

R. S. PLUMMER.
BRIQUET DRIER.
APPLICATION FILED SEPT. 11, 1919.

1,352,377.

Patented Sept. 7, 1920.
3 SHEETS—SHEET 1.

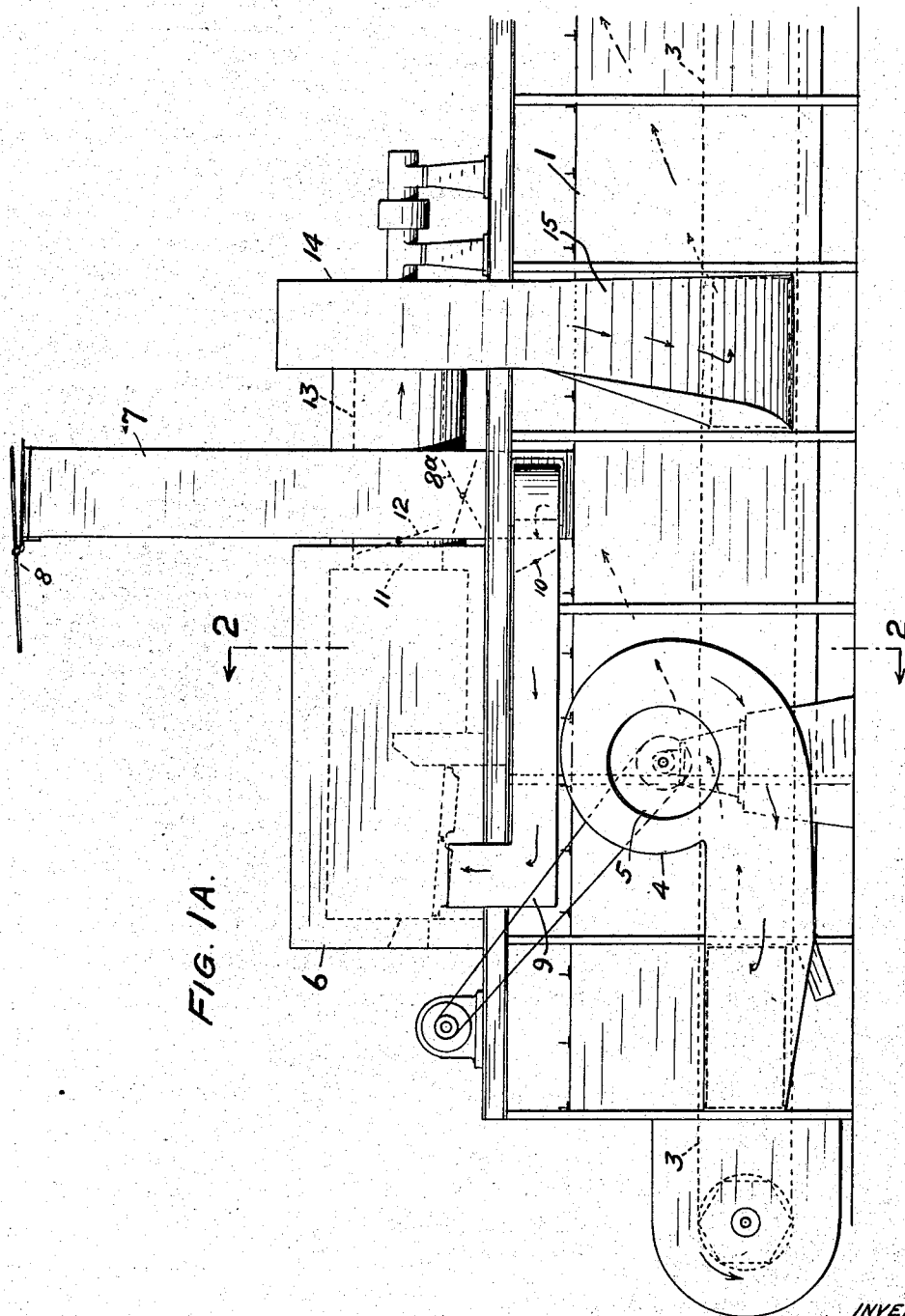


FIG. 1A.

WITNESS:

Robt. W. Mitchel.

INVENTOR

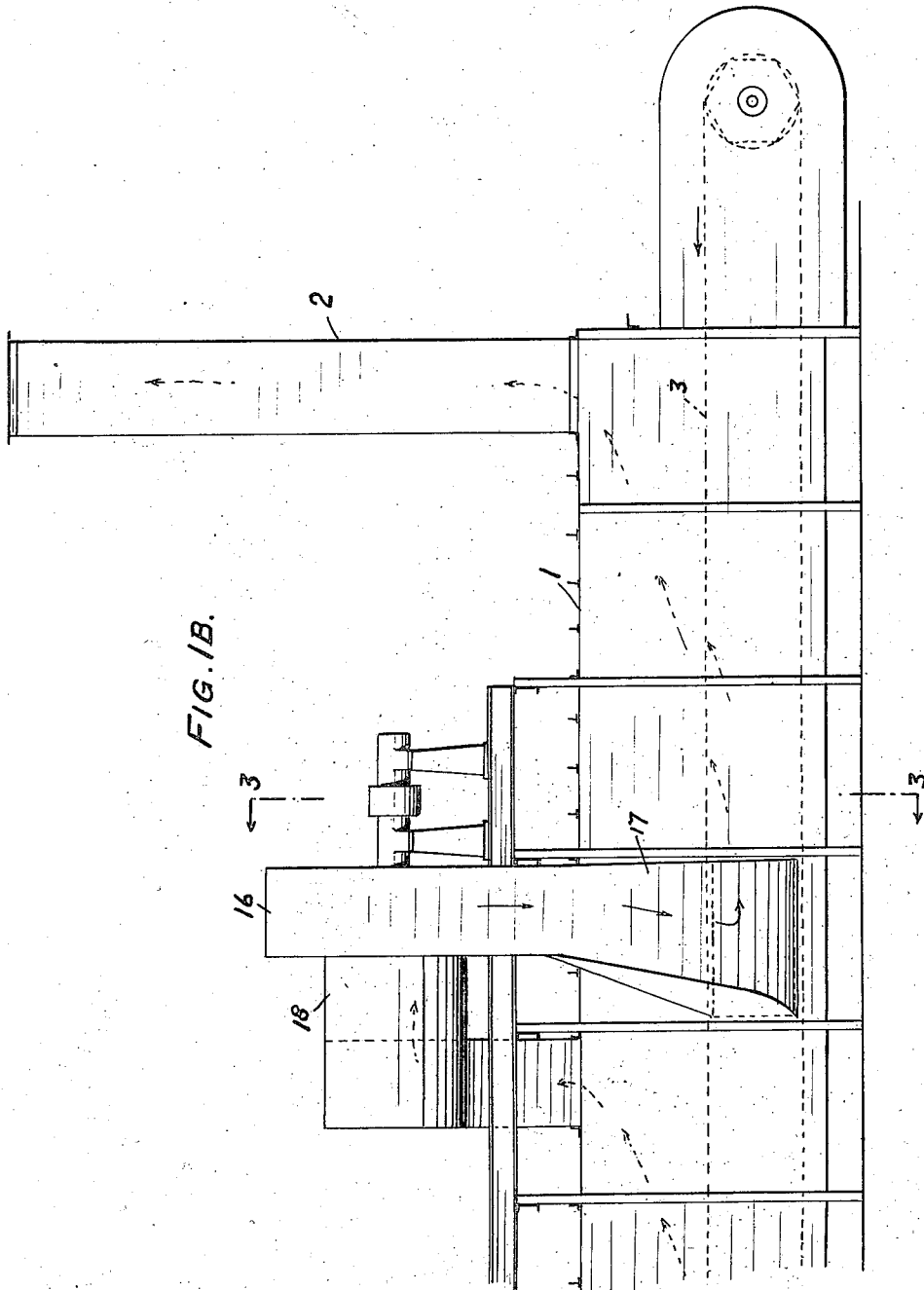
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

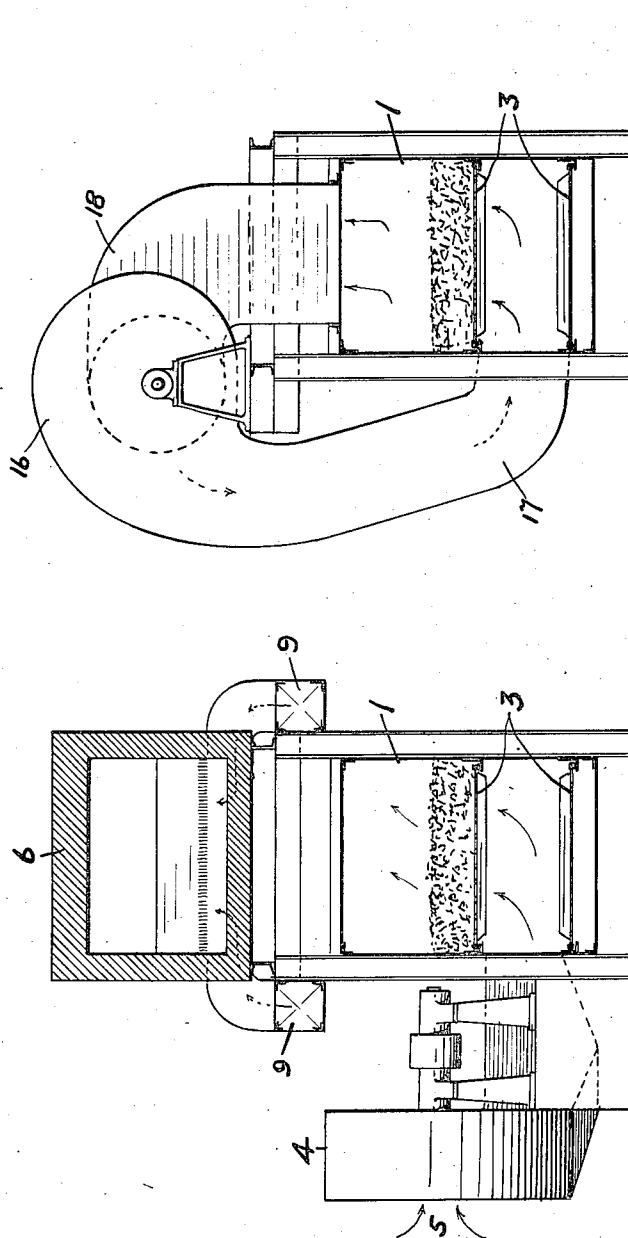


FIG. 3.

FIG. 2.

WITNESS:

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UNITED STATES PATENT OFFICE.

ROBERT S. PLUMMER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO AMERICAN BRIQUET COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF DELAWARE.

BRIQUET-DRIER.

1,352,377.

Specification of Letters Patent.

Patented Sept. 7, 1920.

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To all whom it may concern:

Be it known that I, ROBERT S. PLUMMER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Briquet-Drier, of which the following is a specification.

The principal object of the present invention is to provide for drying briquets of coal or the like having a binder of which the base is water in such a way that the water or moisture is economically and efficiently removed and carried off while the briquets are thoroughly dried and delivered at a temperature sufficiently low to permit of their loading and shipment on cars.

To this and other ends hereinafter set forth the invention comprises the improvements in briquet driers to be presently described and finally claimed.

Reference will be made to the accompanying drawings forming part hereof and in which—

Figures 1A and 1B, taken together constitute a side elevation.

Fig. 2, is a cross section on line 2—2 of Fig. 1A, and

Fig. 3, is a cross section on line 3—3 of Fig. 1B.

In the drawings 1, is a tunnel or drying chamber provided at or near one end with a stack or off-take 2, and it is at this end that the briquets to be dried enter, while air enters at the other end and, after traversing the tunnel in a manner to be presently described, escapes at the slack or off-take 2, laden with moisture. 3, is a foraminous conveyor shown as of the endless variety and it is arranged in the tunnel in such manner that its edges fit the side walls of the tunnel sufficiently well to oppose the passage of air at the edges and to promote the passage of air through the conveyor and through the bed of briquets carried thereon. It might be said that the conveyor and the bed of briquets divided the interior of the tunnel into upper and lower compartments separated by the bed of briquets traveling in a horizontal direction and permeable by air if drawn or forced through them, and we shall see that positively driven fans are provided for drawing air from the upper compartment and forcing it back into the lower compartment and so compelling it to travel

up through the bed of briquets at stages. 4, is a fan taking in air at 5, and delivering it, below the top of the conveyor 3, into the end of the tunnel from which the briquets escape, and this air serves to cool the briquets so that they may not be delivered at too high a temperature. 6, is an air heating furnace, shown as mounted upon the tunnel. There is a stack 7, provided with a stack valve 8, and with a damper 8^a, and it communicates with the tunnel 1. The stack communicates with the inlet of the furnace 6, by a by-pass 9, having a damper 10, and with the outlet of the furnace 6, by an opening 11, having a damper 12, and with the intake 13, of a fan 14, shown as mounted on the top of the tunnel. The outlet 15, of the fan 14, is shown as a flue extending down one side of the tunnel and discharging into the interior of the tunnel below the conveyor 3. The fan 14, serves to draw air through the bed of briquets cooling them prior to their delivery and also to force air heated to the required temperature under the traveling bed of briquets. The required temperature of the air is attained and maintained by proper manipulation of the stack valve 8, and dampers 8^a, 10 and 12. The inlet 18, of the fan 16, draws air from the tunnel 1, above the conveyor 3, and discharges it by the flue 17, at the side of the tunnel, below the conveyor, the air and moisture finally escaping by the off-take 2.

From the foregoing description it will be understood that the briquets to be dried are fed to the conveyor 3, and travel through the tunnel, in the opposite direction to the current of air which passes first under and up through the traveling bed of briquets, cooling them, and is then heated and returned under the bed of briquets through which it again passes upward to be returned under the bed of briquets by the fan 16. The air then passes once more upward through the bed of briquets and leaves by the off-take 2. The air, therefore, at stages is introduced into the tunnel below and drawn up by fans through the bed of briquets and while three such stages have been described, their number may be increased. By drawing the air off from the top of the traveling bed of briquets and forcing it back under the traveling bed of briquets, by means of positively driven fans,

the proper application of heating and cooling is attained in an economical and efficient manner.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement without departing from its spirit, hence I do not desire to limit myself in regard to such matters or otherwise than as the prior state of the art and the appended claims may require.

I claim:

1. A briquet drier comprising in combination, a tunnel, a traveling conveyer extending lengthwise of the tunnel and dividing it into upper and lower compartments and adapted to carry a bed of briquets, fans and their connections for establishing a current of air and forcing it into the lower compartment and for sucking it out of the upper compartment to cause it to pass upward through the traveling bed of briquets at spaced stages, and means for heating the current of air after it has been passed through the conveyer at the first stage and before it is returned at the second stage, substantially as described.

2. A briquet drier comprising in combina-

tion, a drying tunnel, a traveling conveyer extending through the tunnel and dividing it into upper and lower compartments and adapted to carry a bed of briquets, an off-take from the upper compartment at one end of the tunnel, a fan at the other end of the tunnel for forcing air into the lower compartment, a series of fans at stages intermediate of the length of the tunnel and having their inlets connected to the upper compartment and their outlets connected to the lower compartment, and means for heating the air prior to its introduction into the first of the fans of the series, substantially as described.

3. In a briquet drier the combination of a tunnel through which a current of air circulates, a traveling foraminous conveyer subdividing the tunnel into upper and lower compartments and adapted to convey a bed of briquets through which air can be forced, and fans disposed at stages and having their inlets connected to the upper compartment and the outlets connected to the lower compartment to compel air to repeatedly traverse the briquets upwardly, substantially as described.

ROBERT S. PLUMMER.