(No Model.) 2 Sheets—Sheet 1.

J. P. MASON.

VACUUM BLOWER FOR FURNACES.

No. 266,378. Patented Oct. 24, 1882.

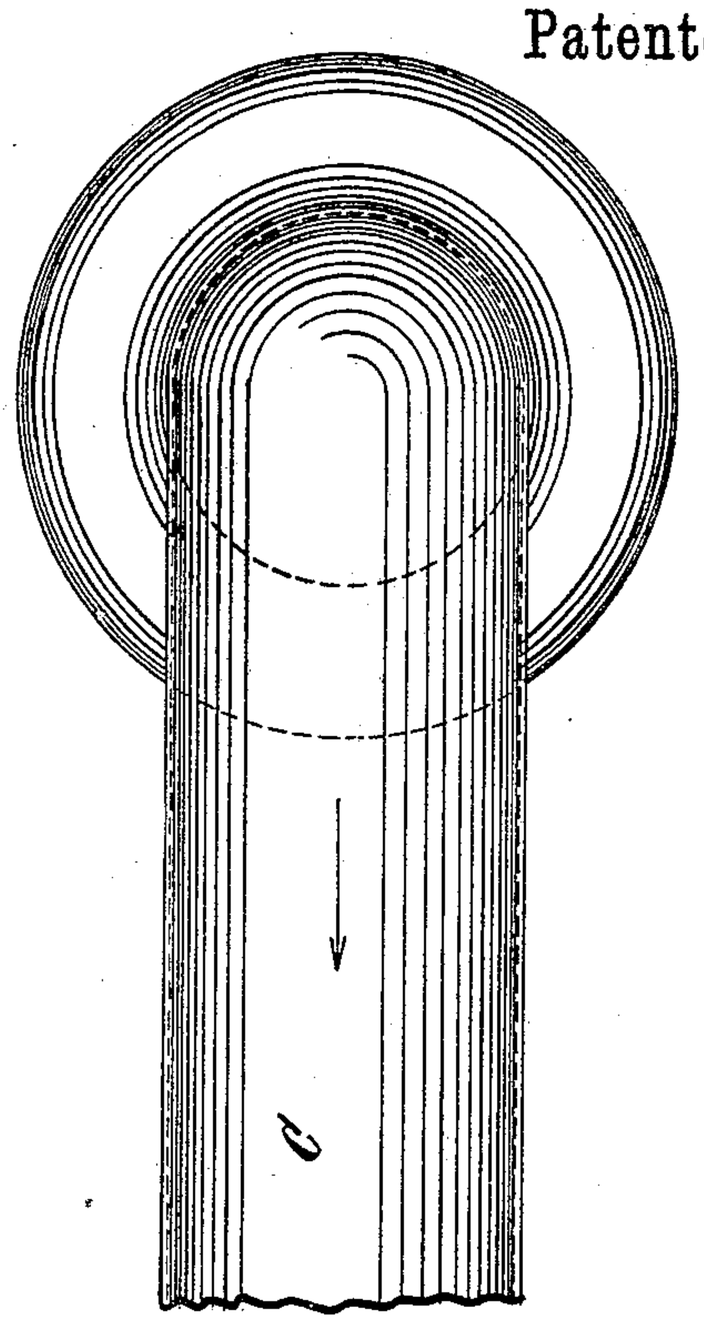
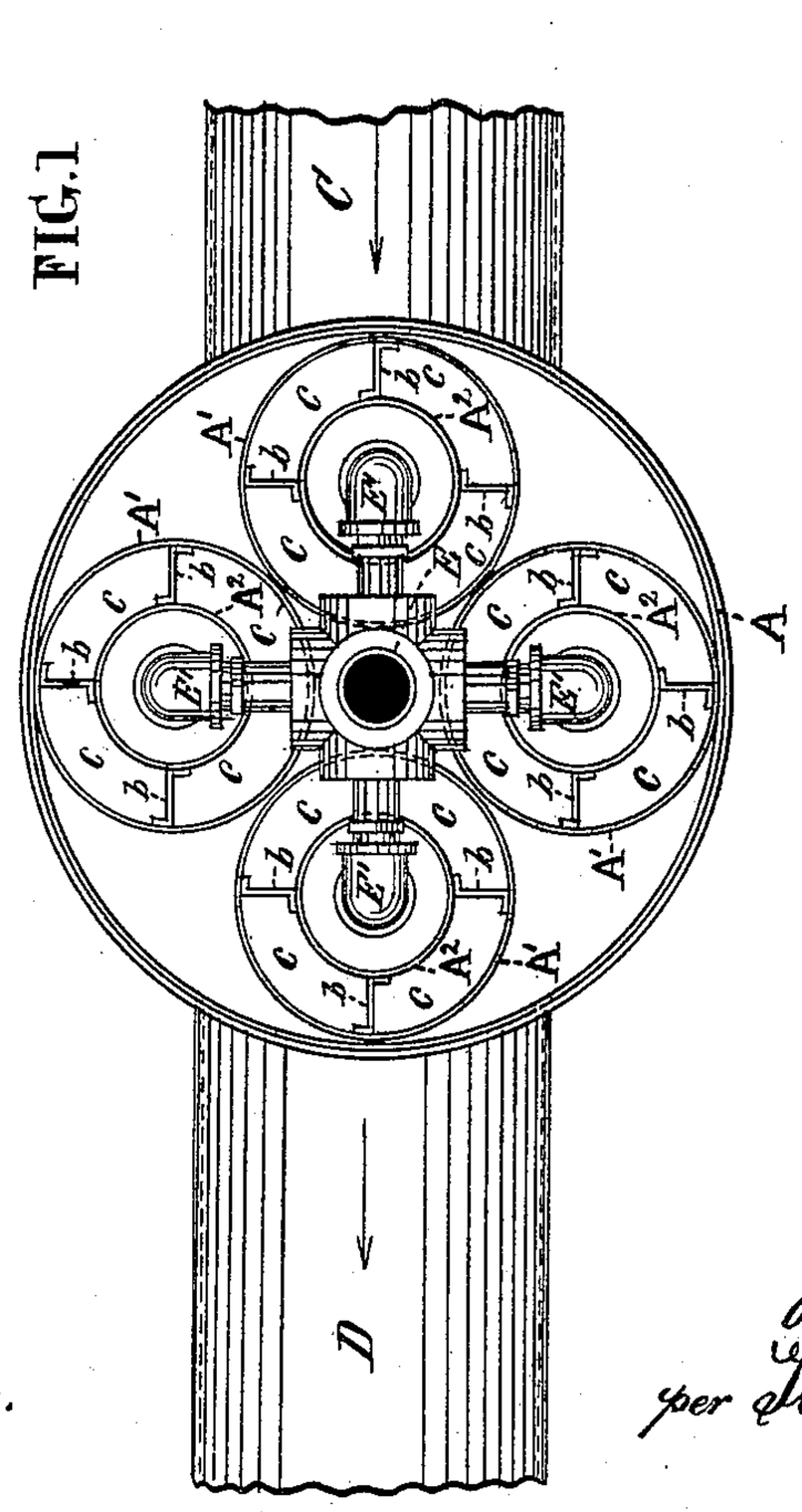


FIG. 1



Witnesses.

Thomas J. Bewley.

Chas. A. Dray.

Inventor.

James P. Mason.

per Stephen Ustick atty

(No Model.) 2 Sheets—Sheet 2.

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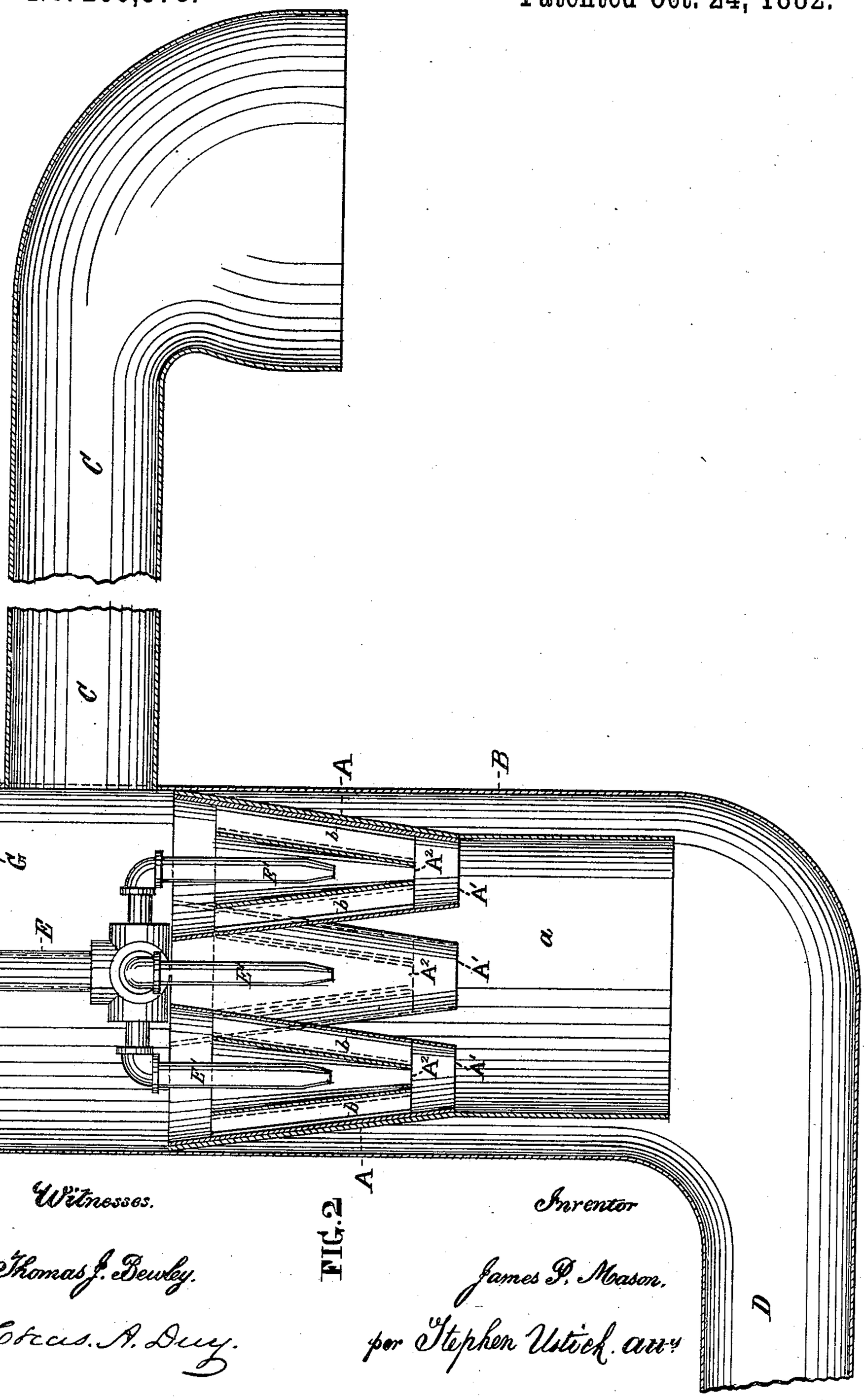

FIG. 2

Witnesses.

Thomas J. Bewley.

Chas. A. Dury.

Inventor

James P. Mason.

per Stephen Ustick. atty

UNITED STATES PATENT OFFICE.

JAMES P. MASON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FREDERICK T. WEED, OF SAME PLACE.

VACUUM-BLOWER FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 266,378, dated October 24, 1882.

Application filed January 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. MASON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Vacuum-Blowers for Furnaces, &c., of which the following is a specification.

The nature of my invention consists in the combination of one or more funnels with a surrounding case having an air-inlet pipe and a blast-pipe, and with a steam-pipe which discharges one or more jets of steam into the said funnel or funnels, as the case may be, whereby to create a vacuum or vacuums within the same, and thus cause a suction through the inlet-pipe into the case to create the blast, as hereinafter fully described.

In the accompanying drawings, which make a part of this specification, Figure 1 is a plan view of my improved vacuum-blower with the cover G removed from the case B. Fig. 2 is a vertical section with the cover G in position.

Like letters of reference in both figures indicate the same parts.

A represents an air-receiver of conical form, which has a cylindrical extension, *a*. The receiver is of sufficient size to take in any desirable number of funnel-shaped conduits for the flow of air and steam, as hereinafter described, and it is of conical form, as stated, for the purpose of concentrating the air as it is brought in at the circumference or at the top of the receiver, and thus to direct it to said passages. It is surrounded by the case B, which is provided at its upper end with the inlet-pipe C and at its lower end with the blast-pipe D. E is a steam-pipe, which may discharge a single jet of steam into the receiver A, in which the series of funnels within, as shown in the drawings, are dispensed with; but for blowers of increased capacity I employ any desirable number of funnels A′, arranged within said receiver A, and have branch pipes E′ extending from the pipe E, without the use of the funnels A^2. (Shown within them in the drawings.) To give still greater capacity to the blower, the latter funnels, A^2, are used. For the purpose of arranging them centrally within the funnels A′, they are provided with wings *b*, the outer edges of which bear against the inner surfaces of the funnels A′ and form air-passages *c*. The discharging ends of the branch pipes E′ are of conical form for the concentration of the jets of steam, and their orifices much reduced—say to about one-sixteenth of an inch in diameter—to increase the force of the jets. The funnels A′ at their upper ends are shorter than the receiver A, and the same ends of the funnels A^2 are shorter than those of the funnels A′ to facilitate the drafts of air in each as it rushes into the upper end of the case B, as hereinafter described, and the funnels in the same manner are shorter at their lower ends, as shown in Fig. 2, to facilitate the formation of the vacuums by the jets of steam expanding the air before it leaves the funnels.

G is a cover to the case B, to prevent or decrease the noise which would otherwise be created by the jets of steam striking the air within the funnels. It may, however, be dispensed with, if desired. When it is not used the air from above rushes into the upper end of the case B directly, and in this case the inlet-pipe C may be used or not, as may be desired.

The operation is as follows: The steam, in its passage from the pipe E through the branch pipes E′ into the funnels A^2, heats the air in the same by radiation, and also in the funnels A′ and all the air-passages within the receiver A, whereby a combined vacuum is formed, which is greatly increased by the rapid jets of steam from the branch pipes, the force of which is much increased by their concentration, and hence the vacuum within the receiver A produces a powerful suction, whereby the air rushes with greater force into the upper end of the case B directly, if uncovered, or, if covered, through the inlet-pipe C, and thence through all the air-passages of the receiver A, and is concentrated in passing through the extension *a*, (which is of smaller diameter than the receiver at its upper end,) and rushes with immense force through the blast-pipe D.

I claim as my invention—

1. The combination of the receiver A with the surrounding case B and steam-pipe E, the case having an inlet-passage for air into the funnel, and a blast-pipe, D, substantially as described.

2. The funnels A′, in combination with the receiver A and branch pipes E′, for increasing the effective power of the blower, substantially as described.

3. The combination of the funnels A^2 with the funnels A′ and branch pipes E^2, for giving still increased power to the blower, substantially as described.

4. The combination of the pipe E, having branch pipes E′, with the funnels A′ and A^2, substantially in the manner and for the purpose set forth.

JAMES P. MASON.

Witnesses:
THOMAS J. BEWLEY,
STEPHEN USTICK.