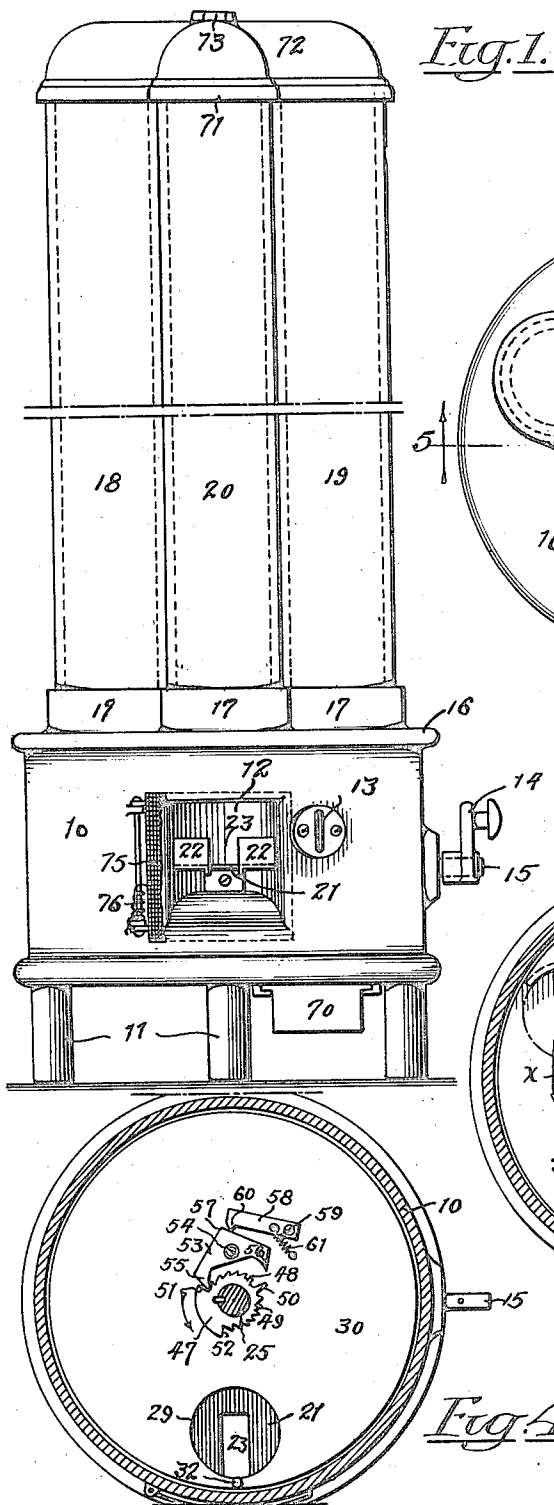


A. BJORKMAN.
SANDWICH MACHINE.
APPLICATION FILED AUG. 16, 1917.

1,248,249.

Patented Nov. 27, 1917.
3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 3.

Fig. 7.

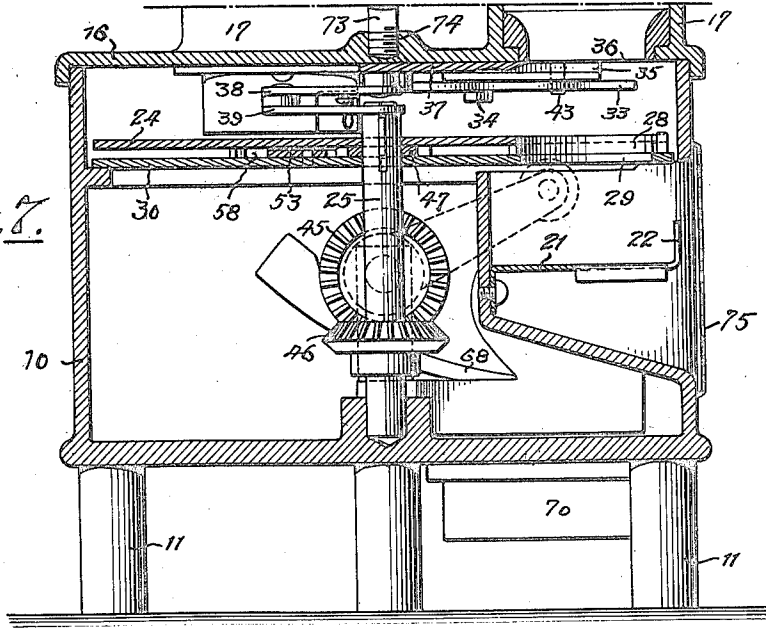


Fig. 8.

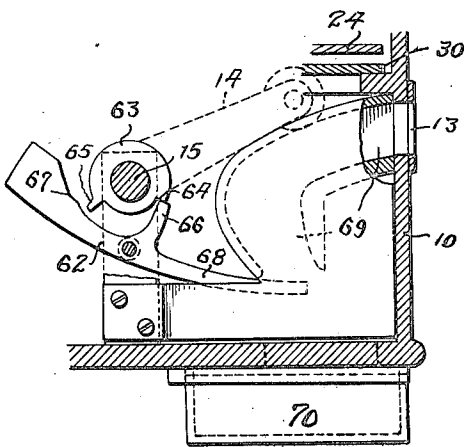
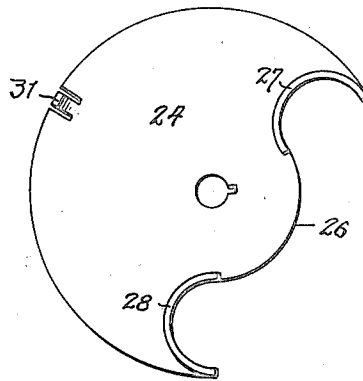


Fig. 9.



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3 SHEETS—SHEET 2.

1,248,249.

Fig. 5.

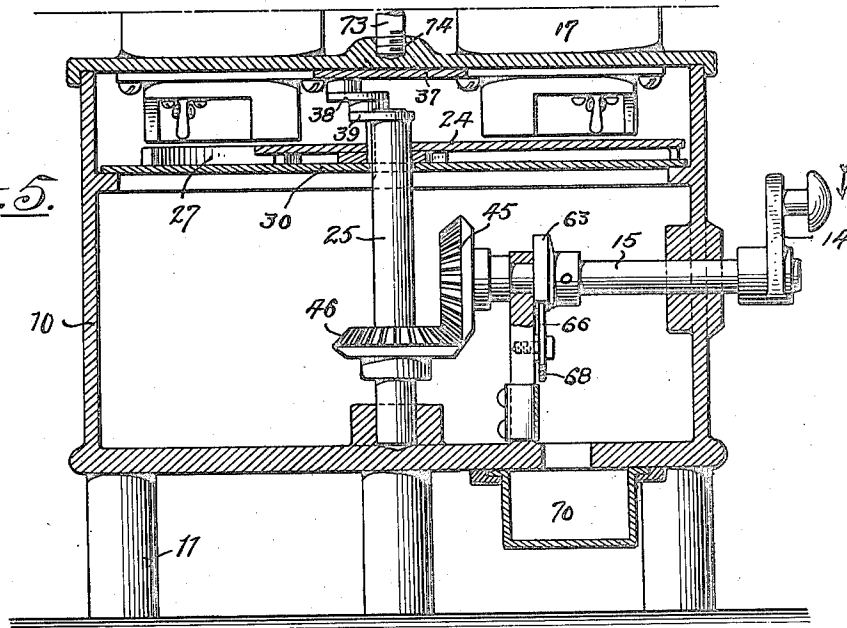
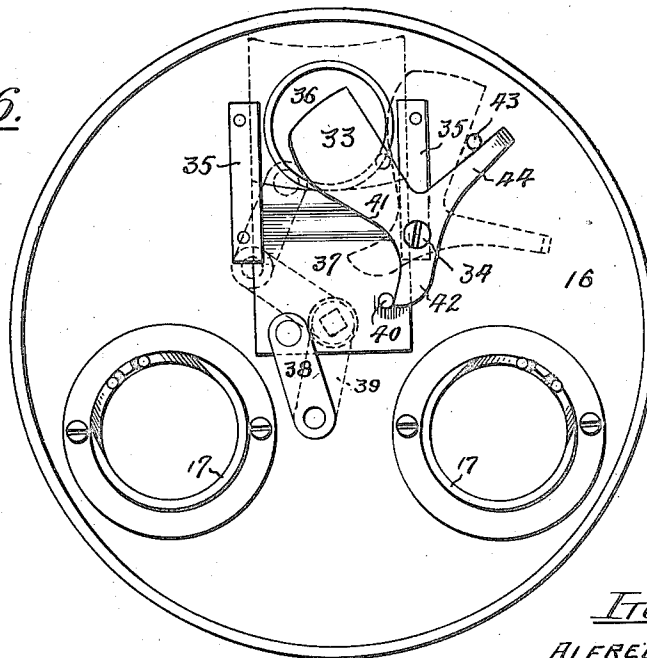


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALFRED BJORKMAN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-THIRD TO ELI R. SUTTON, OF GARDEN CITY, NEW YORK, AND ONE-THIRD TO JOHN G. HEERMANS, OF BROOKLYN, NEW YORK.

SANDWICH-MACHINE.

1,248,249.

Specification of Letters Patent.

Patented Nov. 27, 1917.

Application filed August 16, 1917. Serial No. 136,517.

To all whom it may concern:

Be it known that I, ALFRED BJORKMAN, a subject of the King of Sweden, residing in Brooklyn, in the State of New York, and having a post-office address at 561 50th St., Brooklyn, New York, have invented certain new and useful Improvements in Sandwich-Machines, of which the following is a specification.

My invention relates to sandwich machines, and particularly to a coin controlled apparatus, the object of my invention being to provide a simplified and improved mechanism for mechanically assembling the sandwich elements.

Referring to the accompanying drawings,

Figure 1 is a side elevation of an apparatus in which my invention is embodied in one form.

Fig. 2 is a plan view thereof.

Fig. 3 is a plan view with the casing cover removed.

Fig. 4 is a plan view with the cracker shifting plate removed.

Fig. 5 is a vertical section through the lower portion of the apparatus on the line 5-5 of Fig. 2.

Fig. 6 is an inverted plan of the cover and its associated mechanism.

Fig. 7 is a section on the line 7-7, Fig. 2.

Fig. 8 is a partial section, showing the coin operated trip mechanism.

Fig. 9 is a plan of the cracker shifting plate.

In the embodiment of my invention here shown, the apparatus is particularly constructed with a view to forming a sandwich in which the investing material is in the form of crackers and the filling material in the form of sliceable material of any desired sort, such as cheese. Other investing and filling material may be used, however, in the machine which is, or may be readily, adapted to operate on various other suitable sandwich elements.

As here shown, the machine comprises a closed casing 10 for the operating mechanism, supported upon legs 11 and having an inset bay 12 at which the sandwich elements are assembled in accessible position. A conveniently located coin slot 13 opens to a guide way through which the coin passes to actuate a trip device controlling the

mechanism. An oscillating hand lever 14 on the end of shaft 15 affords means for operating the mechanism. The casing top 16 is perforated at three points surrounded by shouldered collars 17 which receive and support the three tubular glass covers 18, 19, and 20 for the sandwich elements. In the arrangement illustrated, the investing material, such as crackers, is arranged in columns in the covers 18 and 19, while the filler material is arranged in the remaining cover 20 which, it will be noted, is located directly above the delivery bay 12. In the present instance, the filler material is presumed to be some substance, such as cheese, which may be molded into cylindrical shape and is of a consistency such that it is adapted to be cut by a knife. Within the bay 12, and directly beneath the column of filling material in cover 20, is arranged a stationary platform 21 upon which the sandwich elements are assembled. Flanges 22 on opposite sides of the finger slot 23 serve to prevent the sandwich elements from jumping off the platform 21 as they successively fall thereon.

The mechanism for assembling the sandwich elements comprises an oscillating pusher plate 24 fast on the vertical spindle 25. This pusher plate is cut away at 26 in the form of an arcuate recess, at the ends of which are downwardly extending flanges 27 and 28, designed to engage the margins of crackers discharged from the columns 18 and 19 and bring them, on the actuation of the pusher plate 24, into register with a hole 29 in the supporting plate 30 above which the pusher plate 24 oscillates. A lug 31, struck down from the margin of the pusher plate and bearing upon the supporting plate 30, serves, with the flanges 27 and 28, to maintain the pusher plate in horizontal position. Normally, the pusher plate 24 is located, as indicated in Fig. 3, in position to engage with its flange 27 the bottom cracker of the column in cover 18, which now rests upon the supporting plate 30. As the oscillating pusher plate 24 is swung in the direction of the arrow X, Fig. 3, it shifts the bottom cracker of the column 18 into register with the hole 29 in the supporting plate 30, whereupon it drops upon the delivery platform 21, the remain-

ing crackers in the column being temporarily supported upon the upper face of the pusher plate 24. At the completion of this movement, limited by the stop pin 32, the opposite end of the arcuate slot 26 has reached a position beyond the cracker column 19. The bottom cracker therein then falls upon the supporting plate 30 and is engaged by the flange 28 upon the return movement of the pusher plate 24, so that it in turn is brought into register with the hole 29 and drops therethrough.

The filler material is normally supported in the column 20 by a detaining plate 33 which may be of any suitable shape, preferably pivoted at 34 to the cover 16, but spaced from the lower surface of the latter a predetermined distance, depending upon the thickness of the slice of filling material which is desired for the sandwich. Guides 35 on opposite sides of the hole 36 in the cover support a blade 37 adjacent the inner face of the cover 16. A link 38 pivoted to the blade, is jointed to a lever arm 39 fast on the shaft 25 and so arranged that upon the initial movement of the latter the knife 37 cuts the projecting portion of the filler material simultaneously with the shifting of the cracker from column 18 to hole 29. As the cracker falls upon the delivery platform 21, the knife 37 completes its cut, and the slice of filler drops upon the cracker through hole 29. During the advance of the knife 37, the supporting plate 33, which remains in its normal position during the initial portion of the cut, is gradually shifted from supporting position by the pin 40 on the knife blade, which engages a cammed edge 41 of the supporting plate and swings the latter from beneath the filler column which is now temporarily supported by the knife blade itself. On the reverse rotation of the shaft 25, during which the cracker from column 19 is brought into register with hole 29 and drops upon the slice of filler already deposited upon the lower cracker, the knife 37 is retracted to its original position, and the supporting plate 33 likewise returned to its position by the pin 40 which now engages the arm 42 thereof. The column of filler thereupon drops through the hole 36 a slight distance upon the plate 33 in position for the succeeding cut therefrom. A stop pin 43, lying in the path of the arm 44 of the plate 33, prevents the latter from overrunning its proper position.

The oscillation of the shaft 25 is caused by the intermeshing beveled gears 45 and 46 on the shafts 15 and 25, respectively. To prevent fraudulent manipulation of the mechanism, as by reversing the rotation of the shaft 25 after it has shifted a cracker from beneath the columns 18 or 19, a ratchet disk 47 is keyed to shaft 25. This ratchet disk

is provided with a pair of oppositely faced segmental racks 48 and 49, an intermediate tilting tooth 50, and stop shoulders 51 and 52. Coöperating therewith is an oscillating pawl 53 pivoted at 54 and having dogs 55 and 56 at its opposite ends and an intermediate projection 57. To hold this pawl in engagement with one or the other of the ratchet segments, I provide an arm 58 pivoted at 59 and having at its free end a nose 60, which is held in engagement with the pawl, on one side or the other of projection 57, by the spring 61. In the position of parts indicated in Fig. 3, the dog 55 engages the stop shoulder 51 on the ratchet disk, thus preventing, with the aid of the stop pin 32, the rotation of the oscillating pusher plate in a clockwise direction, while on the other hand, it is free to rotate contra-clockwise, or, in other words, in a direction to shift a cracker from beneath the cover 18 to the hole 29 in the supporting plate 30. A reverse movement of the plate 24, intermediate its full stroke, is prevented by the engagement of the dog 55 with the teeth of the ratchet segment 48. As the pusher plate nears the completion of its first stroke, the tilting tooth 50 engages the dog 55 and rocks the pawl 53 on its pivot 54, causing the nose 60 of the spring arm 58 to ride over the projection 57 on the pawl, so that the pressure of the arm 58 is now exerted in a direction to throw the dog 56 into engagement with the stop shoulder 52 of the ratchet disk. This, combined with the action of the stop pin 32, limits the oscillation of the pusher plate 24 in its initial direction. The teeth of the ratchet segment 49 are so inclined that the spindle may now be rotated clockwise to bring the cracker from column 19 into discharge position at the hole 29. The teeth of this ratchet segment 49 likewise prevent manipulation of the pusher plate 24 to bring more than one cracker from the column 19 to the delivery hole 29. After the return movement nears its completion, the dog 56 rides up on the tilting tooth 50, causing the nose 60 of the spring pressed arm 58 to shift again across the projection 57 on the pawl, so that its pressure is now exerted in the direction to bring the dog 55 again into engagement with the shoulder 51 of the ratchet disk.

In order to limit the operation of the mechanism to single cycles, I provide a coin controlled detent 62 which coöperates with a locking disk 63 on the main shaft. This disk is provided with a shoulder 64 and a stop lug 65. The detent 62 is provided with a stop lug 66, a cam groove 67, and a coin engaging arm 68. In the normal position of the parts, the stop lug 66 engages the shoulder 64 and holds the shaft 15 against rotation in one direction. Its rotation in the opposite direction is prevented by the en-

gagement of the dog 55 with the shoulder 51 and also by the stop pin 32 engaged by the oscillating pusher plate 24.

Upon the insertion of a coin in the slot 13, it travels down the guideway 69 and falls against the end of the arm 68 of the detent lever 62, depressing the latter sufficiently to free the stop 66 from the shoulder 64 on the stop disk 63. In order that the lever 62 may be held down momentarily to prevent immediate reengagement of the shoulder 64 by the stop lug 66, the downward movement is halted by the boss 65 before the coin has depressed the arm a sufficient distance to permit the coin to escape from the bottom of the guide slot 69. However, as the lever 14 is swung downward in the direction in which it is now free to move, the boss 65 moves into the cam space 67, thus permitting the lever 62 to be further tilted downward by the weight of the coin until the latter escapes into the coin box 70. The escape of the coin from the end of the lever permits the overweighted opposite end thereof to draw the stop lug 66 into engagement with the periphery of the stop disk 63 so that when the shaft 15 is rotated in the reverse direction again, to complete the sandwich making operation, the stop lug 66 falls into engagement with the shoulder 64, again locking the mechanism against actuation until another coin is inserted in the slot 13.

In order to fill the tubular casings, 18, 19, and 20 with their respective sandwich elements, I provide at their tops a spacing spider 71 which fits over, and rests upon, the upper ends of the columns, and upon which is pivoted a cover 72. These parts are held in position by means of a rod 73 passing therethrough and screwing into the tapped hole 74 in the cover piece 16 for the mechanism of the apparatus. The shape of the cover may be such that on turning it through an angle of 120 degrees, the several columns 18, 19, and 20 are exposed, permitting the sandwich material to be inserted.

In order to prevent flies from obtaining access to the delivery platform 21 or the sandwich material within the casing, I provide a screen 75 covering the opening to the delivery bay. This may be hinged at the top to fall into closed position by gravity, or at the side as is shown, and provided with a spring 76 to insure its normally closed position.

Obviously, if a two layer sandwich be preferred to a three layer sandwich, one of the columns of investing material may be omitted. Similarly, if the filler material is sliced before it is placed in the column 20, the blade 37 will act merely as a separator, and such an operation is contemplated in the present arrangement.

Various modifications in detail of construction will readily occur to those skilled

in the art without departing from what I claim as my invention.

I claim:

1. In a sandwich machine, an assembly platform accessible to the operator for the manual removal therefrom of the completed sandwich, and delivery mechanism for supplying thereto successively in the order named the investing material and filler material, said platform being spaced a sufficient distance below the delivery mechanism to permit the ready manual removal of the sandwich directly from said assembly platform.

2. In a sandwich machine, an assembly platform accessible to the operator for the manual removal therefrom of a completed sandwich, and delivery mechanism for supplying thereto in succession and in superposed relation investing material, filler material and a second portion of investing material in the order named, said platform being spaced a sufficient distance below the delivery mechanism to permit the ready manual removal of the sandwich directly from said assembly platform.

3. In a sandwich machine, a delivery platform, means for supporting a column of filler material thereover, means for supplying investing material to said platform, and means for separating a portion of the filling material from said column to permit the same to fall by gravity upon said investing material upon the delivery platform.

4. In a sandwich machine, a delivery platform, means for supporting a column of filler material thereover, means for supplying investing material to said platform, and means for separating a portion of the filling material from said column to permit the same to fall by gravity upon said investing material upon the delivery platform, together with means for supplying a second layer of investing material above the filler on the delivery platform.

5. In a sandwich machine, a delivery platform, means for supporting a column of filler material thereover, means for supporting columns of investing material spaced therefrom, and means for assembling said investing and filler material in proper superposed relation substantially directly beneath the column of filling material.

6. In a sandwich machine, a delivery platform, means for supporting above the same a sandwich element in column form, means for supporting other sandwich elements spaced therefrom, and means for assembling the several sandwich elements substantially directly beneath the column arranged above the delivery platform.

7. In a sandwich machine, a delivery platform, means for supporting a column of filler material thereover, means for supplying investing material to said delivery plat-

form, and means for cutting a slice of filler material from said column to permit the same to fall by gravity upon said investing material upon the delivery platform.

5 8. In a sandwich machine, a delivery platform, means for supporting a column of filler material thereover, means for supplying investing material to said delivery platform, and means for cutting a slice of filler
10 material from said column during the feed of the investing material to said platform, said slice of filler material falling by gravity upon the investing material upon the completion of the cut.

15 9. In a sandwich machine, a delivery platform, columns of sandwich material out of register with said platform, and a pivoted rotary pusher for moving material first from one, and then from another, column to
20 position over the said delivery platform.

10. In a sandwich machine, a delivery platform, columns of investing material out of register with said platform, and a pivoted pusher for moving investing material first
25 from one, and then from another, column to said delivery platform, together with means for depositing filler material upon the first piece of investing material at the delivery platform in advance of the delivery
30 of the second piece of investing material thereto.

11. In a sandwich machine, a delivery platform, a superposed column of filler material, columns of investing material spaced
35 therefrom, a pivoted pusher for supplying investing material to said platform first from one, and then from another, of said columns, and means for cutting a slice from the column of filler material and dropping
40 it upon the investing material first delivered to the delivery platform in advance of the delivery of the second portion of the investing material thereto.

12. In a sandwich machine, a delivery
45 platform, a container for a column of filler material thereover, a movable support for said column of filler material, means for supplying investing material to said platform, and means for removing said filler material
50 support after investing material has reached the platform, to permit said filler material to drop thereon.

13. In a sandwich machine, a delivery
55 platform, a container for a column of filler material thereover, a movable support for said column of filler material, means for supplying investing material to said platform, and means for removing said filler material
60 has reached the platform, to permit said filler material to drop thereon, together with means for delivering a second portion of investing material at the platform, after said filling material has been deposited on
65 the first portion of investing material.

14. In a sandwich machine, a delivery platform, a container for a column of filler material thereover, a movable support for said column of filler material, a knife for
70 cutting a slice from the lower portion of said column, means for supplying investing material to said platform, and means for removing said filler material support after investing material has reached the platform, to permit said filler material to drop
75 thereon.

15. In a sandwich machine, a delivery platform, a container for a column of filler material thereover, a movable support for said column of filler material, a knife for
80 cutting a slice from the lower portion of said column, means for supplying investing material to said platform, and means for removing said filler material support after investing material has reached the platform, to permit said filler material to drop thereon, together with means for delivering a second
85 portion of investing material at the platform, after said filling material has been deposited on the first portion of investing
90 material.

16. In a sandwich machine, a casing, an exposed assembly platform, and mechanism operating within the casing for positioning the investing and filler material serially in
95 the order named upon said exposed assembly platform, said platform being spaced a sufficient distance below said mechanism to permit the ready manual removal of the sandwich directly from said assembly platform, said sandwich elements being normally supported at a point above the level
100 of said platform and falling successively thereon by gravity in superposed assembled positions.

17. In a sandwich machine, a casing, an exposed assembly platform and mechanism operating within the casing for positioning the investing and filler material serially in
110 the order named upon said exposed assembly platform, said platform being spaced a sufficient distance below said mechanism to permit the ready manual removal of the sandwich directly from said assembly platform, said sandwich elements being normally supported at a point above the level of said platform and falling successively thereon by gravity in superposed assembled position, together with a crank exterior to the casing for operating all of said mechanism.

18. In a sandwich machine, a casing having an inset bay, a combined assembly and delivery platform arranged in said bay and accessible for the manual removal therefrom of a completed sandwich, columns of investing and filler material supported on said casing, and means operating within said casing above the level of said bay for successively depositing by gravity in superposed relation directly upon said platform invest-
125
130

ing and filler material from said columns to form a sandwich.

19. In a sandwich machine, a casing having an inset bay, a combined assembly and delivery platform arranged in said bay and accessible for the manual removal therefrom of a completed sandwich, columns of investing and filler material supported on said casing, and means operating within said casing above the level of said bay for successively depositing by gravity upon said platform investing and filler material from said columns to form a sandwich, together with a crank exterior to said casing for actuating said mechanism.

20. In a sandwich machine, independent stationary columns of investing material, a supporting plate having a discharge aperture out of alinement with said columns, and an assembly platform spaced beneath said supporting plate, and means for moving the investing material from said columns to said aperture in arcuate paths, permitting said material to drop therethrough by gravity upon the assembly platform, substantially as described.

21. In a sandwich machine, independent stationary columns of investing material, a supporting plate having a discharge aperture out of alinement with said columns, and an assembly platform spaced beneath said supporting plate, and means for moving the investing material from said columns to said aperture in opposed arcuate paths, permitting said material to drop therethrough by gravity upon the assembly platform, substantially as described.

22. In a sandwich machine, independent

columns of investing and filler material, an oscillating pusher for shifting investing material from the respective columns of investing material to a point beneath the column of filler material and a blade for separating the bottom portion of the filler column from the superposed portion thereof after the arrival of one of the portions of investing material beneath said column of filler material.

23. In a sandwich machine, a stationary supporting plate perforated to afford a delivery aperture, a pusher working above said plate and serving to bring a portion of investing material above said plate to said delivery aperture and deposit by gravity therethrough upon the delivery platform, a column of filler material arranged above said delivery aperture, and means for discharging a portion of said filler material upon the investing material so brought to the delivery aperture.

24. In a sandwich machine, a stationary supporting plate perforated to afford a delivery aperture, a pusher working above said plate and serving to bring a portion of investing material to said delivery aperture, a column of filler material arranged above said delivery aperture, and means for discharging a portion of said filler material upon the investing material so brought to the delivery aperture, together with means for depositing a second piece of investing material upon the filler material to complete the sandwich.

In testimony whereof I have signed my name to this specification.

ALFRED BJORKMAN.