

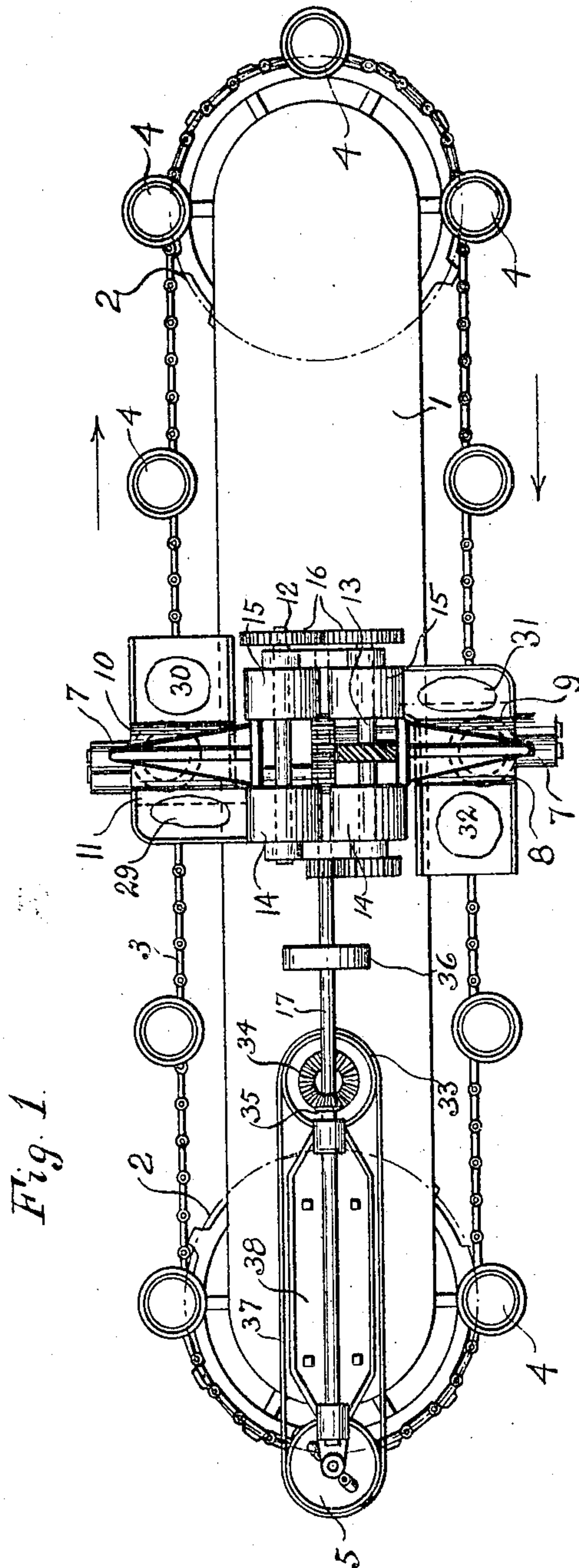
No. 837,042.

PATENTED NOV. 27, 1906.

O. COLBORNE & F. DEUERLING.
PIE MACHINE.

APPLICATION FILED OCT. 7, 1905.

2 SHEETS—SHEET 1.



Witnesses
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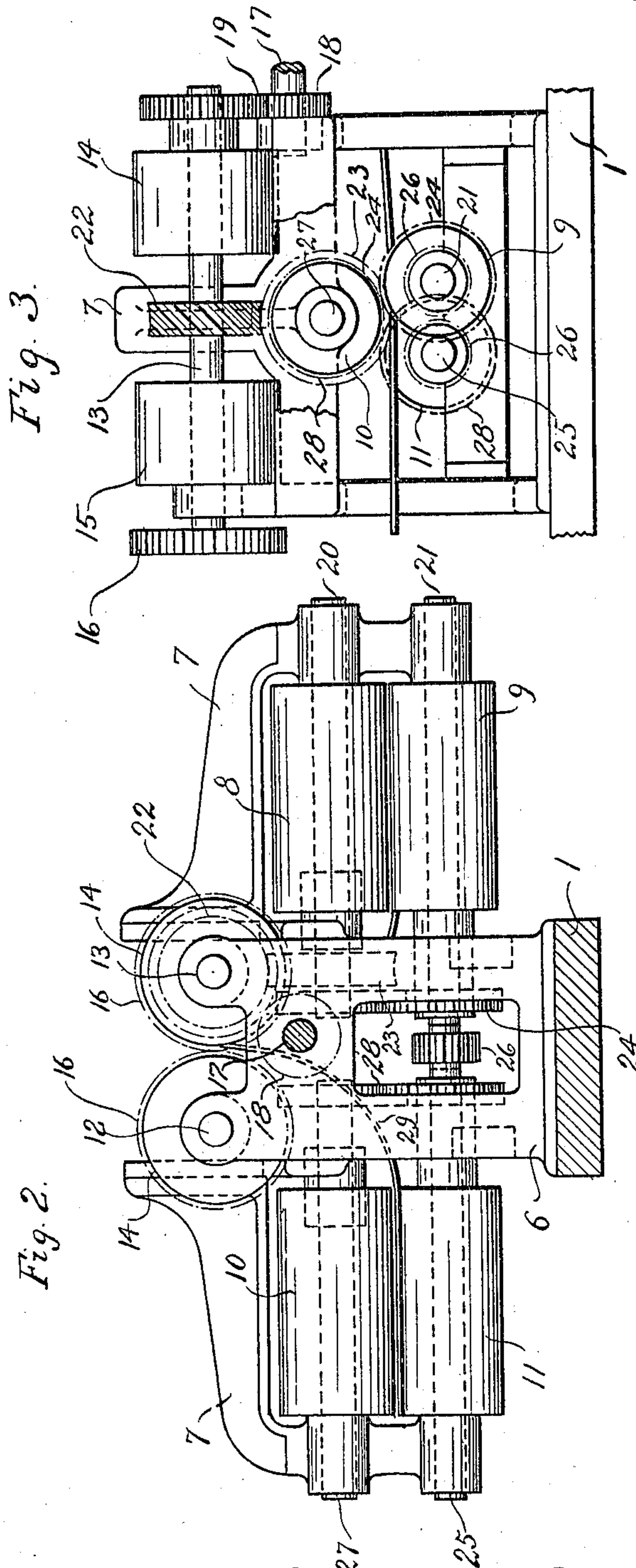
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UNITED STATES PATENT OFFICE.

OLIVER COLBORNE AND FRED DEUERLING, OF CHICAGO, ILLINOIS; SAID
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PIE-MACHINE.

No. 837,042.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed October 7, 1905. Serial No. 281,840.

To all whom it may concern:

Be it known that we, OLIVER COLBORNE and FRED DEUERLING, citizens of the United States of America, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pie-Machines, of which the following is a specification.

This invention relates to pie-making machinery, and its main objects are to provide an improved arrangement of the conveyer of the pie-making machine whereby the mechanism will be compactly situated and whereby the pie-tins will at all times be carried in positions in which they may be readily operated upon, to provide an improved form of pie-crust-rolling device which is adapted to be located within the path of the horizontally-disposed conveyer, and to deliver pie-crusts toward opposite points along said path. These objects are accomplished by the device shown in the accompanying drawings, in which—

Figure 1 is a top plan of a pie-machine constructed according to this invention. Fig. 2 is an end elevation of the crust-rolling mechanism, the supporting-platform being shown in section and the conveyer being omitted. Fig. 3 is an elevation of the same viewed from the side which is at the left in Fig. 2.

In the construction shown in the drawings the main supporting-frame is provided with an elongated horizontally-disposed platform 1 at the top. The supporting structure and the mechanism below the platform 1 for operating the conveyer are omitted from the drawings, since they do not form a part of the present invention. Journaled in the frame on vertically-disposed axes and immediately below the platform 1 are two sprocket-wheels or sets of sprocket-wheels 2, which carry an endless link-belt conveyer 3. This conveyer is arranged to travel in a horizontal plane around the edges of the table 1. The conveyer is provided with a plurality of carriers spaced at equal distance around the conveyer and each adapted to support a pie-tin, as indicated at 4 in the drawings. A crust-trimming device 5 is located at one end of the table 1 and is adapted to trim the crusts of a pie delivered beneath the same by the conveyer. The conveyer is driven intermit-

tently, so that each of the pie-tins is stopped in each of the positions in which such tins are shown in Fig. 1.

The crust-forming mechanism consists of a frame 6, secured upon the platform 1 at a point intermediate of its ends and provided with brackets 7, overhanging the conveyer 3 at each side of the platform. Each of the brackets 7 has journaled therein a pair of horizontally-disposed rollers 8, 9, 10, and 11. Said rollers are disposed one above the other in each case, and their axes are disposed at right angles to the adjacent part of the path of the pie-tin. A pair of horizontally-disposed shafts 12 and 13 are journaled in the frame 6 in the same plane with each other, but at a level considerably higher than that of the rollers 8 and 10. Each of these shafts is provided with a pair of rollers 14 and 15, and the opposed rollers are driven at equal peripheral speeds and in opposite directions by means of the gears 16. Power is supplied from the shaft 17 and transmitted therefrom by spur-gears 18 and 19 to the shaft 13. Power is transmitted from the shaft 13 to the shaft 20 of the roller 8 by means of spiral gears 22 and 23. The shaft 20 drives the shaft 21 through the equal spur-gears 24, so that the rollers 8 and 9 are driven at equal peripheral speeds. The shaft 21 is connected with the shaft 25 by a pair of equal spur-gears 26. The shafts 25 and 27 are connected by the spur-gears 28.

The pair of rollers 14 is arranged to elongate a mass of dough that is placed between them and to deliver the same down the inclined surface 29 to a point adjacent to the rollers 10 and 11, from which the dough is delivered upon the platform 30. Similarly the inclined surface 31 conducts the dough from the rollers 15 to the rollers 8 and 9, which deliver upon the platform 32. The platforms 30 and 32 are located immediately over their respective portions of the conveyer. The two pairs of rollers which operate on the same mass of dough are disposed at right angles to each other, and the inclined surfaces connecting the successive pairs of rollers are so arranged that the mass of dough will be elongated in one direction when passed through the upper set of rolls and will be elongated at right angles to the first elongation

when passed through the second set of rolls. The successive forms of the mass of dough are shown by the outlines on the surfaces 29, 30, 31, and 32.

5 Power is supplied to the machine by a belt connected with the pulley 33 on the shaft 17. Said shaft is connected with a vertically-disposed shaft by means of the bevel-gears 34 and 35. This vertically-disposed shaft drives
10 the conveyer mechanism below the platform 1 and is also connected by the pulley 36 and the belt 37 with the trimming mechanism 5. The trimming mechanism is carried by a bracket 38, which is mounted at the left-
15 hand end of the table 1.

The operation of the device shown is as follows: The conveyer 3 is intermittently driven, so as to successively bring each of the pie-tins to a position of alinement with the
20 trimming mechanism 5 and to stop for a predetermined interval of time whenever one of the pie-tins arrives at a position of alinement with said trimming mechanism. An operator stands at each side of the crust-rolling
25 mechanism. The operator who is at the side corresponding to the bottom of Fig. 1 drops a lump of dough between the rollers 15 at regular intervals of time corresponding to the intervals of intermittent movement of the conveyer. The crust-rolling mechanism is con-
30 tinuously driven, and said rollers elongate the dough and deliver the same upon the surface 31 in a form somewhat like the outline there indicated. The operator then gives the mass
35 a slight push toward the rollers 8 and 9, which elongate the dough at right angles to the direction of the first elongation and deliver the same in the form of a substantially circular disk upon the platform 32. The operator at
40 the other side of the machine feeds the rollers 14 in a similar manner, and the dough is delivered upon the platform 30. If we assume that the conveyer moves in the direction of the arrows on Fig. 1, then the series of
45 operations is as follows: The pie-tins are placed upon the carriers at a point along the conveyer toward the left of the rollers 10 and 11. The operator at that side of the machine places the bottom crust in the tin when
50 such tin stops in its nearest position at the right of the platform 30. The filling of the pie is placed upon the bottom crust while the pie-tin is in a position near the right-hand end of Fig. 1. Another operator places the
55 top crust upon the pie when the same has passed the platform 32. The crust is trimmed at the trimming mechanism 35, and the pie is finally removed after passing said trimming mechanism, and its tin is replaced by
60 another.

The compactness of the crust-forming mechanism and the relative arrangement of the conveyer, whereby the pie-tins are in a position to be operated upon at all times dur-

ing their passage around the conveyer, makes 65 it possible to provide room for the various operations which are to be performed in the manufacture of the pies with a minimum use of floor-space.

What we claim as our invention, and desire 70 to secure by Letters Patent, is—

1. In a pie-machine, the combination of a frame, an endless conveyer lying in a horizontal plane and adapted to carry a plurality of pie-tins and to deliver each of the same 75 in succession to a plurality of different positions; and a pie-crust-forming device surrounded by the path of said conveyer and adapted to deliver pie-crusts toward opposite sides thereof. 80

2. In a pie-machine, the combination of a frame; an intermittently-movable conveyer arranged to move in an endless path within horizontally-disposed plane and adapted to carry a plurality of pie-tins and stop the 85 same in succession in each of a plurality of different positions; and a crust-forming device located at a point within the path of said pie-tins and adapted to deliver pie-crusts toward opposite sides and adjacent to 90 the path of said pie-tins.

3. In a pie-machine, the combination of a central horizontally-disposed platform, an endless conveyer disposed in a plane parallel with said platform and adapted to carry a 95 plurality of pie-tins around the edges of said platform, crust-rolling mechanism mounted on said platform, receiving-platforms located at each side of said crust-forming mechanism above the conveyer, said crust-rolling mechanism being arranged to deliver pie-crusts to 100 each of said platforms and said conveyer being arranged to operate intermittently and successively stop each of the pie-tins in a plurality of different positions along the path 105 of said conveyer.

4. In a pie-machine, the combination of a horizontally-disposed platform, a horizontally-disposed conveyer adapted to carry a plurality of pie-tins around the edges of said 110 platform, crust-forming mechanism mounted on said platform and adapted to deliver pie-crusts to said conveyer in two directions and toward opposite sides of said crust-forming mechanism. 115

5. In a pie-machine, the combination of a horizontally-disposed platform, a conveyer adapted to carry pie-tins around the edges of said platform, a frame mounted on said platform, a pair of crust-rollers journaled on 120 horizontal axes and overhanging said conveyer at one side of said frame, a second pair of crust-rollers journaled in said frame on horizontal axes and overhanging said conveyer at the opposite side of said platform, 125 said rollers being geared together and each pair being adapted to deliver a pie-crust in the direction toward which the respective

part of the conveyer is moving, and mechanism located above and between said pairs of rollers and adapted to shape the dough and deliver the same to said rollers in such manner as to cause the dough to form a substantially circular sheet when acted upon by said rollers.

Signed at Chicago this 27th day of July, 1905.

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FRED DEUERLING.

Witnesses:

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