

No. 824,202.

PATENTED JUNE 26, 1906.

F. M. PETERS.
SUGAR WAFER MACHINE.
APPLICATION FILED JULY 29, 1905.

7 SHEETS—SHEET 1.

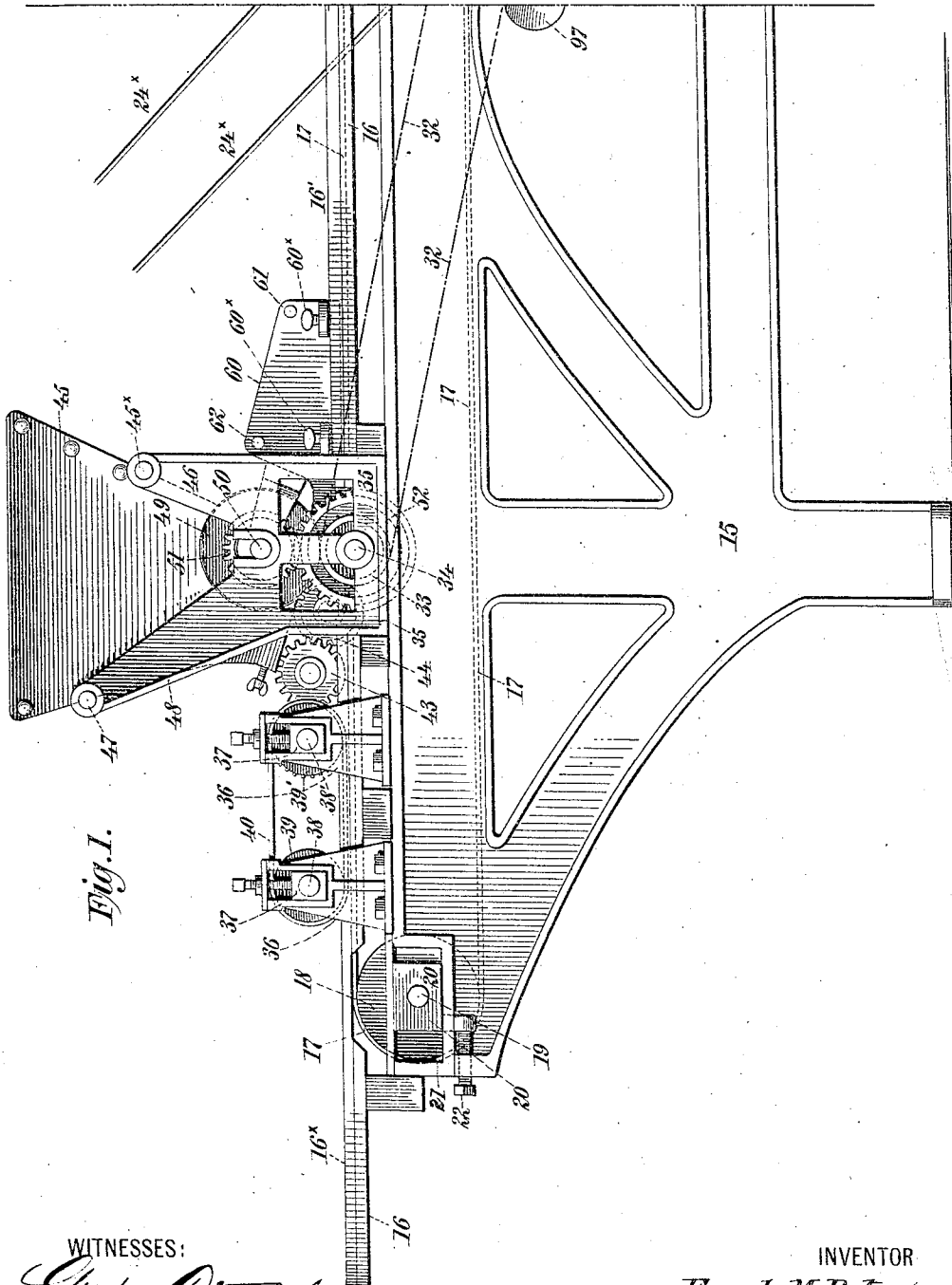


Fig. 1.

WITNESSES:

Gustave Dietrich
Edwin H. Dittmer

INVENTOR

Frank M. Peters

BY

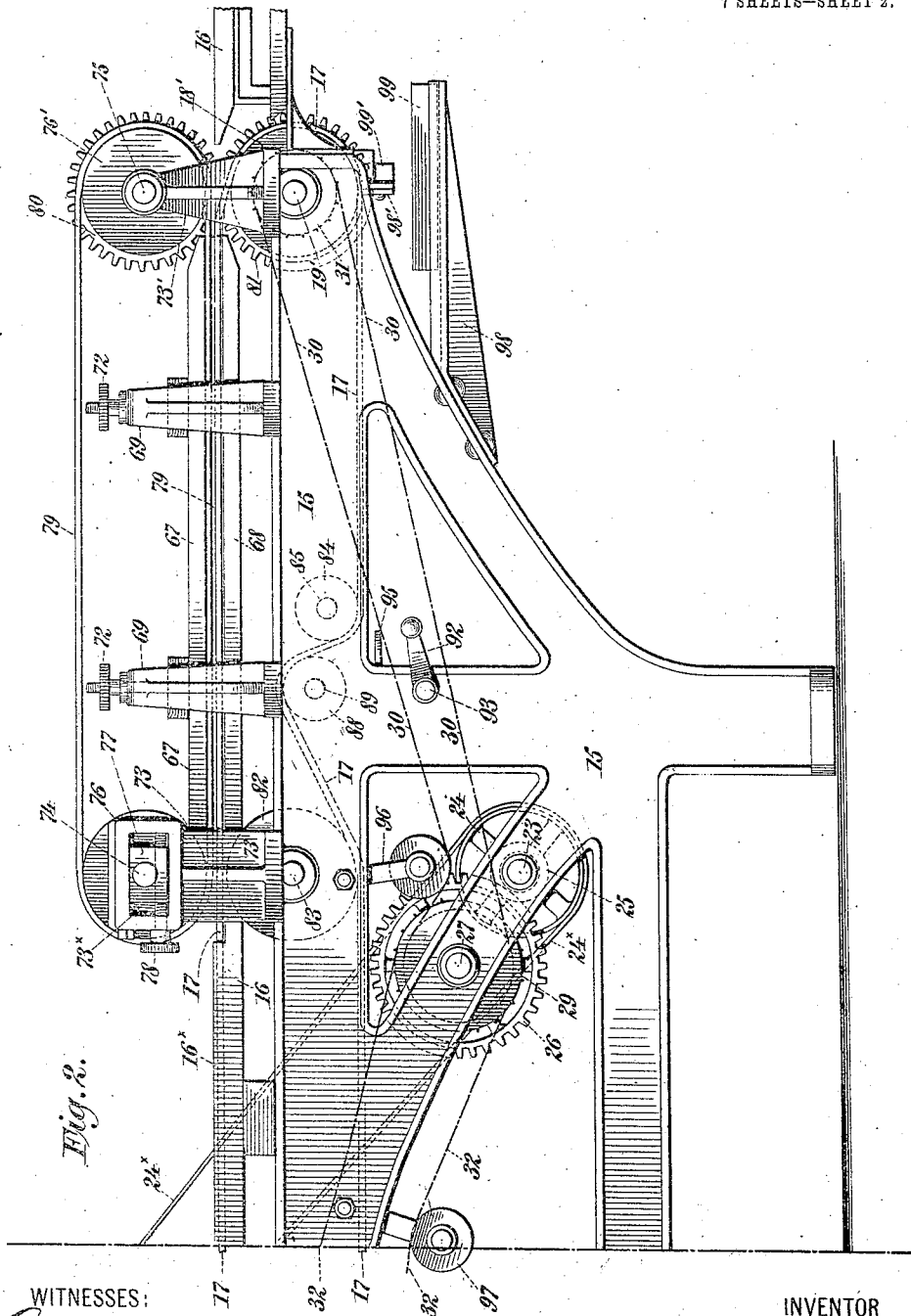
Conrad Augustus Dietrich
his ATTORNEY

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7 SHEETS—SHEET 2.



WITNESSES:
Gustav Dietrich
Edwin H. Dietrich

INVENTOR
Frank M. Peters
BY
Conrad Augustus Dietrich
his ATTORNEY

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7 SHEETS—SHEET 3.

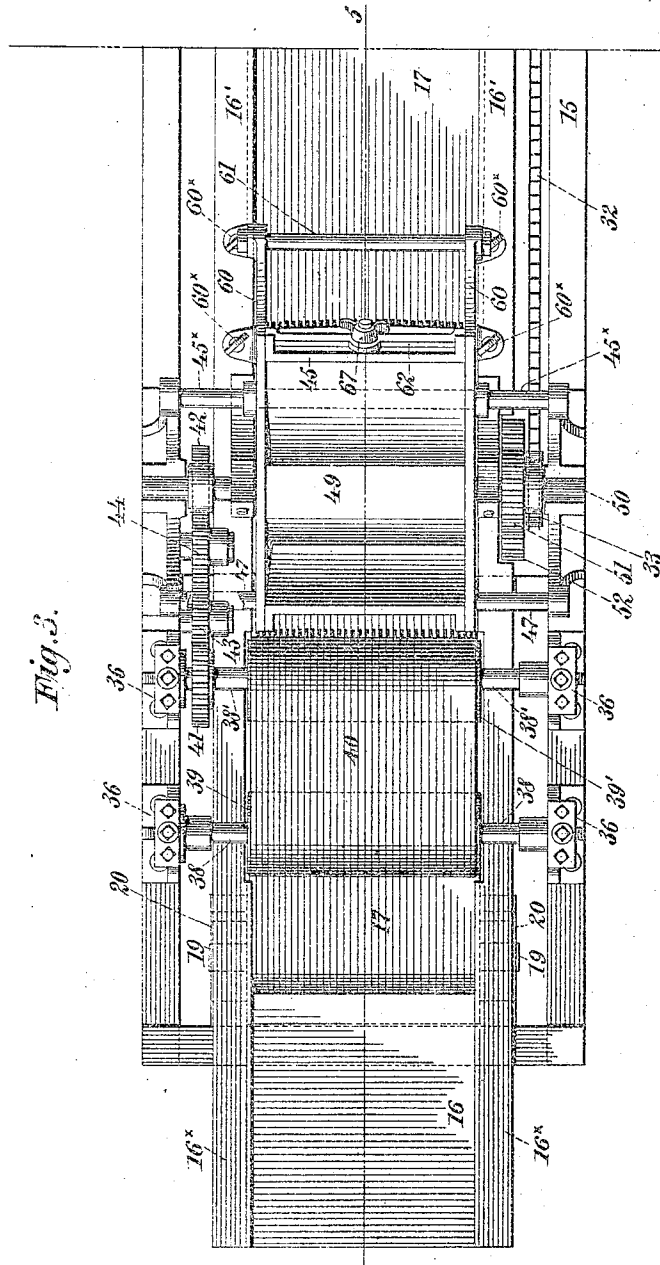


Fig. 3.

WITNESSES:

Gustav H. Peters
Edwin H. Peters.

INVENTOR

Frank M. Peters

BY

Conrad Augustus Peters
his ATTORNEY

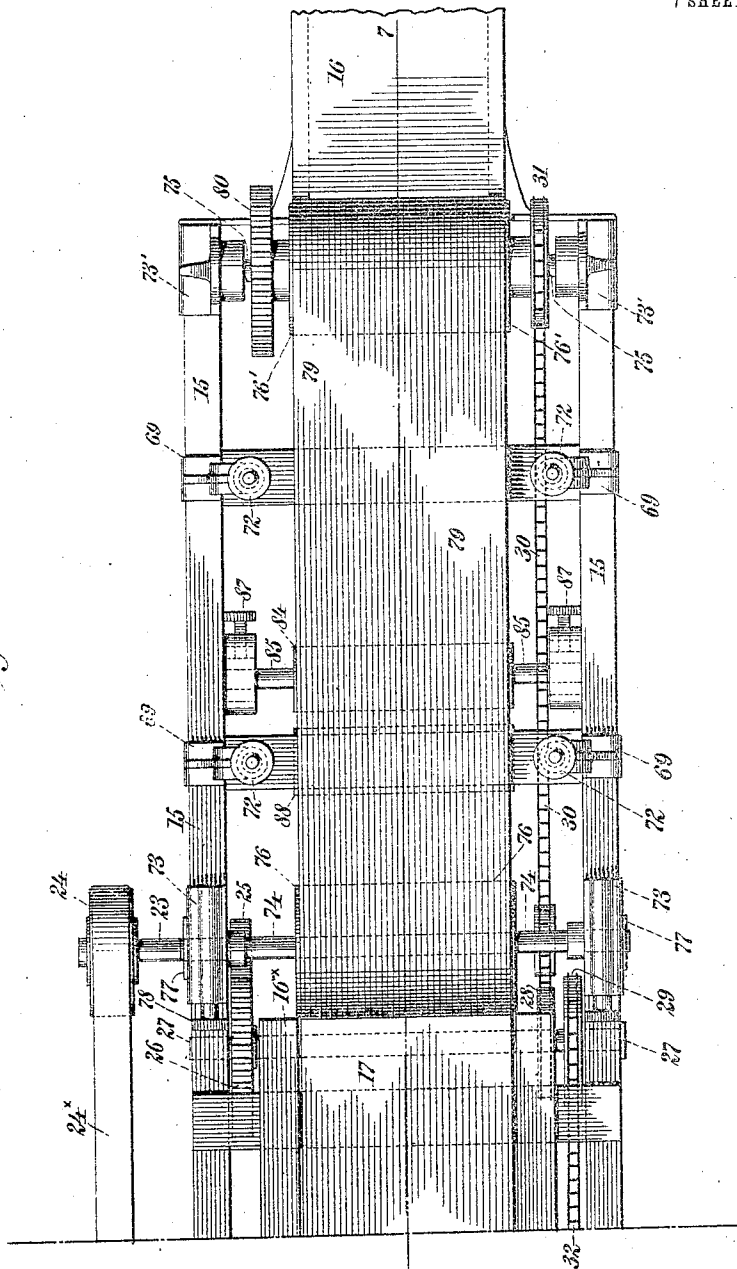
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7 SHEETS—SHEET 4.

Fig. 4.



WITNESSES:

Gustav Dietrich

Edwin H. Britton

INVENTOR

Frank M. Peters

BY

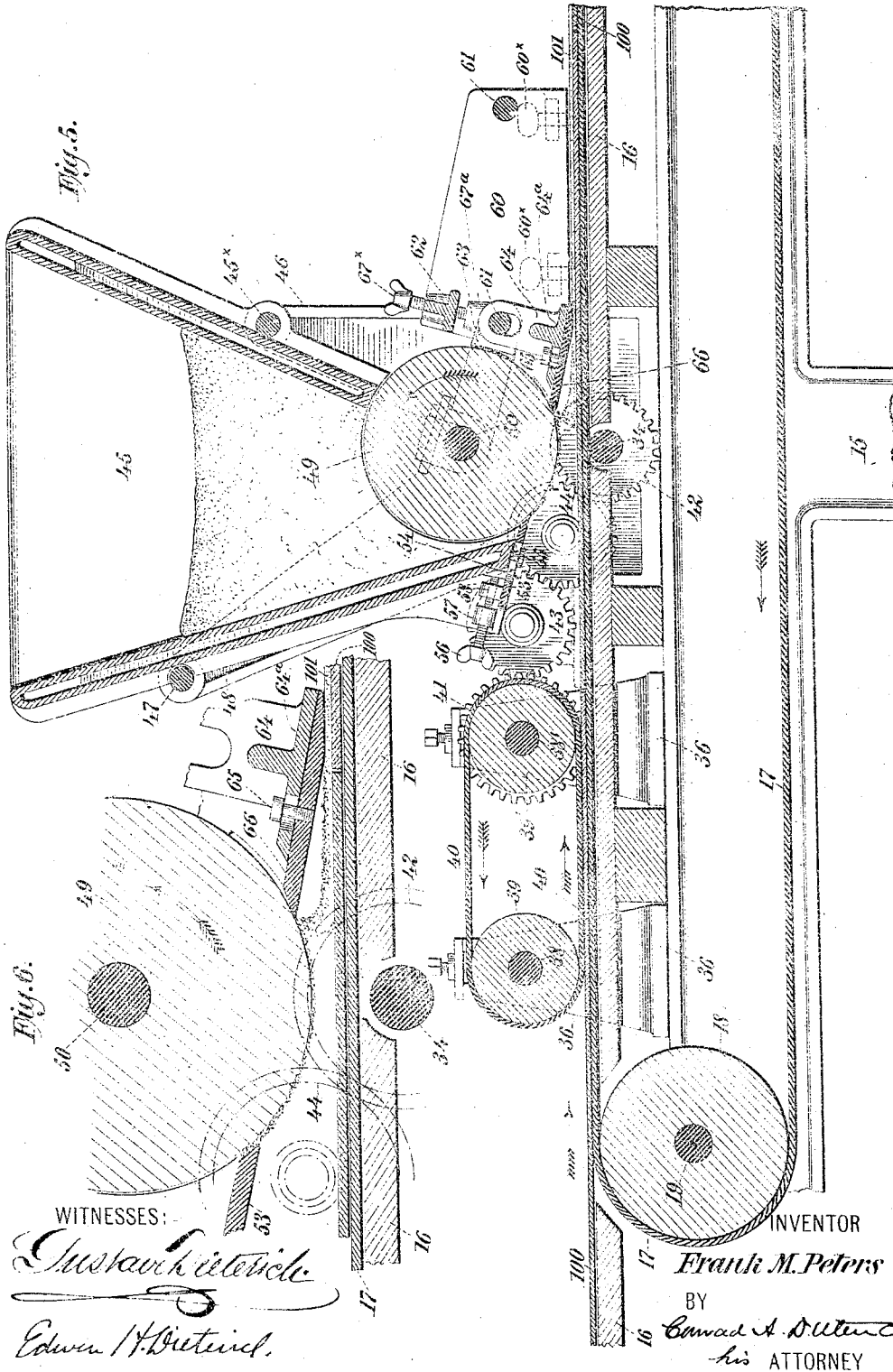
Conrad Augustus DeLoach
his ATTORNEY

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7 SHEETS—SHEET 5.



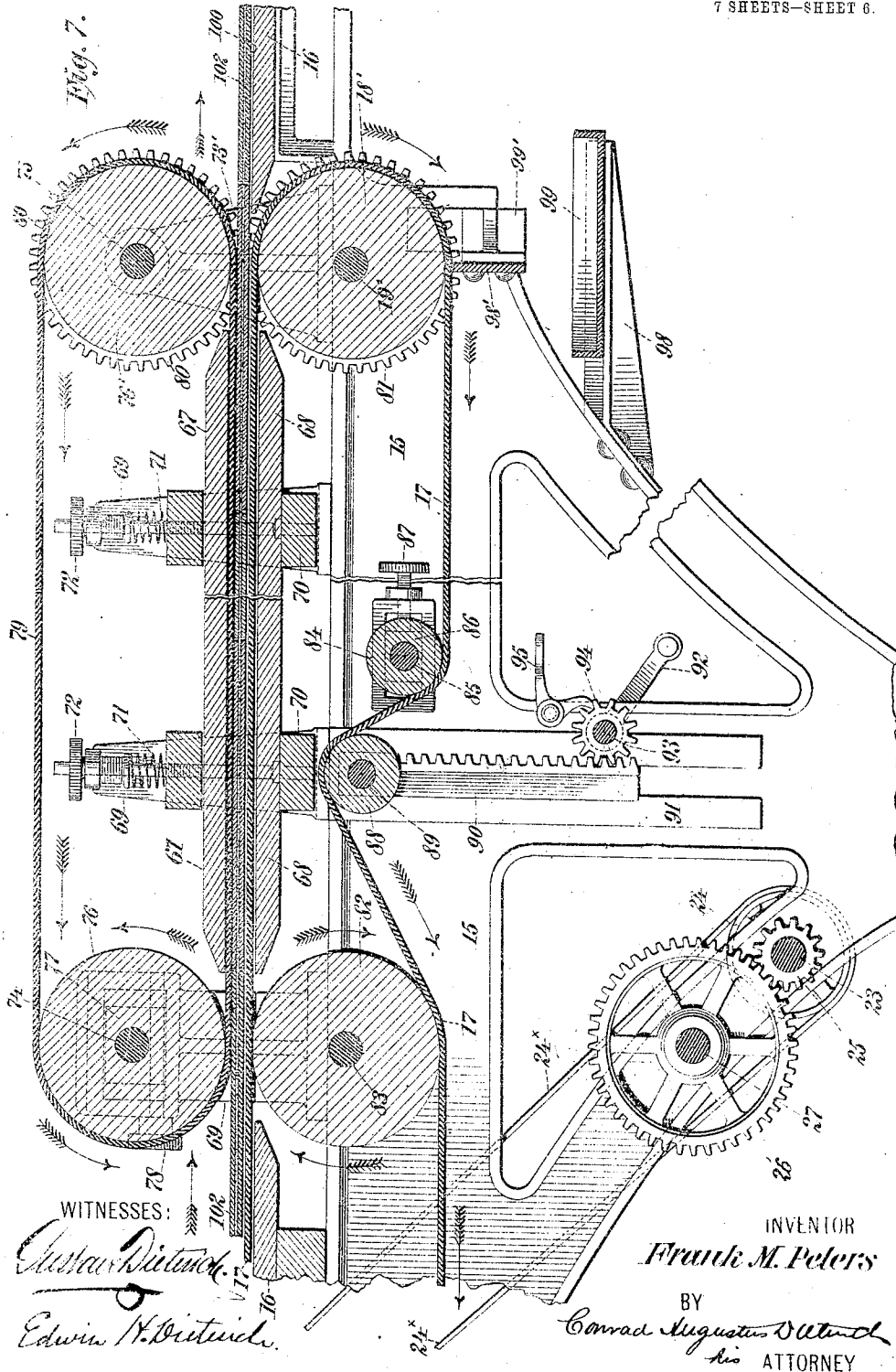
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7 SHEETS—SHEET 6.



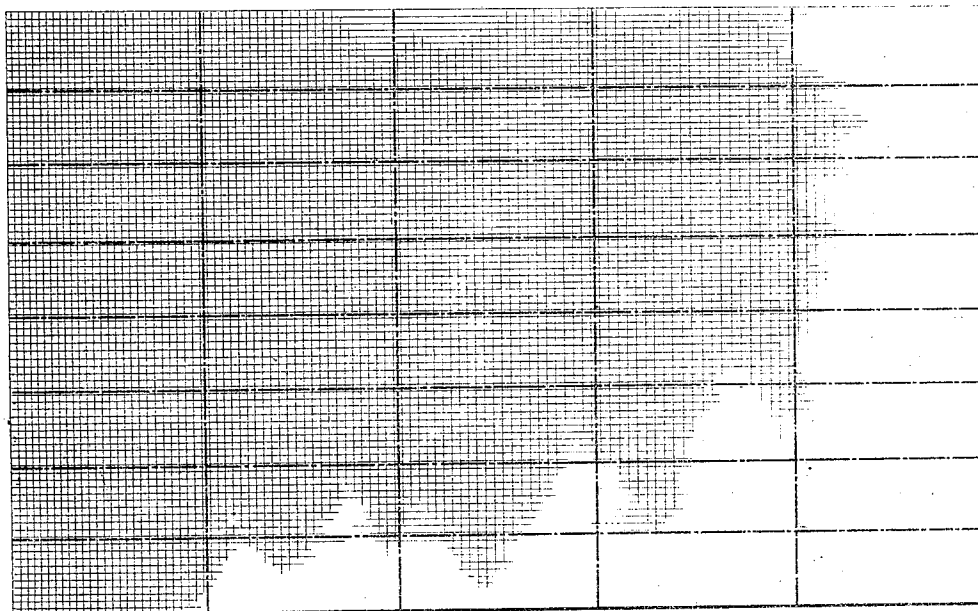
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7 SHEETS—SHEET 7.

Fig. 8



102

Fig. 9

100

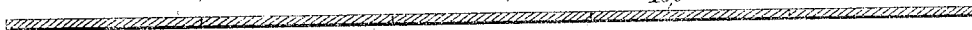
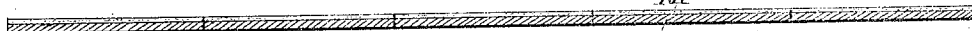


Fig. 10.

101



100

Fig. 11.

102



100 101

WITNESSES:

Gustav Dietrich

Edwin H. Bittner

INVENTOR

Frank M. Peters

BY

Samuel Augustus Dutton
ATTORNEY

UNITED STATES PATENT OFFICE.

FRANK M. PETERS, OF CHICAGO, ILLINOIS.

SUGAR-WAFER MACHINE.

No. 824,202.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed July 29, 1905. Serial No. 271,836.

To all whom it may concern:

Be it known that I, FRANK M. PETERS, a citizen of the United States, residing at Chicago, Cook county, in the State of Illinois, have invented certain new and useful Improvements in Sugar-Wafer Machines, of which the following is a full, clear, and exact specification.

My invention relates to improvements in machines for producing sugar-wafers or analogous baked-dough products; and the same has for its object more particularly to provide a simple, efficient, and reliable machine in which the paste or filling material may be properly deposited upon wafer-sheets, the quantity of paste so deposited regulated or controlled and then evenly spread upon said wafer-sheets, and thereupon and after a cover wafer-sheet has been placed upon the first-mentioned wafer-sheet and its coating the whole united into a single structure by subjecting the same to pressure and causing the filling-paste to firmly adhere to and bind said wafer-sheets together.

Further, said invention has for its object to provide a machine in which the wafer-sheets constituting the bottom layer or side of the completed sugar-wafer may be fed into the machine in the shape of a strip or band formed by placing the said wafer-sheets upon an endless band or conveyer with their abutting edges in close contact and the same thereupon spread as a continuous strip with paste positively conveyed or transferred thereto from a hopper by suitable mechanism prior to the application of the top or cover wafer-sheets thereto.

To the attainment of the objects and ends aforesaid my invention consists in the novel details of construction and in the combination, connection, and arrangement of parts hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, wherein like numerals of reference indicate like parts, Figures 1 and 2 jointly constitute a side elevation of a machine made according to and embodying my invention. Figs. 3 and 4 jointly constitute a plan or top view of the same. Fig. 5 is an enlarged detail sectional view taken on the line 5 5 of Fig. 3, showing the construction and arrangement of the paste-hopper and related mechanisms. Fig. 6 is an enlarged detail sectional view of the lower portion of the paste-hopper with the delivery-

roller therein and the means for regulating the quantity of paste transferred to the roller and the means for removing the same therefrom. Fig. 7 is a view similar to Fig. 5, taken on the line 7 7 of Fig. 4, showing the construction and arrangement of the mechanism for uniting the wafer-sheets and the filling therebetween into one structural body. Fig. 8 is a face view of a complete wafer-sheet; Fig. 9, a longitudinal section of the same; Fig. 10, a similar view with a layer or coating of paste thereon, and Fig. 11 is a longitudinal section of the complete sugar-wafer structure previous to its separation into the commercial units.

In said drawings, 15 designates a frame having a top plate 16 supported thereon, above which and between the longitudinal guides 16^x thereon is arranged an endless band or conveyer 17, working upon transverse rollers 18-18', mounted upon shafts 19 19', respectively, supported in bearings provided at the opposite ends of the frame 15. The roller 18 is supported in adjustable bearings 20 20, working in recesses 21 21 in the frame and capable of longitudinal movement by means of adjusting-screws 22 22. Below the top plate and adjacent to one end of the frame 15 is supported in suitable bearings a main driving-shaft 23, having fixed thereon a pulley 24, driven by a belt 24^x, and a gear-wheel 25, meshing with a larger gear-wheel 26, fixed upon the shaft 27, supported in bearings a little above and to the left of the main driving-shaft 23, which shaft 27 has fixed thereon adjacent to its forward end two sprocket-wheels 28 29, the sprocket-wheel 28 being connected by a sprocket-chain 30 with a sprocket-wheel 31, fixed upon the roller-shaft 19' at the right-hand end of the frame 15, and the sprocket-wheel 29 connected by a sprocket-chain 32 with a sprocket-wheel 33, fixed upon a shaft 34, supported in hopper-brackets 35 35.

At the upper left-hand end of the frame 15 are secured vertical brackets 36 36, in which are arranged adjustable bearings 37 37, carrying the ends of the shafts 38 38', over which passes an endless band 40. The shaft 38' has fixed thereon also adjacent to its rear end a gear-wheel 41, operated by a gear-wheel 42 on the shaft 34 through the intermediate gear-wheels 43 and 44, whereby said rollers 39 39' and the endless band 40 are caused to work and cooperate with the conveyer 17 to feed the lower wafer-sheets into the machine.

45 denotes a paste-hopper provided with a water-jacket and pivotally supported at one side upon a bar 45^a, supported at its ends in the arms 46 46 of the bracket 35, and at its opposite edge said hopper 45 rests upon a transverse bar 47, secured at its ends in the arms 48 48 of said bracket 35. The lower portion or base of the hopper 45 is cut out to partly receive and conform to a roller 49, mounted upon a shaft 50, having its ends supported in bearings provided in the brackets 35 intermediate the arms 46 and 48 thereof, and 51 denotes a gear-wheel fixed upon said shaft 50, meshing with a gear-wheel 52 on the shaft 34, by means of which movement is communicated to said roller 49. At the lower left-hand edge of the hopper 45 is provided a paste-regulating device comprising a blade 53, having slots 54 therein, through which extend screws or studs 55, whereby said blade 53 is held duly secured to said hopper and capable of adjustment relatively to the roller 49 therein.

56 56 denote quick-acting differential screws working in lugs 57 57 on the hopper 45 and engaging at their inner ends the lugs 58 58, provided upon the upper surface of the blade 53, extending beyond the lower edge of the hopper. By actuating the screws 56 one way or the other the distance between the front edge of the blade 53 and the periphery of the roller 49 may be increased or diminished and the thickness of the layer or coating of paste carried by the roller 49 and subsequently transferred to the wafer-sheets on the conveyer 17, accordingly regulated or entirely shut off, as desired.

At the opposite side of the roller 49 is arranged mechanism for removing or splitting the layer of paste from said roller and causing the same to be deposited and evenly spread upon the upper surface of the wafer-sheets conveyed beneath the hopper 45 by and upon the conveyer 17, said mechanism comprising the side plates 60 60, provided upon their outer surfaces along their lower edge with adjusting-screws 60^a 60^a, bearing upon the longitudinal guides 16^a 16^a and united by transverse rods 61 61.

61 61 denote arms, each of which is secured at one end to one of the plates 60 and its other end pivotally secured to the roller-shaft 50.

64 denotes a yoke or frame having upwardly-extending slotted members and partly supported upon one of the rods 61, and upon the under side of the horizontal portion 64^a is secured by screws 65 65 a blade 66, having its upper surface of its inner edge, which engages the roller 49, beveled, and the under surface of its outer edge also beveled, as shown at Fig. 6.

Above the rod 61 and the yoke or frame 64 is arranged a transverse bar 62, having an adjusting-screw 67^a extending through the

same at the middle thereof and engaging at its lower end a screw-threaded boss 67^a on the yoke or frame 64, whereby when said adjusting-screw 67^a is turned the frame or yoke 64 and the outer beveled edge of the blade 66 may be raised or lowered and the thickness of the layer or coating of paste spread upon the wafer-sheets regulated.

At the right-hand end of the machine (see Figs. 2 and 7) is shown the mechanism for uniting the wafer-sheets and their intermediate filling into one structural body, and the same consists of two longitudinal plates 67 68, which are arranged within the brackets or standards 69 69, secured upon the top of the frame 15. The lower plate 68, over which the conveyer 17 passes, is rigidly secured to and supported upon cross-pieces 70 70, while the upper plate 67 is vertically adjustable and maintained under pressure within the brackets 69 69 by springs 71 71, controlled by adjusting-screws 72 72, arranged in the upper ends of said brackets 69 69.

Upon the top of the frame 15, at each side of the brackets 69 69, are secured brackets 73 73^a, in which are supported the ends of shafts 74 75, carrying rollers 76 76^a. The brackets 73 73^a are provided with longitudinal recesses 73^a 73^a, within which work bearings 77 77, adapted for adjustment therein by means of screws 78 78, extending through said brackets 73 73 and bearings 77 77.

79 denotes an endless belt or band which passes over the rollers 76 76^a and extends between the plates 67 68 and above the conveyer 17. Movement is imparted to said belt or band 79 by a gear-wheel 80, fixed upon the roller-shaft 75, which meshes with a similar gear-wheel 81, fixed upon the roller-shaft 19' directly below the same.

Adjacent to the inner end of the plate 68 is provided a roller 82, which corresponds to the roller 76, supported directly above the same, and said roller 82 is mounted upon a shaft 83, supported in bearings in the frame 15. To the right of said roller 82, between the upper and lower portions of the conveyer 17, is provided a small roller or belt-tightener 84, mounted upon a shaft 85, having its ends supported in horizontally-adjustable bearings 86 86, operated by adjusting-screws 87 87, and 88 denotes a second roller or belt-tightener, arranged intermediate the rollers 82 and 84 and engaging the under side of the conveyer 17. Said roller 88 is mounted upon a shaft 89, whose ends are supported in the upper ends of rack-bars 90 90, working in vertical guides 91 91, provided in the frame 15, and the same are adapted for adjustment vertically by means of cranks 92 92, fixed at the ends of a shaft 93, upon which shaft are also fixed pinions 94 94 in engagement with said rack-bars 90 90.

95 denotes a detent secured upon the frame 15, adapted to engage one of the pinions 94.

whereby to hold the belt-tightener 88 locked to its adjusted positions.

96 and 97 denote belt-tighteners arranged upon the frame 15 for regulating the sprocket-chains 30 32, respectively, and at the right-hand or delivery end of the machine are secured brackets 98 98, upon which is supported a pan 99, adapted to receive the crumbs and particles of paste which fall from the conveyer 17 or be removed therefrom by the action of the scraper 98', which is disposed longitudinally of and below the roller 18' and supported upon brackets 99' 99', secured to the frame 15.

15 The operation of the machine is as follows: Assuming the hopper 45 to contain a sufficient quantity of paste, which, when necessary, may be maintained in the required state of fluidity by warm water in the water-jacket surrounding said hopper, the regulating-blade 53 to be adjusted so as to permit of the desired quantity of paste to be taken up by the roller 49, the blade 66 adjusted to split or strip the paste from the roller 49 and spread the same to the desired thickness upon the wafer-sheets, and the plates 67 and 68 properly adjusted to unite the wafer-sheets and their intermediate filling as the same pass between said plates, it then simply becomes necessary to set the machine in operation, and as soon as this has been done the endless-belt and conveyer rollers will cause the conveyer 17 and belts 40 and 79 to travel in the direction of the arrows, Figs. 5 and 7, and the hopper-roller 49 to rotate, as indicated at Fig. 5. The wafer-sheets 100 are thence fed into the machine at its left-hand end upon the conveyer 17 and carried forward with their abutting edges in close contact beneath the band 40 and below the hopper 45, where the same will receive a deposit of paste, which is thereupon evenly spread over the same, as a layer 101, as it passes below the blade 66. While the strip of wafer-sheets 100 is passing upon the conveyer 17 in the open space between the hopper 45 and the pressure-plates 67 68, the cover-sheets 102 are placed upon said coated lower wafer-sheets 100 and the same thence carried forward upon said conveyer 17 and between it and the endless belt 79, intermediate the pressure-plates 67 68, where the several parts are united by the pressure into one structural body, which then emerges from the machine at its right-hand end and is deposited upon the top plate 16. The complete sugar-wafer structures are thence removed and severed into commercial units of the desired size and shape. The structure illustrated at Figs. 8 to 11, inclusive, shows the usual form of such sheet, which may be severed into forty commercial units, as indicated at Fig. 8.

It is to be noted that in my improved machine the wafer-sheets constituting the lower portion or side of the completed sugar-wafers

are fed into the machine upon the conveyer 17 with their edges abutting and in close contact, thus causing the same to be presented below the roller 49 as a continuous strip to be acted upon by the paste-spreading mechanism, and by this arrangement and operation all timing of the delivery of paste in measured doses is rendered unnecessary and all waste of paste due to inaccuracy of such timing and adjustment prevented. Further, it is to be noted that by the arrangement of the roller 49 and the regulating-blade 53 a definite quantity of paste may be positively and evenly taken up by said roller in the form of a layer of uniform thickness and width, which when stripped therefrom insures a coating of uniform thickness being deposited and spread upon the wafer-sheets.

Without limiting myself to the details of construction, which may be varied within the scope of the invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an outlet therein, means for effecting the discharge of the paste in proper quantities from said receptacle, and means for transferring the discharged paste in a cohesive mass to the wafer-sheets, substantially as specified.

2. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an outlet therein, means for conducting the paste from said outlet, and means for transferring the paste in a cohesive mass from said conducting means to the wafer-sheets, substantially as specified.

3. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an outlet therein, means for effecting the discharge of the paste in proper quantities from said receptacle, and means for transferring the discharged paste in a cohesive mass from said discharging means to the wafer-sheets, substantially as specified.

4. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an outlet therein, a conducting device arranged therein for conveying the paste from said receptacle, and means for removing the paste from said conducting device in a cohesive mass and transferring the same to the wafer-sheets, substantially as specified.

5. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an outlet therein, a device arranged therein for conveying the paste from said receptacle, means for controlling the quantity of paste delivered to said device, and means for removing the paste from said device in a cohesive mass and transferring and spreading the same upon

the wafer-sheets upon said support, substantially as specified.

6. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an outlet therein, a roller arranged in said outlet, means for controlling the supply of paste conveyed by said roller, and means for removing the paste in a cohesive mass from said roller, substantially as specified.

7. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an outlet therein, a roller arranged in said outlet, means for controlling the supply of paste conveyed by said roller, and means for removing the same in a cohesive mass from said roller to the wafer-sheets, and spreading the same thereon, substantially as specified.

8. In a machine of the character described, a paste-receptacle, a roller for conducting the paste therefrom in the form of a sheet coating the roller, a support for the wafer-sheets below said roller, and means for stripping the coating in a cohesive mass from said roller directly over said wafer-sheets, substantially as specified.

9. In a machine of the character described, a paste-receptacle, a roller for conducting the paste therefrom in the form of a sheet coating the roller, a support for the wafer-sheets below said roller, means for stripping the coating in a cohesive mass from said roller directly over said wafer-sheets, and means for spreading the material stripped from the roller upon said wafer-sheets, substantially as specified.

10. In a machine of the character described, a paste-receptacle, a roller for conducting the paste therefrom in the form of a sheet coating the roller, a support for the wafer-sheets below said roller, and a blade serving at one edge to strip the coating from said roller directly over the wafer-sheets, and at its other edge to spread the stripped material upon said wafer-sheets, substantially as specified.

11. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an opening in the base thereof, a roller arranged in said opening, means arranged at one side of said roller for controlling the supply of paste delivered thereto, and means arranged at the opposite side of said roller for removing the paste from said roller in a cohesive mass to the wafer-sheets and spreading the same thereon, substantially as specified.

12. In a machine of the character described, the combination with a support, for wafer-sheets, of a paste-receptacle having an opening in the base thereof, a roller arranged partly within and partly without said paste-receptacle, means arranged adjacent to the projecting portion of said roller at one side

thereof for controlling the delivery of paste to said roller, and means arranged at the opposite side of the projecting portion of said roller for removing the paste therefrom in a cohesive mass and transferring the same to the wafer-sheets, substantially as specified.

13. In a machine of the character described, the combination with a support for wafer-sheets, of a paste-receptacle having an opening in the base thereof, a roller arranged partly within and partly without said paste-receptacle, means arranged adjacent to the projecting portion of said roller at one side thereof for controlling the delivery of paste to said roller, and means arranged at the opposite side of the projecting portion of said roller for removing the paste therefrom in a cohesive mass and transferring and spreading the same upon the wafer-sheets, substantially as specified.

14. In a machine of the character described, the combination with a support for wafer-sheets, means for actuating said support, a paste-receptacle supported above said support having an opening in the base thereof, a roller arranged partly within and partly without said receptacle for conducting the paste from said receptacle, means for actuating said roller, a blade supported adjacent to one side of said roller, means for adjusting said blade, a blade supported adjacent to the opposite side of said roller for removing the paste from said roller in a cohesive mass, and means for vertically and horizontally adjusting said blade, substantially as specified.

15. In a machine of the character described, the combination with a traveling support for wafer-sheets and means for actuating said support, of a paste-receptacle supported above said traveling support, an opening in said receptacle arranged transversely of said traveling support, a roller supported below said paste-receptacle and extending into the opening in the base thereof, means for rotating said roller, means for controlling the delivery of paste to said roller, and means for removing the paste therefrom in a cohesive mass and spreading the same upon the wafer-sheets, substantially as specified.

16. In a machine of the character described, the combination with a traveling support for wafer-sheets, and means for actuating said support, of a paste-receptacle mounted above said traveling support, an opening in the base of said receptacle arranged transversely of said traveling support, a roller supported below said paste-receptacle and extending into and conforming partly to the opening therein, a controlling device arranged upon the under side of said paste-receptacle at one side of the roller, means for adjusting said device toward and from said roller, a device arranged below said paste-receptacle and adapted for contact at one edge with the side of the roller opposite to

the controlling device, and at its other edge with the wafer-sheet and the paste thereon whereby to spread the paste upon said wafer-sheets, and means for actuating said device 5 to regulate the thickness of the paste spread upon the wafer-sheets, substantially as specified.

17. In a machine of the character described, the combination with an endless 10 band for wafer-sheets, means for actuating said endless band, brackets arranged at each side of said endless band, a paste-receptacle mounted in said brackets having an opening in its base arranged transversely of said endless 15 band, a roller mounted in said brackets below said paste-receptacle conforming to and extending into the opening in the base thereof, a blade movably secured to the under side of said paste-receptacle at one side 20 of the roller, means for adjusting said blade toward and from said roller, a blade adjustably arranged at the opposite side of said roller having its inner edge in contact with said roller, and its outer edge adapted for vertical adjustment, and means for adjusting 25 said blade, substantially as specified.

18. In a machine of the character described, the combination with an endless band for wafer-sheets, means for actuating

said endless band, brackets arranged at each 30 side of said endless band, a paste-receptacle mounted in said brackets having an opening in its base arranged transversely of said endless band, a roller mounted in said brackets below said paste-receptacle conforming to 35 and extending into the opening in the base thereof, a blade arranged upon the under side of said paste-receptacle at one side of the roller, adjusting-screws provided upon said receptacle in engagement with said blade 40 whereby to move said blade toward and from said roller, a frame arranged at the opposite side of said roller, adjusting-screws thereon for adjusting said frame, a blade mounted in said frame having its inner edge in contact 45 with said roller, and its outer edges adapted to spread the paste upon the wafer-sheets, and an adjusting-screw arranged in said frame adapted for adjusting the outer edge of said blade, substantially as specified. 50

Signed at the city of New York, in the county and State of New York, this 27th day of July, 1905.

FRANK M. PETERS.

Witnesses:

C. A. DIETERICH,
A. G. ZIMMERMANN.