

No. 847,649.

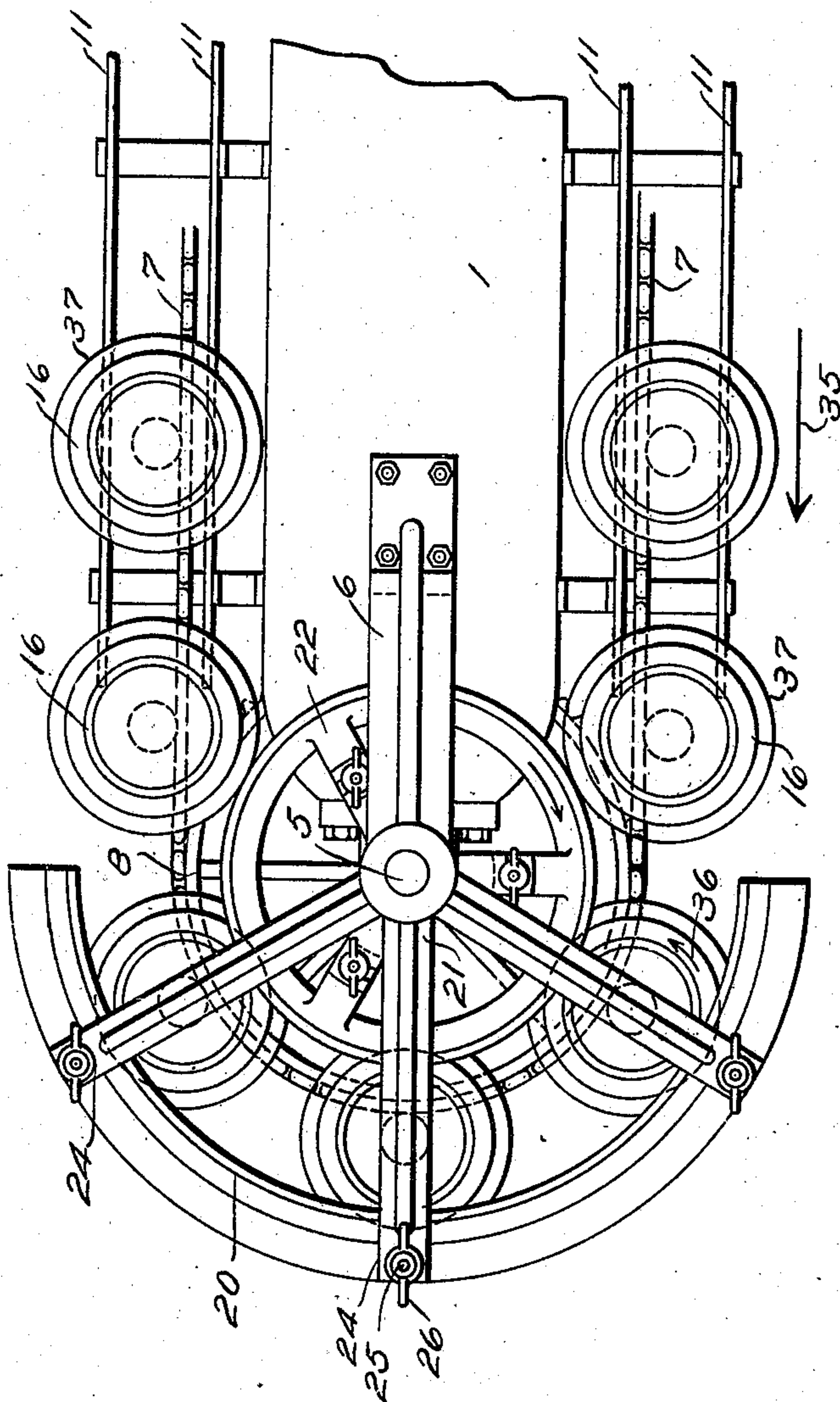
PATENTED MAR. 19, 1907.

O. COLBORNE.  
PIE CRUST TRIMMING MACHINE.

APPLICATION FILED AUG. 20, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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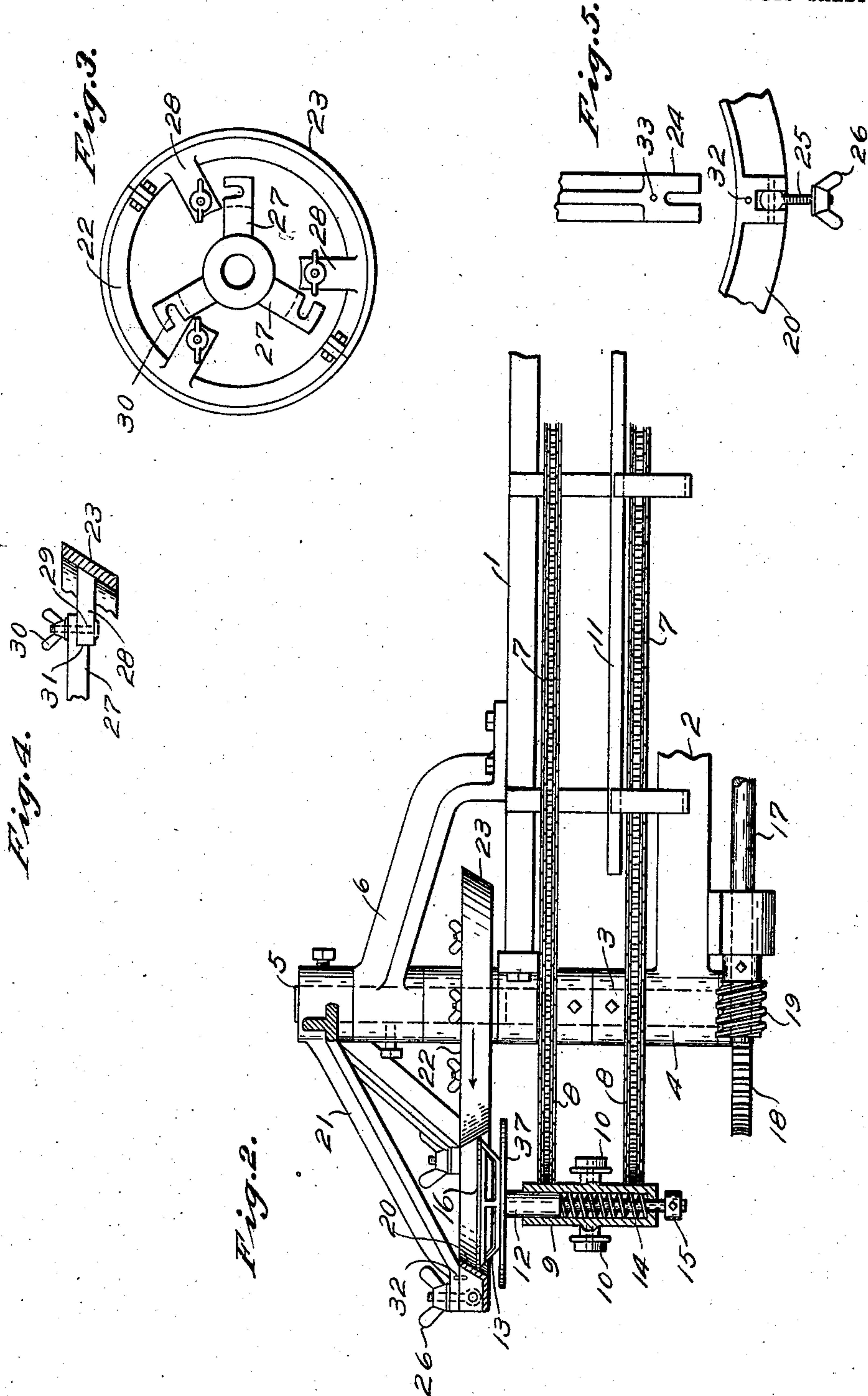
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

OLIVER COLBORNE, OF CHICAGO, ILLINOIS.

## PIE-CRUST-TRIMMING MACHINE.

No. 847,649.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed August 20, 1906. Serial No. 331,321.

*To all whom it may concern:*

Be it known that I, OLIVER COLBORNE, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Pie-Crust-Trimming Machines, of which the following is a specification.

This invention relates to pie-machines, and has particular reference to the crust-trimming mechanism of such machines.

The main objects of this invention are to provide an improved form of pie-crust-trimming mechanism which is capable of trimming the crusts of pies while such pies are being continuously carried along by a moving conveyer and without requiring stoppage or change in the speed of the conveyer, to provide mechanism of this class which is readily adjustable to different sizes of pie-tins, and to provide a structure for crust-trimming devices which is simple, efficient, and in which the use of gears or lubricated parts traveling above the path of the pies is entirely avoided, thereby preventing the possibility of having oil or dirt from such parts fall upon the pies. These objects are accomplished by the device shown in the accompanying drawings, in which—

Figure 1 is a top plan, partly broken away, of a pie-machine provided with crust-trimming mechanism constructed according to this invention. Fig. 2 is a side elevation of the same, also partly broken away and partly in section. Fig. 3 is a top plan showing in detail the construction of the crust-trimming wheel. Fig. 4 is a detail of the same, partly in section and partly broken away, showing the joint in the spokes of the wheel. Fig. 5 is an enlarged plan view showing in detail the joint between the stationary crust-trimming track and one of its supporting-rims, the parts of the joint being separated to more clearly illustrate their construction.

In the construction shown in the drawings the supporting-frame comprises a horizontally-disposed platform mounted upon suitable support, a portion of which is designated 2 in Fig. 2. A vertically-disposed shaft 3 is journaled in fixed bearings 4 at one end of the platform 1. A second shaft 5 is secured to the bracket 6 in axial alinement with the shaft 3. The shaft 5 is secured against rotation.

A horizontally-disposed conveyer is mounted to travel around the edges of the platform 1. This conveyer consists of two parallel link belts 7, spaced apart one above the other and carried by sprocket-wheels 8 at the opposite ends of the frame. One pair of said sprocket-wheels is rigidly mounted on the shaft 3, and a second pair, which is not shown in the drawings, is journaled on a vertical axis at the other end of the platform 1. The belts 7 are connected to each other at regular intervals by a series of members 9, which are rigidly secured to the belts and are carried along by the same. The members 9 are provided with rollers 10 at their inner and outer sides, which are arranged to ride upon tracks 11 for supporting conveyer at points of its path lying between sprockets 8. A vertical spindle 12 is mounted to slide vertically in each of the members 9 and has mounted at its upper end a rotatable support or carrier 13 of suitable shape for supporting a pie-tin near its rim. The spindle 12 is in each case normally urged upward by the spring 14 and is provided with an adjustable collar 15 for limiting the upward movement of the spindle. In the drawings the pie-tins are shown at 16 upon the carriers 13.

The conveyer is driven by the shaft 17, which is connected with the shaft 3 by the worm-wheel 18 and worm 19. The shaft 17 is connected with a suitable source of power. (Not shown.)

An inclined annular track 20, supported by a spider 21, is rigidly secured concentrically of the path of the conveyer around the sprockets 8. This track is conical and its inner face is suitably located to be engaged by the edge of the pie-tins while they are carried along by the conveyer. A wheel 22, having a downwardly-converging conical rim 23, arranged concentrically of the track 20 and lying in the same plane therewith, is loosely journaled upon the fixed shaft 5. The outer periphery of the rim 23 is conical and of an inclination opposite to the inclination of the track 20. The opposed surfaces of the track 20 and rim 23 are inclined at equal angles to the axes of the spindles 12, and the path of the spindles is midway between said surfaces, so that circular pie-tins will roll in contact with both of said surfaces when carried along between them by the conveyer. The spring 14 of each of the carriers normally urges the pie-



tin upward, so as to bear upon both the track 20 and the rim 23, during the passage of the pie-tin between said track and wheel. The collar 15 prevents the pie-tin from being elevated to a position above the plane of the wheel 23 by the spring 14 before it comes into contact with the crust-trimming surfaces.

The spider 21 is provided with three arms which are forked at their larger ends 24 and each secured to the track 20 by means of bolts 25, provided with wing-nuts 26. The bolts 25 are preferably pivotally mounted on lugs upon the track 20, so that they may be swung into and out of engagement with the forked rims 24. This joint is best shown in Fig. 5. Dowel-pins 32, fitting dowel-holes 33, insure perfect centering of the track 20.

The wheel 22 consists of a hub 24 and the split rim 23, connected together by a plurality of jointed spokes. Each of the spokes consists of an arm 27 on hub 24 and a second arm 28 on the rim. The arms 28 are provided with studs 29, which fit slots 30 in the arms 27. The respective arms 27 and 28 are clamped together by means of thumb-nuts 30. The inner ends of the portions 28 are turned to a true circle to fit the shoulders 31 of the arms 27, and thus insure perfect centering of the rim. The rim is formed of two parts which are bolted together and may be readily separated to permit the removal of the rim without removing the hub 24 from the shaft 5. This removability of the rim 23 and the track 20 from their supports is for the purpose of providing for the substitution of different rims and different tracks to adjust the machine for handling pies of different sizes. For instance, to adjust the machine to trim pie of smaller diameter smaller plate-holders are substituted for the plate-holders 13, a wheel-rim of larger diameter is substituted for the rim 23, and a track of smaller diameter is substituted for the track 20. Each different rim of the wheel 22 has the inner ends of its arms 28 turned to exactly fit the shoulders 31 of the arms 27 of the hub and has studs suitably located for engaging the slides 30. Similarly the dowel-pins and bolts on each different track are located to fit the ends of the spider-arms.

The operation of the device shown is as follows: Assume that the conveyer is continuously driven in the direction of the arrow 35 in Fig. 1. The pie-tins will therefore rotate in the direction of the arrow 36 through their contact with the track 20. Since the wheel 22 is free to rotate, it will rotate in the direction of the small arrow thereon through its contact with pie-tin. The springs 14 hold the pie-tins into firm contact with track 20 and the wheel 23, so that the crusts overhanging the edges of the tins are cut off and fall upon the plates 37, which are carried by

the spindles 12 and located immediately below the carriers 16. Since there are always two or more pie-tins in contact with the periphery of the wheel 22, the rotation of said wheel is continuous throughout the operation of the machine. The plates 37 catch the trimmings and hold them until they are removed at a different part of the machine after passing away from the crust-trimming device. In practice the vertical movement of the spindles 12 is slight, being only sufficient to insure the proper pressure between the edges of the pie-tins and the trimmers 23 and 20. In case a pie-tin is not properly centered when it passes into engagement with the trimmers the pressure of the spring 14 and the rotation of the carrier serve to center it perfectly.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a pie-machine, the combination of a stationary crust-trimming surface, a rotatable support for a pie-tin, and mechanism for moving said support along said surface, so as to cause the edge of the tin to roll against said surface for trimming a pie-crust on the tin.

2. The combination of a support for a pie-tin, mounted to rotate on a vertical axis and to travel in a substantially horizontal path, and a stationary crust-trimming surface extending along one side of the path of said support and adapted to have rolling contact with the edge of a pie-tin carried by said support.

3. The combination of a support for a pie-tin, mounted to rotate on a vertical axis and to travel in a substantially horizontal path and a stationary crust-trimming surface extending along one side of the path of said support and adapted to have rolling contact with the edge of a pie-tin carried by said support, said support being inclined so as to lean upward and inward across the edge of the pie-tin, and yielding means adapted to urge said support upward for causing the edge of the tin to bear on said surface.

4. The combination of a support for a pie-tin, mounted to rotate on a vertical axis and to travel in a substantially horizontal path and a stationary crust-trimming surface extending along one side of the path of said support and adapted to have rolling contact with the edge of a pie-tin carried by said support, said support being inclined so as to lean upward and inward across the edge of the pie-tin, a movable crust-trimming surface extending along the path of said support on the side opposite said stationary surface and being oppositely inclined, and yielding means adapted to urge said support upward for causing the edge of the tin to bear on said crust-trimming surfaces.

5. In a pie-machine the combination of a



rotatable support for holding a pie-tin, a concave conical trimming-surface of greater diameter than the tin arranged to have contact with the edge of a pie-tin carried by said support, and mechanism for causing a relative rolling motion of the tin on said surface for trimming a pie-crust on the tin.

6. A pie-crust trimmer, comprising a trimming-wheel, a conveyer arranged to travel around said wheel, a support rotatably mounted on said conveyer and adapted to hold a pie-tin with its edge in rolling contact with the periphery of said wheel for trimming a pie-crust on the tin while the same is being carried along by said conveyer.

7. A pie-crust trimmer comprising a trimming-wheel, a conveyer arranged to travel around said wheel, a support rotatably mounted on said conveyer and adapted to hold a pie-tin with its edge in rolling contact with the periphery of said wheel for trimming a pie-crust on the tin while the same is being carried along by said conveyer, and means engaging the edge of the tin on the side opposite said wheel to prevent the tin from tilting on said support.

8. The combination of a pair of opposed oppositely-inclined concentric conical surfaces arranged to rotate relatively of each other, and a rotatable support arranged to travel between said surfaces and hold a pie-tin with its edges in rolling contact with both.

9. The combination of a pair of opposed oppositely-inclined concentric conical surfaces arranged to rotate relatively of each other, a rotatable support arranged to travel between said surfaces and hold a pie-tin with its edges in rolling contact with both, and yielding means adapted to cause the tin to bear on both of said surfaces.

10. The combination of a carrier arranged to travel in a horizontal direction, a support mounted to rotate on a vertical axis on said carrier and adapted to hold a pie-tin in a substantially horizontal position, a stationary inclined trimming-surface extending along one side of the carrier, and a movable inclined trimming-surface extending along the other side of the carrier, said support being adapted to rotate through contact of the tin with said stationary surface while the carrier is in motion, and said movable surface being driven through its contact with the tin.

11. A pie-crust trimmer, comprising a trimming-wheel, journaled on a vertical axis and having an inwardly-converging conical periphery, a conveyer arranged to travel around said wheel, a support rotatably mounted on said conveyer and adapted to hold a pie-tin with its edge in rolling contact with the periphery of said wheel, and a stationary upwardly-converging conical surface arranged concentrically of said wheel and adapted to be engaged by the opposite edge

of the pie-tin while the same is in engagement with said wheel.

12. The combination of a frame, a support for pie-tins arranged to move in a circular path along said frame and adapted to rotate on an axis at right angles to said path, a stationary inclined track extending along the path of said support and having an inclined face arranged to have rolling contact with the edge of a pie-tin carried by said support and a wheel journaled concentrically of said circular path and having thereon an annular inclined rim adapted to engage the edge of the pie-tin at a point opposite its point of contact with said stationary track, all arranged to cause the pie-tin to have rolling contact with said stationary track and said rim while said tin is being carried along by the rotatable support.

13. In a machine, the combination of a horizontally-disposed conveyer arranged to travel in a substantially circular path over a portion of its length, a support for a pie-tin rotatably mounted on said conveyer and adapted to hold a pie-tin in a substantially vertical position, a wheel journaled concentrically of said circular portion of the path of the conveyer and having a conical rim adapted to engage the edge of a pie-tin on said support while said tin is being carried along, and an inclined track located concentrically of said wheel and having a surface of opposite inclination to the rim of said wheel and adapted to engage the opposite side of the pie-tin when the same is moved along, said wheel being arranged to move at the same peripheral speed as the pie-tin when said tin is rolled along said track.

14. In a device of the class described, the combination of a frame, a conveyer mounted on said frame and having thereon a series of supports each adapted to hold a pie-tin in a substantially horizontal position and being journaled on said conveyer so as to rotate about the axis of the tin, said conveyer being arranged to travel in a substantially circular path for a portion of its length, a wheel journaled concentrically of said portion of path of the conveyer and having an inclined rim adapted to have rolling contact with the edge of the tin when said tin is carried along by the conveyer, the rim of said wheel being readily removable from the hub for the purpose specified.

15. In a device of the class described, the combination of a frame, a conveyer mounted on said frame and having thereon a series of supports for pie-tins, each adapted to hold a pie-tin in a substantially horizontal position and being journaled on said conveyer so as to rotate on an axis concentric with the tin, said conveyer being arranged to travel in a substantially circular path for a portion of its length, a wheel journaled concentrically of

said portion of path of the conveyer and having an inclined rim adapted to have rolling contact with the edge of the tin when said tin is carried along by the conveyer, said  
5 wheel having a rim formed of a plurality of detachable segments for the purpose specified.

Signed at Chicago this 18th day of August, 1906.

OLIVER COLBORNE.

Witnesses:

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L. A. SMITH.