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PATENTED OCT. 30, 1906.

G. MÜLLER.  
APPARATUS FOR TREATING DOUGH, &c.  
APPLICATION FILED JUNE 4, 1906.

3 SHEETS—SHEET 1.

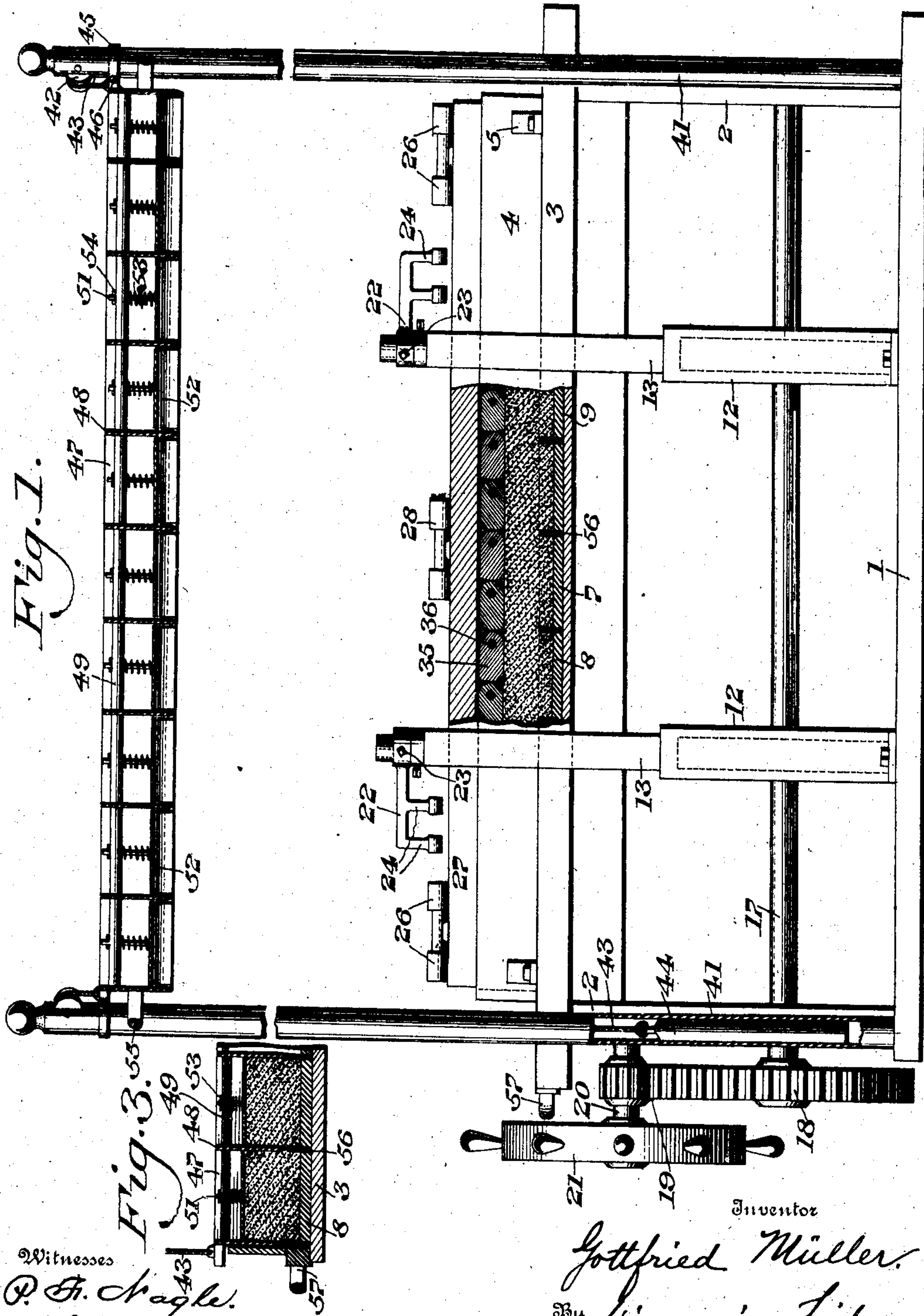


Fig. 1.

Fig. 3.

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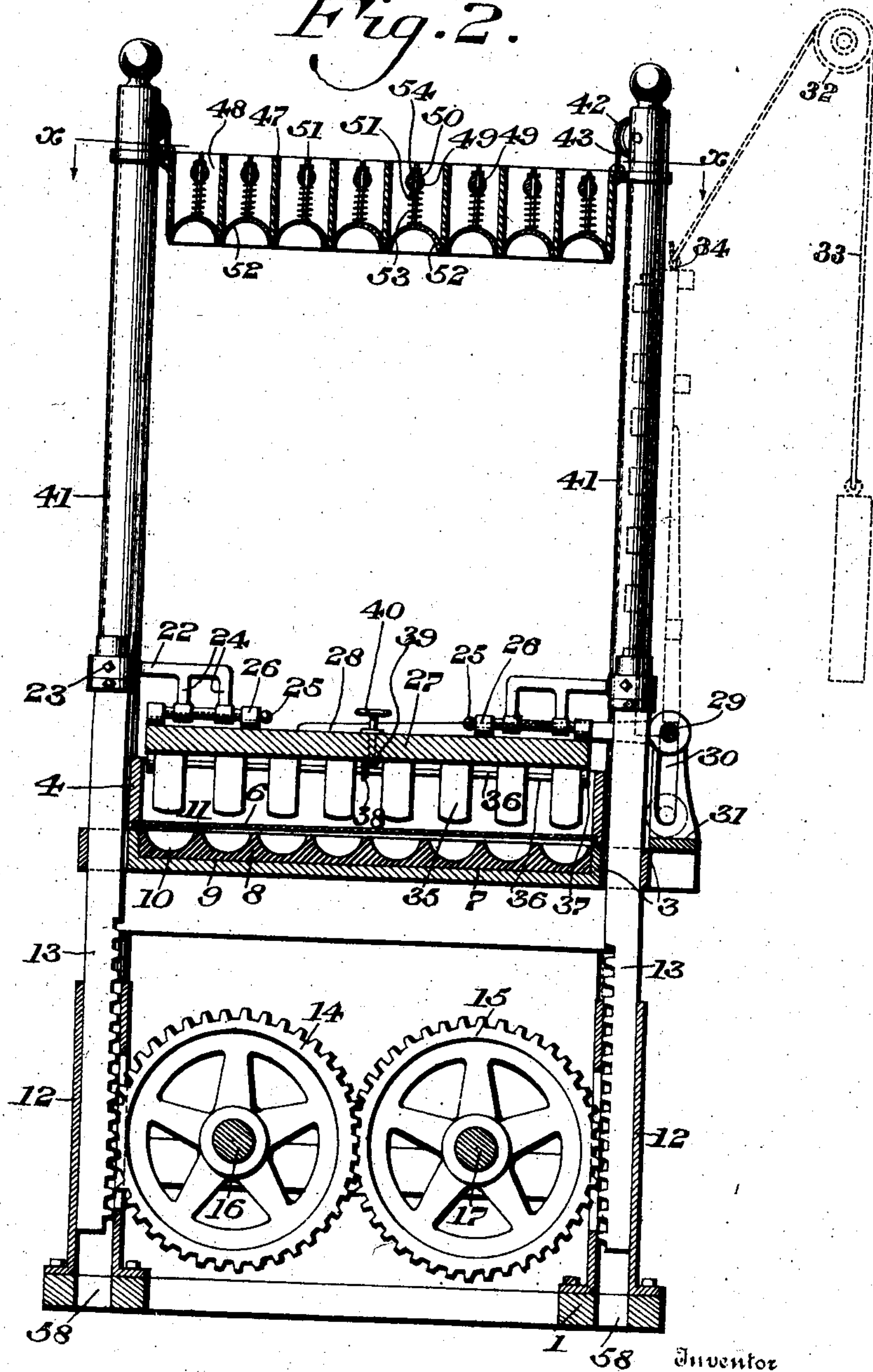
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3 SHEETS—SHEET 2.

Fig. 2.



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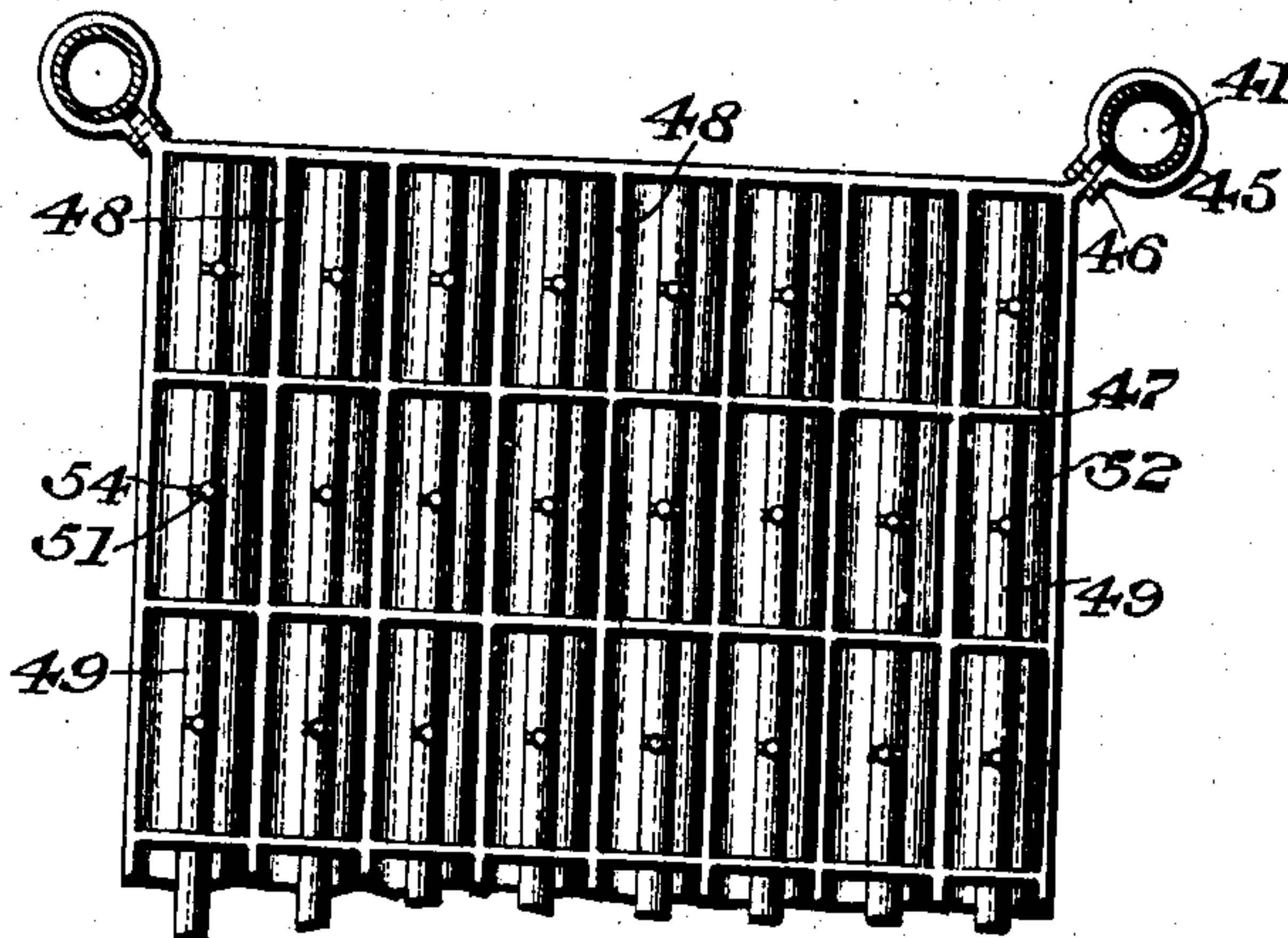
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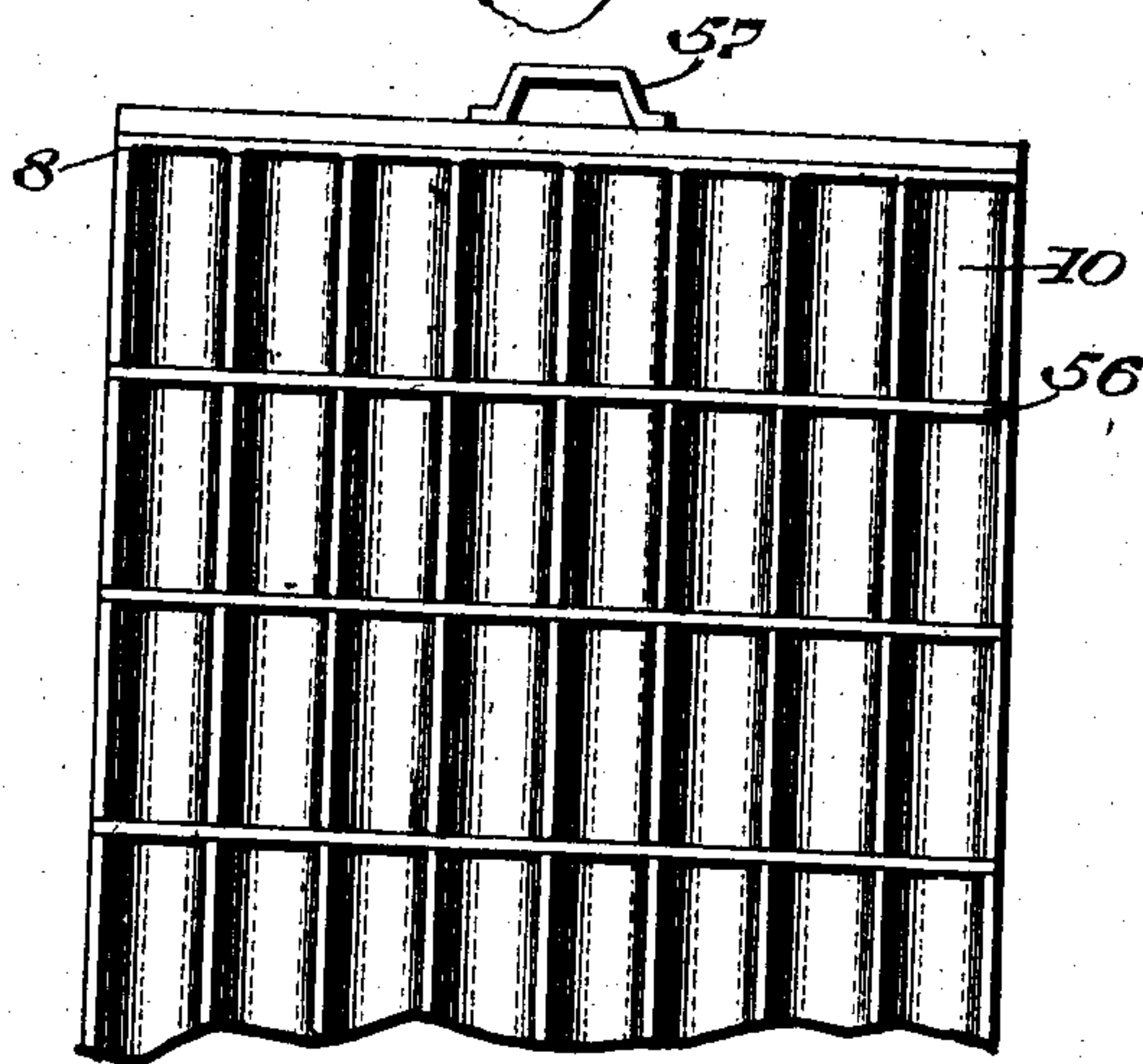
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3 SHEETS—SHEET 3.

*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

GOTTFRIED MÜLLER, OF PHILADELPHIA, PENNSYLVANIA.

## APPARATUS FOR TREATING DOUGH, &c.

No. 834,678.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed June 4, 1906. Serial No. 320,017.

*To all whom it may concern:*

Be it known that I, GOTTFRIED MÜLLER, a subject of the Emperor of Germany, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Apparatus for Treating Dough, &c., of which the following is a specification.

My invention consists of a novel construction of an apparatus for treating dough, batter, or like material whereby it may be thoroughly worked, kneaded, mixed, and pressed and so be of uniform consistency or nature.

It further consists of a novel construction of kneading members which are adapted to be partially rotated to form a substantially plane surface and serve as pressing members in order that the size of resultant loaves will be uniform.

It further consists of a novel construction of a cover to which the pressing and kneading members are adjustably connected and novel means for actuating said cover.

It further consists of a novel construction and arrangement of knives whereby several hundred loaves may be simultaneously cut.

It further consists of a novel construction of removable bottom which is adapted to shape the top or bottom of the loaf.

It further consists of a novel construction for preventing the dough adhering to the knives.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

The various instrumentalities of which my invention consists may be variously arranged and organized, and in the accompanying drawings I have shown one embodiment thereof which has been found to give satisfactory and reliable results.

Figure 1 represents a rear elevation, partly in section, of an apparatus for treating dough embodying my invention. Fig. 2 represents a transverse sectional view thereof. Fig. 3 represents, on an enlarged scale, a sectional view of a portion of the device. Fig. 4 represents a sectional plan view of a portion of the machine on line *xx*, Fig. 2. Fig. 5 represents a plan view of a portion of the removable bottom mold or block.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates the base of the machine, having rising therefrom standards 2, to which is secured a table or

support 3, on which is adapted to be seated a casing 4, the improper movement of which is prevented by means of angle-irons or equivalent devices 5, which in the present instance are secured to the table 3. The casing 4 is provided with a removable bottom 6, whereby after the same is placed on the table 3 the bottom 6 may be removed. The table 3 is recessed, as indicated at 7, and in this recess is adapted to be seated a mold member or block 8, one side of which forms a substantially plane surface, as seen at 9, the opposite face thereof having the depressions or grooves 10, between which is located a raised portion 11, the upper face of which forms a substantially plane surface.

12 designates guards or casings carried by the base having openings in which rack-arms 13 are adapted to reciprocate, said rack-arms being adapted to mesh with the coacting gears 14 and 15, mounted on shafts 16 and 17. The shaft 17 has mounted thereon a gear 18, which coacts with a pinion 19, mounted on a shaft 20, suitably journaled in the uprights 2, said shaft 20 having mounted thereon in the present instance a hand-wheel 21, whereby the shafts 16 and 17 may be oscillated or rotated, although this shaft may be driven by means of a pulley and belt or by suitable gearing, as is apparent.

22 designates fastening-brackets mounted on the arms 13, near the upper end thereof, by means of a set-screw or equivalent device 23. The arms 22 are each provided with depending members 24, which are apertured at their lower ends in order that a rod 25 may be passed therethrough, said rod also passing through lugs 26, carried by the cover 27, whereby said cover 27 is raised and lowered by the arms 13.

28 designates a hinge having a pintle 29, which travels in a groove or slot 30 in a bracket or upright 31, carried by the table 3.

32 designates a wheel or pulley around which passes a weighted conductor 33, one end of which is removably connected, as at 34, to the cover 27 in order that when the cover 27 is turned back the pintle 29 will be located at the upper end of the slot or groove 30.

35 designates combined kneading and pressing blocks or members, which are mounted on shafts 36, suitably journaled in depending brackets or lugs 37, said shafts having thereon a beveled gear 38, which coacts with a beveled gear 39, mounted on the rod 40, 110



which is adapted to be manually or otherwise actuated. The kneading members 35 are adapted to reciprocate above the channels or recesses 10.

41 designates hollow uprights or standards rising from the base 1; having mounted in their upper end in any suitable manner pulleys 42, around which passes a conductor 43, to the lower end of which is attached a weight 44, it being understood that four or more of these standards are employed, in each of which there is a weight, such as 44.

45 designates brackets mounted on the rods 41 and having removably connected thereto by means of set-screws or equivalent devices 46 a series of knives 47 and 48, which are angularly arranged with respect to each other.

49 designates rods passing through the knives 48 and having apertures 50, through which pass rods 51, provided at their lower ends with a semicircular-shaped plate or member 52, the sides of which slidably engage the sides of the knives 47.

53 designates a spring inserted between the rod 49 and the member 52, whereby said member 52 is normally maintained in its lowermost position.

54 designates a pin passing through the rod 51, which regulates the downward movement of the member 52.

55 designates handles secured to the knives in order that the operator may readily actuate the same.

In order to have the different pieces uniformly cut, I preferably employ strips 56, which are set into the mold member 8 at an angle to the depressions 10 therein. In the present instance I have shown the mold member as provided with a handle 57. The base 1 is suitably apertured, as at 58, in order that the rack-arms 13 may be lowered, so that the casing 4 and the mold member 8 may be readily removed. In the present instance I have shown the shaft 20 as adapted to be actuated by means of a hand-wheel 21; but it will be apparent that this shaft may be driven by means of a pulley or any other suitable means.

The operation of the machine is as follows: The mixture of dough or batter which is to be worked is placed in the casing 4, the removable bottom 6 of which is in position. The casing 4 is then placed on the machine, and owing to the provision of the guiding plates or pins 5 it assumes its correct position thereon. The removable bottom 6 is now withdrawn. The dough falls on the board or mold member 8. The conductor 33 is now preferably detached at 34 from the cover 27. The bracket-arms 22 are rotated, so that the depending portions 24 will be in alignment with the lugs 26 on the cover 27, and the rod 25 is then passed through the apertured lugs 26 and apertured depending members 24, after

which the set-screws 23 are adjusted, thereby securing the cover 27 with respect to the rack members 13. The shafts 40 are actuated to bring the kneading members 35 into a vertical position, at which time they are directly above the grooves or depressions 10 in the mold-block 8. The wheel 21 is now oscillated, thus causing the shafts 16 and 17 to be rocked. The coacting gear-wheels 14 and 15 cause the arms 13 to be raised and lowered, thus causing the kneading members 35 to knead the dough and to thoroughly work the same until it has the same consistency throughout its mass. After the dough has been properly mixed by means of the rods 40 and gears 38 and 39 the shafts 36 are rotated, thus bringing the kneading members 35 into the position indicated in Fig. 1. The shaft 20 is now actuated, thus causing the cover and the kneading members 35, which are now in the position seen in Fig. 1, to move downwardly. The dough will be flattened on its upper face, and the lower face will be given a contour similar to that of the mold member 8, which has been employed. The dough is now ready to be cut, and the conductor 33 is connected at 34 to the cover 27, the rods 25 are withdrawn, the set-screws 23 loosened, and the members 22 rotated upon the rack-arms 13, so that the weighted conductor 33 will cause the cover to be raised out of the path of the knives, as indicated in dotted lines in Fig. 2, it being noted that the pin 29 is at the upper end of the slot or groove 30. The knives are counterbalanced by means of the weights 44, so that a slight pressure of the operator upon the handles 55 will cause the knives to descend, it being seen that the knives 47 engage the raised portion 11 and the knives 48 contact with the strips 12, which are inserted in the member 8. As the knives descend and engage the dough, it will be seen that the members 52, owing to the provision of the spring 51, will be permitted to move upwardly, and as the knives are raised these members 52 will be moved outwardly, thus preventing the dough from clinging or adhering to the knives, as would be the case unless some such means were employed. If it is desired to produce a square loaf, the removable block 8 is inverted, so that the bottom or face having a plane surface is employed. For convenience of illustration I have shown a mold-block adapted to produce a loaf having an oval or rounded top; but it is to be understood that the contour of the surface of the block 8 may be varied according to conditions and requirements of the case and also that the location of the knife members 12 will vary according to the size of the loaf which is to be cut. If the loaves are to be of a different size, the knives 47 and 48 would be changed so that the knives would correspond to the divisions in the lower block 8.



It will be apparent to those skilled in this art that with a construction embodying my invention the dough or batter will be treated in such a manner that it will have the same consistency throughout its mass, and owing to the novel arrangement and construction of the parts the time which it takes of work, form, and cut the dough is reduced to a minimum.

It will be further apparent that the number of loaves which are produced may be varied according to requirements by varying the length and arrangement of the knives and by correspondingly varying the mold member which is employed.

It will now be apparent from the foregoing that I have produced a novel and useful construction of apparatus adapted to knead and cut the dough in any desired form or shape, and while I have in the present instance described and claimed the preferred embodiment thereof it is to be understood that it is susceptible of modification in various particulars without departing from the spirit and scope of my invention or sacrificing any of its advantages.

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

1. In a device of the character described, a support, a mold member carried thereby, combined kneading and pressing members located thereabove, means for partially rotating said members and means for reciprocating said members.

2. In a device of the character described, a support, a casing carried thereby, a cover movably mounted above said casing, kneading and pressing members adjustably carried thereby, and means for reciprocating said cover.

3. In a device of the character described, a support, a casing mounted thereon, means for preventing improper movement thereof, a cover mounted above said casing, a plurality of blocks adjustably carried by said cover, and means for reciprocating said cover.

4. In a device of the character described, a support for the dough, a plurality of kneading members mounted thereabove, means for adjusting said kneading members to serve as pressing members, and means for reciprocating said members.

5. In a device of the character described, a support, a mold member having recesses therein carried thereby, a casing carried by said support, a cover mounted above said casing and adapted to reciprocate therein, a plurality of blocks adjustably carried by said cover, means for opening said cover, and means for reciprocating said cover.

6. In a device of the character described, a support for the dough, a plurality of combined kneading and pressing members mount-

ed above said support, means for reciprocating said members, knives located above said members, and means for moving said members out of the path of said knives.

7. In a device of the character described, a base, uprights rising therefrom, a support carried thereby, a mold member having depressions in one face thereof, the opposite side thereof being of a different form, mounted on said support, a cover mounted above said mold member, blocks adjustably carried thereby, rack-arms removably connected with said cover, and means for reciprocating said rack-arms.

8. In a device of the character described, a support for the dough, hollow uprights, a plurality of knives guided thereby, means for preventing the dough adhering to said knives and means within said uprights for counterbalancing said knives.

9. In a device of the character described, a support for the dough, hollow uprights, a plurality of knives guided thereby, spring-actuated contour-forming members located between said knives and preventing the dough from adhering thereto, and means within said uprights for counterbalancing said knives.

10. In a device of the character described, a base, a support for the dough, means for kneading and pressing said dough, hollow uprights carried by said base, a plurality of knives angularly inclined to each other guided by said uprights, means within said uprights for counterbalancing said knives, apertured rods passing through the knives located in parallel planes, plates having rods extending therefrom and passing through said apertured rods, springs interposed between said rods and said plates, and means for limiting the downward movement of said plates.

11. In a device of the character described, a support, a mold member having parallel depressions therein, strips traversing said member at an angle to said depressions, the upper face of said strips being in the same plane as the upper face of said member intermediate said depressions, kneading and pressing members located above said depressions, means for reciprocating said member, knives located above said mold member adapted to engage said strips and the upper face intermediate said depressions, and means for moving said kneading and pressing members out of the path of said knives.

12. In a device of the character described, a support, a removable mold member carried thereby, a casing carried by said support, a cover located above said support, a plurality of blocks adjustably carried thereby, a bracket having a slot therein, in which said cover is hinged, rack-arms, brackets adjustably carried by said rack-arms, adjustable means for securing said brackets to said



cover, and means for reciprocating said rack-arms.

13. In a device of the character described, a support having a recess therein, a mold member removably mounted in said recess, said mold member having depressions therein, a casing having a removable bottom carried by said support, a cover located above said support, a plurality of blocks carried thereby adapted to reciprocate within said casing above the depressions in said mold member, means for adjusting said blocks to form a substantially plane surface, and means for reciprocating said cover.

14. In a device of the character described, a base, guards carried thereby, rack-arms mounted in said guards, coacting gears adapted to mesh with said rack-arms, means for actuating said gears, a support carried by said base, combined kneading and pressing members mounted above said support, a cover to which said members are adjustably

secured, and removable means for securing said cover with respect to said rack-arms.

15. In a device of the character described, a support having a removable mold member therein, a casing carried by said support, a cover having depending brackets, shafts carried by said brackets, polygonal-shaped blocks mounted on said shafts, means for adjusting said blocks to form a substantially plane surface, and means for reciprocating said cover.

16. In a device of the character described, a support, a casing carried thereby, a plurality of members pivotally supported above said casing, means for rotating said members to form either kneading or pressing members, and means for reciprocating said members.

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