

2 Sheets—Sheet 1.

Patented Nov. 17, 1896.

No. 571,599.

FIG. 1.

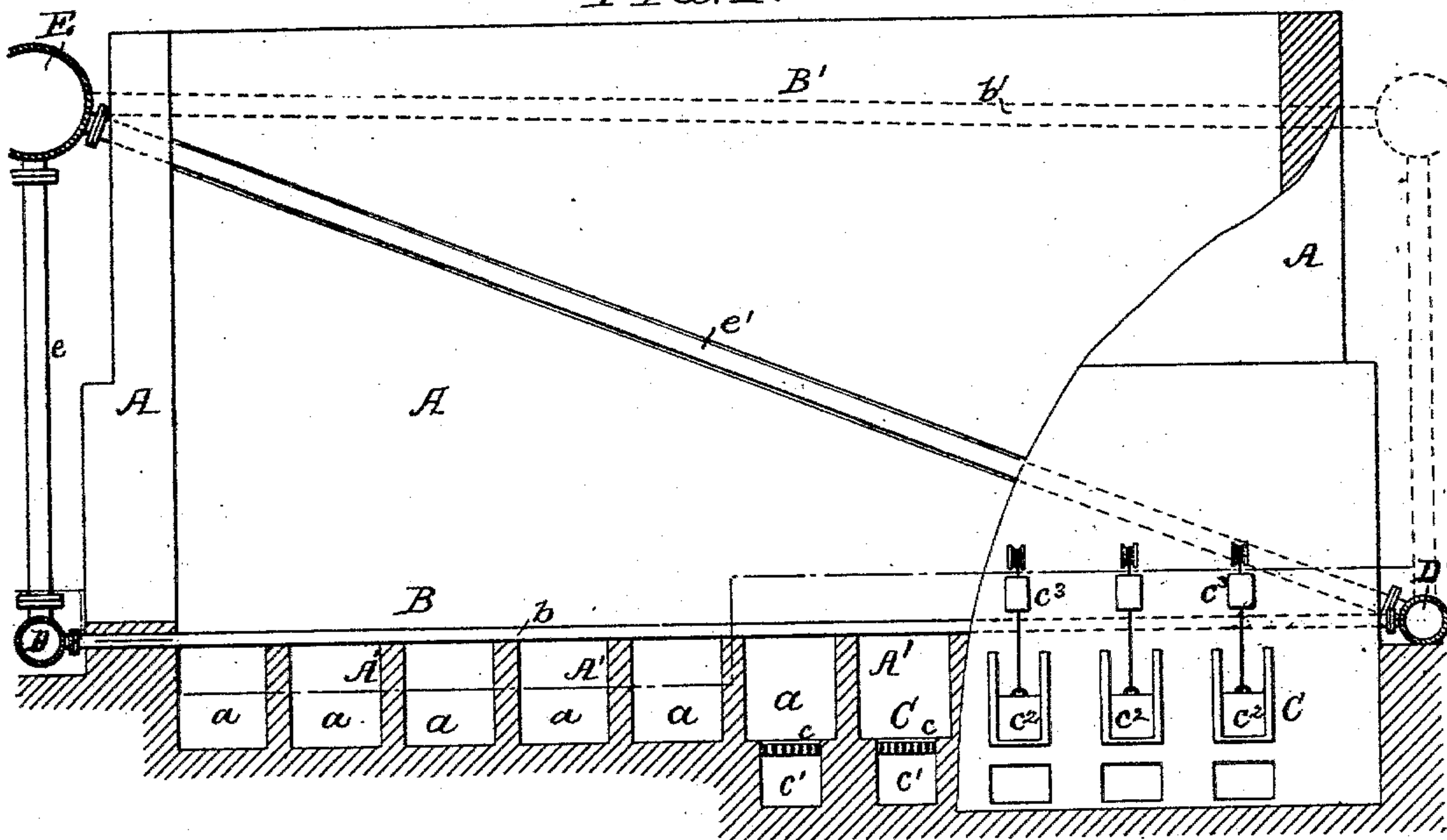
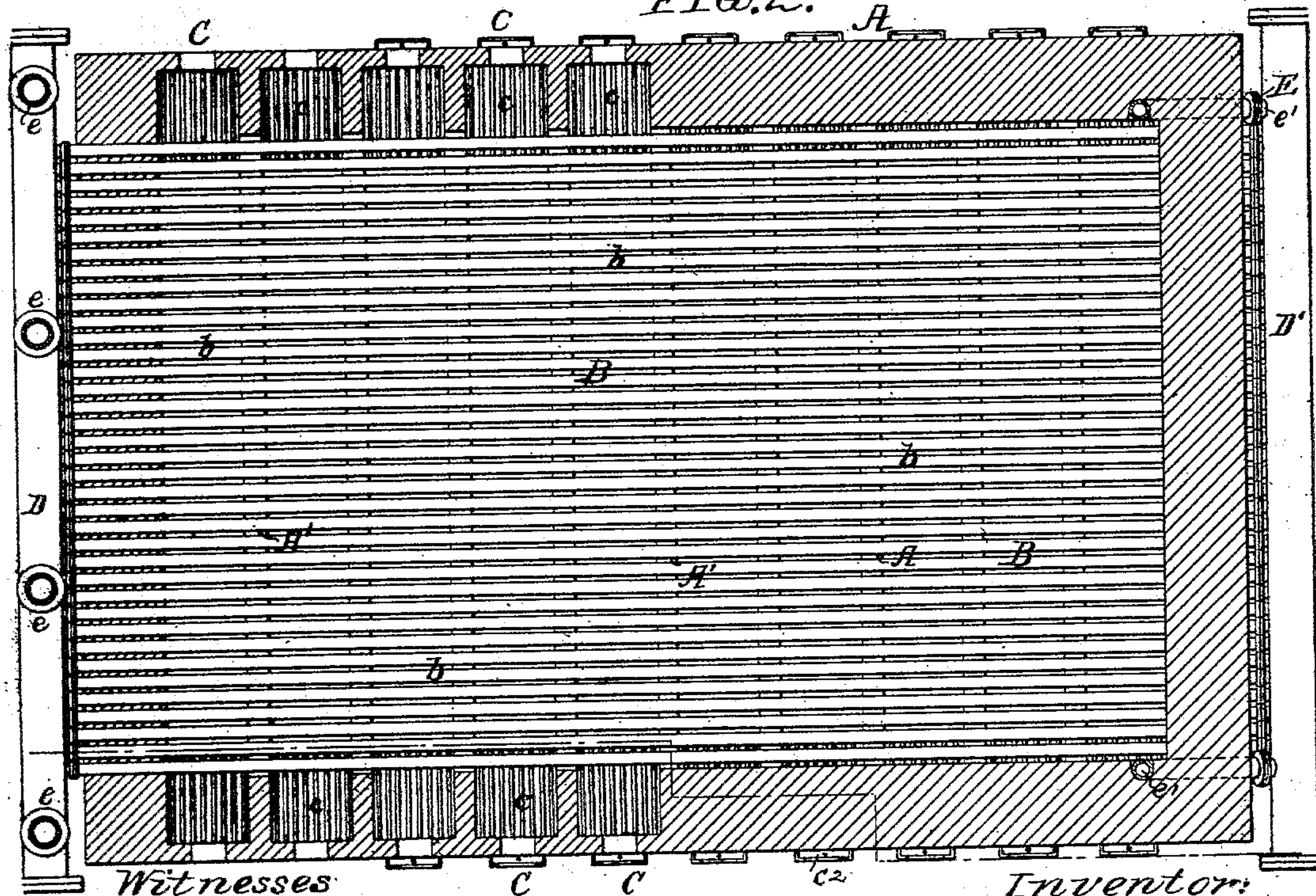


FIG. 2.



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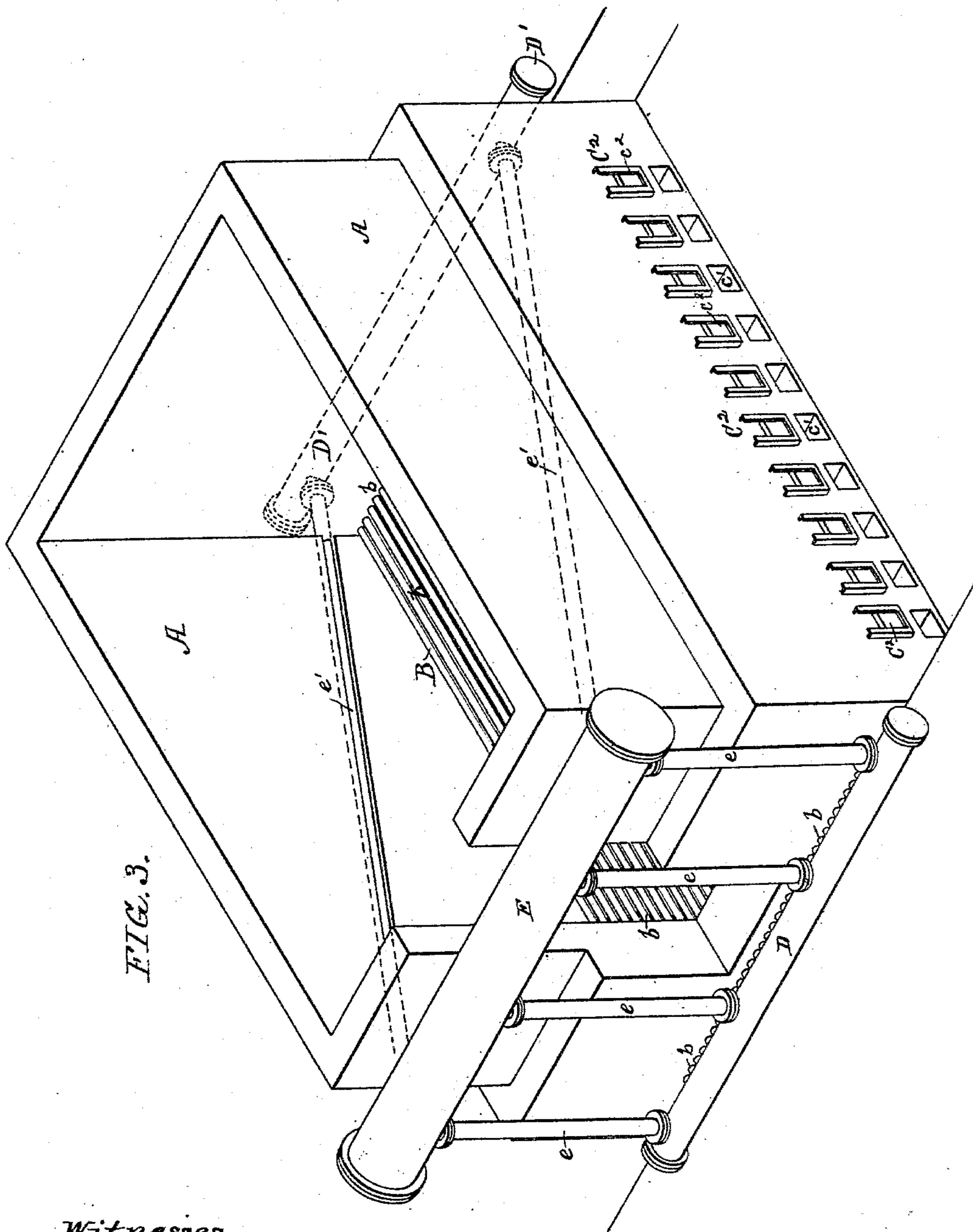
(No Model.)

2 Sheets—Sheet 2.

W. H. MELCHER.
KILN.

No. 571,599.

Patented Nov. 17, 1896.



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UNITED STATES PATENT OFFICE.

WILLIAM H. MELCHER, OF PHILADELPHIA, PENNSYLVANIA.

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SPECIFICATION forming part of Letters Patent No. 571,599, dated November 17, 1896.

Application filed January 2, 1894. Serial No. 495,379. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MELCHER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Kilns, of which the following is a specification.

The object of my invention is to provide a permanently even floor in a kiln for burning clay products, to increase the product of combustion from the furnaces of such kilns and to distribute the same in the burning of such clay products with the greatest economy and uniformity, and to utilize the heat of such furnaces and clay products for generating steam. These objects I attain in the following manner, reference being had to the accompanying drawings.

Figure 1 is a longitudinal sectional view illustrating my invention. Fig. 2 is a plan view partly in section, and Fig. 3 is a perspective view.

A are walls of a kiln constructed in the ordinary manner.

B is an open floor formed of a series of pipes *b*, placed longitudinally a sufficient distance apart to allow the products of combustion to pass uniformly through the openings into the kiln. These pipes *b* are supported at intervals by transverse walls *A'*, forming flues *a* for the products of combustion. At each end of these flues are the furnaces *C*, constructed in the ordinary manner, having the grates *c*, fire-chamber, ash-pit *c'*, and the fire-door *c''*. The fire-door *c''* may be either hung on hinges or it may be balanced by a weight *c'''* in either manner, so as to be readily opened and closed.

I preferably mount upon the open floor B, formed of the series of pipes *b*, fire-clay tiles made to conform to the circle of the pipes, so as to make a perfectly level floor having transverse openings of a sufficient width to allow the products of combustion to pass uniformly from the flues *a* into the chamber of the kiln.

The products of combustion pass from the series of furnaces through their respective flues *a* up through the floor B and openings into the chamber of the kiln. The product to be burned is set or piled by the setter in any way desirable upon the floor of the chamber.

The longitudinal pipes *b* are connected to manifolds *D D'* at each end, and the manifold *D* is connected to a horizontal boiler or

drum *E* by pipes *e*, and the manifold *D'* is connected to the boiler by one or more inclined pipes *e'*. Thus the circulation is maintained and thus the pipes, manifolds, and drums become a boiler or boilers for generating steam.

In some instances a roof *B'* may be provided for the kiln formed of tubes *b'*, (shown by dotted lines in Fig. 1,) and these tubes may be connected to the boiler system formed as above in any suitable manner; or the roof *B'* may be formed so as to be altogether distinct from the boiler system formed as above, and being connected with other manifolds and steam-drums in a suitable manner for the proper circulation of the water in the pipes, manifolds, and drums, become a boiler or boilers for generating steam. The tubes forming the roof *B'* may be covered by suitable brickwork or tiles or other material and may be supported at intervals from the outer framing that is usually constructed around a kiln, or independent roof-beams for the support of these tubes *b'*, forming the roof, may be used without departing from my invention.

In the manifolds *D D'* opposite the tubes *b* are cleaning-openings provided with suitable caps. On removing the caps the tubes can be readily cleansed when necessary.

Thus it will be seen by the above construction that I provide, first, a permanently even floor for the chamber of the kiln in which the product is to be burned, and which floor will remain permanently even at all times, and which will not buckle and warp out of shape and consequently distort the product to be burned; second, provision is made for increasing the combustion and for distributing the products in the kiln with the greatest economy and uniformity, and, third, the heat is utilized in generating steam which can be used for many purposes, such, for instance, as supplying power or heat or to increase the combustion of the furnaces.

While I have shown in the drawings a furnace constructed for burning coal or wood it will be understood that a furnace burning oil, gas, or other fuel may be used without departing from my invention.

I claim as my invention—

1. The combination in a kiln, of the walls, the horizontal tubes forming the floor, flues

under the floor, furnaces for generating heat, manifolds connected to the tubes at each end and a drum connected to the manifolds, substantially as described.

5 2. The combination in a kiln, of the walls, longitudinally-arranged tubes forming the floor thereof, transverse flues extending under said floor and furnaces communicating with said flues, a series of longitudinally-arranged
10 tubes extending over the kiln forming the roof thereof, a steam-drum and pipes connecting the steam-drum with the floor-tubes and with the roof-tubes, substantially as described.

15 3. The combination in a kiln, of the longitudinally-arranged tubes forming the floor

thereof, manifolds at each end connected to the several tubes, a steam-drum mounted above the manifolds, pipes *e* connecting the drum to one manifold, an inclined pipe *e'* connecting the drum with the other manifold, flues extending under the floor and furnaces communicating with said flues, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. MELCHER.

Witnesses:

WILLIAM A. BARR,
JOSEPH H. KLEIN.