

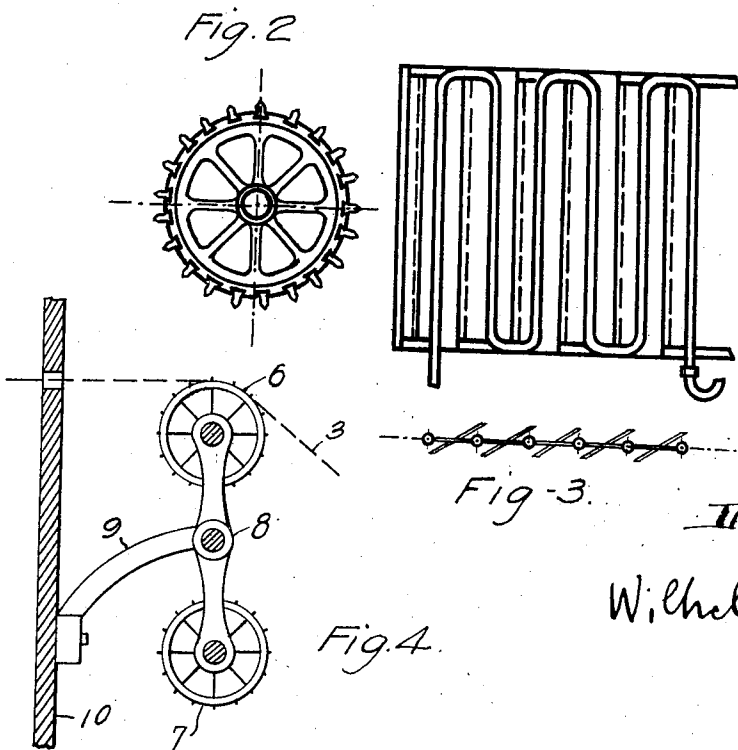
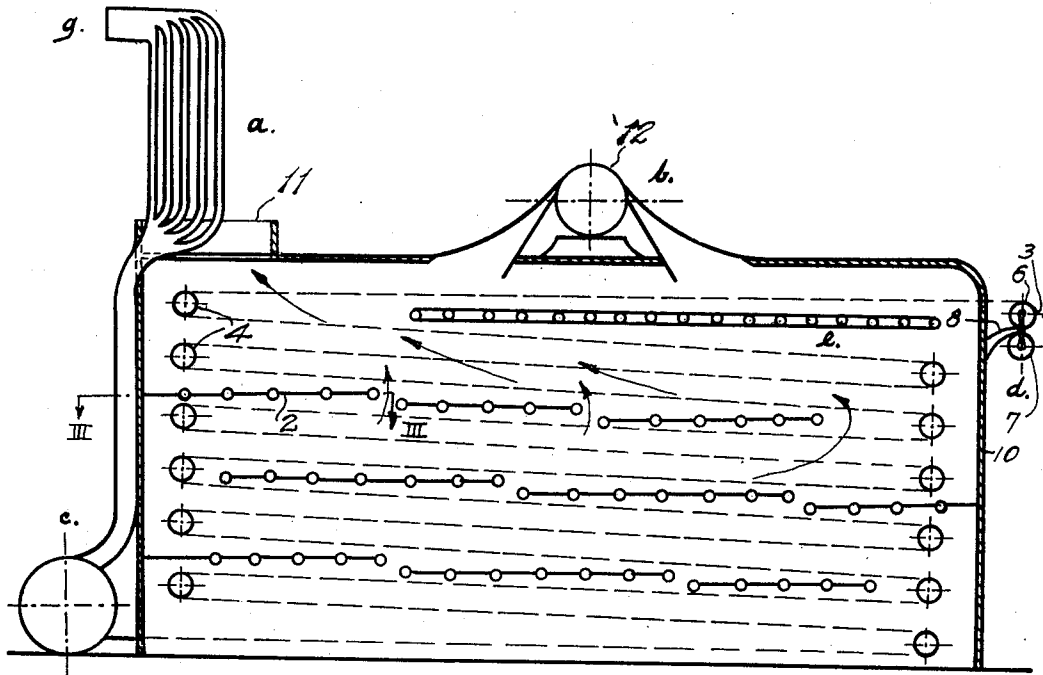
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DIFFERENTIAL DRYING MACHINE

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DIFFERENTIAL DRYING MACHINE.

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The invention relates to an improvement in drying machines, in which is employed a chamber system formed by angularly positioned heated plates, which cause heating and whirling of the drying air and which shall have the advantage of increased efficiency and quicker drying with less expenditure of fuel.

Another object of the invention is to employ driving rolls with ribs made of nickel.

Another object is to employ driving rolls connected to a common shaft for cleaning purposes.

One form of the invention is illustrated in the accompanying drawing in which Fig. 1 is a vertical section of the entire machine: Fig. 2 is a vertical section of the driving roller and its ribs: Fig. 3 is a horizontal section of a part of the drying machine with steam heated coils, and Fig. 4 is a vertical section of the outside driving rollers connected to a common shaft.

The air for drying the wet material is forced by fan 1 in a horizontal direction into the drying machine and passes in a horizontal direction through the chambers, which are formed by the partition plates 2. These partition plates, which consist of iron plates with steam pipes and ribs for good heat transmission are arranged in spaced relation in the drying machine at a small angle to the horizontal. By this arrangement the drying air is forced to pass partially through the spaces between the heating plates in a vertical direction. This causes a desirable local whirling movement of the air in addition to the general horizontal movement of it, which increases the drying capacity and heating efficiency. The spaces between the heating plates are as large as necessary for the efficient whirling of the drying air current. After drying the wet material the hot vapors are passed to the exhaust stack 11. The fan 12 at the top of the drying chamber 10 partially circulates the drying air and thereby increases its efficiency. The material 3 is moved through the drying machine by driving rollers 4. They are provided with ribs 5 of nickel with a very small external edge. Especially for drying machines of starched wharps this prevents adherence of size at the ribs of the driving rollers. Experiments have shown that the adherence of size on nickel is very small in comparison with other metals used for said purpose. Outside of the

drying machine there are two driving rollers 6 and 7 which move the drying material to the driving rollers inside of the drying machine. These driving rollers 6 and 7 are mounted on separate shafts which are connected to arms secured to an intermediate shaft 8 journaled on the support 9 on the casing 10. When one of the rollers is to be cleaned it can be swung down on the shaft 8 and the other roller will swing into operative driving position and will be driven by the drying material 3 or a suitable gear drive. The roller is held in operative driving position by means of a suitable fastening device (not shown).

I claim:

1. A web drying machine comprising a housing, a blower for conveying a continuous current of air through said drying machine, a plurality of partition plates, said plates arranged in an angular position to each other and with longitudinal spaces between the different plates, a plurality of steam heating coils connected with said partition plates permitting the drying air to be heated and passed partially through the machine in direction of the drying material and partially through said spaces between the partition plates in vertical direction to the drying material for getting sufficient rotation of the drying air and a complete contact with the material to be dried.

2. In a web drying machine comprising a housing, means for passing a current of air through said drying machine, driving rollers for moving the material to be dried, said rollers provided with ribs of nickel.

3. In a web drying machine comprising a housing, means for passing a current of air through said drying machine, driving rollers for moving the material to be dried, said rollers provided with ribs of nickel, the external edge of these ribs having such a small surface that only a relative small contact with the material to be dried is possible.

4. In a web drying machine comprising a housing, means for passing a current of air through said drying machine, driving rollers for moving the material to be dried, two outside driving rollers, both connected to a common shaft and so arranged that only one is in action for moving the material to be dried.

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