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Patented Dec. 3, 1901.

J. O. CHARPENTIER.
BLAST PIPE SAFETY VALVE.

(Application filed Sept. 9, 1901.)

(No Model.)

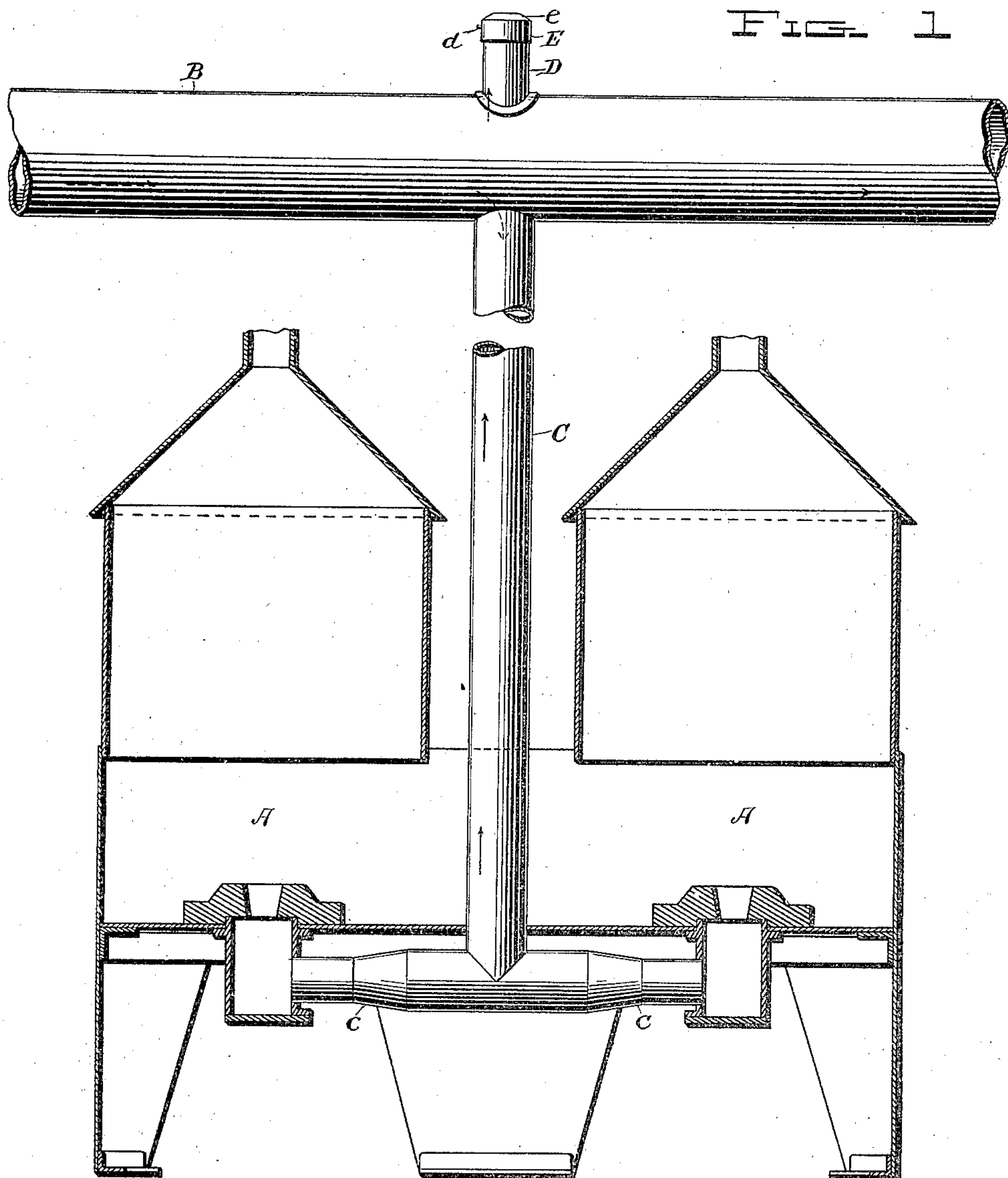
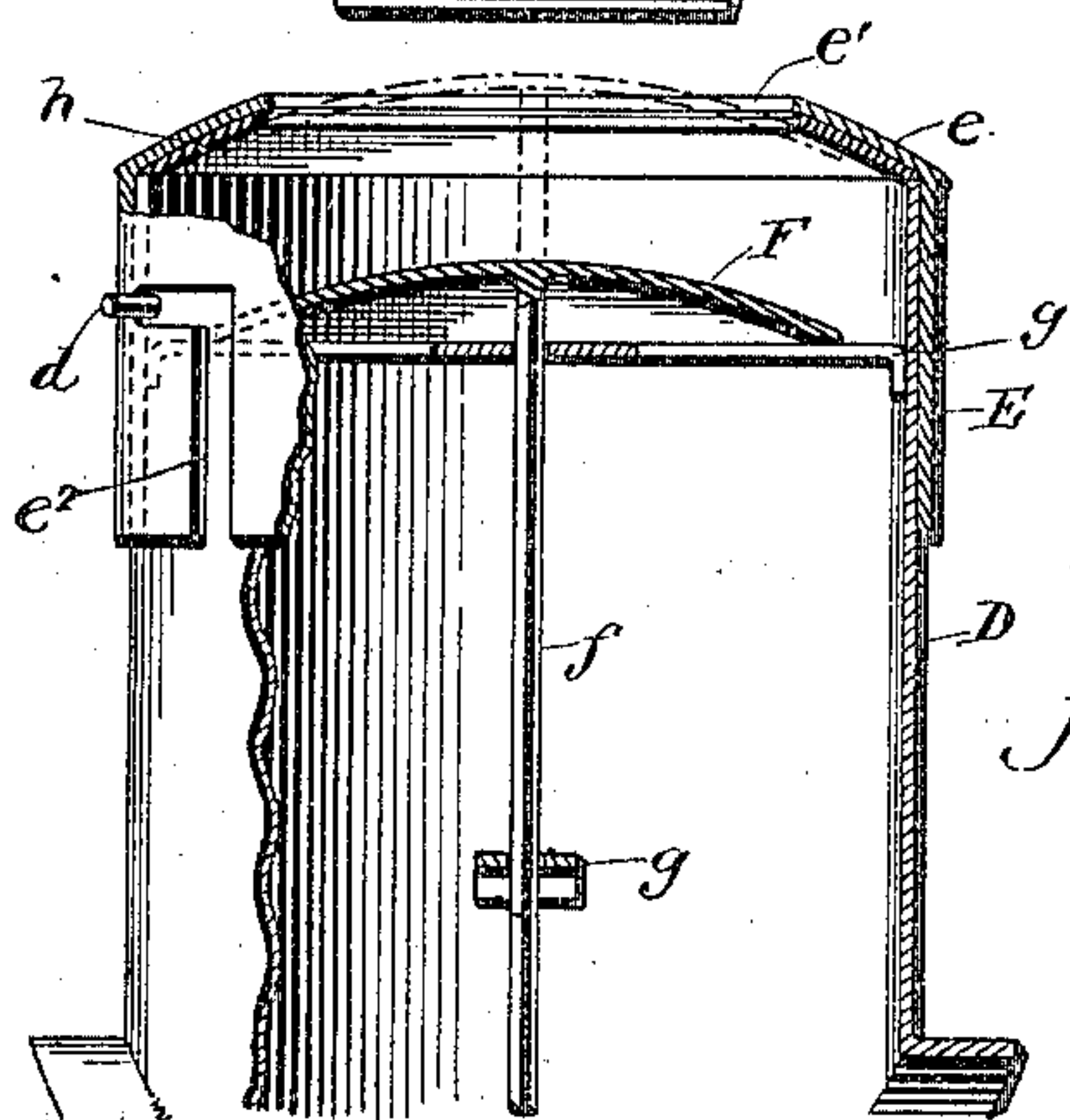


FIG. 2



WITNESSES:

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JOSEPH O. CHARPENTIER, OF CONCORD, NEW HAMPSHIRE.

BLAST-PIPE SAFETY-VALVE.

SPECIFICATION forming part of Letters Patent No. 687,831, dated December 3, 1901.

Application filed September 9, 1901. Serial No. 74,756. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH O. CHARPENTIER, a citizen of the United States, residing at Concord, in the county of Merrimack and State of New Hampshire, have invented certain new and useful Improvements in Blast-Pipe Safety-Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in valves employed in connection with the blast-pipe of a forge to afford an outlet for the forge-gases upon a diminution or cessation of the blast-pressure.

The nature of the invention will be readily comprehended, reference being had to the following detailed description and to the accompanying drawings, in which—

Figure 1 is a view, partly in elevation and partly in section, of a pair of forges and a blast-pipe equipped with my improved valve. Fig. 2 is an enlarged vertical sectional view of the valve and casing.

Referring to the drawings by letter, A A denote the forges.

B is the blast-pipe, connected at one end with the blast-fan, (not shown,) and C is a pipe branching from the blast-pipe and provided at its lower end with branches *c c*, leading to the forge-furnaces. Obviously the blast-pipe may be extended, as shown, to supply other forges. The blast-pipe is preferably above the forges, and the pipe C is preferably vertically arranged. In vertical alignment with the pipe C is an opening in the blast-pipe, around which is secured a valve-casing D, open at its top.

E is a removable section of the valve-casing, having at its top an inwardly-extending flange *e*, providing a restricted opening *e'*. The flange has an upward inclination and is slightly curved, as shown more clearly in Fig. 2. The section E fits the upper end of the

valve-casing exteriorly and is locked thereon by the engagement of a bayonet-joint slot *e''* in the section with a pin *d* on the casing.

F is a valve within the casing. The valve is preferably of the mushroom type, and its stem *f* is guided in openings provided in two or more spiders *g g*. The valve is lowered by its own weight, the upper spider forming a stop to limit the downward movement. The under side of the flange, the curvature of which conforms to that of the valve, forms the seat for the valve, the valve being raised to its seat against gravity action by the blast-pressure.

In operation the air under pressure from the fan forces the valve upwardly against its seat, thereby closing the opening *e'*, and passes by the pipe C to the forges. The valve is held to its seat as long as the requisite air-pressure is maintained; but upon the cessation or a sufficient diminution of the pressure the valve drops by its own weight and uncovers the opening *e*, providing an outlet for the gases and foul air generated in the forges and which pass through the pipe C.

The valve and its parts are arranged entirely within the casing, and when the valve is seated the casing is air-tight. If desired, a gasket *h*, of felt or the like, may be employed to provide a yielding seat for the valve.

I claim as my invention—

1. In combination with a forge an air-blast pipe and a branch pipe depending from the air-blast pipe and leading to the forge, an outlet in the blast-pipe opposite the branch pipe, a casing about the outlet having an opening, and a gravity-valve in the casing adapted to be moved by the air-blast to close the opening.

2. In combination with a forge an air-blast pipe and a branch pipe depending from the air-blast pipe and leading to the forge, an outlet in the blast-pipe opposite the branch pipe, a casing about the outlet, a removable casing-section having at its top an inwardly-projecting flange providing a restricted opening, and a gravity-valve in the casing adapted to be moved by the air-blast to close the opening.

3. In combination with a forge an air-blast

pipe and a branch pipe depending from the
air-blast pipe and leading to the forge, an out-
let in the blast-pipe adjacent to the branch
pipe, a casing about the outlet, a casing-sec-
5 tion removably secured to the casing and hav-
ing at its top an inwardly-projecting curved
flange providing a valve-seat, spiders within
the casing, a valve conforming to the flange

and having a stem guided in the spiders, and
a gasket between the seat and valve. 10

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

JOSEPH O. CHARPENTIER.

Witnesses:

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FRED T. DUNLAP.