

(No Model.)

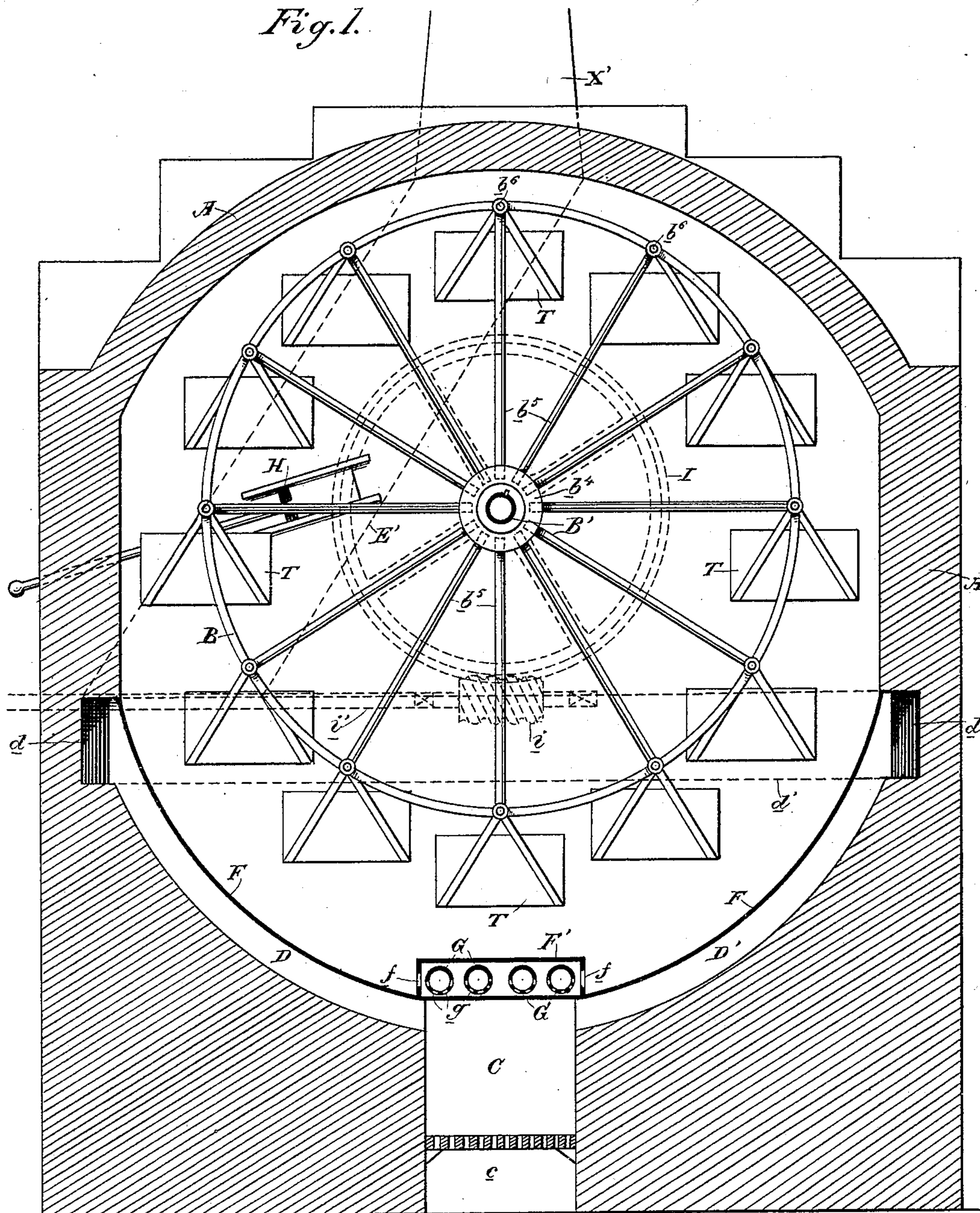
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W. GREY.  
FRUIT DRIER.

No. 390,959.

Patented Oct. 9, 1888.

*Fig. 1.*



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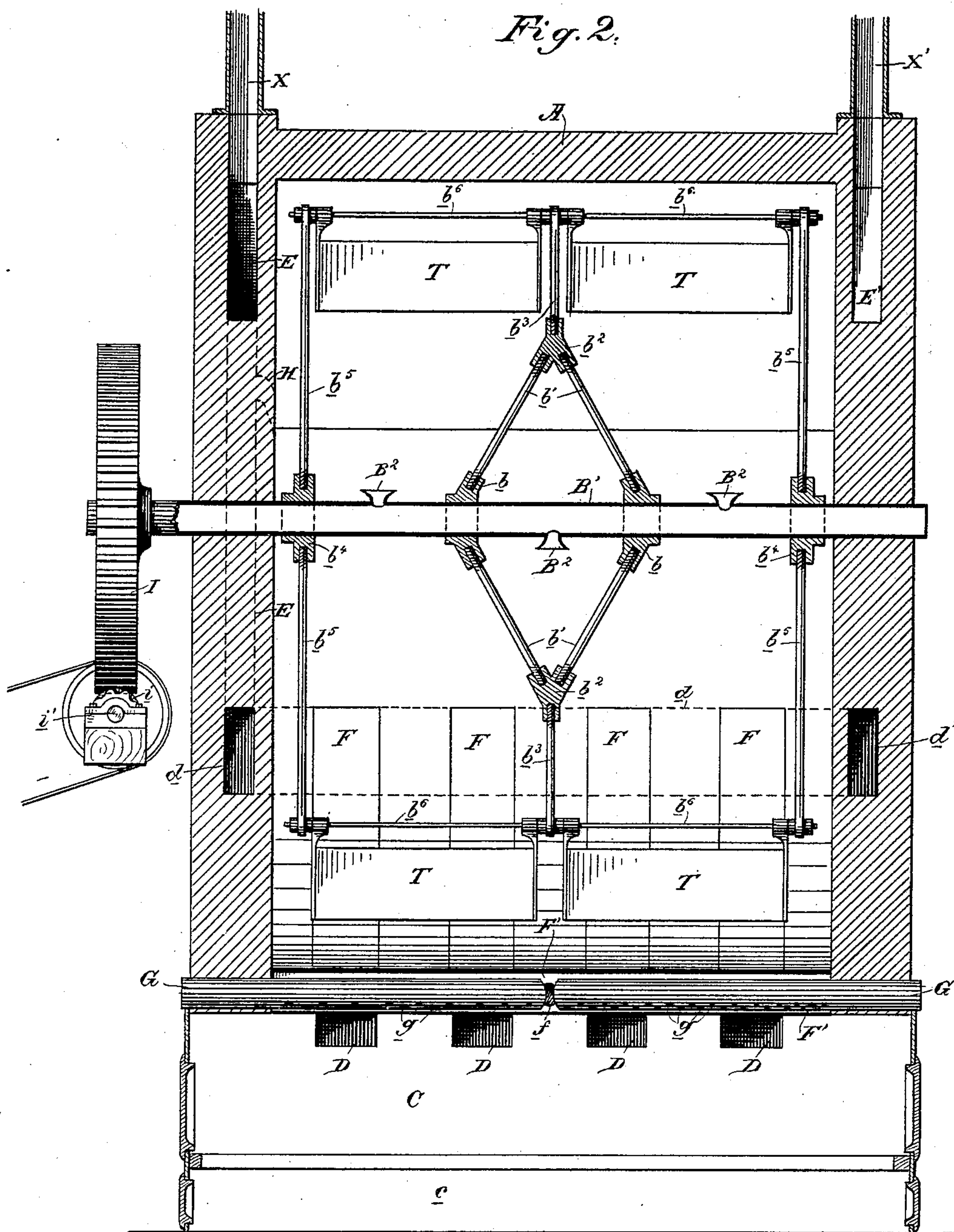
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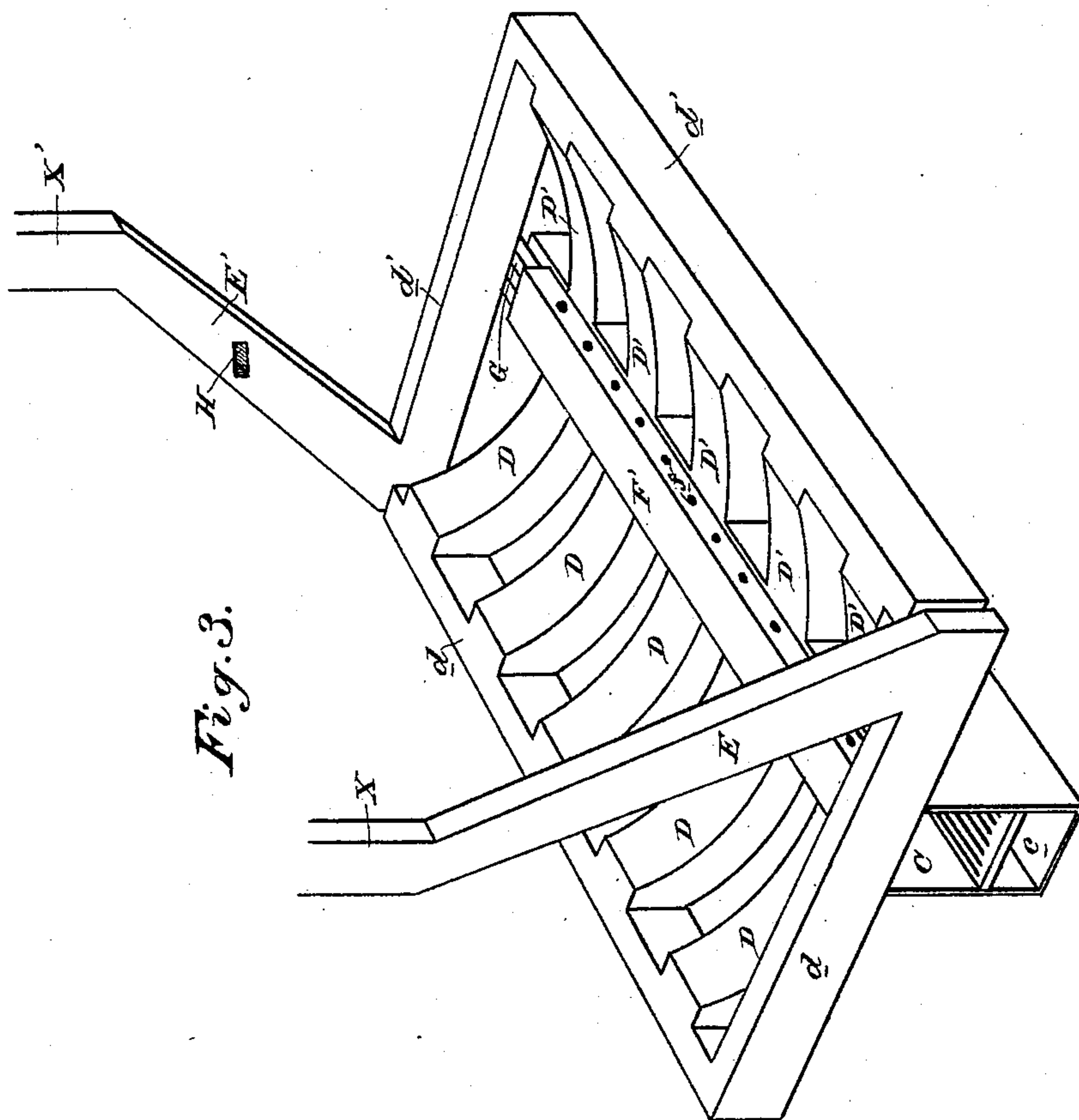


Fig. 3.

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# UNITED STATES PATENT OFFICE.

WILLIAM GREY, OF SAN JOSÉ, CALIFORNIA.

## FRUIT-DRIER.

SPECIFICATION forming part of Letters Patent No. 390,959, dated October 9, 1888.

Application filed March 27, 1888. Serial No. 268,666. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GREY, of the city of San José, Santa Clara county, State of California, have invented an Improvement in Fruit-Driers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of fruit-driers in which the baskets or fruit-receptacles are suspended from a wheel which rotates within a heated shell; and my invention consists in the constructions and combinations of devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical cross-section of my fruit-drier. Fig. 2 is a vertical longitudinal section. Fig. 3 is a skeleton view in the nature of a diagram, showing the heat flues and passages.

A is the shell of the drier, made of brick-work.

B is a rotary wheel mounted within the shell and having suspended from its periphery the fruit baskets or receptacles T.

Across the central transverse base of the shell is the fire-chamber C, having the ash-pit *c*. From the fire chamber on one side lead out the curved flues D, following the curvature of the wheel B for about sixty degrees, more or less, where they join a horizontal flue, *d*, in the side wall of the shell, which said flue, after passing along the side wall to one of the end walls, bends around and passes along said end wall to the other side, where it connects with the upwardly-inclined flue E, formed in the said end wall of the shell and opening into a stack, X. In the opposite direction from the fire-chamber lead the curved flues D', which at their upper ends join a horizontal flue, *d'*, in the other side wall of the shell, which said flue, after passing along the said wall to the other end wall, bends around and passes along said end wall to the first side, where it connects with the upwardly-inclined flue E', formed in the said end wall of the shell, and which opens into a stack, X'. The whole upper wall of the curved flues D D' is formed of metal plates F, which thus become highly heated. A metal chamber, F', is formed just above the

main fire-chamber C, and said chamber has its side walls perforated, as shown at *f*.

G are transverse air pipes or passages within the chamber F'. Each passage consists of two pipes, or a single pipe closed in the middle, the ends of the passages opening out on each side of the shell. They are perforated in their lower halves, as shown at *g*. These pipes extend just above the metal bottom of chamber F', and they discharge their air directly upon said bottom. If desired, similar perforated pipes may be run along above the metal plates F, forming the upper wall of the flues D D'.

The wheel B is formed wholly of tubular or gas-pipe sections secured together by suitable couplings. In constructing it I have for the center portion the separated hubs *b* on the axis, into which are screwed the convergent spokes *b'*, to which, by means of couplings *b''*, are connected the straight spokes *b'''*. For the ends I have the hubs *b''''*, to which are screwed the end spokes, *b'''''*. In the ends of spokes *b'''* and *b'''''* are carried the rods *b''''''*, to which the baskets T are hung. This construction affords a great degree of strength and durability, together with lightness. The axis B' of the wheel consists of a tubular or hollow shaft having its ends open and communicating with the exterior air. Along its length, within the drying chamber, are made openings, to which are fitted funnels B<sup>2</sup>. The hollow open-ended axis provides for a draft through it from end to end, and this draft serves to suck in, through the funnel-openings B<sup>2</sup>, the moist hot air from the middle of the drying-chamber and discharge it. To further this object of discharging the moist hot air of the drying-chamber, I have the damper-controlled short flues H, made in the inner walls of the shell and communicating with the inclined flues E E'. These short flues have an upward inclination, so that while the products of combustion passing through flues E E' serve to create a draft through said short flues said products of combustion have no tendency to enter the drying-chamber.

The wheel B has a rotary motion imparted to it by means of the gear I, worm *i*, and power-shaft *i'*.

The operation of the drier is as follows: Suitable power is applied to rotate the wheel



whereby the fruit-trays are carried around in the drying-chamber. The heated gases and products of combustion from the central cross-section fire-chamber C pass upwardly on each side through the curved flues D and D', following the curvature of the wheel and in close proximity to the fruit-trays, and heating to a high degree in their passage the plates F. They thence pass through the horizontal flues *d d'* and the inclined flues E E' in the walls of the shell, giving out additional heat from all surrounding points to the drying-chamber, and are finally discharged through the stacks X X'. The pure air passes into the pipes G and is discharged through their perforated surfaces directly upon the heated bottom of the chamber F'. It is thus heated and rarefied, and at the same time the iron is cooled and kept from burning out. The heated and rarefied air rises from the chamber F' through the fruit to the top of the drying-chamber.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

25 1. In a fruit-drier, the shell and the rotary fruit-carrying wheel within it, in combination with the transverse fire chamber in the base of the shell, the air-chamber F' above it and having perforated sides, and the perforated

open ended air-pipes G, passing through the air-chamber and opening into the outer air, substantially as herein described. 30

2. In a fruit-drier, the shell and the rotary fruit-carrying wheel within it, in combination with the central transverse fire-chamber in the base of the shell, the curved fire-flues D D', the horizontal flues *d d'*, and inclined flues E E' in the walls of the shell, whereby the interior of said shell is heated, and the perforated open-ended pipes G, whereby air is admitted, substantially as herein described. 35 40

3. In a fruit-drier, the shell and the rotary fruit-carrying wheel within it, in combination with the central transverse fire-chamber in the base of the shell, the fire-flues D D', *d d'*, and E E' in the walls of the shell, whereby its interior is heated, the perforated air-chamber F' above the fire-chamber, and the perforated open ended pipes G, passing through the air-chamber, whereby the air admitted is heated as it passes in, substantially as herein described. 45 50

In witness whereof I have hereunto set my hand.

WILLIAM GREY.

Witnesses:

G. M. BRUCE,  
C. BRADLEY.