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J. H. STONE.

METHOD OF AND MECHANISM FOR MAKING CORK SHEETS.

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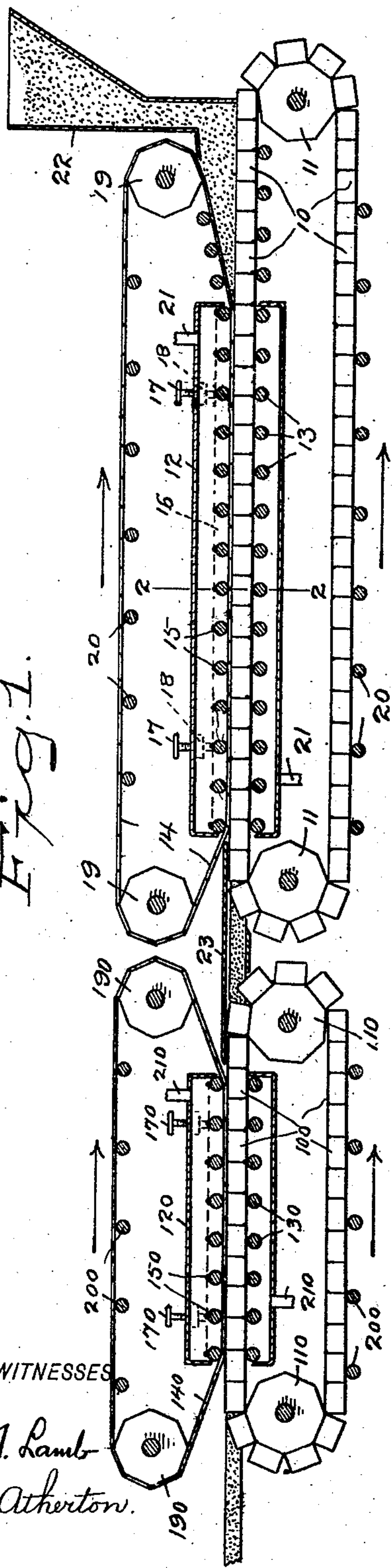


Fig. 1.

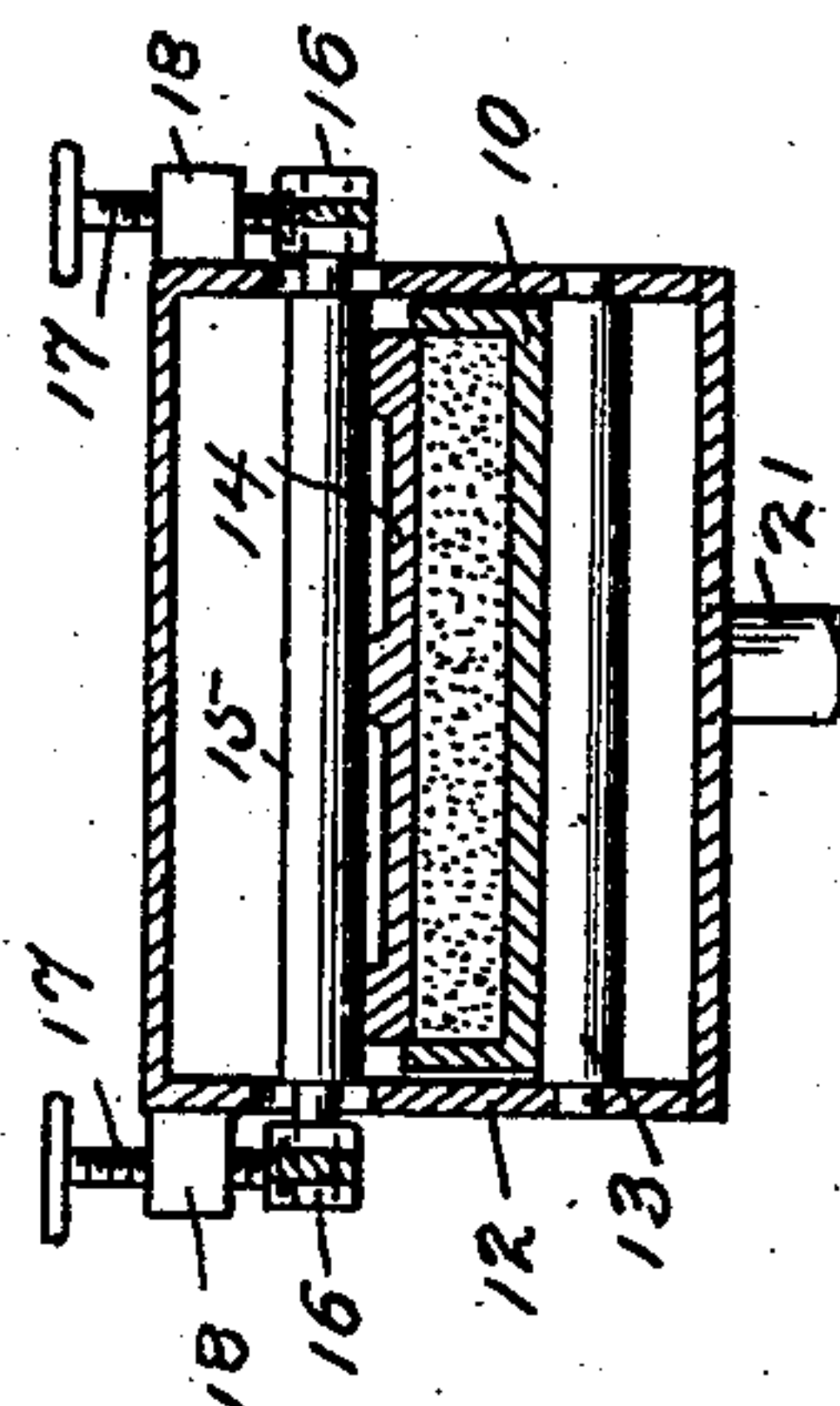


Fig. 2

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METHOD OF AND MECHANISM FOR MAKING CORK SHEETS.

No. 842,356.

Specification of Letters Patent.

Patented Jan. 29, 1907.

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To all whom it may concern:

Be it known that I, JUNIUS H. STONE, a citizen of the United States, residing at New York, county of New York, State of New York, have invented a new and useful Method of and Mechanism for Making Cork Sheets, of which the following is a specification.

This invention relates to the manufacture of cork in the form of continuous sheets or strips adapted to be cut up to the size required for various purposes; and the invention involves an improved method and apparatus for continuously compressing and heating a layer of granulated cork, so that said layer will retain its molded form.

Heretofore, so far as I am aware, granulated cork has been baked and pressed only in the form of sheets or strips of limited area; and the object of this invention is to save labor not only in the manufacture of the sheets, but in the erection of buildings for containing the molding apparatus, since a large number of separate sets of molds will be unnecessary.

Of the accompanying drawings, Figure 1 represents a longitudinal section through an apparatus embodying my invention and by means of which my improved method may be carried out. Fig. 2 represents a section on line 2 2 on Fig. 1.

Similar reference characters indicate the same or similar parts in both figures.

In the embodiment of the invention illustrated in the drawings the apparatus comprises an endless carrier, consisting of a series of lower sections or containers 10, suitably connected to form an endless chain, each section or container being formed with a bottom and two ends, but with no side portions, so that the upper stretch of the endless carrier will comprise a trough capable of receiving the granulated cork. The endless carrier is mounted on drums or wheels 11, which are so formed as to engage the endless carrier and positively actuate said carrier in the direction of the arrow represented in Fig. 1 by means of power suitably applied to one or both of the shafts of said drums or wheels.

The oven is preferably of the horizontal type, constructed substantially like a long flue. It is to be understood, however, that the oven and the mold may be arranged in other than horizontal position. The oven illustrated comprises a casing 12, having an inlet at one end and an exit-opening at the other end.

Mounted in the walls of the oven or otherwise supported are mold-supporting rolls 13. An endless presser 14 to cooperate with the sections of the endless carrier is illustrated as comprising plates, which are hinged or otherwise flexibly connected together, so that the presser as a whole may be driven by suitable drums or wheels 19. In order to hold the lower stretch of the endless presser down upon the material in the mold-sections, I employ a series of rolls 15, the shafts of which extend through slots in the sides of the casing and are mounted in bars 16, which are adjustably connected by screws 17 to lugs or bosses 18, projecting from the sides of the casing. By adjusting the screws 17 the plane of travel of the lower stretch of the endless presser may be varied so as to provide for the production of a sheet or strip of any desired thickness within the limits of the adjustments provided, which limits may be from one to four inches. The return stretches of the endless carrier and endless presser may be supported by suitable rolls 20. The oven may be heated by any suitable means, such as electric heaters or superheated steam or hot air. In Fig. 1 I have indicated pipes 21 for the introduction and escape of any suitable heating fluid. At one end of the apparatus a hopper 22 is mounted, said hopper being adapted to contain a suitable quantity of granulated cork, said cork being deposited from the hopper directly into one end of the trough formed by the endless carrier. The end of the endless presser immediately in front of the discharge or bottom hopper is inclined, so that the cork taken from the hopper is gradually compressed as it approaches the oven, said cork being held in compression between the sections 10 and the plates of the presser 14 passing through the oven. The oven may be heated to a temperature of from 400° Fahrenheit to 500° Fahrenheit, the speed of movement being slow enough so that the combined heat and pressure will condense the layer of cork and cause the natural ingredients of the cork to serve to bind the parts together, like a cement.

Since the internal pressure of the gases contained in the cork is liable to swell the sheet, it is desirable that said sheet shall be cooled while still under pressure. Moreover, the gases are more liable to escape while the sheet is heated than when the sheet is cold. The escape of the gases weakens the sheet to

some extent; but by confining the sheet under pressure while cooling the particles of the cork are held more firmly together.

The structure of the apparatus for cooling the sheet is substantially the same as that of the apparatus for molding and baking it. Said cooling apparatus comprises an endless carrier 100, mounted on drums or wheels 110, the upper stretch passing through a casing 120 and supported by rolls 130. The endless presser 140 is similar to the presser 14, and the lower stretch, which passes through the cooler-casing, is held down by rolls 150, which are mounted similarly to the rolls 15 and may be adjusted by screws 170, the said endless presser being mounted on and driven by drums or wheels 190. The return stretches of the carrier 100 and presser 140 may be supported by rolls 200. Suitable pipes 210 are shown, which pipes may be used for the introduction and escape of a suitable cooling medium, such as refrigerated air. To prevent access of air to the sheet or the expansion of the sheet as it passes through the oven to the cooler, a suitable housing 23 may be employed intermediate said oven and cooler. After the sheet leaves the cooler it may be cut to any size and thickness desired by any suitable means.

Having now described my improved method and one embodiment of apparatus capable of carrying out said method, although not limiting myself to the particular apparatus illustrated and described, what I claim is—

1. The method of making a cork sheet or strip, the same consisting in continuously forming a layer of granulated cork, simultaneously compressing and heating said layer as it is formed, and progressively cooling said layer and holding it under compression during such cooling, the material being held substantially air-excluded during the heating and cooling.

2. The method of making a cork sheet or strip, the same consisting in continuously forming a layer of granulated cork, passing the layer through a heater, compressing said layer while in the heater, and then passing the layer through a cooler, the material being held substantially air-excluded during the heating and cooling.

3. The method of making a cork sheet or strip, the same consisting in continuously forming a layer of granulated cork, passing the layer through a heater, compressing said layer while in the heater, and then passing the layer through a cooler and holding it under compression in said cooler, the material being held substantially air-excluded during the heating and cooling.

4. The method of making a cork sheet or strip, the same consisting in continuously

forming a layer of granulated cork, passing the layer through a heater, compressing said layer while in the heater, cooling the layer under pressure after leaving the heater, and passing the layer through an air-excluding housing between the heater and the cooler.

5. An apparatus for the manufacture of continuous cork sheets or strips, comprising an endless carrier, an endless presser, said carrier and presser being in opposition to each other, the opposing surfaces moving in the same direction, said carrier being substantially unyielding while carrying the material, an oven inclosing portions of the carrier and presser, and means for supporting the portions of the carrier and presser within the oven.

6. An apparatus for the manufacture of continuous cork sheets or strips, comprising an endless carrier, an endless presser, said carrier and presser being in opposition to each other, the opposing surfaces moving in the same direction, said carrier being substantially unyielding while carrying the material, an oven inclosing portions of the carrier and presser, rolls for supporting the portion of the carrier within the oven, and adjustable pressing-rolls bearing on the portion of the presser within the oven.

7. An apparatus for the manufacture of continuous cork sheets or strips, comprising an endless carrier, an endless presser, an oven inclosing portions of the carrier and presser, a cooler, and an endless carrier and endless presser having portions inclosed by said cooler.

8. An apparatus for the manufacture of continuous cork sheets or strips, comprising an oven, a cooler, an intermediate housing between the oven and the cooler, and endless carriers and pressers, having portions inclosed by said oven and cooler, and adapted to form and feed a layer of granulated cork through the oven and the housing and the cooler.

9. An apparatus for the manufacture of continuous cork sheets or strips, comprising a movable compressing device adapted to receive granulated cork in layer form, said device comprising an endless carrier formed of pivotally-connected sections and an endless compressor formed of pivotally-connected plates, and a heating device for heating the layer as it is being compressed, said compressing device being movable in a single plane while subjected to the heating action.

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

JUNIUS H. STONE.

Witnesses:

CHAS. FRANCIS STONE, Jr.,
M. L. CARPENTER.