Aug. 8, 1944. W. G. DAVIS 2,355,278

APPARATUS FOR COATING OR SATURATING MATERIALS

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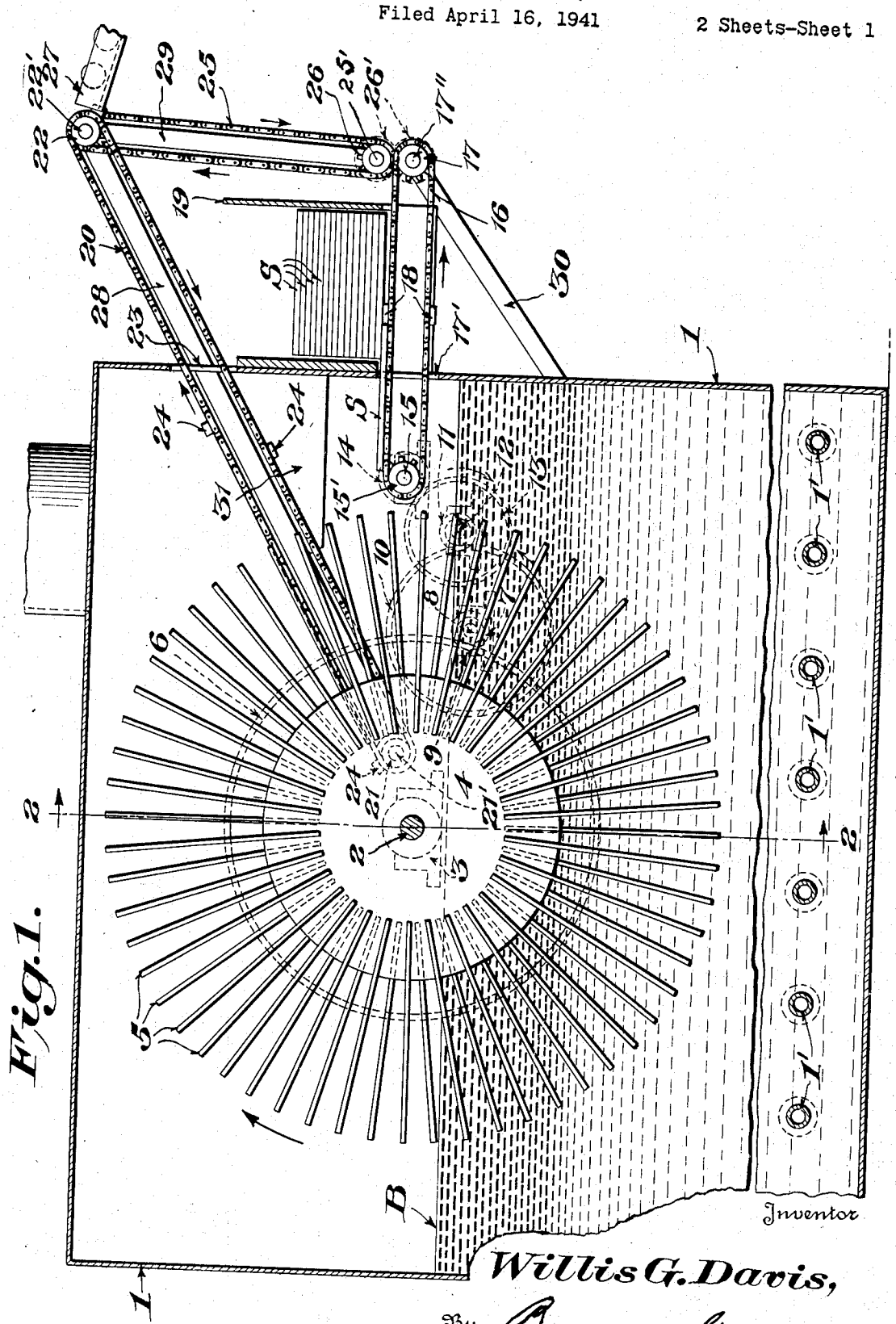


Fig. 1.

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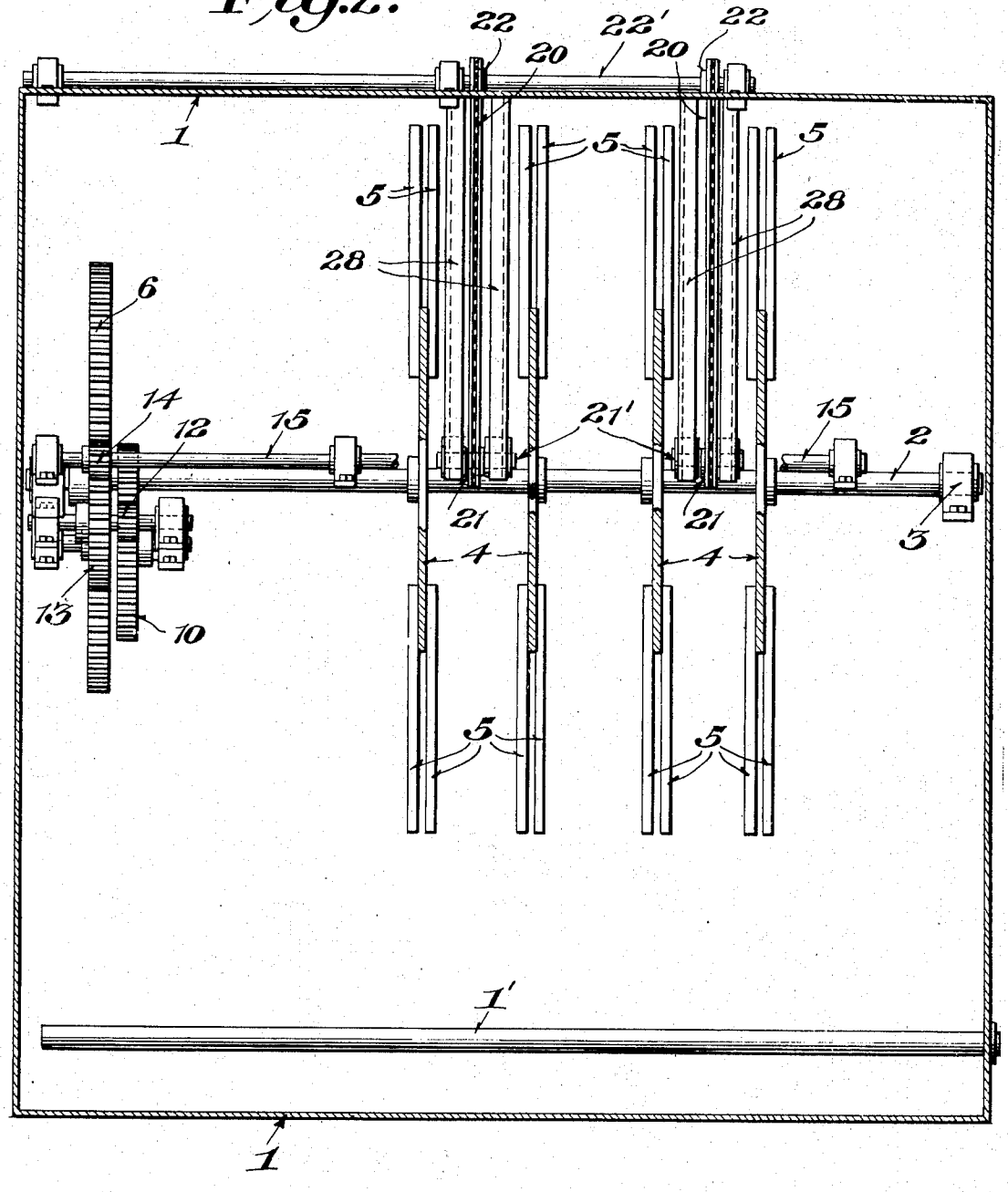
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Fig. 2.



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APPARATUS FOR COATING OR SATURATING MATERIAL

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Application April 16, 1941, Serial No. 388,908

2 Claims. (Cl. 91—46)

This invention relates to an apparatus for coating or saturating material, and more particularly for coating or saturating siding, formed of fibre board such as Celotex or similar or other fibrous material, which is employed in connection with the walls of buildings or other structures, with asphalt.

The primary object of the invention is to provide an apparatus of this character which expeditiously and automatically coats or saturates the siding by flotation in the asphalt or coating so as to thoroughly coat or saturate both faces and all edges thereof, and subsequently removes and dries same.

Further the invention aims to provide an apparatus of the character set forth, wherein after coating the siding is drained of any surplus, and is dried prior to removal from the apparatus, and also dried in the presence of heat derived from that applied to maintain the coating at a predetermined consistency.

Also the invention aims to provide an apparatus having means for automatically feeding the siding into the apparatus and for removal thereof after coating and drying, the entire operation being automatic and expeditiously performed.

Another object of the invention is to provide an apparatus of this type wherein a minimum of parts are employed, and which are compactly assembled so as to confine the entire operation to or in a small sphere.

A further aim of the invention is to provide an apparatus of the type set forth which is positive and efficient in operation and which requires a minimum of time in coating, while still effecting complete or thorough coating or saturation.

The invention has still further and other objects which will be later set forth and of themselves manifested in the course of the following description.

In the drawings:

Fig. 1 is a side elevation, partly in section; and

Fig. 2 is a section on line 2—2 of Fig. 1.

In proceeding in accordance with the invention a tank 1, is employed, which is supplied with a quantity of liquid asphalt to constantly maintain a sufficient depth in order to effect complete and thorough coating or saturation of the siding. Heating pipes 1' are disposed in the bottom of the tank to maintain the asphalt in liquid state or of such consistency to assure complete coating or saturation. These pipes are supplied with heat from any suitable source so as to maintain the asphalt at the desired or predetermined consistency. A main shaft 2, is journaled in the tank by means of bearings 3 and has a series of disks 4, rigidly secured thereto. Circular series of radial fingers or arms 5, are rigidly secured to the disks on the opposite side faces thereof and project radially therefrom. Adjacent of the arms 5 are radially spaced to form pockets in which the siding is received.

A large gear 6, is keyed to the shaft 2, and is in mesh with a small gear 7 that is keyed on a second shaft 8 journaled in bearings 9, which latter are suitably supported in the tank. A second gear 10 is also keyed on the shaft 8, and is in mesh with a pinion 11, keyed to a stub shaft 12; the latter further having a gear 13 keyed thereto which meshes with a pinion 14 on a drive shaft 15, the shaft 15 also carrying sprockets 15'.

Horizontal endless chains 16, are trained over the sprockets 15', and over sprockets 17, the sprockets 15' being located within the tank and the sprockets 17 without the tank, the chains passing through an opening 17' in the adjacent end wall of the tank. The chains are provided with abutments 18 to engage the siding S, that is stacked in the hopper 19. The bottom of the hopper is open, so that the upper flights of the chains 16 can move therethrough, and have their abutments 18 engage the foremost edges of the siding thus moving same through the opening 17' and into the pockets between adjacent fingers 5.

The conveyor which removes the coated and dried siding is composed of a pair of endless chains 20 trained over sprockets 21 and 22 and which move through an opening 23 in the adjacent end wall of the tank. These chains likewise have abutments 24 to engage the siding and remove same from the rotary carrier.

The conveyor chains 20, are driven by means of endless chains 25, which are trained over sprockets 26, and over sprockets corresponding to and located rearwardly of sprockets 22, on shaft 22'. Intermeshed gears 26' shown in dotted lines in Fig. 1, are connected to shaft 25' that carries sprocket 26 and to shaft 17'' to drive shaft 25' from shaft 17''. The chains 16 of the horizontal conveyor are driven from sprockets 15' on shaft 15. A preferably stationary conveyor 27 receives the coated and dried

material from the removing conveyor 20, to any desired point not shown.

Arms 28 carried by the tank 1, are provided to support the shaft 21' on which the sprockets 21 are mounted and also to support the shaft 22', on which the sprockets 22 are mounted. These arms are preferably of channel form and have depending vertical parts 29 which carry the shaft 17'' on which the sprockets 17 are mounted and shaft 25'. The lower ends of the parts 29, are supported by braces 30 that are secured to the tank. Stiffening plates or gussets 31 within the tank are preferably provided for the arms 28.

In operation the shingles are stacked in the hopper 19, and are individually fed therefrom in timed relation into the pockets between the radial fingers 5, of the rotary carrier, the latter moving in a clockwise direction. Rotation of the carrier causes the material to be moved into the coating bath where it is thoroughly saturated and coated by the asphalt, and by flotation remain in the pockets of the carrier, during the continued rotation of the latter.

As the siding or boards reach the bath it will be observed that same are rotated through the coating at 160° and then through the free space above the level of the bath, whereby the surplus coating is drained from the material and the latter dried, the drying being enhanced by the presence of the heat from the pipes 1', which in turn maintains the bath heated to a predetermined degree.

When the siding or boards in the successive pockets reach the removing conveyor 20, it will be seen that they will be engaged at their inner ends by the abutments 24 in timed relation and removed on to the conveyor 27.

The gearing between the rotary carrier and the drive shaft 15, is illustrated by way of example, and it will be understood that any type of reduction gearing may be employed so that the speed of travel of the rotary gearing may be less than that of the movement of the conveyor 20, the gearing being timed so that as the pockets of the rotary carrier successively reach the upper flight of the feeding conveyor 16, a siding will be deposited in the pocket. Likewise the movement of the removing conveyor chain 20 is such that as each successive pocket reaches the upper flight thereof same will be removed by the conveyor.

It will be also understood that the invention is susceptible to such changes, alterations or modifications as may fall within the scope of the appended claims.

I claim:

1. An apparatus of the type set forth including a tank having an inlet and an exit formed to receive a coating solution, means to maintain the solution in a heated state, a rotary material carrier mounted in the tank and having radial means provided with open outer portions for receiving and conveying the material through the solution, the travel of the upper arc of said carrier occurring above the level of the solution in the tank, whereby after the material has been coated to move the latter through the space above and over the solution level thereby to drain surplus of the solution off the material and to dry the latter as the material approaches the exit, means to feed the material to the carrier including an endless chain extending through the inlet and means to remove the material from the carrier and through the exit upon the material reaching the exit including an endless chain operating through the exit of the tank.

2. An apparatus of the type set forth including a tank for containing a coating solution, a rotary material carrier mounted in the tank provided with radially disposed spaced arms having open outer portions for receiving, and conveying the material through the solution thereby to coat same, means for radially feeding the material to the carrier, and other means for removing the material from the carrier having a portion thereof projecting into the space between the arms, said material removing means embodying an inclined endless chain having means to engage the inner ends of the material.

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