

No. 675,068.

Patented May 28, 1901.

F. G. SARGENT.
DRIER.

(Application filed Aug. 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.

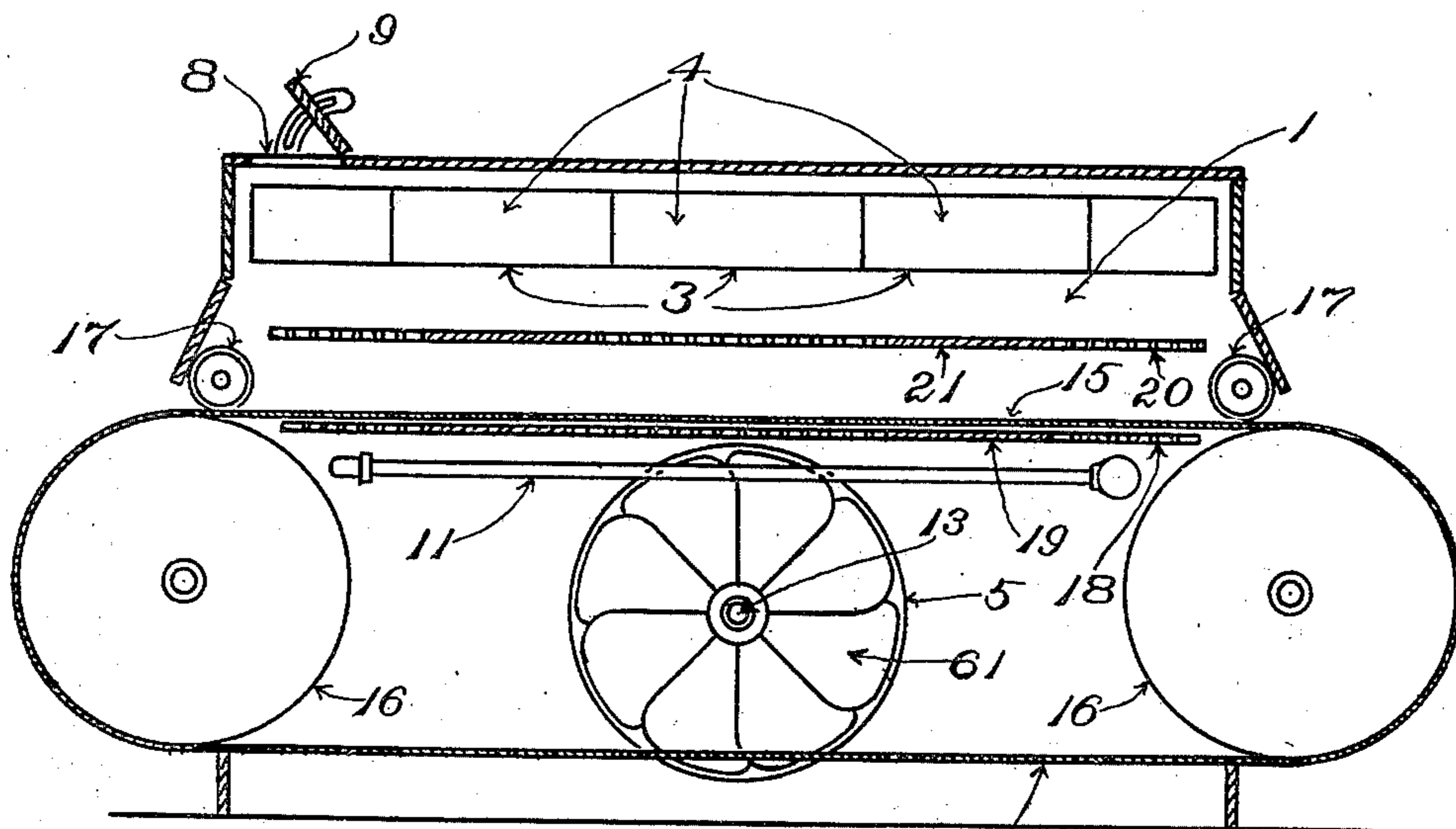


Fig. 1.

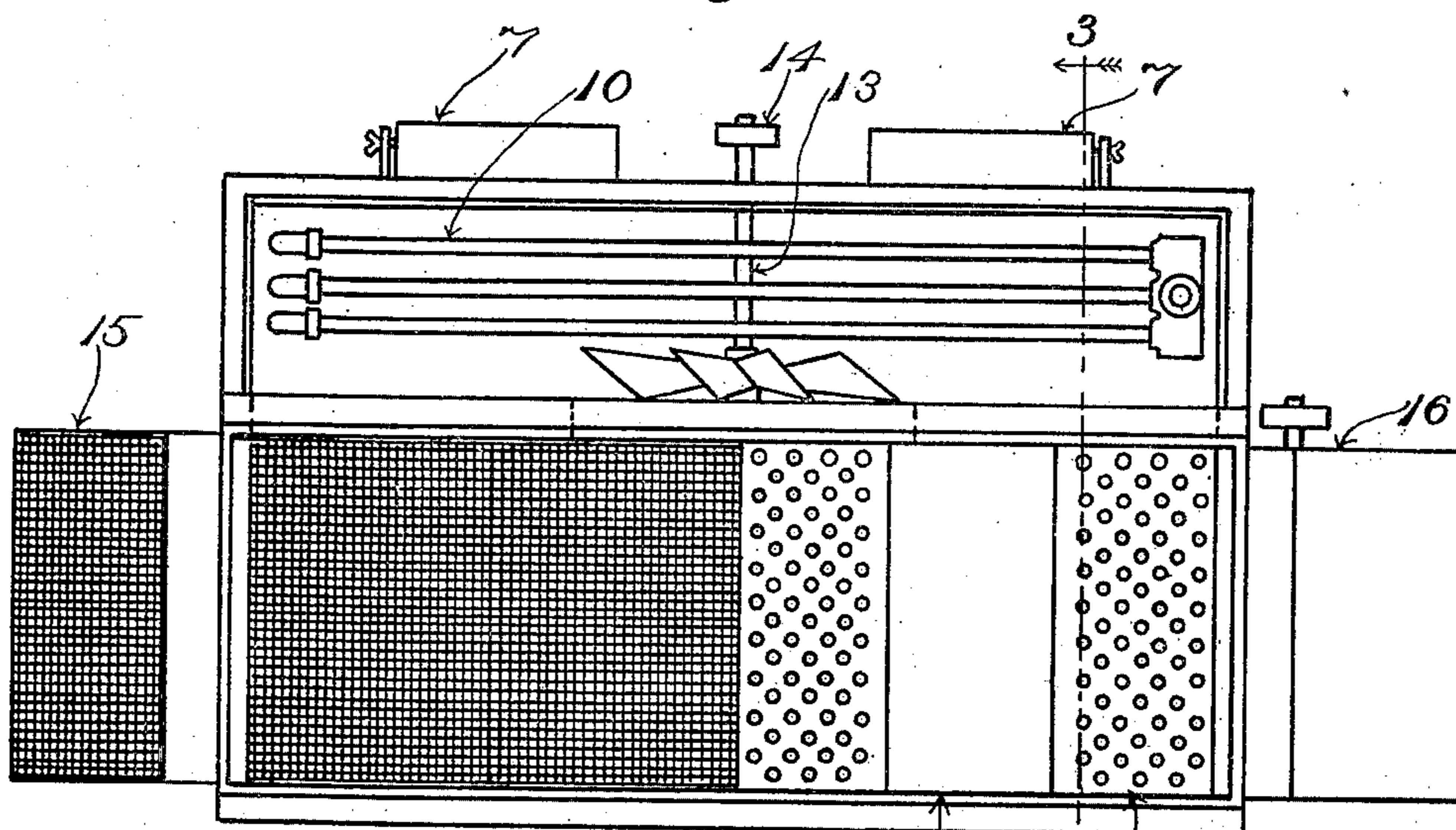


Fig. 2.

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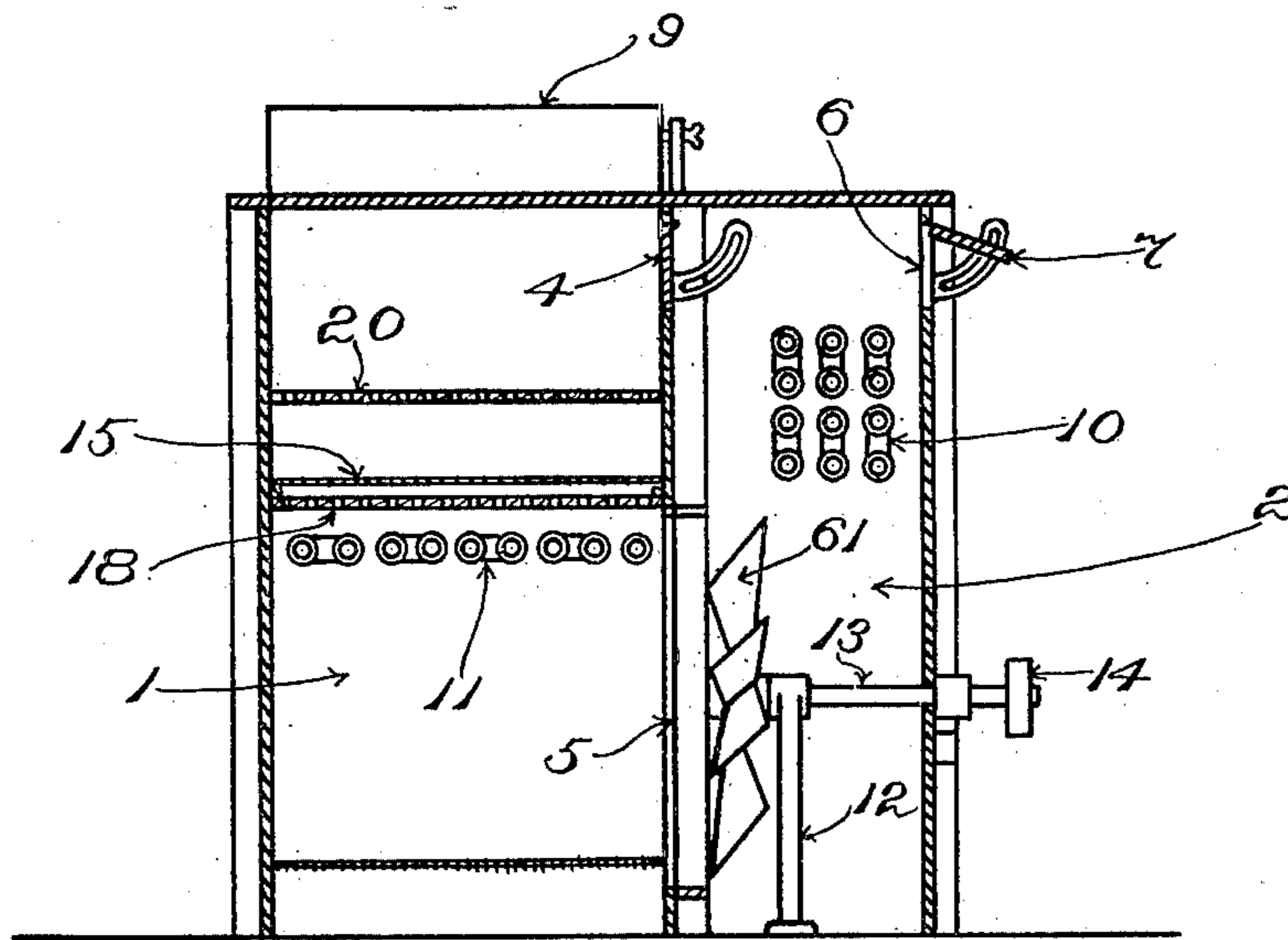


Fig. 3.

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UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT, OF GRANITEVILLE, MASSACHUSETTS.

DRIER.

SPECIFICATION forming part of Letters Patent No. 675,068, dated May 28, 1901.

Application filed August 29, 1900. Serial No. 28,464. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK G. SARGENT, a citizen of the United States, residing at Graniteville, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Driers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention is shown applied to a wool-drying machine of the type in which a traveling apron passes through a closed chamber, carrying a layer of wool slowly from the feed end to the discharge end of the chamber, while a current of heated air is caused to circulate through the layer of wool to abstract the moisture therefrom. It should be understood, however, that my invention is not necessarily limited to use in this precise connection. Its application to other forms of driers will be obvious from the disclosure that is contained in the following description.

I will first explain briefly the particular construction of drier that is illustrated in the drawings and then will disclose the nature of my invention and its application and relation to the drier, after which I will more precisely define the invention in the claims with which this specification concludes.

In the drawings, Figure 1 is a middle vertical longitudinal section of the drier. Fig. 2 is a plan view of the same with the top boarding of the drying-chamber removed to show the internal construction of the apparatus, certain of the upper series of radiating-plates also being removed in order to show the apron. Fig. 3 is a vertical transverse section on the line 3 3 of Fig. 2 looking toward the left, as shown by the arrows at the ends of that line.

In the drawings is shown a drier having two compartments placed side by side and connected by passages at the top and bottom. One compartment, as 1, accommodates the material to be dried and the other, as 2, contains steam-pipes, as 10, or similar means of heating the air which is caused to pass through the apparatus.

At 3 3, &c., are shown upper openings between the two chambers provided with doors 4 4, &c.

5 is a lower opening in which is set the usual

fan 61 for occasioning movement of the air in the required direction.

At 6 6 are shown openings from the exterior into the heating-chamber 2, and 7 7 are doors applied to such openings.

8 is an opening at the top of the drying-chamber to permit air to escape from the latter, and 9 is a door applied to said opening 8.

As heretofore, if doors 7 7 and 9 be closed and doors 4 4 be opened the operation of the fan 61 will produce an air-current in which the same air is used over and over again, it being drawn or forced alternately through the stock and through the steam-pipes 10. The air-current may be caused to travel in either direction, according to the direction in which the fan is rotated. As heretofore, also, if it is considered desirable to pass the air only a single time through the steam-pipe compartment and through the stock, drawing it into the drier from the external atmosphere and discharging it again as soon as once used, this may be effected by opening the doors 7 7 and 9 and closing doors 4 4, as illustrated in the drawings. This mode of procedure has heretofore not been found practicable in the treatment of many kinds of stock, however, because it does not dry such stock thoroughly.

At 11 are indicated steam-pipes in the drying-chamber below the upper run of the traveling apron.

12 is a standard on which the inner portion of the shaft 13 of the fan 61 is mounted, the outer end of the shaft projecting through the casing of the drier and being provided with a driving-pulley 14.

15 is the traveling apron, usually perforated or reticulated, which passes through the drying-compartment 1 and over drums 16 16 at or near the ends thereof, the said drums being slowly rotated to carry the stock on the apron through the machine.

17 17 are the usual idler-rollers at the ends of the drier for excluding the passage of air, while permitting the stock to be introduced and discharged.

If desired, my invention may be embodied in that form of drier comprising a plurality of aprons, one over another, the highest delivering to the second one and that in turn to the third one, and so on.

My invention consists more essentially in introducing into a drier of the nature described one or more plates of metal 18 19 20 21, supported in the circulatory current adjacent to the material to be dried. These plates soon become thoroughly heated by the air and thereafter radiate a large quantity of heat directly upon the mass of stock on the apron, thereby greatly facilitating the drying of the said stock.

In the matter of specific construction I have found that the metal plates aforesaid may be placed over or under or both over and under the stock, so long as they are sufficiently near to radiate upon the stock the heat they have received from the air. Thus in the drawings 18 and 19 designate metal plates which are supported below the apron, and 20 21 other plates which are supported above the apron. A part or all of these plates may be perforated, as in the case of plates 18 and 20, to permit free passage of the circulatory current, so long as a sufficient body of metal remains to take up from the air and give again out to the stock by radiation an effective quantity of heat. In the drawings both solid and perforated plates are shown as arranged in alternate succession at each side of the upper run of the apron, whereby an effective degree of radiation is maintained without unduly obstructing the circulatory current.

Ordinarily with my invention applied I arrange the doors in the manner shown in the drawings, so that the air passes only once through the machine, it entering directly into the latter and issuing thence after having traveled past the stock under treatment.

What I claim is—

1. In a drier, means to support the material to be dried, a fan to produce a current of air, means to direct said current to act upon the

said material, means to heat the said air, and a metallic plate supported in the said current adjacent to the said material, receiving heat from the current, perforated to permit passage of the said current, and radiating upon the said material the heat received from the said current.

2. In a drier, means to support the material to be dried, means to direct a current of heated air upon such material, and metallic plates supported in said current at opposite sides of said material, receiving heat from such current, and acting to radiate upon the material the heat received from the said current, substantially as described.

3. In a drier, the drying-compartment, the traveling apron in said compartment to support the material to be dried, means to pass a current of heated air through the compartment, and a metallic plate supported in said compartment adjacent the said apron, receiving heat from said current, and acting to radiate upon the material supported by said apron the heat received from the current, substantially as described.

4. In a drier, the drying-compartment, the traveling apron in said compartment to support the material to be dried, means to pass a current of heated air through the compartment, and metallic plates in the compartment at opposite sides of said apron, receiving heat from the current, and acting to radiate heat upon the material supported by the apron, substantially as described.

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

FREDERICK G. SARGENT.

Witnesses:

ARTHUR E. DAY,
EDITH A. NORMINGTON.