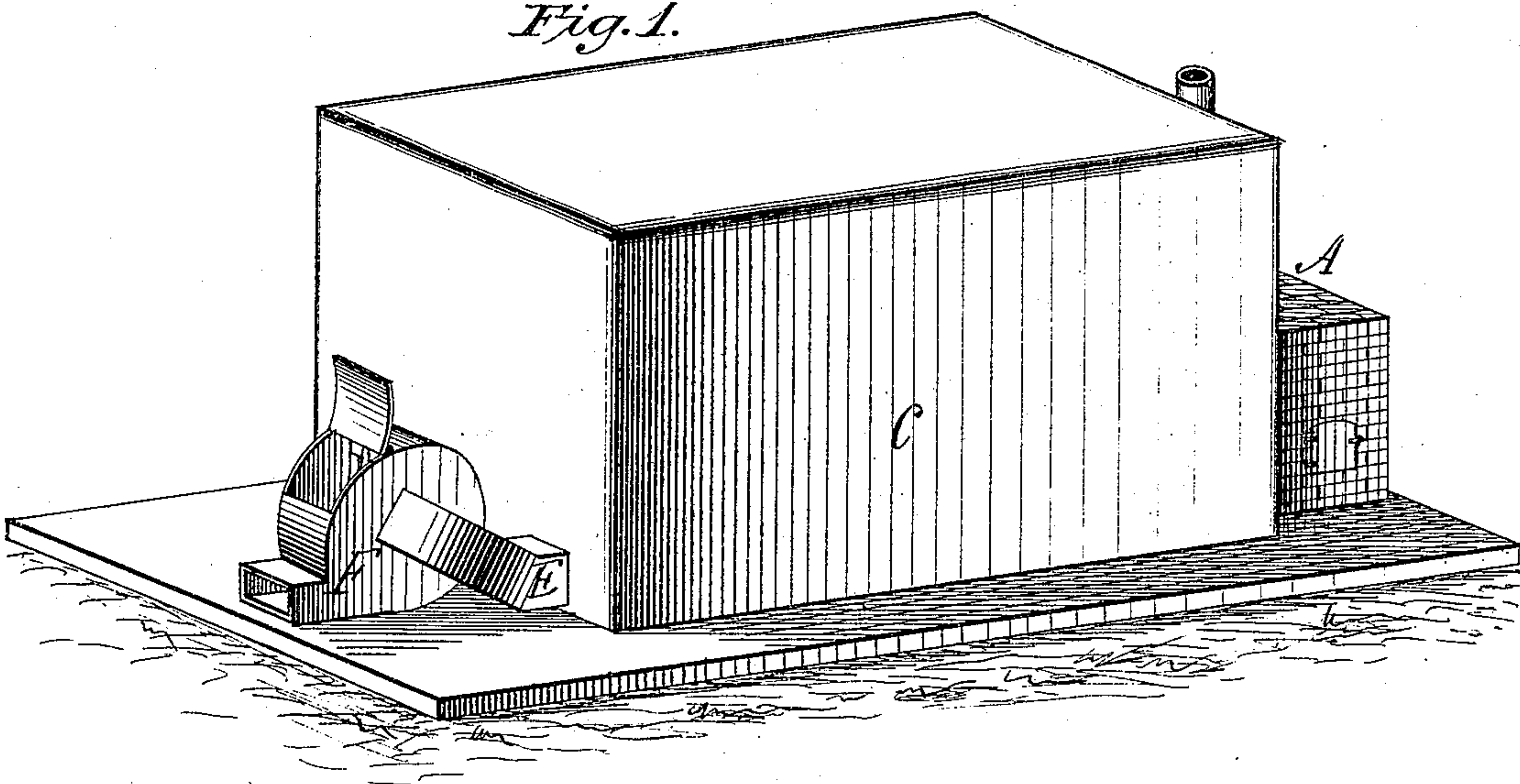


D. BONNELL.  
Drying-Kiln.

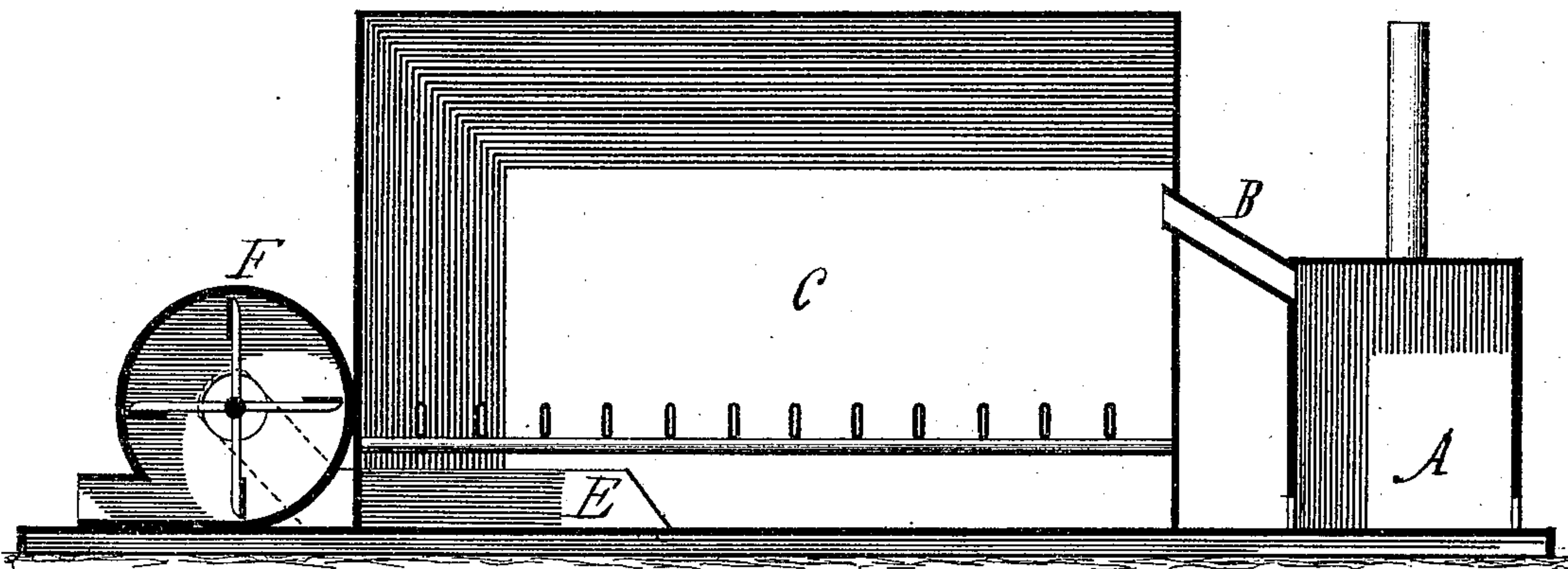
No. 169,230.

Patented Oct. 26, 1875.

*Fig. 1.*



*Fig. 2.*



*Attest:*  
*J. H. Wheeler*  
*Chas. Q. Wheeler*

*Inventor:*  
*David Bonnall*

# UNITED STATES PATENT OFFICE

DAVID BONNELL, OF ST. JOSEPH, MICHIGAN.

## IMPROVEMENT IN DRYING-KILNS.

Specification forming part of Letters Patent No. **169,230**, dated October 26, 1875; application filed March 22, 1875.

*To all whom it may concern:*

Be it known that I, DAVID BONNELL, of St. Joseph, Berrien county, and State of Michigan, have invented a new and useful Improvement in Drying-Kilns, of which the following is a description:

This invention relates, in its nature, to a device for drying lumber and other substances by means of artificial heat, the object being to accomplish the purpose with greater efficiency and economy than has hitherto been done.

The accompanying drawing forms a part of this specification, and the letters of reference marked thereon indicate the parts referred to by a similar letter in the written part of this specification, in which—

A represents the furnace or heater; but this may be any suitable device for heating air, and need not be described in full here. B B represent induction-tubes. These tubes convey heated air from the heater to the drying-chamber C, entering said chamber at a point above midway of its height. This chamber may be of any suitable form of construction that will admit of being shut tight, and need not differ materially from drying-kilns in common use. E E represent eduction-pipes. These pipes are placed at the bottom of the drying-chamber C, with their open mouths near the central part of the bottom, or may be extended over the entire bottom, in which case they should be perforated, so as to draw the air from all parts of the bottom of said

chamber. The outer ends of the eduction-pipes pass out through the wall of the drying-chamber, and connect to the opposite sides of the case of the rotary fan F. This fan is of the ordinary construction of rotary exhaust-fans, and is driven by any suitable motive power. The office of this fan is to exhaust the humid air from the drying-chamber, thus producing a partial vacuum, which will be supplied by hot dry air through the induction-tubes B B, and causing a downward current of hot air through the drying-chamber. The constant discharge of humid air through the eduction-pipes will give greater effect to the incoming hot air, and the fan F will answer the threefold purpose of producing a draft through the heater, a downward current of hot air through the drying-chamber, and of expelling the humid air from the bottom.

Having thus described my invention in the most exact terms that I can give, what I claim as new, and desire to secure by Letters Patent, is—

The drying-chamber C, having the induction-tubes B B, introduced at a point above midway of its height, and provided at the bottom with the eduction-pipes E E, in combination with the fan F, as and for the purposes hereinbefore set forth.

DAVID BONNELL.

Witnesses:

CYRUS M. ALWARD,  
SHEPHERD H. WHEELER.