

June 19, 1923.

1,459,166

D. W. SMITH

PIE MACHINE

Filed Jan. 24, 1920

2 Sheets—Sheet 1

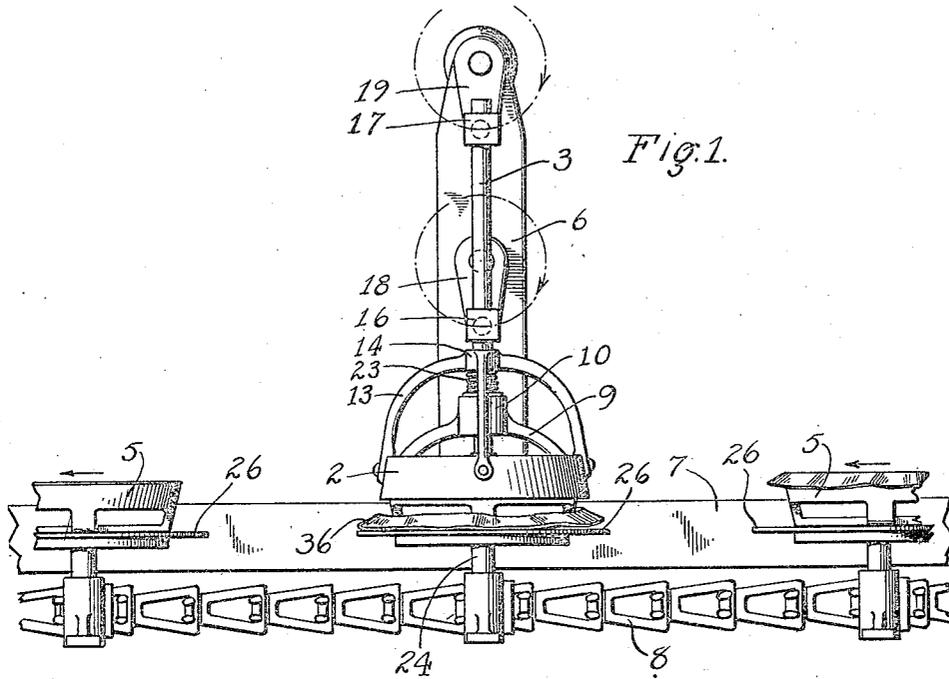


Fig. 1.

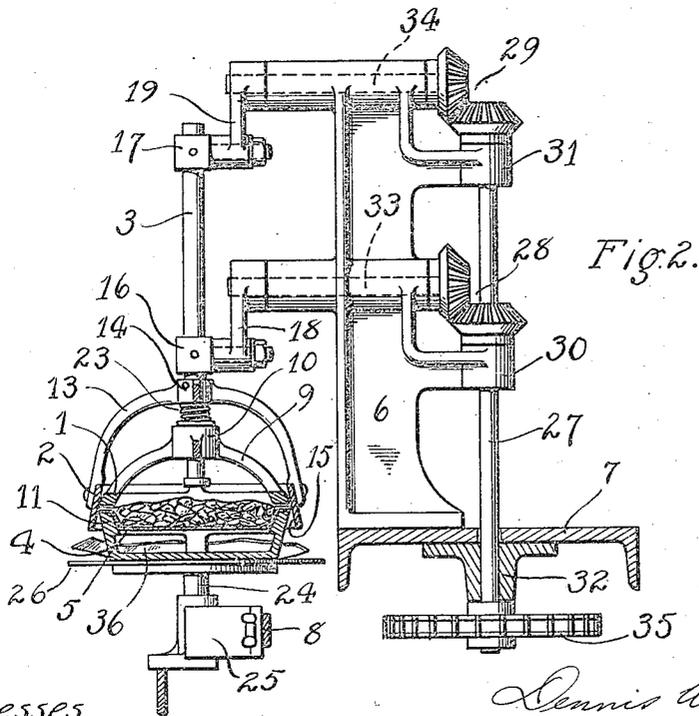


Fig. 2.

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2 Sheets-Sheet 2

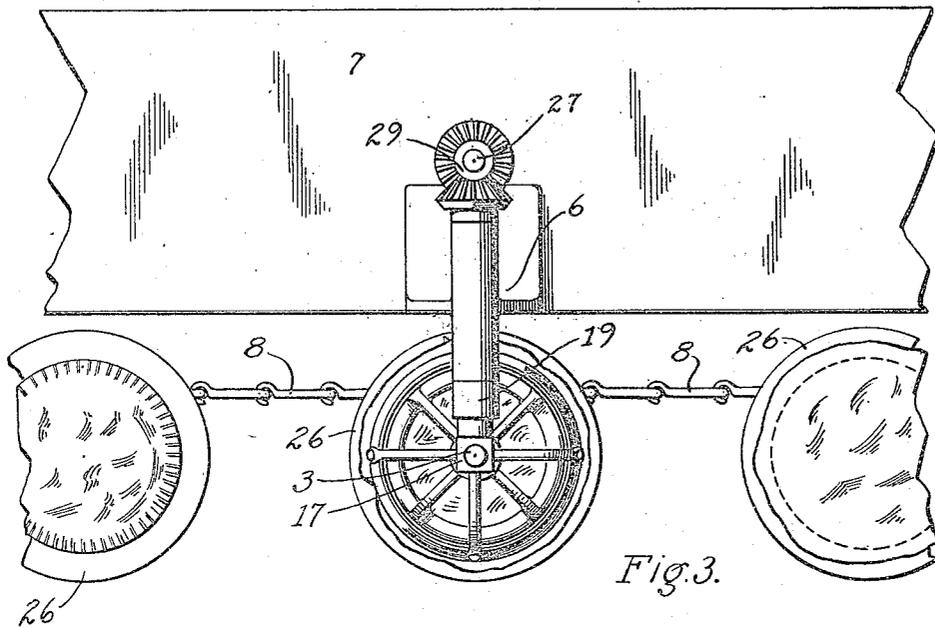


Fig. 3.

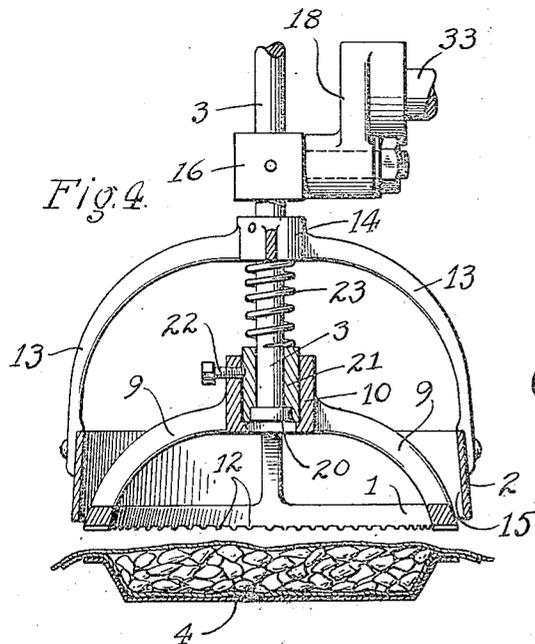


Fig. 4.

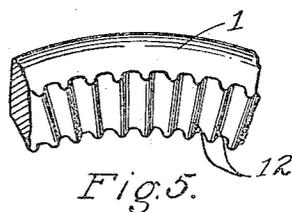


Fig. 5.

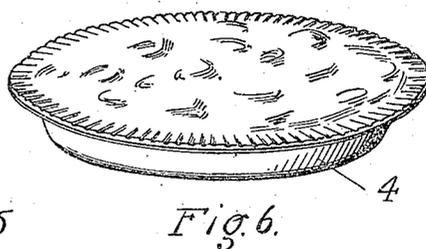


Fig. 6.

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# UNITED STATES PATENT OFFICE.

DENNIS W. SMITH, OF WILMETTE, ILLINOIS, ASSIGNOR TO COLBORNE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## PIE MACHINE.

Application filed January 24, 1920. Serial No. 353,829.

*To all whom it may concern:*

Be it known that I, DENNIS W. SMITH, a citizen of the United States of America, and a resident of Wilmette, 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 machines.

The main objects of the invention are to provide improved means for crimping the perimetral edges of pie crust and trimming or cutting off the excess dough; to provide improved means of this kind comprising parts which are capable of being operated separately or substantially in unison with each other for performing these two operations; to provide improved mechanism for actuating said means whereby when connected with a pie-making machine the actuation of said means will be in substantial synchronism with the conveying mechanism of such a machine.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which—

Fig. 1 is a front elevation of pie crust shaping means constructed in accordance with this invention, the same being shown in combination with a portion of the conveying mechanism of a pie-making machine.

Fig. 2 is a side elevation, partly sectional, of the same.

Fig. 3 is a plan of the same.

Fig. 4 is an enlarged sectional detail of the pie crust crimping and trimming means.

Fig. 5 is an enlarged fragmentary detail of the corrugated face of the crimping element.

Fig. 6 is a perspective view of a pie showing the manner in which the edges of the pie crust have been crimped and trimmed.

A pie crust crimping and trimming means embodying this invention involves the use of a pair of annular elements 1 and 2 concentrically arranged upon the lower end of a member 3 which is actuated so as to coact with the perimeter of a pie plate resting upon a support 4. This means is supported upon a standard 6 secured to the frame 7 of a pie-making machine and actuated by the mechanism more fully hereinafter described. The arrangement of the various parts has been designed particularly for use with a pie-making machine of the general type

illustrated in Colborne Patents Nos. 821,784, dated May 29, 1906, and 847,649, dated March 19, 1907, wherein a plurality of pie plate supports 5 are mounted upon a continuously moving link chain conveyer 8.

In the specific embodiment herein shown, the crimping element 1 is in the form of a ring secured by spider arms 9 to a hub 10 by means of which the element is secured to the member 3. In cross section, said ring is of substantially the same thickness as the width of the flange 11 of the pie plate 4, and the under surface of the ring is corrugated so as to provide radially disposed ridges 12.

The trimming element 2 is in the form of a substantially axially disposed flange or band secured to the ends of spider arms 13 formed on a hub 14 by which the element is mounted on the member 3. The inner face 15 of the element 2 is slightly inclined to the axis of the member 3 with the mean diameter substantially equal to the extreme diameter of the pie plate 4.

The member 3 as herein shown is in the form of a shaft secured to a pair of hubs 16 and 17 which are pivotally mounted on the cranks 18 and 19 rotatably supported on the standard 6. Such an arrangement gives a sort of reciprocating movement to the member 3, causing it to revolve bodily about a horizontal axis while maintaining a constantly vertical position. The lower end of the shaft has a head or shoulder 20 formed thereon inwardly of which is mounted a sleeve 21 which is free to slide relative to the shaft 3. The sleeve 21 fits within the hub 10 of the crimping element 1 to which said hub is secured by means of a set screw 22. A spring 23 embraces the shaft 3 between the sleeve 21 and the hub 14 of the trimming element 2. This spring normally urges the crimping element 1 into its normal position as limited by the abutment of the sleeve 21 against the head 20, and allows a relative movement of the crimping element 1 and shaft 3 after the corrugated under face of the element has been firmly pressed against the dough on the rim 11 of the pie plate 4. This permits a continued movement of the shaft 3 so as to insure the contact of the inner face 15 of the trimming element 2 with the perimeter of the flange 11 of the pie plate 4.

The particular construction and arrangement of the pie plate support 5 is of no

special importance except that it provides for a rigid support of the flange 11 to insure the proper action of the crimping and trimming elements when they are urged into contact therewith. In the particular embodiment herein shown, the support 5 is mounted upon a shaft or post 24 and attached to the link chain conveyer 8 by means of a suitable fitting 25. A platform 26 is arranged below the support 5 upon which falls the excess dough trimmed off from the pie plate 4.

The driving mechanism for the pie crust crimping and trimming means comprises a shaft 27 and pairs of beveled gears 28 and 29. The shaft 27 is journaled in bearings 30 and 31 of the standard 6 and a bearing 32 on the under side of the frame 7. Said shaft has one gear of each of the pairs of gears 28 and 29 secured thereto, and the other gears of said pairs are secured to the shafts 33 and 34 respectively journaled on the standard 6 and keyed to the cranks 18 and 19 respectively. The lower end of the shaft 27 is provided with a sprocket 35 which is connected by a chain belt to a suitable driving element on the pie-making machine.

The size of the cranks 18 and 19, the ratio of the pairs of gears 28 and 29 and the arrangement of the sprocket 35 and its connection to the pie-making machine are such that the movement of the pie crust crimping and trimming means substantially synchronizes with the movement of the conveyer 8, so that the crimping element 1 and trimming element 2 approach, coact with, and recede from the pie plate 4 as they gradually travel in turn past the standard 6.

The operation of the device herein shown is substantially as follows:

By means of the pie-making machine more fully described in the aforesaid Colborne patents, pies are made in the pie plates 4, which by means of the conveyer 8 are caused to pass the pie crust crimping and trimming means. As each pie approaches said means, the elements 1 and 2 are moved into position to coact with the flange 11 of the pie plate 4. The corrugated under face of the element 1 first comes in contact with the dough and crimps it as shown in Fig. 6. This action occurs before the inner face 15 of the trimming element 2 engages the edge of the flange 11. By

virtue of the spring 23 the shaft or member 3 is allowed to continue its movement relative to the crimping element 1 so as to bring the inner face 15 of the trimming element 2 into contact with the perimeter of the pie tin 4 and shear off the excess dough 36 as indicated in Figs. 1 and 2. Having completed this operation, the elements 1 and 2 recede from the pie and travel around in position to complete the forming of the next pie as it moves into position.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. In a pie machine, the combination of a frame, a conveyer continuously movable along said frame, pie-plate supports carried by said conveyer, a standard mounted on said frame, a member mounted on said standard and shiftable vertically and horizontally, and a pair of concentrically arranged annular elements carried by said member and movable thereby into contact with the dough on pie plates resting on said supports so that during the travel of said pie plates adjacent to said standard the dough around the perimeter of the pie plates is crimped and trimmed.

2. In a pie machine, the combination of a frame, a conveyer continuously movable along said frame, pie-plate supports carried by said conveyer, a standard mounted on said frame, a pair of cranks rotatably mounted on said standard in vertically spaced relation, a vertically disposed shaft pivotally connected to said cranks and bodily revolvable about a horizontally disposed axis while maintaining a constant vertical position, means carried by said shaft and shiftable into contact with the dough on pie plates resting on said supports during the travel of said pie plate past said standard and adapted to shape the dough around the perimeter of the pie plates, and means for synchronizing the movement of said shaft with that of said conveyer, substantially as described.

Signed at Chicago this 22d day of January 1920.

DENNIS W. SMITH.