

L. M. RADER.
MACHINE FOR PLASTER BOARDS.
APPLICATION FILED FEB. 12, 1908.

907,877.

Patented Dec. 29, 1908.

3 SHEETS—SHEET 1.

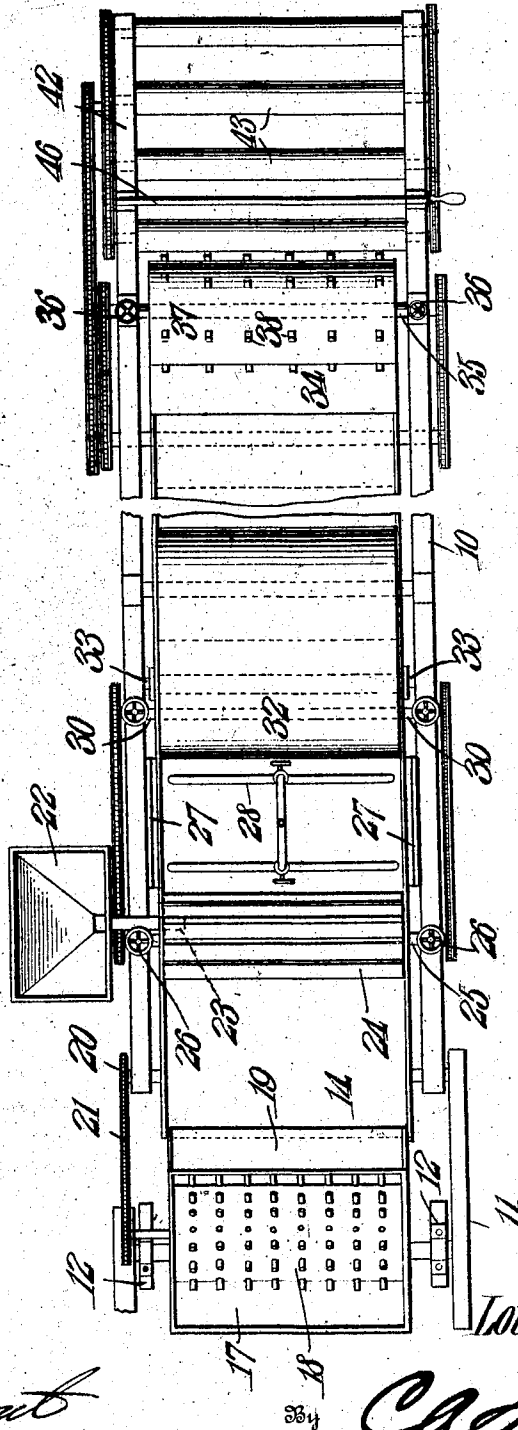


Fig. 1.

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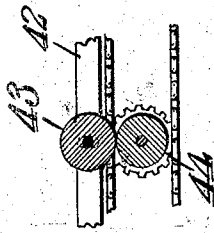


Fig. 6.

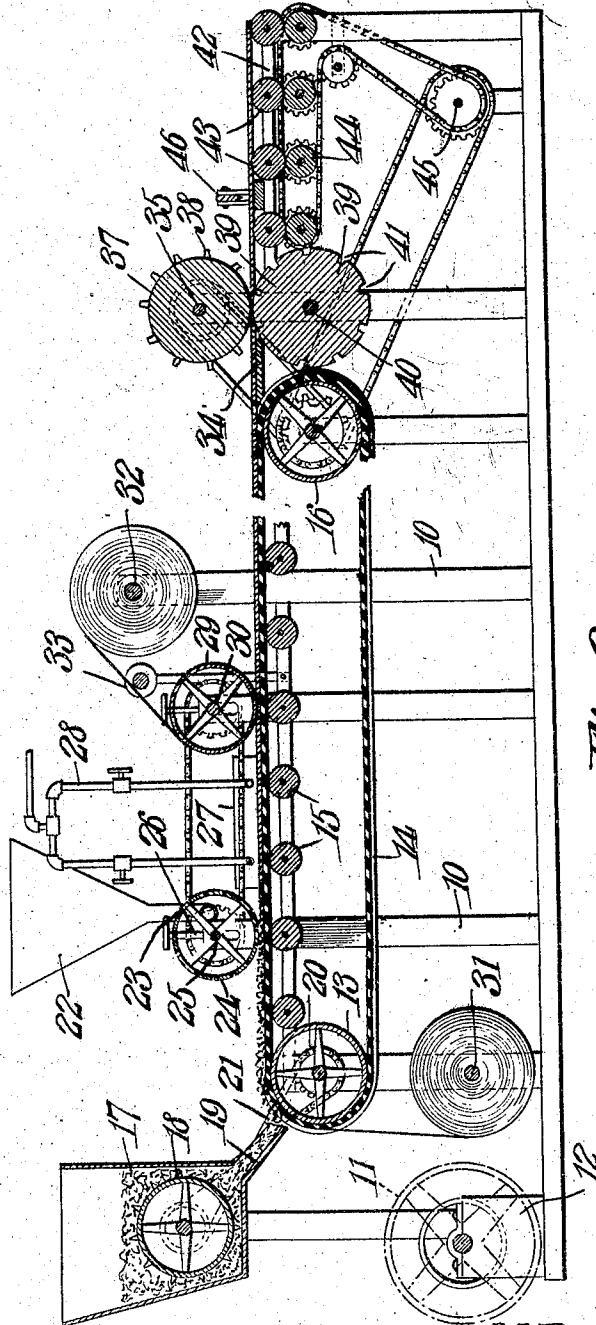


Fig. 2.

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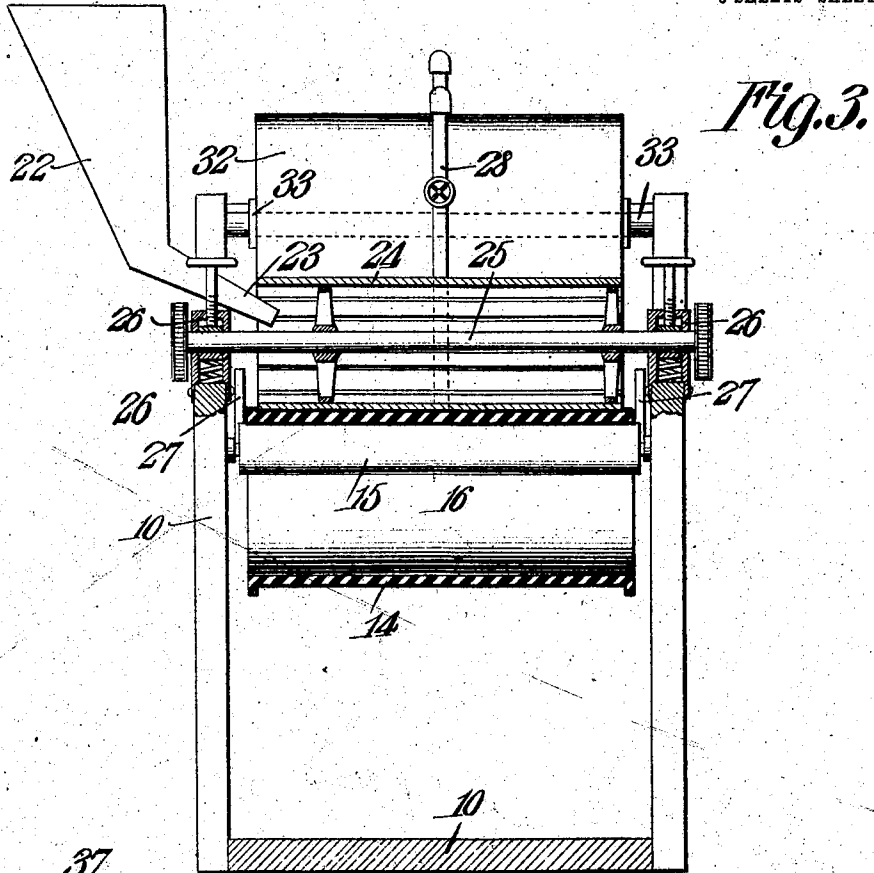
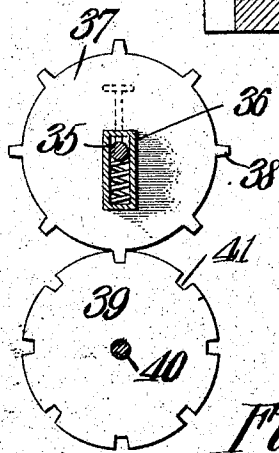
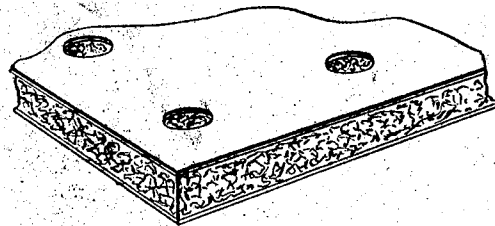
E. J. Hunt
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

LOUISA M. RADER, OF UPPER MONTCLAIR, NEW JERSEY.

MACHINE FOR PLASTER-BOARDS.

No. 87,877.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed February 12, 1908. Serial No. 415,572.

To all whom it may concern:

Be it known that I, LOUISA M. RADER, a citizen of the United States, residing at Upper Montclair, in the county of Essex and State of New Jersey, have invented a new and useful Machine for Plaster-Boards, of which the following is a specification.

This invention relates to plaster boards, and its object is to provide an improved method of making such boards.

A further object is to provide an apparatus whereby the improved construction may be attained.

In the accompanying drawings:—Figure 1 is a plan view of an apparatus used to produce my improved board. Fig. 2 is a longitudinal section thereof. Fig. 3 is a transverse section thereof. Fig. 4 is a detail of my perforator. Fig. 5 is a perspective view of a portion of a plaster board formed by my improved method. Fig. 6 is a detail view of a portion of a drying table on an enlarged scale.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The method which has been invented for producing a plaster board is that of depositing upon a moving base of fibrous material, such as paper or the like, of a quantity of loose fiber, and there is preferably used in this connection cocoa fiber. There is then intimately mixed with this, while the motion continues, a quantity of plaster of paris or like plastic material which hardens on being wet and dried. At the same time that the plaster is deposited on the fiber, it is slightly tamped down so that there is produced a sheet of loose material of approximately even thickness. This sheet of material is then passed under a series of perforated water pipes or other means for moistening the same and give it the requisite degree of moisture. Following this step upon the upper surface or face of the moistened mass another sheet of paper or the like is placed. The whole is then intimately pressed together, producing a sheet of uniform thickness. This sheet is then, while still in motion, perforated, cut off to the desired length

and dried. To accomplish this result the apparatus herein shown and described has been invented.

The numeral 10 indicates the frame of the apparatus.

At 11 is mounted my main drive wheel in bearings 12. This wheel may be driven by a belt or other means, as desired. On the frame 10 is mounted a belt conveyer, the driving wheel of which is shown at 13. This belt conveyer is preferably made of endless rubber belting 14, and is supported on the upper part thereof by rollers 15. An idler 16 is provided to return the belt.

At 17 I provide a hopper having a teaser 18 mounted therein and a chute 19 leading therefrom to the belt 14, at or near the wheel 13. This teaser I preferably drive from a sprocket 20 mounted on the shaft carrying the wheel 13 by means of a belt 21. A hopper 22 is provided to contain plaster of paris, or other material desired to form the board, in a powdered form, and has a nozzle or spout 23 extending therefrom downward and into a screen 24 held to revolve on a shaft 25. Adjustable bearings 26 are provided to carry said shaft and regulate the distance of said screen from the conveyer belt 14. This screen is caused to rotate by belting to the wheel 11 directly or by any other means deemed advisable.

At 27 I provide shields extending between which is a moistening device 28 here shown as consisting of a pair of perforated pipes extending across the conveyer belt 14.

At 29 is a presser roll carried on a shaft 30 and which is provided with adjustable bearings similar to those on the screen. This presser roll 29 is so belted or geared that the periphery thereof will have the same linear velocity as the belt 14.

At 31 is mounted a roll of paper or like material, and a second roll is similarly mounted at 32, a guide 33 being provided therefor.

Beyond the idler wheel 16 is held a table 34. Mounted on a shaft 35 carried in adjustable bearings 36 is a perforating wheel 37 provided with a series of pins 38 extending therefrom. A companion perforating wheel 39 is mounted on a shaft 40 immediately below the wheel 37 and is provided with a series

of pockets or slots 41 adapted to receive the ends of the pins 38. The drying table 42 is arranged beyond the perforating wheels and consists of rollers 43 in frictional contact with rollers 44 which are driven from a shaft 45 by means of a chain belt or such other gearing as I may desire to use. A knife 46 is mounted near the perforating rolls in said table, and while it is here shown as being hand operated, it is to be understood that I may use this knife, or any other cutting off device, as I see fit, as the exact form thereof is not essential.

In the operation of the device as shown, the machine being in motion, a quantity of fibrous material contained in hopper 17 is forced down the spout 19 by the teaser 18 being deposited on a sheet of paper or the like supplied from the roll supported at 31 and carried on a belt 14 near the end thereof. This sheet of fibrous material passes under the screen 24, the powdered plaster contained therein having been fed from the hopper 22 being evenly distributed on the fibrous material. Adjustment is made of the bearings 26 so that a light pressure is obtained on the surface of the mixture, thus rendering the sheet of approximately even thickness at this point without compacting the same, so that moisture could not be introduced. As the sheet passes along, it is supported by the belt 14 and comes under the moistening device 28, the shields 27 serving to prevent the water or other source of moisture from running off at the side. While passing under this point, the mass receives the proper amount of moisture necessary to cause firm setting. Immediately after having been moistened, the plastic mass passes under the presser roll 29, at the same time having applied to the upper surface thereof a sheet of paper or the like fed from the roll supported at 32. By means of the adjustable bearings of the pressure roll 29, sufficient force is applied to the sheet at this point to squeeze out superfluous moisture and to compact the same into a firm sheet of even thickness. Passing along the conveyer belt, the sheet then runs over the table 34 between the perforators 37 and 39, and has punched therein a series of holes. From there the sheet rolls out through the drying rolls 43 and may be cut off at any desired length by the knife 46.

There may be many changes made in the exact form and construction of the apparatus as herein described without affecting the method of forming the sheet or the principles of the apparatus. It is not, therefore, desired to confine the invention to the exact form here shown, but to include all such as properly come within the scope thereof.

I claim:—

1. The herein described method of forming a plaster board consisting in depositing on a moving base of paper or the like, a fibrous

material, evenly distributing plaster over said fibrous material, moistening the sheet thus formed and simultaneously pressing said sheet and applying a face of paper or the like thereto.

2. The herein described method of making plaster boards consisting in depositing on a moving base of paper or the like, a fibrous material, evenly distributing plaster over said fibrous material, moistening the sheet thus formed, simultaneously pressing said sheet and applying a face of paper or the like thereto and perforating said sheet.

3. In a machine for the manufacture of plaster boards, a frame, means for carrying a web of paper or the like thereon, means for depositing a sheet of fiber on said paper, a revolving screen for depositing plaster or the like on said fiber and mixing the same therewith, means for moistening the mass of plaster and fiber, means for applying a second sheet of paper to the face thereof, and means for pressing the sheet thus formed.

4. In a machine for the manufacture of plaster boards, a frame, means for carrying a web of paper thereon, means for depositing a sheet of fiber on said paper, a revolving screen for depositing plaster or the like on said fiber, means for moistening the mass of plaster and fiber, means for applying a second sheet of paper to the face thereof, means for pressing the same intimately together, and means for perforating the sheet thus formed.

5. In a machine for the manufacture of plaster boards, a frame, an endless belt carried on the frame, means for supplying paper or the like from a roll to said endless belt, means for depositing the sheet of fiber on said paper, a rotary screen arranged to contain plaster and deposit the same evenly on said fiber, and further arranged to lightly press said plaster and fiber together, means for moistening the sheet thus formed, and means for simultaneously applying a second sheet of paper to the face of said sheet and pressing the board.

6. In a machine for the manufacture of plaster boards, a frame, an endless belt carried on the frame, means for supplying paper or the like from a roll to said endless belt, means for depositing the sheet of fiber on said paper, a rotary screen arranged to contain plaster and deposit the same evenly on said fiber, and further arranged to lightly press said plaster and fiber together, means for moistening the sheet thus formed, means for simultaneously applying a second sheet of paper to the face of said sheet and pressing the board, and means for perforating the same.

7. In a machine for the manufacture of plaster boards, a frame, an endless belt carried by said frame, means for carrying a roll of paper or the like and feeding material from the same along said endless belt, means for

depositing fibrous material on said roll of paper, a hopper containing plaster or the like, a screen adapted to receive the contents of said hopper and distribute them evenly on said fiber and felt the same together, means for moistening the sheet thus formed, a presser roll, means for carrying a second roll of paper or the like carried by said frame, and means for guiding said paper under the presser roll to form the face of the plaster board, and a

pair of perforating rolls adapted to perforate said board.

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

LOUISA M. RADER.

Witnesses:

ROBT. M. HENING,
EDNA I. NEILL.