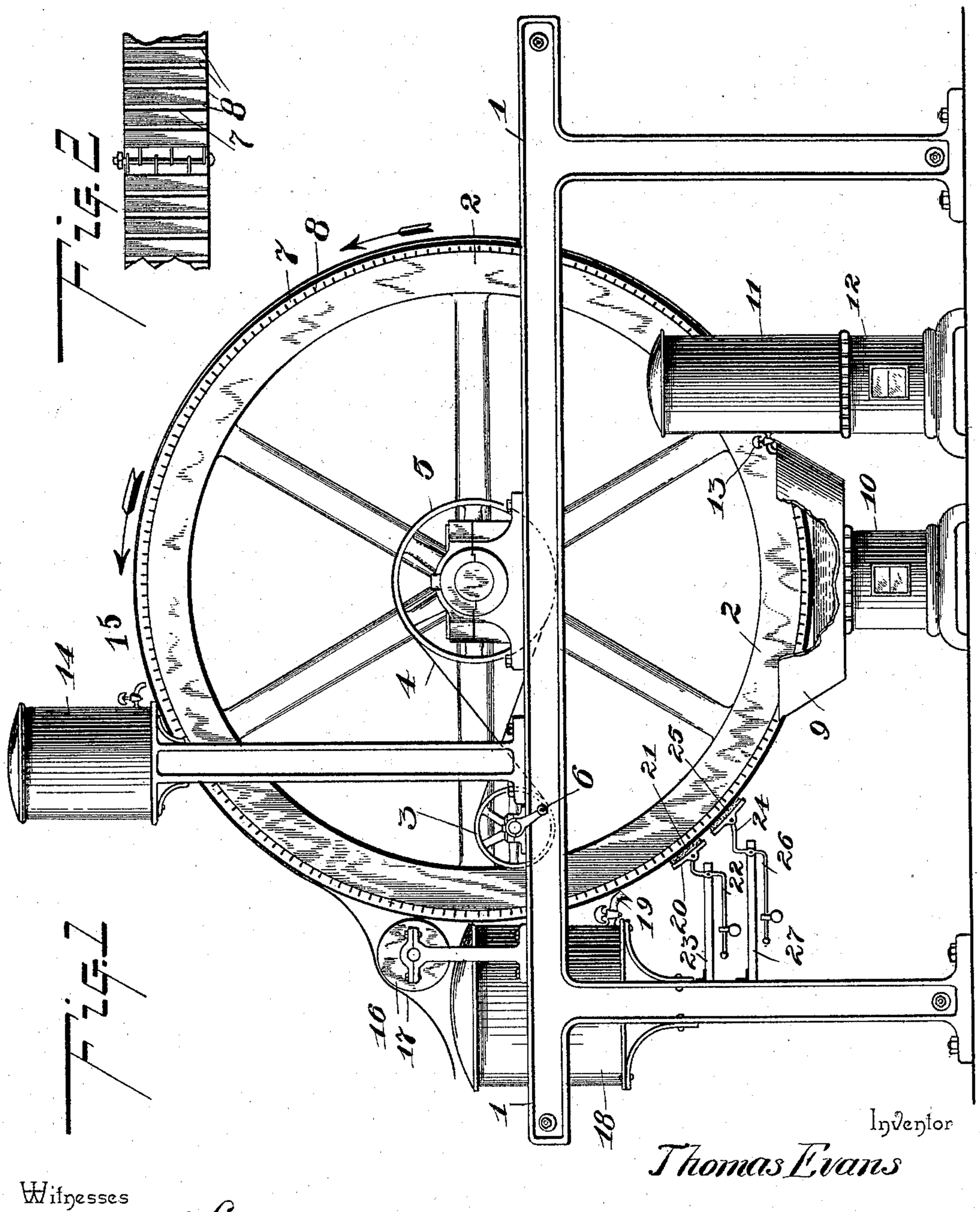
(No Model.) 2 Sheets—Sheet 1.

T. EVANS.

APPARATUS FOR SHEETING WAX.

No. 590,017. Patented Sept. 14, 1897.



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Witnesses

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(No Model.) 2 Sheets—Sheet 2.

T. EVANS.

APPARATUS FOR SHEETING WAX.

No. 590,017. Patented Sept. 14, 1897.

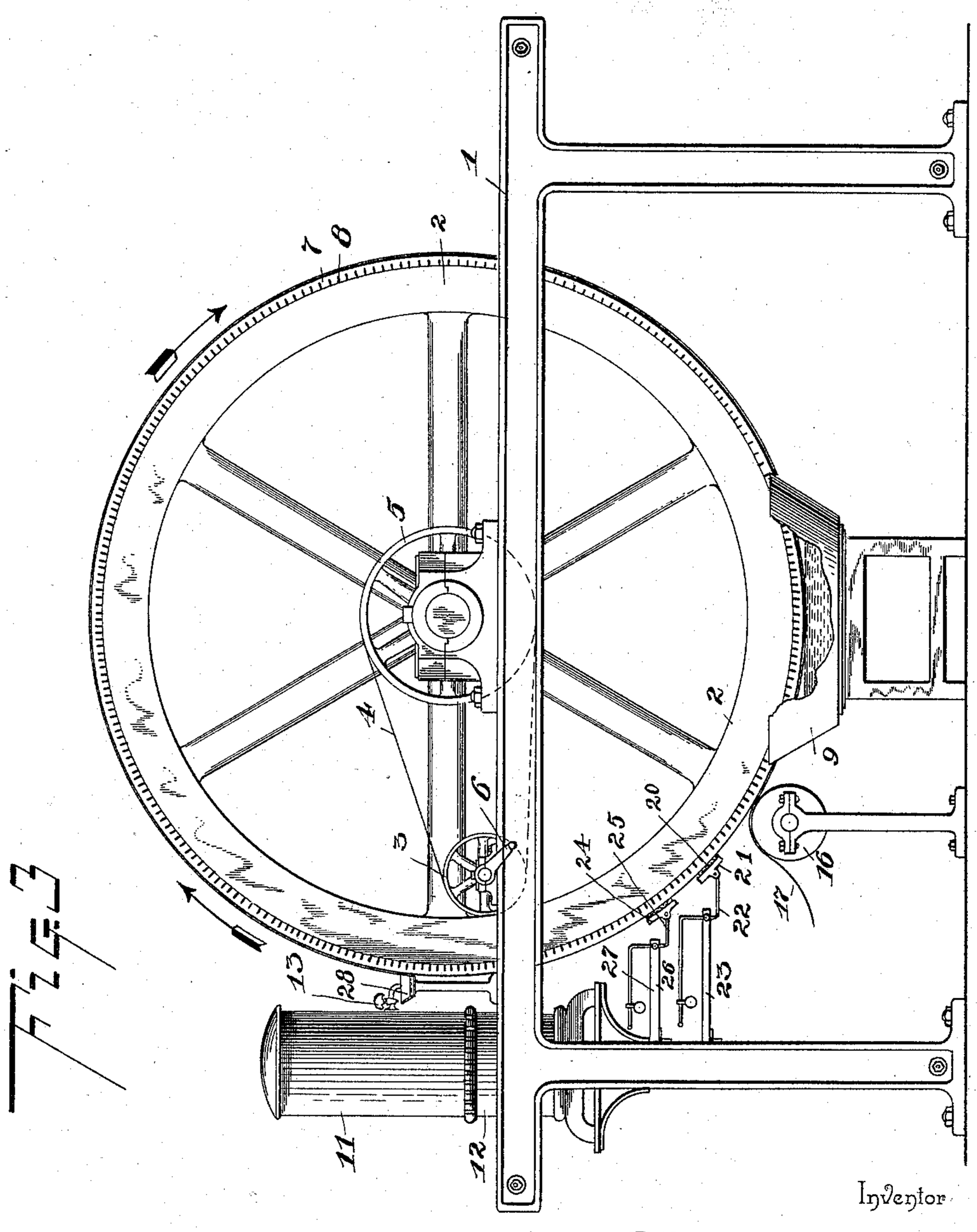

Fig. 3.

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UNITED STATES PATENT OFFICE.

THOMAS EVANS, OF LANSING, IOWA.

APPARATUS FOR SHEETING WAX.

SPECIFICATION forming part of Letters Patent No. 590,017, dated September 14, 1897.

Application filed May 28, 1896. Serial No. 593,421. (No model.)

To all whom it may concern:

Be it known that I, THOMAS EVANS, a citizen of the United States, residing at Lansing, in the county of Allamakee and State of Iowa, have invented a new and useful Apparatus for Sheeting Wax, of which the following is a specification.

My invention relates to the art of making what are known among apiarists as "sheeted wax" and "artificial comb-foundation," and particularly to machines for use in said art, and has for its object to provide a simple, inexpensive, and efficient construction and arrangement of parts capable of relative adjustment to vary the thickness of the sheet.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side view, partly in section, of a wax-sheeting apparatus constructed in accordance with my invention. Fig. 2 is a detail view of the contiguous connected extremities of a belt used in connection with the apparatus and forming the sheeting-surface. Fig. 3 is a side view, partly in section, of the apparatus, showing a modified arrangement of parts employed when it is desired to reduce the thickness of the sheet.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Upon a suitable frame 1 is mounted a wheel 2, which in practice may be about five feet in diameter, any suitable means for communicating rotary motion to the wheel being employed—such, for instance, as a pulley 3, connected by means of a belt 4 with a larger pulley 5 on the hub of the wheel, the pulley 3 having its spindle provided with a crank 6 or its equivalent. Upon this wheel is arranged a removable belt 7, which may be of any desired width to suit the width of the sheet of wax to be formed, said belt being preferably of wood and consisting of a strip equal in length with the circumference of the wheel and having its under or inner surface scored, as shown at 8, to make the same sufficiently flexible to fit snugly upon the periphery of the wheel. This belt forms the sheeting-surface, and in the arrangement of parts illustrated in Fig. 1 the lower side of the wheel is arranged to dip into a vat or receptacle 9, containing melted wax, the contents being maintained at the proper temperature by means of a heating device 10, consisting of an oil-stove or its equivalent. Obviously the depth of material in the vat or receptacle 9 is such that only the exterior surface of the sheeting-belt dips thereinto, and owing to the adhesive quality of the wax, together with the fact that the sheeting-surface is cooler than the melted wax, the latter will adhere to the surface and will be carried up over the wheel in the direction indicated by the arrow in Fig. 1. The supply-tank 11, also provided with a heating device 12, is arranged to discharge by means of a faucet 13 into the vat, said faucet having adjustable controlling devices for regulating the flow of the melted wax, whereby the supply thereof to the vat may exactly equal the removal thereof by means of the sheeting-surface to maintain a uniform depth of liquid in the vat.

A sheet-cooling device consisting of a cold-water tank 14 is arranged to discharge by means of a faucet 15 upon the surface of the wax near the point at which the sheet is removed from the sheeting-surface, the point of removal being indicated by the removing or direction pulley 16 and the position of the sheet in leaving the sheeting-surface being indicated in Fig. 1 at 17. In order to thoroughly cool and cleanse the sheeting-surface after the removal of the sheet of wax therefrom, I employ a spraying device, consisting of a tank 18 and a spray-nozzle 19, which discharges water or equivalent fluid upon the exterior surface of the sheeting-belt. Below or in rear of the spraying device I have arranged an absorber 20, consisting of a pad 21, held by means of a pivotal-weighted arm 22 in contact with the surface of the sheeting-belt, said arm being mounted upon a hinged bracket 23, whereby the absorber may be removed from contact with the surface when desired. Below or in rear of the absorber is a drier 24, consisting of a pad 25, held by means of a weighted pivotal arm 26 in operative position, said arm being mounted upon a hinged bracket 27. Thus after the removal of the completed sheet or the completed portion of a sheet from the sheeting-surface the surface is

sprayed and then rubbed and dried by suitable devices, whereby when it enters the vat or receptacle containing the melted wax it is in condition for receiving the material and thus forming a continuous sheet.

When it is desired to reduce the thickness of the sheet, I rearrange the devices by disposing the wax-supply tank 11, as indicated in Fig. 3, to discharge into a feeder 28, by which the material is spread uniformly upon the surface of the sheeting-belt, the latter then receiving motion in the opposite direction from that indicated in Fig. 1 or as shown by the arrow in Fig. 3, whereby the sheet traverses the wheel in the opposite direction. The supply of water by means of the tank 14 is dispensed with and the reservoir 18 is removed, the direction or removing pulley 16 being placed below the plane of the wax-feeding device. The receptacle 9 is then employed as a cooling device and is supplied with water, into which the completed sheet is dipped just before it is removed by means of said roller; also, the absorbing and drying devices 20 and 24 are reversed in position.

From the above description it will be seen that a continuous sheet of wax may be formed by imparting a continuous rotary motion in a uniform direction to the wheel which carries the sheeting-surface, and by reason of the simplicity of the apparatus it may be operated at any desired speed consistent with the proper taking up of the wax by the sheeting-surface and the removal of the completed sheet therefrom. By means of the removable and interchangeable sheeting-belt a sheet of any desired width may be formed.

I preferably employ cooling devices consisting of means, as described and shown, for applying a cooling liquid externally to the surface of the sheeted material adjacent to the point of removing the sheet from the sheeting-surface for the reason that by this arrangement I avoid chilling the surface to such an extent as to interfere with the taking up of the liquid material from the feeding devices. It is obvious that in order to secure a thin uniform sheet, particularly of a material such as wax, which cools quickly, it is necessary to avoid chilling the surface below a certain temperature, which, however, is not so low as that required for finally cooling the sheet preparatory to the removal thereof from the wheel, and hence I have adopted the means illustrated for externally applying a cooling liquid contiguous to the point of removing the sheet.

The wooden sheeting-belt, which I have described in connection with the improved apparatus, is especially adapted for use in sheeting wax for the reason that it does not rapidly absorb heat from the wax and forms a surface particularly adapted for the adherence of the wax when the latter is in a heated or molten condition without causing the same to adhere too closely after it has been chilled. Furthermore, it will be seen that by means of the feeding device illustrated in Fig. 1 and consisting of a receptacle into which the sheeting-surface dips the thickness of the sheet may be regulated approximately by the depth to which the sheeting-surface dips into the molten material; but the thickness to which a sheet can be formed by means of this feeding device is limited, and when a still thicker sheet is required I adopt the arrangement illustrated in Fig. 3, wherein the material is held in contact with the face of the wheel at the side thereof.

By using a dipping trough or receptacle into which the surface of the sheeting-belt dips, as shown in Fig. 1, a greater portion of the area of the belt is brought into contact with the liquid material to be sheeted, and I have found in practice that by this means a more uniform application of the material to the surface of the sheeting-belt may be attained.

The sheets coming from this machine are smooth and form what is known as "sheet-wax."

Comb-foundation is sheet-wax favosed or honeycombed by suitable dies. As the honeycombing or favosing of the sheets of wax forms no part of the present invention the means by which it is accomplished is not described.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A wax-sheeting apparatus having a continuous sheeting-surface, means for feeding liquid material continuously to the sheeting-surface, and removing devices for deflecting the completed portion of the sheet, and cooling devices disposed between the feeding and removing devices, and consisting of means for applying a cooling liquid, as water, to the exterior surface of the sheeted material, substantially as specified.

2. A wax-sheeting apparatus having a continuous sheeting-surface adapted to receive continuous motion in a uniform direction, wax-feeding, sheet removing and cooling devices arranged in operative relation with the sheeting-surface, and means between the sheet-removing and wax-feeding devices for cleansing and drying the surface, substantially as specified.

3. In a wax-sheeting apparatus, the combination with a continuous sheeting-surface adapted to receive a continuous motion in a uniform direction, and wax-feeding, sheet removing and cooling devices arranged in operative relation with the sheeting-surface, of absorbing and drying pads yieldingly supported in contact with the sheeting-surface between the sheet-removing and wax-feeding devices, substantially as specified.

4. In a wax-sheeting apparatus, the combination with a continuous sheeting-surface adapted to receive a continuous motion in a

uniform direction, wax-feeding, sheet removing and cooling devices arranged in operative relation with the sheeting-surface, of a spraying device to discharge water upon the sheeting-surface, and yieldingly-supported absorbing and drying pads arranged in contact with the surface, substantially as specified.

5. A wax-sheeting apparatus having a rotary carrying-wheel, a continuous sheeting-belt removably fitted upon said wheel and provided with terminal engaging means, and wax-feeding, sheet removing and cooling devices arranged in operative relation with the surface of said belt, substantially as specified.

6. A wax-sheeting apparatus having a rotary carrying-wheel, a sheeting-belt removably fitted upon said wheel and consisting of a continuous strip of wood having a scored inner surface and means for connecting the extremities thereof, and wax-feeding, sheet removing and cooling devices arranged in operative relation with the surface of said belt, substantially as specified.

7. In a wax-sheeting apparatus, the combination with a continuous sheeting-surface adapted to receive a continuous motion in a uniform direction, of a wax-holding vat or receptacle, into the contents of which the sheeting-surface dips continuously, and wax-supplying devices to discharge continuously into said vat or receptacle, and including controlling devices whereby the supply may be regulated to equal the amount of wax removed by the sheeting-surface, to maintain the level of the surface of the wax in a uniform plane, and thereby insure uniformity of thickness in the resulting sheet of wax, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THOMAS EVANS.

Witnesses:
J. W. THOMAS,
B. F. THOMAS.