

(Model.)

L. B. FULTON.

EJECTOR.

No. 281,050.

Patented July 10, 1883.

Fig. 1.

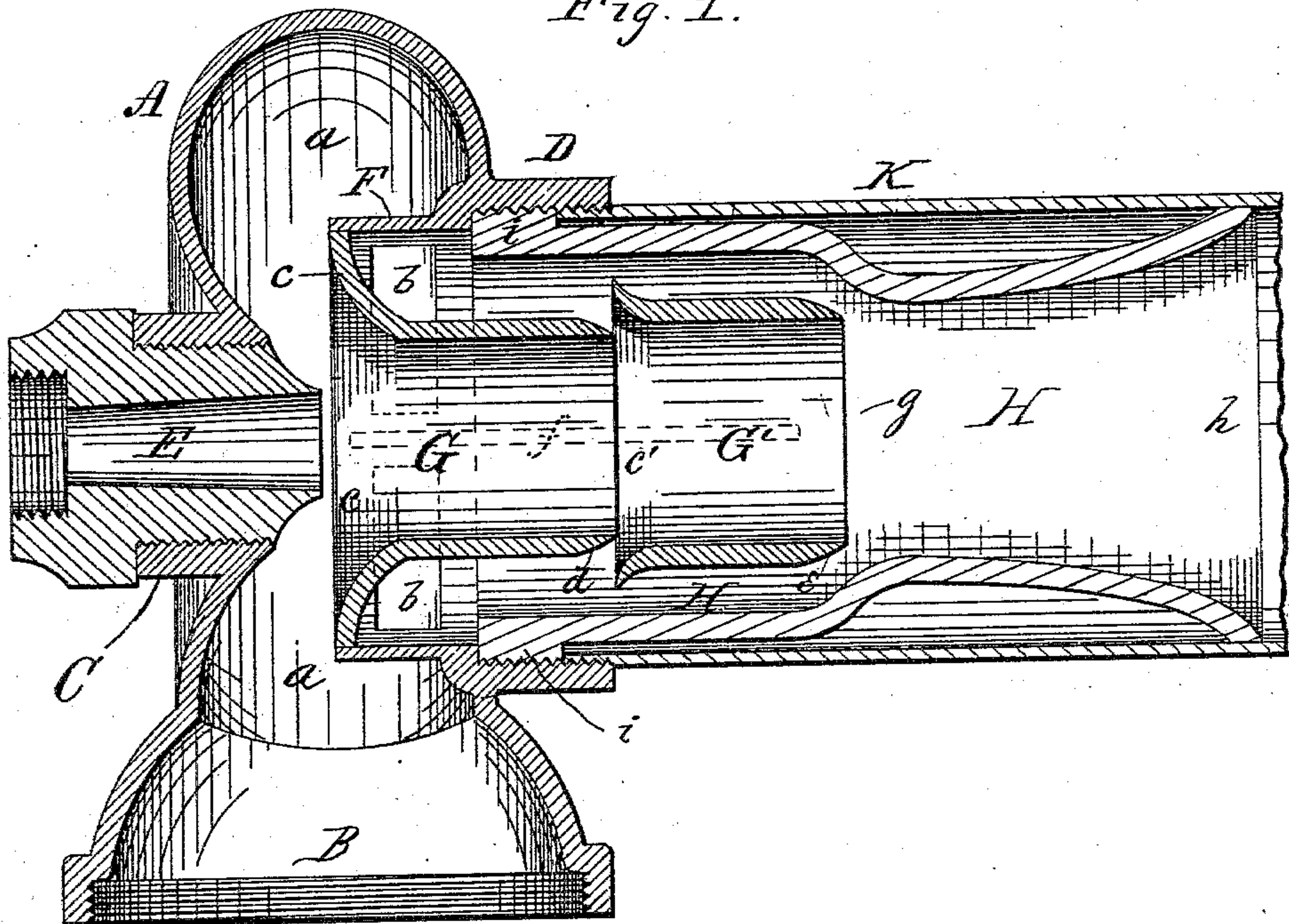
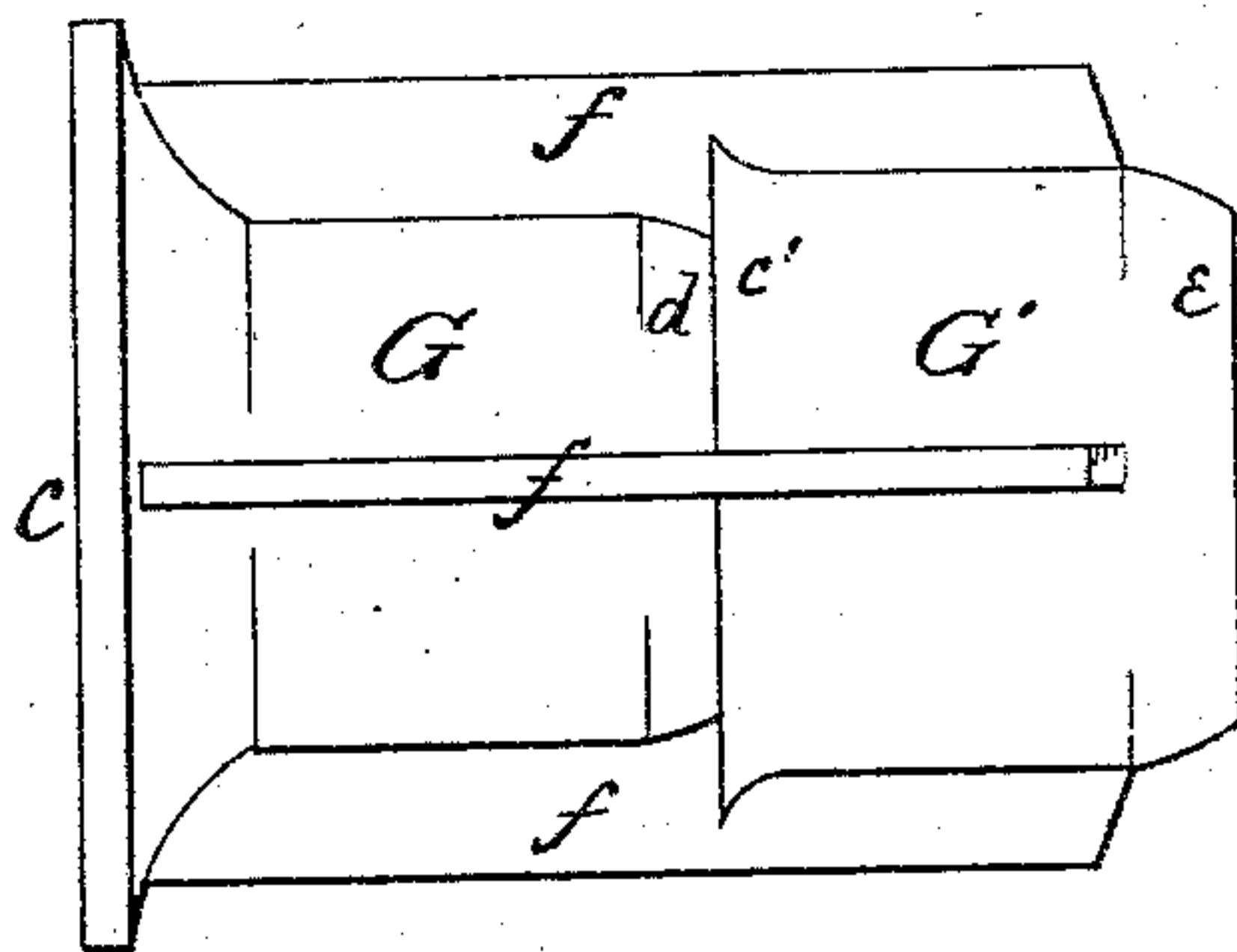


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS B. FULTON, OF PITTSBURG, PENNSYLVANIA.

EJECTOR.

SPECIFICATION forming part of Letters Patent No. 281,050, dated July 10, 1883.

Application filed July 30, 1881. (Model.)

To all whom it may concern:

Be it known that I, LOUIS B. FULTON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain
5 new and useful Improvements in Ejectors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to
10 which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a longitudinal vertical section of my ejector complete. Fig. 2 is a side ele-
15 vation.

My invention relates to ejectors, and has for its object the economical use of steam by such construction as will greatly increase the amount of work which ejectors or steam-siphons are
20 at present capable of doing.

The invention consists in the arrangement, construction, and combination of parts, substantially as hereinafter fully described and
claimed.

25 In a patent granted to me August 31, 1880, No. 231,789, I have shown a peculiar form of siphon-head, it being of an annular or flattened spherical shape. In the present case I adopt the same flattened spherical head A, having
30 the annular water-induction space or supply-chamber *a*, the induction-opening B, a branch, C, for the steam-nozzle, and a branch, D, for the attachment of the combining-tube and discharge-pipe. Both branches C and D are of
35 course on the axis of the shell or head A. The rear wall of the head A sweeps forward, as in my said former patent, and the branch C is fitted with the steam-nozzle E, as shown, projecting slightly within the head A. Inside the shell
40 or head A, opposite the nozzle E, I cast the cylindrical wall or partition F, having the lateral openings *b*. Wall F is concentric with the axis of the head A. The combining-tube G has the flange *c* fitting in the mouth of the
45 cylinder F, whence it contracts inwardly, allowing access of water from chamber *a*, through openings *b*, to the space surrounding the tube G. Tube G may be made single; but I prefer to make it double, so casting it that about the
50 middle it enlarges and forms a second tube, G', with bell-mouth *c'*, and increased internal

diameter, the end of tube G being beveled outside, as shown at *d*. The end of tube G' is likewise beveled, as at *e*. An auxiliary combining-tube, H, is made cylindrical at its
55 mouth to receive the tubes G G', one or both, they being provided with the ribs *f* to properly center them and retain them in place. About in line with the end *e* of tube G' the auxiliary tube H contracts at *g* to an internal
60 diameter slightly greater than that of the tube G', whence it gradually expands in an easy curve to the delivery end *h*. Tube H has the threaded enlargement *i* for attachment to branch D, to which also is attached the dis-
65 charge-pipe K. In fitting together I prefer to fit the ribs *f* neatly to the cylindrical part of tube H, and then drive the tubes G G' home.

Instead of the complete cylinder F, I can support the bell of tube G in lugs projecting in-
70 wardly, like the cylinder.

Operation: Steam entering at nozzle E tends to produce a vacuum in chamber *a*, and water rises through opening B, comes in contact with
75 it, and condenses it at once, at the same time acquiring velocity and being projected on through tube G. The end *d* of tube G being smaller than the tube G' tends to produce a vacuum in the mouth *c'* of the tube G', and
80 hence water from chamber *a* rushes through the openings *b* into the annular space between tube G and tube H, and thence into tube G. This action is duplicated at the end *e* of tube G', and draws water through between *e* and *g*.
85 Finally all the water is ejected into the discharge-pipe in a solid stream.

It will be observed that openings *b* are situated directly above or in line with the induction-opening B, so that in producing the auxiliary effect at *d* and *e* the friction is as little
90 as possible. The steam is all condensed at the tube G, and the work performed at *d* and *e* is done by the column of water rushing there-through, the velocity of course being reduced by the expenditure of energy at those points.
95 I find that by thus condensing all the steam at once in the creation of speed in the discharging-column, and then utilizing a part of the speed and momentum in drawing and forcing
100 more water, the total amount of steam required is much less than where no such auxiliary action is present.

I claim as my invention—

1. In a water-ejector having the threaded
eduction-branch D, the combination therewith
of tube H, having cylindrical mouth, threaded
5 enlargement *i*, and contracted throat *g*, with
the main combining-tube G or G' G', having
ribs *f*, fitting in and supported by the tube H,
both said tubes having independent commu-
nication with the supply-chamber, substan-
10 tially as described.

2. In an ejector, the combination of head A,
having branches B, C, and D, nozzle E, cylin-

der F, having openings *b*, tube G, having
flange *c* and ribs *f*, and tube H, having en-
largement *i*, and contracted throat *g*, substan- 15
tially as described.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
presence of two witnesses.

LOUIS B. FULTON.

Witnesses:

A. V. D. WATTERSON,
T. J. MCTIGHE.