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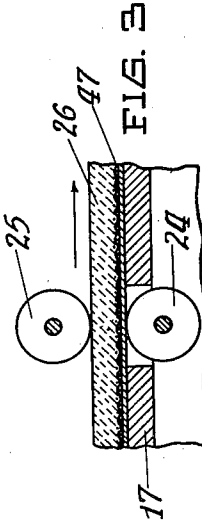
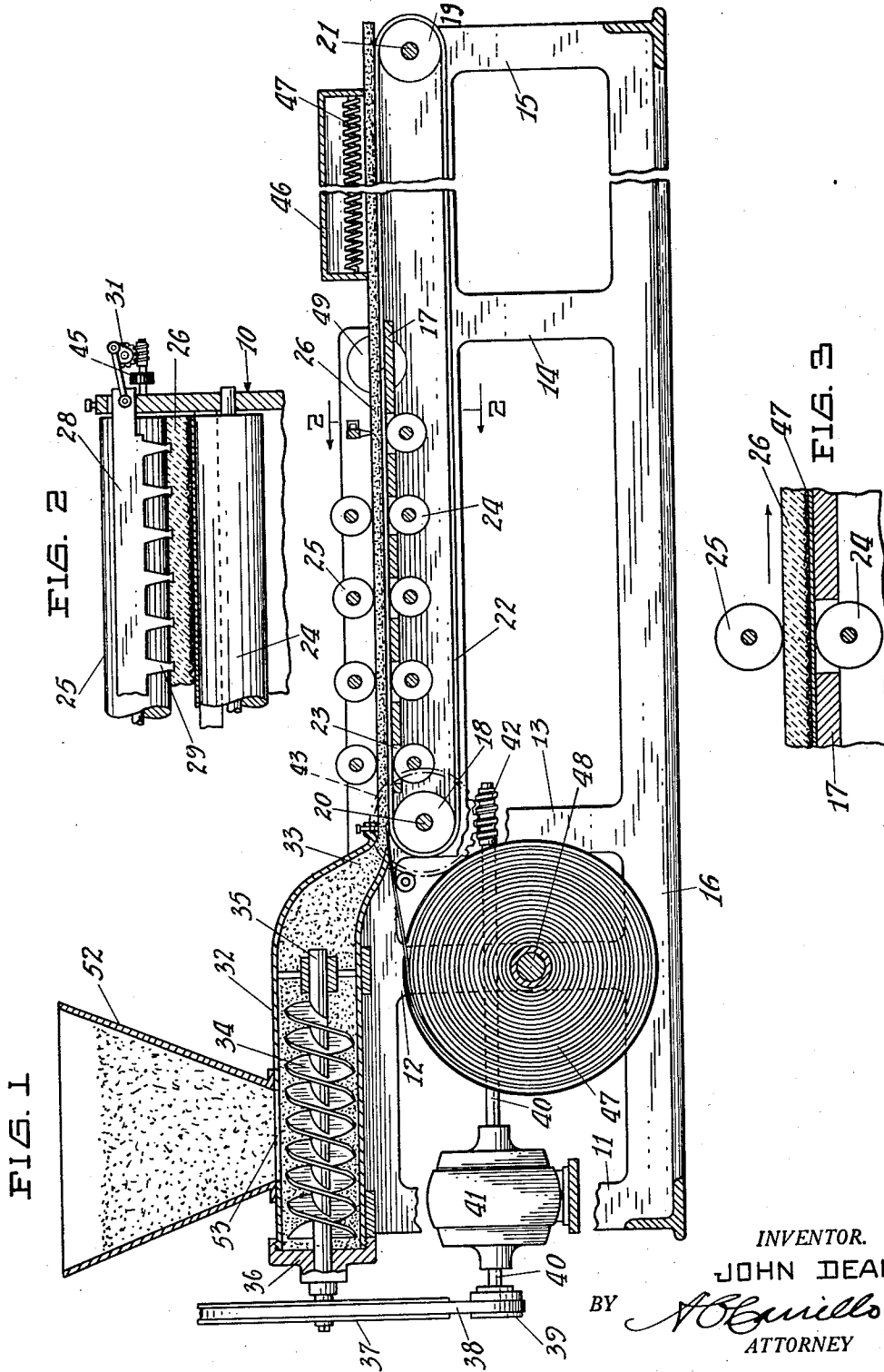
J. DEAN

1,945,306

MACHINE AND METHOD FOR PRODUCING WALL BOARD

Filed May 24, 1932

2 Sheets-Sheet 1



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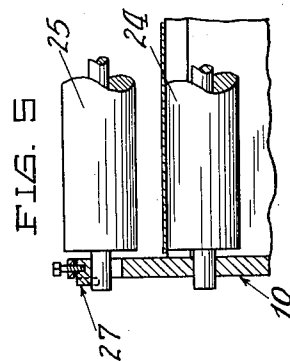
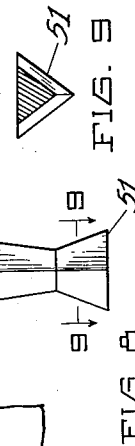
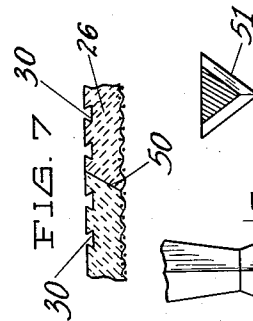
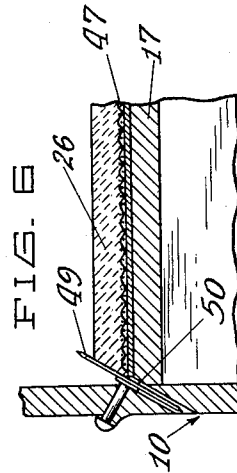
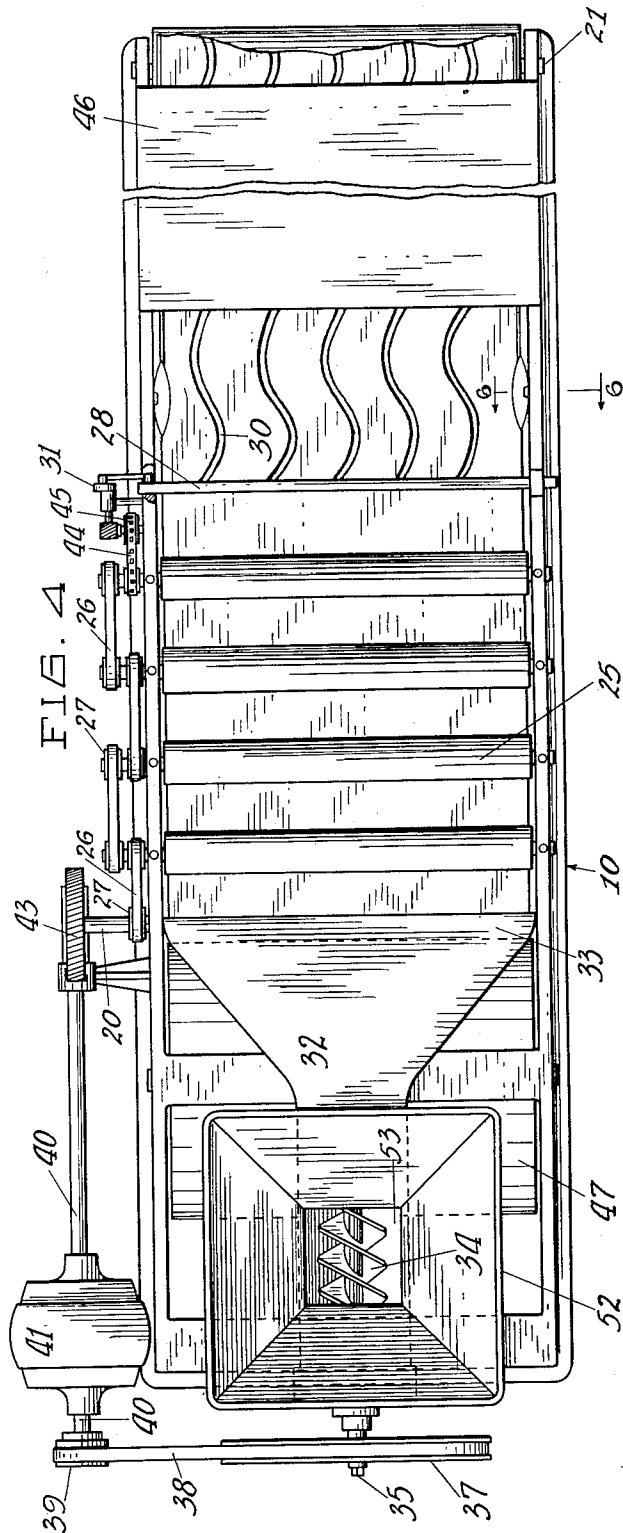
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1,945,306

MACHINE AND METHOD FOR PRODUCING WALL BOARD

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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MACHINE AND METHOD FOR PRODUCING
WALL BOARD

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Application May 24, 1932. Serial No. 613,187

10 Claims. (Cl. 154—1)

The present invention relates generally to new and useful improvements in automatic machinery and especially to that type of machinery adapted to produce building materials such as composition wall board and is particularly adapted to producing that class of wall board described and claimed in my co-pending patent application for composition wall board, filed July 3, 1931, Serial No. 548,611, and is an improvement over my co-pending application filed Aug. 18, 1931, Serial No. 557,775.

The purpose of the present invention is to quickly and cheaply produce a composition wall board of the class described in my co-pending application that will produce a continuous slab of wall board from a plastic state to the finished and baked product, the machine also embodying means for feeding a reinforcing material to the slab as it is being formed and means for corrugating the material as it is passed through the machine also means for bevelling the side edges of the material so that the matching edges will fit tightly together when nailed in position.

The principal object of the present invention is to provide a machine of class described which will produce from plastic material a composition wall board in a continuously formed slab.

Another object of the invention is to produce a machine of the class described which will produce a continuous strip of reinforced wall board rolled to exact thickness, corrugated, trimmed and finally baked as it leaves the machine.

Still another object of the invention is to provide a machine of the class indicated which is entirely automatic in its operation and which will produce a continuous strip or ribbon of wall board at a minimum cost of manufacture.

Additional to the foregoing objects is that of providing an automatic machine of the class described which is comparatively simple in construction and easy to operate.

Still another object of the present invention is to provide an automatic machine of the class described that will produce a wall board of the plastic nature having wavy dove tail corrugations.

Other objects and advantages of the invention will become apparent with reference to the subjoined specification and the accompanying two sheets of drawings in which:—

Figure 1 is a longitudinal sectional view illustrating my improved automatic machine for producing composition wall board, the view including the feeding hopper, feeding screw, compression rolls, corrugating combs and the baking oven for

baking the strip as it leaves the compression rolls.

Figure 2 is a front view illustrating a fragment of the corrugating combs, roller and comb oscillating means the section being indicated by the line 2—2 of Figure 1.

Figure 3 is an enlarged sectional detail illustrating the bed-plate of the machine, a section of the conveyor belt and a set of the compression rolls.

Figure 4 is a top plan view of the entire machine showing the hopper, feeding screw, driving means therefor, conveyor belt, compression rolls and electric baking furnace.

Figure 5 is an enlarged detail of a portion of the machine showing a set of compression rollers and the means for adjusting the upper compression rollers relative to the lower compression rollers.

Figure 6 is an enlarged sectional detail of the bed-plate of the machine and showing one of the angularly disposed rotary cutters for bevelling the side edges of the slab as it passes through the machine, the section being indicated by the line 6—6 of Figure 4 of the drawings.

Figure 7 is a sectional detail of the portion of the finished wall board showing the dove tail wavy key-way formed by the corrugating comb and the bevelled abutting ends of the strips.

Figure 8 is a fragmentary front view of the comb illustrating its shape to assure a dove tail key way and to avoid clogging or bunching of plastic material on the comb.

Figure 9 is a cross section of the comb illustrating its shape to assure non-clogging the section being indicated on the line 9—9 of Figure 8.

Referring more particularly to the drawings in which the preferred form of the invention is disclosed the numeral 10 designates an elongated rectangular frame having uprights 11, 12, 13, 14, and 15, said uprights having a suitable base 16 and a table 17, the uprights 13 and 15 being provided with transversely arranged rollers 18 and 19 carried by shafts 20 and 21 suitably journaled in the frame.

The rollers 18 and 19 are provided with a suitable endless conveyor belt 22.

The conveyor belt 22 is adapted to travel over the table 17 and said table 17 is provided with a series of spaced slots 23 for the reception of a series of compression rollers 24 over which the conveyor belt 22 passes, said rollers being flush with the top of the table so that the conveyor belt will cause the rotation of the same.

Arranged directly over the compression rollers

24 are a series of driven compression rollers 25, said rollers 25 being perpendicularly adjustable to vary the thickness of the slab 26 by means of screw adjustments of suitable character 27, as clearly indicated in Figure 5. The plastic material 26 is pressed between these rollers as it is carried toward the end of the machine by the conveyor belt 22 the comb 28 is the corrugating means and is provided with a plurality of combs 29 which gives the slab 26 a plurality of wavy key-ways 30 due to the oscillating motion provided by the mechanism 31 and is supported by the member 10 as clearly indicated in Figures 2 and 4.

The forward end of the machine is provided with a suitable tubular casing 32 rigidly mounted between the uprights 11 and 12 and said tubular member terminates in a flared mouth 33, as clearly indicated in Figures 1 and 4. A spiral screw 34 is journaled in the tube 32 and is carried by a shaft 35 having one end projecting through a stuffing box 36 the outer end of said shaft carrying a pulley 37 belt connected by means of a belt 38 to a small pulley 39 carried by the motor shaft 40 and driven by means of a suitable motor 41 mounted on the forward end of the machine.

The outer end of the shaft 40 is provided with a suitable worm 42 which worm meshes with a worm gear 43 carried by the shaft 20 and said worm and worm gear cause the functioning of the conveyor belt 22, rollers 25, comb 28 and the comb oscillating mechanism 31, the oscillating mechanism being chain driven by means of the chain 44 and the sprockets 45.

The relative speeds of the screw 34 and the conveyor belt 22 being such that the screw will force sufficient plastic material through the mouth 33 and on to the conveyor belt 22.

The end of the machine frame being provided with a suitable housing 46 which provides a baking oven having suitably arranged horizontal electric coils 47 which tend to cast their heat downwardly upon the face of the slab as it is drawn through the machine thereon.

A roll of burlap 47 is mounted in the forward end of the machine and is carried by the shaft 48 and the free end of the burlap is threaded over the roller 18 and on to the conveyor belt 22 and as the plastic material forming the strip or slab is forced out through the mouth 33 it causes the burlap to adhere to the conveyor and pass between the rollers 24 and the driven rollers 25 and is compressed into the body of the plastic material and form a reinforcing element as a base for the slab each driven roller having a tendency to draw the slab further through the machine.

As the slab leaves the corrugating comb 28 it passes between angularly disposed rotary cutter 49, Figures 1, 4, and 6 said rotary cutter 49 tending to bevel the side edges of the slab to provide suitable abutted faces 50 as clearly indicated in Figures 6 and 7.

The combs being triangularly shaped at its cutting edge 51 which tends to prevent the bunching of plastic material while being drawn through the slab in a wavy motion.

The operation of the machine is as follows:

A plastic material such as gypsum and sawdust is placed in the hopper 52 of the machine and gravitate through the opening 53 and into the screw chamber from whence it is forcibly compressed into the tubular casing 32 and out through the flared mouth section 33 thereof.

When the plastic material leaves the mouth 33 it is in the form of a ribbon approximately one-

half of an inch in thickness, the conveyor belt then picks it up together with the continuous strip of burlap and carries it between successive sets of driven compression rollers until it has become thoroughly compressed and at this state it passes under corrugating comb 28 which causes it to be corrugated longitudinally throughout its length.

The slab as thus compressed and corrugated then passes between the bevelling cutter 49 and the side edges thereof are accordingly bevelled, the bevelled and corrugated strip or slab then passing through the baking oven to cause it to be set and dried to a considerable extent.

The slab in its continuous state is then carried outwardly by the conveyor and is cut transversely in squares or sections of any suitable size by any suitable cutter not shown.

It is obvious that a machine of this character when in operation will continuously produce a slab of composition material having a dove tail key-way superior to any board now in use at a minimum cost per square foot and at a minimum expenditure of both time and labor.

What I claim and desire to secure by Letters Patent of the United States is the following:—

1. A machine of the class described for producing a continuous slab of composition wall board consisting of means for compressing and forcing the plastic material into ribbon form, means for rolling the same, means for corrugating one surface of the slab comprising a transversely oscillating comb capable of producing dove tail corrugations, and means for finally baking the compressed and corrugated slabs.

2. A machine of the class described comprising a hopper, screw means associated with said hopper and adapted to force the plastic material outwardly, a conveyor-belt, a series of driven compression rollers, arranged to receive the plastic slab and compress the same as it passes therebetween, corrugating comb for producing dove tail corrugations on one face of said slab, means for bevelling the side edges of said slab, and means for finally baking the compressed slabs.

3. A machine of the class described comprising, a hopper, screw means associated with said hopper and adapted to force the plastic material outwardly, means for driving said screw, a conveyor-belt, a series of compression rollers arranged to receive the plastic slab and compress the same as it passes therebetween, means for driving said conveyor-belt and said compression rollers, corrugating comb for producing dove tail corrugations on one face of said slab, means for feeding a reinforcing strip to said conveyor-belt, means for bevelling the side edges of said slab, means of finally baking the compressed slab.

4. A machine for producing composition wall board, in combination, a supporting frame, a table carried by said supporting frame, a conveyor-belt mounted in said frame and having one section thereof adapted to thread over the table, a plurality of driven compression rolls arranged in pairs, means for supplying reinforcing material to said conveyor-belt, means for forcing a ribbon of plastic material onto said reinforcing material and between said sets of driven rollers, a corrugated comb capable of producing wavy dove tail corrugations and means for driving said corrugated comb.

5. In a machine of the class described, a table, an endless conveyor-belt adapted to slide across said table, a plurality of sets of driven compression rollers arranged on opposite sides of said con-

veyor-belt, means for feeding a strip of reinforcing material to said conveyor-belt, means for supplying a ribbon of plastic material to said conveyor-belt to be compressed into a slab including said reinforcing material, and means for producing a series of wavy corrugations in said plastic material.

6. In a machine of the class described, a table, an endless conveyor-belt adapted to thread across said table, a plurality of sets of compression rollers arranged on opposite sides of said conveyor-belt, means for feeding a strip of reinforcing material to said conveyor-belt, means co-acting with said conveyor-belt to bevel the side edges of said plastic material while still in a plastic condition, means for thereafter baking the plastic slab, and means for driving said conveyor-belt.

7. In a machine of the class described, a table, an endless conveyor-belt adapted to thread across said table, a series of driven compression rollers arranged in pairs on opposite sides of the upper section of said conveyor-belt, means for feeding a strip of reinforcing material to said belt, means for supplying a ribbon of plastic material to said belt, means for bevelling the side edges of said material, means for producing a wavy dove tail

corrugation on one surface of plaster material and means for finally baking the material as it passes from the table.

8. In a machine of the class described, a table, an endless conveyor-belt adapted to thread across said table, a series of driven compression rollers arranged in pairs on opposite sides of the upper run of said conveyor-belt, bevelling cutters positioned on each side of said table and beyond said compression rollers and a baking oven on said table beyond said cutters.

9. In a machine for forming wall board, means associated with said machine for forming wavy corrugations in said wall board, said means comprising a transversely oscillating comb, the teeth of which will form dove tailed corrugations.

10. In a machine for forming wall board, means associated with said machine for bevelling the side edges of said wall board while still in plastic form as it passes through said machine, said means comprising a pair of rotary cutters one on each side of said machine and arranged at an angle to the plane of movement of the wall board.

JOHN DEAN. 100

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