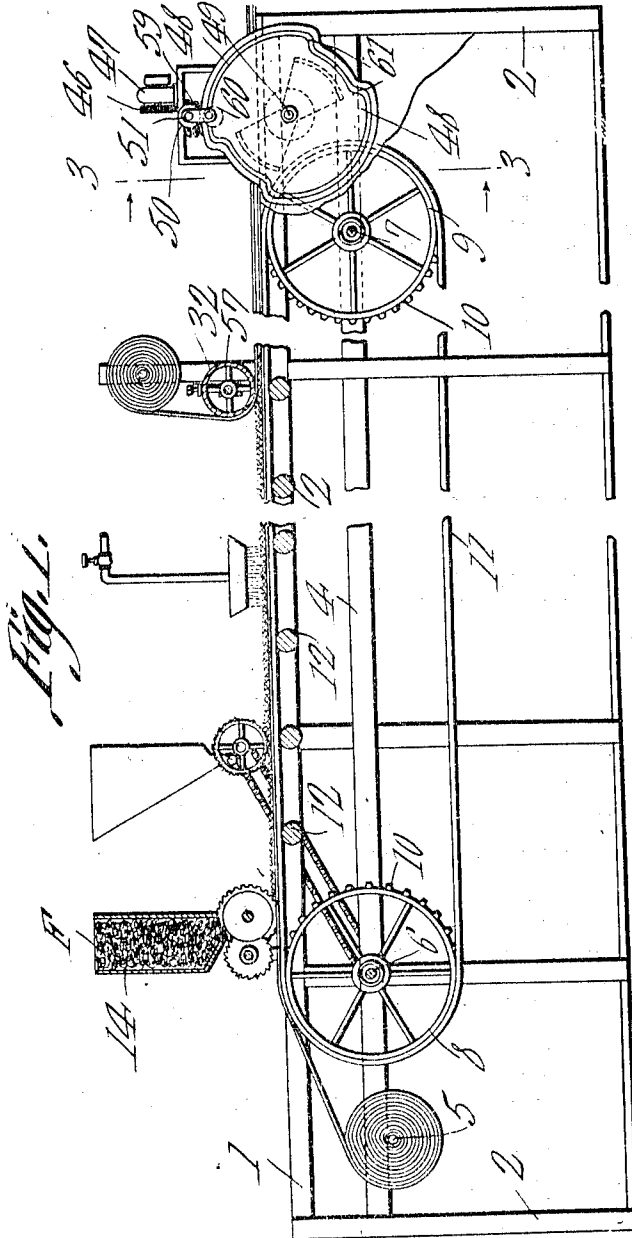


L. M. RADER.
CUTTING MECHANISM FOR PLASTER BOARD MACHINES.
APPLICATION FILED JUNE 8, 1911.

1,048,875.

Patented Dec. 31, 1912.

3 SHEETS-SHEET 1.



Witnesses

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L. H. Wilcox

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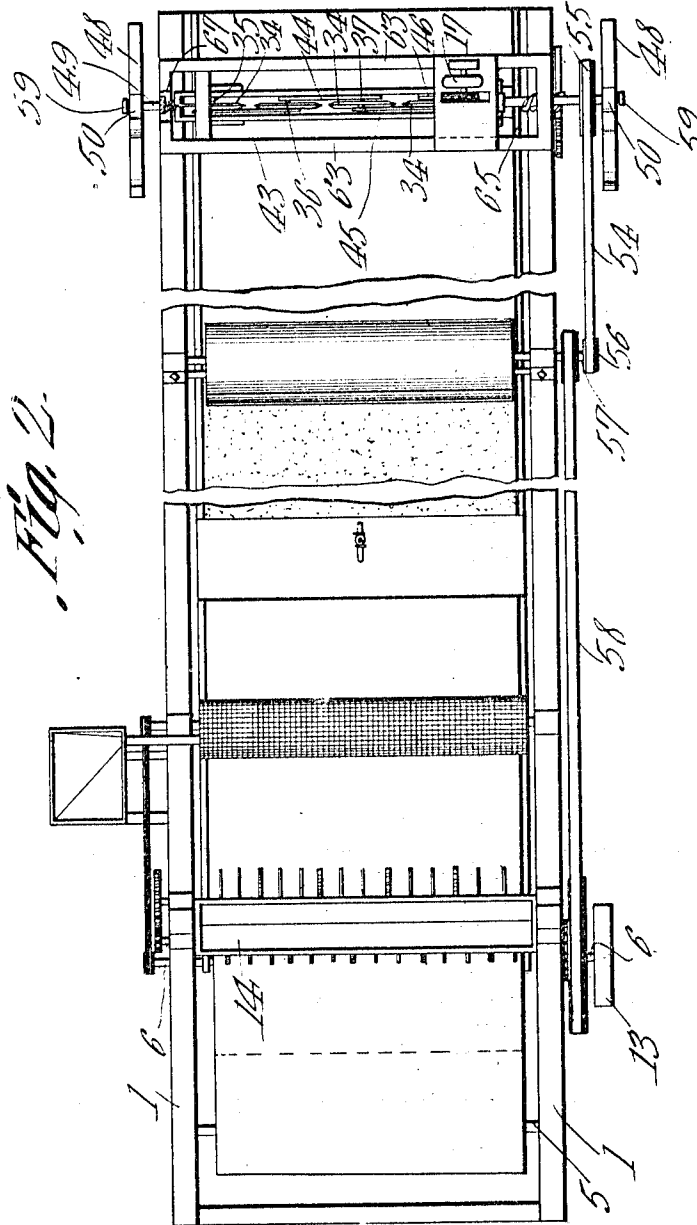
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3 SHEETS-SHEET 2.



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3 SHEETS-SHEET 3.

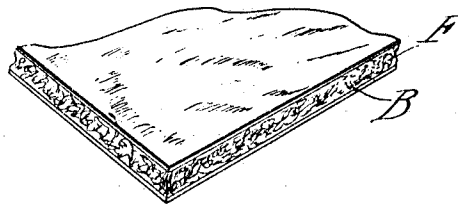
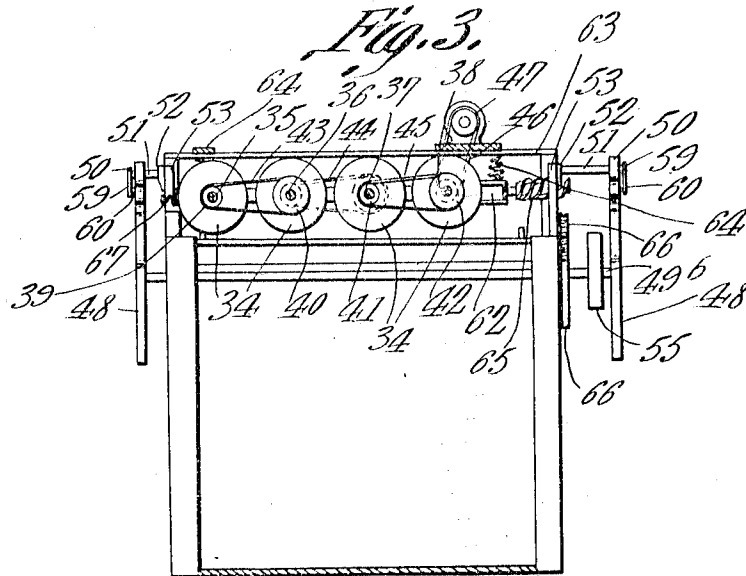


Fig. 4.

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UNITED STATES PATENT OFFICE.

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

CUTTING MECHANISM FOR PLASTER-BOARD MACHINES.

1,048,875.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed June 8, 1911. Serial No. 631,965.

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 Cutting Mechanism for Plaster-Board Machines, of which the following is a specification.

This invention relates to cutting mechanisms for machines for making plaster boards, and is designed as an improvement upon a machine of this character for which Letters Patent of the United States were granted the present applicant under date of December 29, 1908, No. 907,876.

The primary object of the invention is to produce a transversely disposed cutting mechanism embodying a plurality of rotary cutters actuated in unison and moved toward the plaster board to be cut, and at the end of such cutting operation to be retracted away from such board again to be in position for another cutting action.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in a novel construction and combination of parts of a cutting mechanism for a machine for making plaster boards, as will be herein-after fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts: Figure 1 is a view in side elevation of a plaster board machine with the present cutting mechanism operably carried thereby. Fig. 2 is a top plan view. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1, and looking in the direction of the arrow thereon. Fig. 4 is a perspective detail view of a short section of plaster board produced by the machine.

To fully illustrate the operation and arrangement of the present invention, a complete plaster board machine is shown with the cutting mechanism in operable relation thereto and comprises a pair of longitudinal beams 1, carried by the uprights 2 which are connected at their ends by the cross pieces 3 while the second pair of longitudinal beams 4 are so disposed as to properly support the three transverse shafts 5, 6 and

7. Upon the shafts 6 and 7 are mounted the drums 8 and 9, respectively, whose heads are provided with teeth 10 to engage and drive an endless belt 11, which as shown passes over the rollers 12 carried by a shaft (not shown) and are journaled in the longitudinal beams 1. Motion is imparted to the shafts 6 and 7 by pulleys 13 upon the shaft 6 and power may be obtained from any suitable source. This structure is well known and is only here shown and described so that a full understanding of the present cutting mechanism may be had. Transversely of the machine and above the drum 8 is mounted a hopper 14 which is designed to contain the fiber F from which the plaster board is made. This cutting mechanism which is the essential part of the present invention, comprises a plurality of disk cutters 34, that are mounted upon independent shafts 35, 36, 37 and 38, each of which carries a pulley 39, 40, 41 and 42, respectively, and these pulleys are driven by belts 43, 44, 45 and 46, the latter belt being the main drive belt and being driven by an independent motor 47. As will be understood, by the arrangement shown, the cutting disks will have a rotary motion at right angles to the travel of the belt, and in order to bring these into co-operative relation thereto at predetermined intervals, and at the same time to impart a transverse motion to the series of cutting disks, two two-throw cams 48 are employed, which are mounted upon a transverse shaft 49 journaled in bearings supported by the longitudinal beams 1, the peripheries of which engage with rollers 50 which are carried by independent shafts 51 carried by boxes 52 that are arranged to slide between vertical guides 53 supported by longitudinal beams 1, motion being imparted to the cams 48 by a sprocket chain or belt 54 that engages a pulley or sprocket wheel 55 on the shaft 49 and a similar member 56 on the shaft 57 of the drum 32, the latter being driven by a sprocket chain or belt 58 driven from the shaft 6. Each of the shafts 51 carries at its outer extremity an arm 59 each carrying a roller 60 that is designed to engage in a cam groove 61 formed in each of the cams 48.

The shafts 35—38 are carried by a sup-

port 62 that is suspended from a crosspiece 63 by springs 64, the support being designed to move transversely of the belt in order to make a complete cut of the board. To accomplish this latter movement of the series of cutters 64, a worm 65 is combined with the support, and is arranged to engage at stated intervals with worm segments 66 carried by the shaft 49, the length of each segment being such that the support will be moved a sufficient distance to insure the complete severance of the board into lengths, and when the co-action between the worm and the segments ceases, the support is returned to its normal position by a spring 67, and is thus ready for a repeated operation.

The present machine forms a plaster board which is moved from one end to the other toward the cutting mechanism so that the board is passed beneath the cutting disks or knives 34, and the parts of the machine are so timed, that when a predetermined length of the board has passed beneath the disks, one of the interrupted portions of each of the cams 48 will come beneath the rollers 50, whereupon in conjunction with the arms 59 and rollers 60, the support 62 will be forced downward, this being accomplished by the boxes 52 which bear respectively upon the worm 65 and upon the other terminal of the shaft carrying the support 62. This latter motion will bring the worm into engagement with one of the worm segments 66, and will impart a lateral motion to the support, causing the disks or knives to make a complete cut of the entire width of the board. By the time that the worm has reached one end of the segment, the cut will have been completed, and as the segment passes out of engagement with the worm, the springs 64 will return the support to its normal position, while the spring 67 will return the disks laterally to their initial starting point. At the time that the knives are being moved laterally, they are also being rapidly rotated from the motor 47 through the series of belts 43—46, effecting thereby a smooth and even cut.

I claim:

1. A cutting mechanism, having a frame, a plurality of alined rotary cutters disposed transversely of the frame, means for imparting to all of said cutters simultaneous reciprocatory and rotary movements, and means for timing the operation of the rotary cutters to move to and from the frame at predetermined periods.

2. A cutting mechanism, having a frame, a plurality of rotary disk cutters alined transversely of the frame, and means for rotating said cutters and simultaneously imparting thereto transverse reciprocatory movement.

3. A cutting mechanism, comprising a

frame, a spring returned support disposed for transverse movement of the frame, a plurality of rotatable cutters secured thereto and in alined position, means for rotating said cutters simultaneously, and means co-acting with the spring returned support for imparting a reciprocatory movement transversely of the frame to the support and cutters.

4. A cutting mechanism, comprising a frame, a support capable of transverse reciprocatory movement yieldingly hung from said frame, a plurality of rotary cutters journaled upon said support and connected for rotation in unison, a worm gear connected to the support at one end, a spring connected at the other end of the support and frame to operate the support in opposition to the worm gear, a power shaft, and a pair of spaced toothed segments connected to said shaft to be rotated to engage the worm, the said segment and worm and last spring imparting to the support and cutters a reciprocatory movement.

5. A cutting mechanism, comprising a frame, a support capable of transverse reciprocatory movement yieldingly hung from said frame, a plurality of rotary cutters journaled upon said support and connected for rotation in unison, a worm gear connected to the support at one end, a spring connected at the other end of the support and frame to operate the support in opposition to the worm gear, a power shaft, a pair of spaced toothed segments connected to said shaft to be rotated to engage the worm gear, the segments and worm and the last spring imparting to the support and cutters a reciprocatory movement, and coöperative means carried by the power shaft and support for moving the rotary cutters downward when the support is moved by the segments and worm and to move the cutters upwardly when the support is returned by said last spring.

6. A cutting mechanism, comprising a frame, a transverse support carried thereby, a plurality of alined rotary cutters disposed below said support, a plurality of springs for normally holding said cutters upward and away from the frame, means for imparting a rotary movement to all of said cutters, means for imparting a reciprocatory movement to all of said cutters during the rotation thereof, and means for moving said cutters against the tension of the springs and into cutting position.

7. A cutting mechanism comprising a frame, a support disposed transversely of the frame, a plurality of alined rotary cutters disposed below said support, a plurality of springs for normally holding said cutters upward and away from the frame, means for imparting a rotary movement to all of said

cutters, means for imparting a reciprocatory movement to all of said cutters during the rotation thereof, and a cam for moving the cutters against the tension of the springs, whereby during the reciprocation of the cutters, the cutters are moved into and out of cutting position.

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:

AUGUST C. RADER,
FLORENCE C. GHETTI.