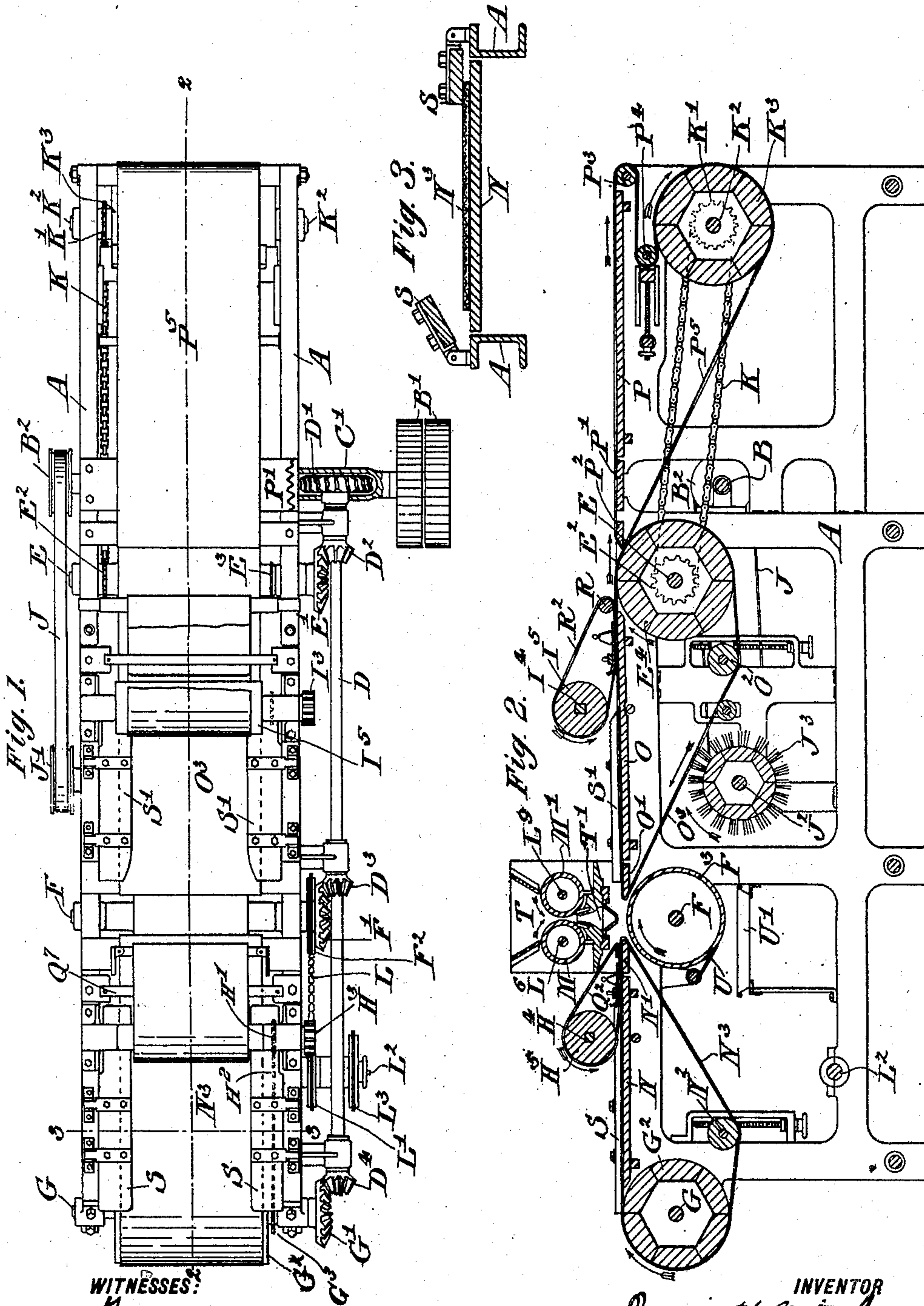


No. 806,479.

PATENTED DEC. 5, 1905.

J. H. MITCHELL.
SUGAR WAFER MACHINE.
APPLICATION FILED APR. 14, 1904.

2 SHEETS—SHEET 1.

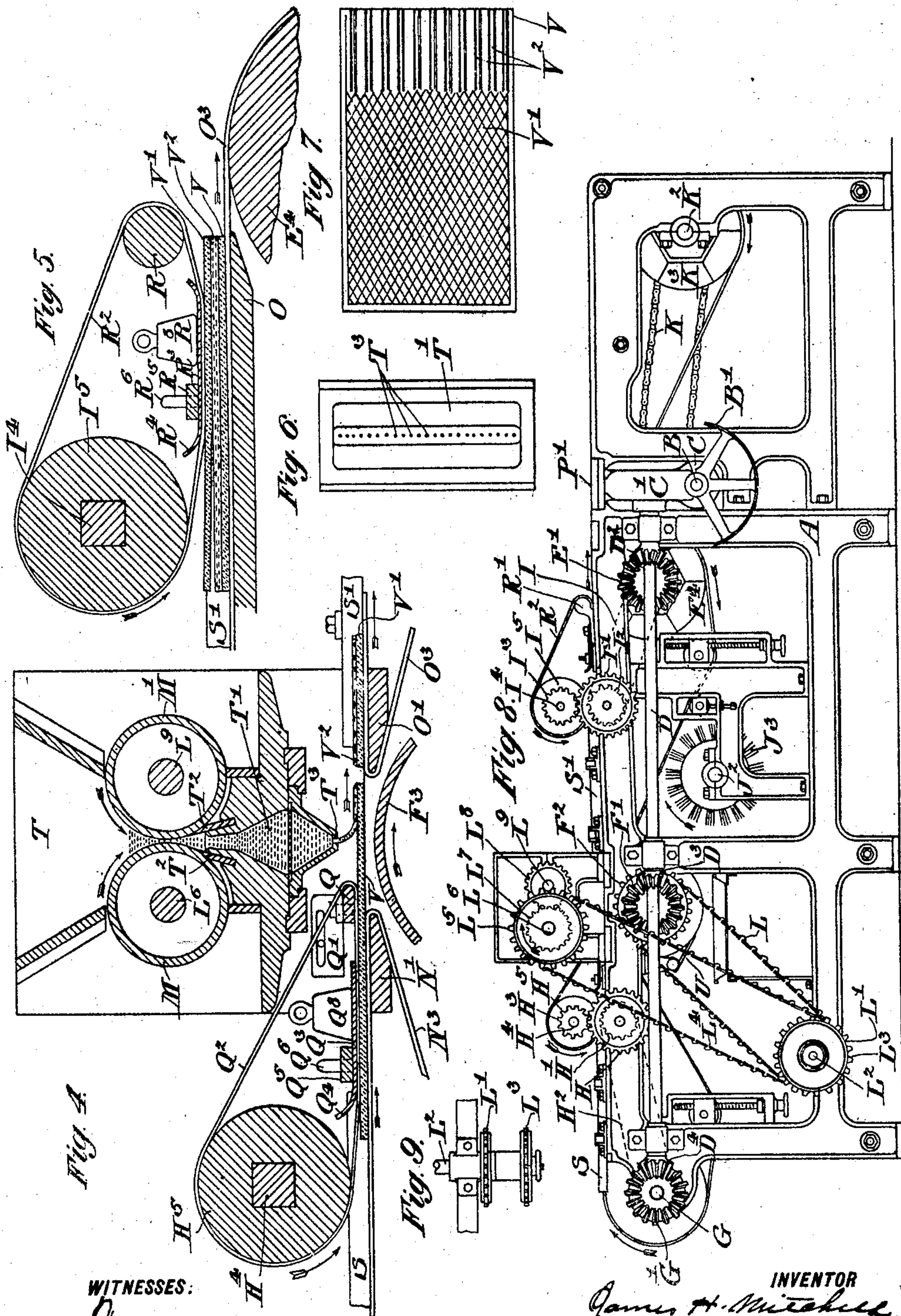


WITNESSES:
Stewart
R. Williams

INVENTOR
James H. Mitchell
BY
Francis J. Chambers
his ATTORNEY.

J. H. MITCHELL.
SUGAR WAFER MACHINE.
APPLICATION FILED APR. 14, 1904.

2 SHEETS—SHEET 2.



WITNESSES:
W. H. Williams

INVENTOR
James H. Mitchell
BY
Francis J. Chambers
ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES H. MITCHELL, OF PHILADELPHIA, PENNSYLVANIA.

SUGAR-WAFER MACHINE.

No. 806,479.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed April 14, 1904. Serial No. 203,081.

To all whom it may concern:

Be it known that I, JAMES HENRY MITCHELL, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Sugar-Wafer Machines, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to mechanism for the manufacture of what are known as "sugar-wafers"—that is to say, a biscuit consisting of two wafers with an intermediate layer of some plastic material.

The object of my invention is to provide simple and efficient mechanism, first, for the uniform distribution of the plastic filling on the lower wafer and, second, for the pressing down of the upper wafer upon the surface of the plastic material.

Other objects and features of my invention will be best understood as described in connection with the drawings in which they are illustrated, and in which—

Figure 1 is a plan view of a machine constructed in accordance with my invention; Fig. 2, a longitudinal section taken on the line 2 2 of Fig. 1; Fig. 3, a cross-section taken on the line 3 3 of Fig. 1; Fig. 4, a sectional view, on a larger scale, of the mechanism for feeding the plastic material and for transporting the wafer beneath said mechanism, the view being shown in section identical with that shown in Fig. 2. Fig. 5 is a view, on a larger scale, of the compressing mechanism shown in Fig. 2. Fig. 6 is a view of the feed-nozzle indicated in Fig. 4, the view being a plan view with the nozzle reversed from the position shown in Fig. 4. Fig. 7 is a plan view of the completed biscuit or sugar-wafer with the upper layer partly broken away. Fig. 8 is a side elevation of the machine provided with a special view of showing the mechanism for transmitting power to various moving parts; and Fig. 9 is a detail of the machine, showing the sprocket-wheels connected with the shaft L².

A indicates the frame of the machine, B the main driving-shaft, B' indicating the fast and loose pulleys secured to the shaft, and B² a power-transmitting pulley also secured to the shaft. There is also secured to the shaft

B a worm, the situation of which is indicated by the casing C, which surrounds the shaft 55 and the worm secured thereto, C' indicating an extension of this casing which forms a protecting-case for the worm-wheel, (indicated at D',) said worm-wheel being in engagement with the worm on the shaft B and secured to 60 a longitudinally-extending shaft D.

D², D³, and D⁴ are bevel-gears secured to the shaft D.

E is a transversely-extending shaft driven by the bevel D², which engages a bevel-wheel 65 E', secured on the shaft E, said shaft having also secured to it sprocket-wheels (indicated at E² and E³) and also the drum, (indicated at E⁴.)

F is another transversely-extending shaft driven by the bevel-gear D³ through the bevel- 70 gear F', secured to the shaft F, said shaft having also secured to it the sprocket-wheel F² and the roller or drum, (indicated at F³.)

G is a third transversely-extending shaft driven by the bevel-gear D⁴ through the bevel- 75 gear G', said shaft having secured it to the drum (indicated at G²) and also a sprocket-wheel, (indicated at G³.)

Power is transmitted from the sprocket-wheel G³ through a chain (indicated at H²) to 80 a sprocket-wheel H', which is secured to and actuates a gear-wheel H, which in turn actuates, through the gear-wheel H³, the shaft H⁴, to which is secured a drum, (indicated at H⁵.) From the sprocket-wheel E³ on the shaft E 85 power is transmitted through a belt (indicated at I) to the sprocket-wheel I², which is actuated with and actuates the gear-wheel I', which in turn drives, through the gear I³, the shaft I⁴, to which shaft is secured the drum I⁵. 90

The pulley B² on the driving-shaft B drives, through the belt J, the pulley J', which is secured to the shaft J², to which shaft is also secured the revolving brush, (indicated at J³.)

The sprocket-wheel E² on the shaft E 95 drives, through the chain K and the sprocket-wheel K', the shaft K², to which the sprocket K' is attached, and the frame K³, secured on said shaft.

The sprocket-wheel F² on the shaft F 100 drives, through the chain L and the sprocket-wheel L', the shaft L², to which is also attached the sprocket-wheel L³, which through the chain L⁴ and sprocket-wheel L⁵ drives the shaft L⁶, said shaft having attached to it the 105 gear-wheel L⁷, which through the gear L⁸

drives the shaft L^9 , the said shafts L^6 and L^8 having secured to them the feed-rolls, (indicated at M and M' .)

N is a section of the table, so to speak, of the machine, having an extension (indicated at N') which serves as a belt-guide, N^2 indicating an adjustable tension-roller, and N^3 an endless belt or web passing over the drum G^2 , over the top of the table N and its extension N' , and under the adjustable tension-roller N^2 .

O is another section of the table of the machine, having an extension-piece O' , which serves as a belt-guide, O^2 indicating an adjustable tension-roller and O^3 an endless belt or web passing over the drum E^4 , the table O , and its extension-piece O' and under the adjustable roller O^2 . It will be noticed that the extension-pieces N' and O' leave a gap or open space between them, the function of which will be hereinafter described.

P is a further section of the table of the machine. A further intermediate section of this portion of the table is indicated at P' , said portion being partly broken away in Fig. 1, the removed section supporting the worm-wheel casing C' .

P^2 indicates an independent section of the portion P of the table which serves as a belt-adjuster.

P^3 is a guide-roll situated at the extreme front end of the table-section P .

P^4 is an adjustable tension-roller, and P^5 a belt or web which passes over the drum K^3 , over the table P and its adjustable section P^2 , and over the rolls P^3 and P^4 , as indicated.

Q (best shown in Fig. 4) is an adjustable belt-guide secured to the side plates, (indicated at Q'), Q^2 indicating a belt which passes over the roller H^5 and the guide Q , Q^3 indicating a plate resting on the top of the under side of said belt and having, preferably, an upturned end, (indicated at Q^4), Q^5 indicating perforated lugs secured on the plate Q^3 and within the perforations of which are indicated the guide-pins Q^6 , which hold the plate in position, while permitting it a certain freedom to move up and down.

Q^7 (see Fig. 1) indicates a cross-bar to which the guide-pins Q^6 are attached, and Q^8 indicates a weight which can be placed on the plate Q^3 to regulate the pressure on the belt Q^2 .

R (see Fig. 5) is a roller over which and the drum I^5 passes the belt R^2 , R^3 indicating a plate resting on the top of the under side of this belt and, preferably, like the plate Q^3 , having its end R^4 curved upward. R^5 indicates the perforated lug secured on this plate and in the perforations of which are the guide-pins R^6 , R^8 indicating a weight resting on this plate.

S S are guides hinged at their outer edges to the frame of the machine and resting by gravity on the belt N^3 . S' and S' are similar guides which rest on the edges of the belt O^3 .

T is a feed-hopper for the plastic material,

the bottom of which is formed, so to speak, by the feed-rolls M and M' , T^2 T^2 indicating scrapers which guide the plastic material fed downward by the rolls into the compress-pocket, (indicated at T' .) T^3 indicates the nozzle-plate forming the bottom of this compress-pocket and having a transverse row of small perforations, as are well indicated in Fig. 6.

U is a scraper working in connection with the drum F^3 , and U' a pan or receptacle situated beneath said roll.

In the view of the biscuit indicated in Fig. 7, V indicates the lower wafer, V' the upper wafer, and V^2 the lines of plastic material laid on the lower wafer and upon which the upper wafer is compressed.

In operation the belts N^3 and Q^2 move at the same rate of speed as do also the belts Q^3 and R^2 ; but these latter belts move at a greater rate of speed than do the first pair, while the speed of the belt P^5 is the same as that of the belt O^3 . The operator feeds wafer-sheets, preferably in a continuously-abutting series, onto the surface of the belt N^3 . The wafer-sheets passing between the guides S S and being carried into the bight of the weighted belt Q^2 , which moving at the same speed with the belt N^3 feeds the wafers forward over the space between the belts N^3 and O^3 and beneath the feeding mechanism for the plastic material, which plastic material is evenly distributed over the surface of the sheets in parallel lines, as indicated at V^2 in Fig. 7. The wafer-sheets are then received upon the belt O^3 , being carried forward between the guides S' S' , and the operator at this point in the machine places on top of the first wafer-sheets and the plastic material distributed over their upper surfaces a second wafer-sheet V' , and the composite sugar-wafer is then carried into the bight of the weighted belt R^2 , the weight on which is sufficient to properly compact the sandwich-like structure, which is then automatically delivered to the transporting-belt P^5 and carried off, preferably, to cutting mechanism for separating the sheets into wafers of proper size. In case there is an interruption in the continuity of the series of sheets fed beneath the feeding mechanism which distributes plastic material upon them the plastic material, which is continuously issuing from the nozzle T^3 , falls upon the surface of the roll F^3 and is scraped off from the surface of this roll by the scraper U , falling into the pan U' , so that the roll F^3 never becomes coated with this material. It will be noticed also that the roll F^3 is capable of affording support to the wafer as it passes beneath the feed mechanism in case the wafer shows any tendency to sag down. The brush J^3 works on the surface of the belt O^3 and is for the purpose of keeping it clean in case any plastic material or crumbs adhere to it. The function of the guide-strips S and S' is to preserve

the proper alinement of the wafer-sheets, it being a well-recognized fact that all belt-transporting devices have a tendency to irregularity of movement which would at times
5 displace the wafers. The guides S and S' entirely obviate this tendency and cause the wafers to preserve their proper alinement irrespective of any irregularities in the movement of the belts.

10 Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sugar-wafer machine, the combination with means for feeding plastic material
15 to the surface of the wafers, of a continuously-moving carrier for transporting the wafers beneath said feeding device, a second continuously-moving carrier having greater speed than the first arranged to receive the spread
20 biscuits and carry them away from the feeding device spaced farther apart than they are on the first carrier, and means acting in conjunction with the second carrier for pressing down a second wafer on top of the spread
25 wafers.

2. In a sugar-wafer machine, the combination with means for feeding plastic material to the surface of a wafer, of carriers for transporting the wafers to and from said feeding
30 device, neither carrier extending beneath the

same, a drum rotating directly beneath the feeding device and a scraper to remove any plastic material which may fall upon said drum.

3. In a sugar-wafer machine, the combination with means for feeding plastic material
35 to a wafer, of carrier-belts for transporting the wafers to and from said feeding device, and hinged guides S, resting by gravity on the upper edges of the belts moving up and down
40 therewith and serving to guide the wafers during transportation.

4. In a sugar-wafer machine, the combination with means for feeding plastic material to a wafer, of carrier-belts for transporting
45 the wafers to and from said feeding device, a belt R² supported on rollers so placed that a plane tangential to their lower faces will lie at an angle to the plane of travel of the second carrier-belt, said belt R² moving at the
50 speed of the second carrier and immediately above the same and a weighted plate R³, resting on the lower side of said belt near the rear supporting-roller and holding the portion of the belt R², near said rear roller against
55 the transporting-belt.

JAMES H. MITCHELL.

Witnesses:

CHAS. F. MYERS,

D. STEWART.