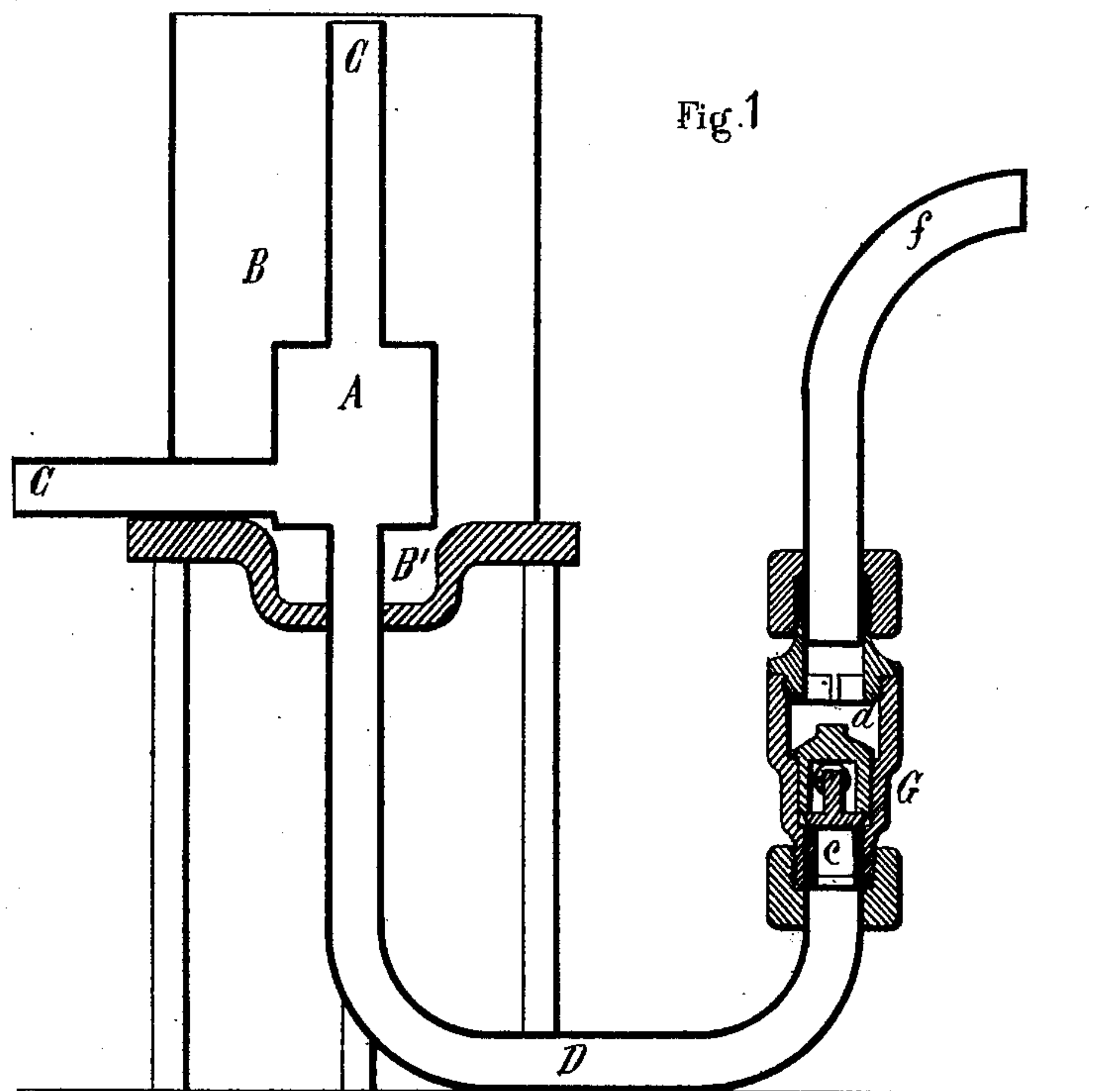


A. F. CARON & E. JULIEN.  
Steam-Condenser.

No. 220,054.

Patented Sept. 30, 1879.



Witnesses.

J. H. Chumray.  
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Inventors

By atty.

John S. Earle

# UNITED STATES PATENT OFFICE.

ADOLPHE F. CARON AND EDWARD JULIEN, OF PARIS, FRANCE.

## IMPROVEMENT IN STEAM-CONDENSERS.

Specification forming part of Letters Patent No. **220,054**, dated September 30, 1879; application filed January 21, 1879; patented in France, May 4, 1878.

*To all whom it may concern:*

Be it known that we, ADOLPHE FRANÇOIS CARON and EDWARD JULIEN, of Paris, France, have invented a new Improvement in Steam-Condensers, (patented in France, May 4, 1878;) and we do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification.

Our invention consists in an improved system for condensing vapor in machines, or vapor in general.

By our system there is no waste of water, the exhaust-steam is entirely condensed, it is always the same water which forms the vapor that works upon the piston of the motive power so condensed, and it is returned to the generator for being converted anew into vapor.

In the annexed drawings, our condenser is represented in vertical section, Figure 1. It is composed of a receiver, A, of copper or other metal, supported in the center of a tank, B B', filled with water. The part B' represents a depressed chamber in the bottom of the receiver.

The water in the tank should be at a temperature so as to produce good condensation, as the water of the condenser must be cooled below 100°.

The receiver A is provided with one or more tubes, C, which open above into the atmosphere. These tubes are provided at their upper ends with perforated covers to prevent the

entrance of foreign bodies. The tubes C in the condenser perform the part of regulating the condensation.

In our machine the condensation is so complete that no vapor escapes to the upper part of the tube C.

The condensed water returns by the pipe D, and returns to the pump of the generator. (Represented in longitudinal section, Fig. 2, and in plan view in Fig. 3.) It is composed of a cylinder, E, in which is a piston, F, provided at its lower end with a hard india-rubber inverted-cup-shaped packing, *a*, fastened by a screw, *b*. The cylinder E communicates with the valve-box G, which has the inlet-valve *c* and the outlet-valve *d*. The water comes from the condenser by the pipe D, and is forced by the pump through the pipe *f* into the generator.

The piston F is operated by a pitman, H, which receives its motion from any suitable power.

We claim—

The combination of the tank B, arranged in the receiver A, having inlet *c*, outlet *d*, open tube C, pump E, and intermediate valves, G, substantially as and for the purpose described.

In testimony whereof we have signed our names to this specification before two subscribing witnesses.

A. F. CARON.  
EDW. JULIEN.

Witnesses:

ROBT. M. HOOPER,  
CHARLES MARDELOT.