

J. TAMBERLIN.
MECHANISM FOR MAKING LINOLEUM.
APPLICATION FILED NOV. 2, 1920.

1,437,872.

Patented Dec. 5, 1922.

3 SHEETS—SHEET 1.

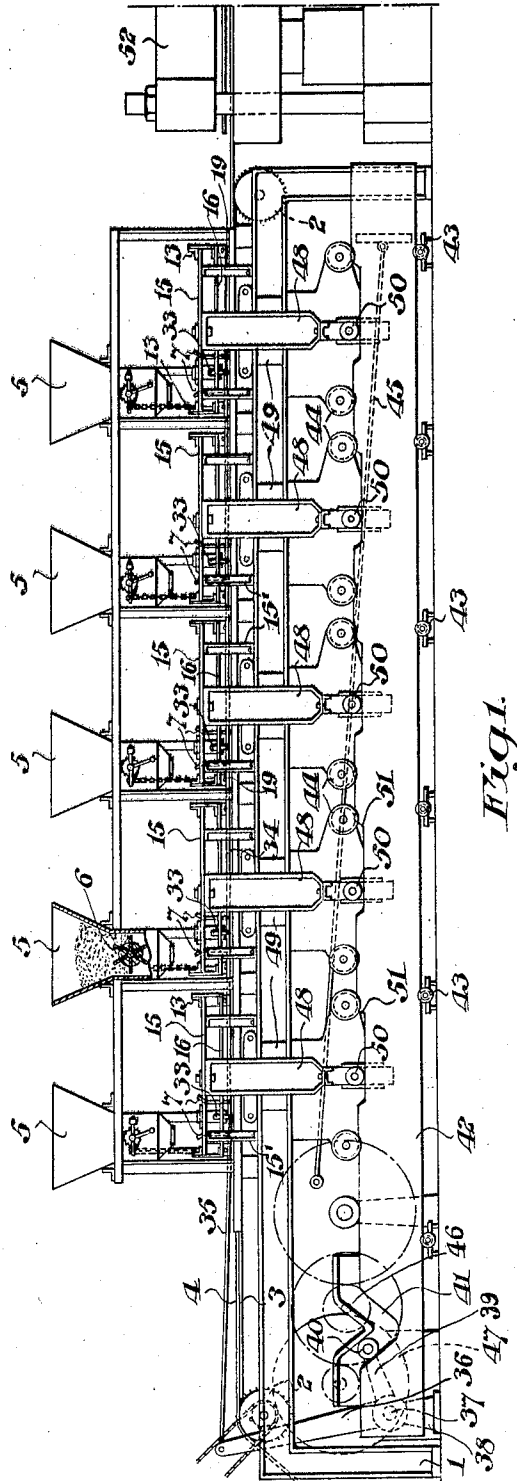


Fig. 1.

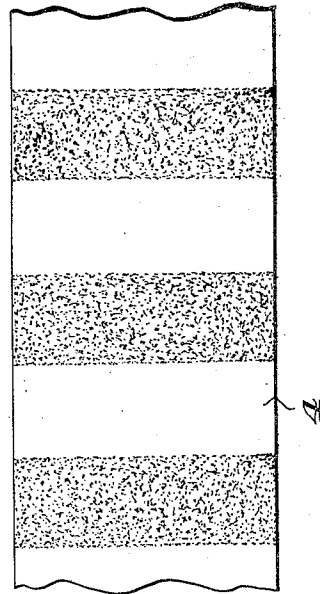


Fig. 2.

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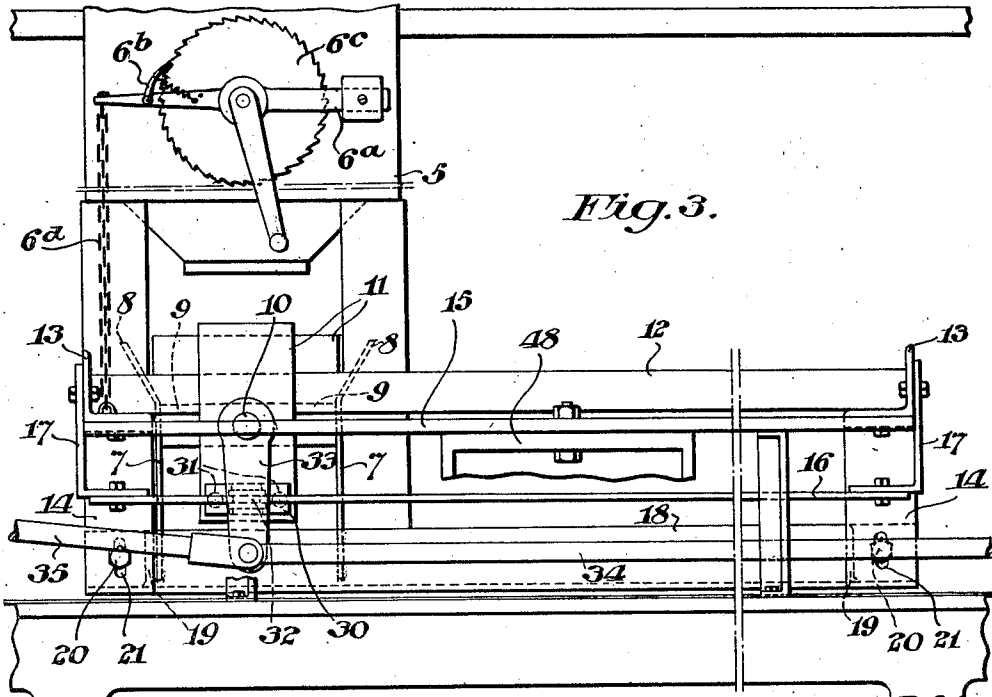


Fig. 3.

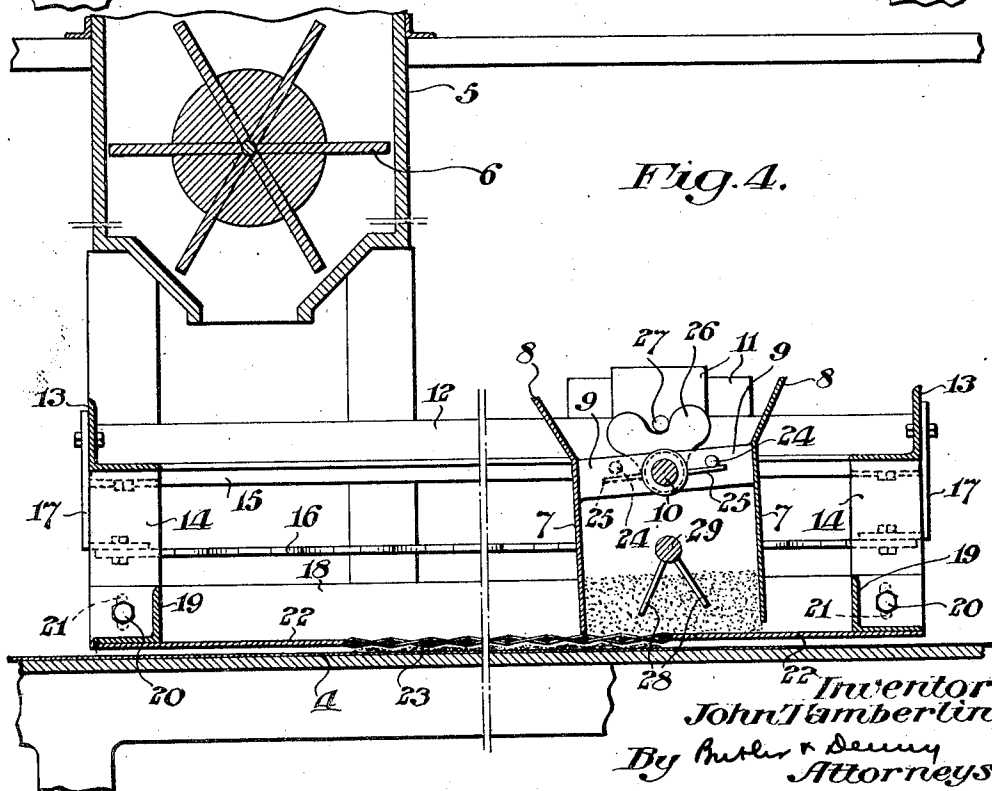


Fig. 4.

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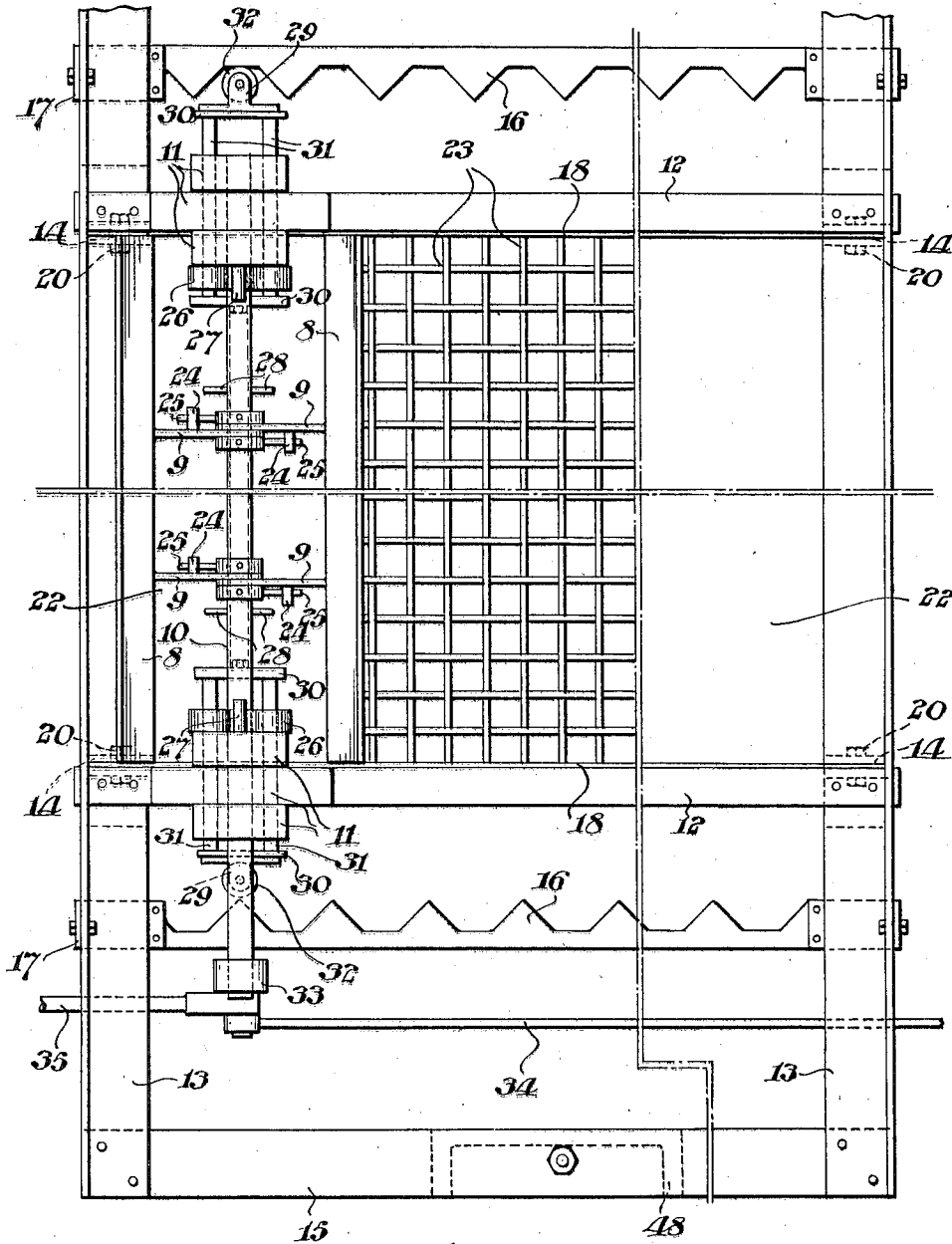


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN TAMBERLIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE GEORGE W. BLABON COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

MECHANISM FOR MAKING LINOLEUM.

Application filed November 2, 1920. Serial No. 421,276.

To all whom it may concern:

Be it known that I, JOHN TAMBERLIN, a citizen of the United States, residing in the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improved Mechanism for Making Linoleum, of which the following is a specification.

My improved mechanism relates to the manufacture of granite linoleum or linoleum made from mixtures of finely divided compositions variously colored and it is designed primarily for spreading and forming the colored composition upon a backing fabric rapidly and efficiently so as to produce a desired effect and a superior product.

The invention is characterized by the combination with a vertically movable perforated or apertured templet under which a backing fabric is movable intermittently, of composition depositing means comprising a spreader adapted for moving over the templet and forcing therethrough composition carried thereby.

The characteristic features of the invention are embodied in the machine set out in the following description and the accompanying drawings in illustration thereof.

In the drawings, Fig. 1 is a side elevation of a machine having improvements of my invention applied thereto; Fig. 2 is a plan view of deposits of sections of composition prior to pressing; Fig. 3 is a broken elevation on an enlarged scale of a section of the construction shown in Fig. 1 in illustration of details of the spreading and depositing mechanism; Fig. 4 is a broken longitudinal section taken through the construction shown in Fig. 3, and Fig. 5 is a broken sectional plan view of the spreading and depositing mechanism.

The machine comprises the frame 1 having the journaled end drums 2 which carry an endless pin band 3, the pin band being operated to move the burlap or woven backing 4 intermittently in any desired manner.

The composition to be spread and deposited upon the burlap between its step by step movements is held in the hoppers 5

which are supported by the frame at the desired intervals along the path through which the pin band carries the backing, the hoppers being provided with the respective rotary valves 6 having measuring pockets adapted for delivering the composition therefrom in the amounts desired.

Spreaders 7, being plates having oppositely deflected tops 8, are provided with oppositely extending arms 9 through which passes a shaft 10 having its ends journaled in the slides 11. These slides are movable along the guide bars 12 extending longitudinally of the machine under the respective hoppers 5, so that the contents of the latter can be delivered by the respective valves 6 to the respective spaces between the spreaders 7 when positioned below the hoppers. Cross bars 13 connect the ends of the bars 12 and the tops of the uprights 14 which are fixed thereto, with the side bars 15 extending longitudinally of the machine. Serrated bars 16, parallel to the bars 12, are fixed to the bars 13 by the legs 17 depending therefrom. Side bars 18 and cross bars 19, forming boxes or enclosures, have their connected ends fixed in adjustable relation to the bottoms of the uprights 14 by the bolts 20 which pass through slots 21 in the corners of the boxes and through the uprights. Plates 22 are fixed at the bottoms and the respective ends of the enclosures formed by the parts 18 and 19, and templets 23, being coarse wire screens of rectangular mesh as shown, are fixed along their rectangular edges to the bars 18 and the plates 22.

The parts 22 and 23 with their direct connection are operated above the pin band 2, as also the burlap 4, and the shafts 10 are rocked in and reciprocated transversely by means of the slides 11 which move along the guides 12, to operate the spreaders 7 between the bars 19 within the respective enclosures formed thereby with the bars 18. Thereby the composition delivered from the hoppers 5 to the space between the complementary spreaders is carried between the plates 22 over the templets 23, through which

such composition is spread and deposited upon the section of the now stationary burlap beneath it.

The actions of the spreaders 7 are controlled by the engagements of studs 24 on their arms 9 with arms 25 fixed in adjustable relation on the rock shaft 10, the rocking movement of the latter being limited by yokes 26 fixed thereon and having bifurcations adapted to be engaged alternately by the studs 27 fixed to the slides 11 upon turning the shaft in opposite directions.

The composition between the spreaders 7, as they are reciprocated over the templets 23, is agitated by fingers 28 projecting from a longitudinally movable shaft 29. This shaft has its ends fixed to respective yokes 30 whose parallel bars 31 are movable longitudinally through depending parts of the slides 11 and whose outer ends are provided with rollers 32 which run along the irregular tracks or bars 16 provided with staggered serrations.

The shafts 10 are rocked and translated by crank arms 33 which are coupled together by the rods 34, the arms being rocked by the action of a rod 35 and an actuating lever 36 connected thereto. The lever 36 is fixed to a shaft 37 journaled in the bearings 38 and rocked by the arms 39 fixed thereon, the latter being provided with rollers 40 which act in the cam ways 41 of reciprocating bars 42 which are guided by the rollers 43 and 44. The bars 42 are reciprocated by the pitmen rods 45 which connect them with the spur wheels 46, driven by the gear train 47.

Slides 48, fixed to and depending from the bars 15, which normally rest on struts 15', are movable in the vertical guides 49 fixed to the frame, to elevate and lower the parts connected therewith, for the purpose of elevating the parts 22 and 23 when the burlap with the composition deposited thereon is to be advanced and of lowering such parts for the performance of the spreading and depositing operations. Simultaneously with the elevation of the templet and its connections, the space between the spreaders 7 registering with the hopper 5 and the part 22, the valve 6 is operated and composition is delivered between the spreaders by the action of a weighted lever 6^a through a pawl 6^b upon a ratchet wheel 6^c which turns the valve, the lever being retracted upon the lowering of the templet by the chain 6^d connecting such lever with the part 15.

Rollers 50 on the bottoms of the slides 48 act in the cam ways 51 of the bars 42 whereby the vertical movements of the slides are effected.

The slides 48 with their connections including the templets 23 occupy their lowermost positions while the cam ways 41 of the bars 42 act through the intermediate parts on the rods 10 to effect the agitating, depositing and spreading actions, during the periods

when the backing is at rest. But when the agitating, depositing and spreading mechanisms are at the limits of their movements and at rest over the plates 22, the rollers 50 are acted upon by the cams 51 to elevate the slides 48 with the parts connected therewith, including the templets 23, during the periods when the backing with the deposits thereon are moved forward to receive subsequent deposits.

When the templets 23 are lowered and the cranks 33 are operated, the shafts 10 are rocked to the limit permitted by the engagements of the yokes 26 with the studs 27 and the further movements of such shafts translate them laterally, the slides 11 moving along the guides 12. As the shafts 10 are rocked, the arms 25, extending therefrom in the direction of the operating thrust, are elevated and act through the studs 24 on the arms 9 to elevate the corresponding spreaders 7. The arms 25 extending oppositely or rearwardly from the direction of lateral movement of the shafts are simultaneously depressed and withdrawn from the corresponding studs 24 on the rearwardly extending arms 9 to permit the corresponding spreaders 7 to fall into position for engaging the parts 22 and 23.

As the shafts 10 with the parts carried thereby are translated over the templets 23, the actions of the serrated bars 19 upon the rollers 32 reciprocate the shafts 29 longitudinally and the fingers 28 laterally in the composition which is being carried between the complementary spreaders 7 over the templets 23. Thereby a desired amount of the composition is worked through the templets and deposited on the backing lying below them, the rear spreaders 7 scraping the tops of the templets and carrying forward the composition above the same.

When the rear spreaders have passed over the templets, the composition between complementary spreaders resting upon a part 22, the continued movement of the operating mechanism reverses the spreading and depositing mechanisms which are thereupon carried over the templets in the opposite direction, with resulting supplementary actions in feeding composition through the templets upon the backing so as to effect the desired deposits thereon.

When the spreading mechanisms have reached the limits of their reverse movements, the cam bars 42 act upon the rollers 50 to move the slides 48 upwardly, the slides acting through the bars 15 and the depending parts for the purpose of elevating the templets and permitting the burlap with the deposits thereon to be moved forward and bring succeeding sections thereof under the templets for the reception of succeeding deposits. The fabric having been advanced the desired distance, the movement of the cam

bars permits the templets to fall and the succeeding deposit of composition is spread thereon.

The backing with the deposits required for coating it is fed through a press 52 which consolidates the composition and effects its adhesion to the backing.

Having described my invention, I claim:—

1. In a machine for making linoleum, the combination of means comprising a templet for depositing linoleum composition, means comprising a scraper movable over said templet for feeding composition thereto and removing surplus composition therefrom, means for raising and lowering said means first named, and means operating in co-ordination with said means third named for reciprocating said means second named over said templet when lowered.

2. In a machine for making linoleum, the combination with means adapted for translating a backing fabric, of means for depositing a composition thereon while at rest, said means last named comprising a templet, mechanism comprising a scraper movable over said templet for feeding composition therethrough and removing surplus composition therefrom, and mechanism for elevating said templet with its connections comprising said scraper to permit said backing fabric with the deposits thereon to be moved thereunder and for lowering said templet with its connections comprising said scraper for effecting the deposit of said composition.

3. In a machine for making linoleum, the combination with guiding means, of carrying means movable along said guiding means, scrapers having rocking connections with said carrying means, means for reciprocating said carrying means together with said scrapers along said guiding means, and means whereby the forward scraper is elevated and the rear scraper is lowered to effect the delivery of composition through said templet and removing the excess of said composition therefrom.

4. In a machine for making linoleum, the combination with guiding means, of carrying means movable along said guiding means, a shaft journaled in said carrying means, scrapers connected in rocking relation to said shaft, means connected with said shaft for elevating the forward and effecting the lowering of the rear reciprocating scrapers, and mechanism for rocking said shaft to effect said lowering and elevating operations and then translating the same to effect said reciprocating operations.

5. In a machine for making linoleum, the combination with guiding means, of carrying means adapted to reciprocate along said guiding means, a shaft journaled in said carrying means, scrapers connected in rocking relation with said shaft, a shaft provided with agitating means supported by

said carrying means so as to move longitudinally between said scrapers, means for rocking said shaft first named to effect the elevation and lowering of the complementary scrapers connected therewith and for reciprocating said shaft, carrying means and scrapers, and means whereby said shaft second named is reciprocated longitudinally by the reciprocation of said shaft first named.

6. In a machine for making linoleum, the combination with a vertically movable mechanism comprising guiding means and a templet, of reciprocating mechanism carried by said guiding means and movable over said templet to deliver composition there- through, and means operated by the vertical movement of said mechanism first named for delivering composition to said mechanism second named.

7. In a machine for making linoleum, the combination with means for carrying a backing fabric, of means for delivering composition to and spreading it upon said fabric, said means last named comprising a vertically reciprocating mechanism including guiding means and a templet, horizontally reciprocating mechanism carried by said guiding means and movable over said templet to feed said composition therethrough to said fabric, mechanism carried by said horizontally reciprocating mechanism for agitating composition carried thereby, and means for operating said mechanisms in synchronous relation.

8. In a machine for making linoleum, the combination with means for carrying a backing fabric, of means for spreading composition thereon and means for operating them in synchronous relation, said means second named comprising a vertically movable frame provided with horizontal guides and bottom plates having a templet between them, slides movable along said guides, a rock shaft carried by said slides, scrapers carried by and having a limited rocking relation to said shaft, and means connected with said shaft for rocking and moving it transversely by means of said slides whereby the forward scraper is elevated, the rear scraper is lowered and said scrapers are carried over said templet between said plates.

9. In a machine for making linoleum, the combination of guiding means, carrying means movable along said guiding means, a rock shaft connected with said carrying means, feeding devices operated by said shaft, agitating means comprising a shaft connected with said carrying means, and means for reciprocating said shaft second named in synchronous relation with the movements of said carrying means.

10. In a machine for making linoleum, the combination of means for carrying a backing fabric, a vertically reciprocating mechanism comprising a templet for depositing

composition upon said fabric, and feeding mechanism for delivering compositions through said templet to said fabric, said feeding mechanism comprising a rock shaft, 5 means whereby said shaft is reciprocated across said templet, spreaders carried by said rock shaft, agitating mechanism between said spreaders comprising a shaft connected and movable laterally with said rock shaft, and mechanism comprising a cam whereby 10 the shaft of said agitator mechanism is reciprocated longitudinally as the same is translated.

Signed at Philadelphia, county of Philadelphia and State of Pennsylvania, this 22nd 15 day of October, 1920.

JOHN TAMBERLIN.