No. 827,444. PATENTED JULY 31, 1906.

G. HERBERT, Jr.

BISCUIT MAKING MACHINE.

APPLICATION FILED NOV. 22, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

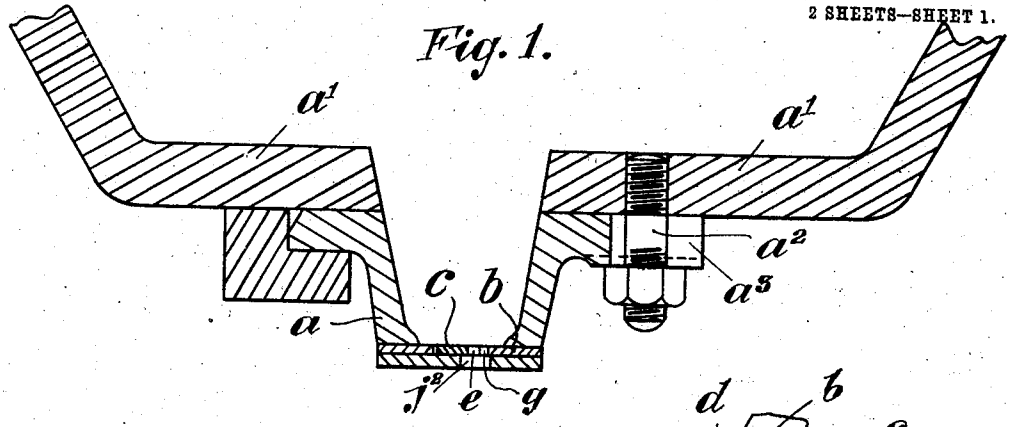


Fig. 3.

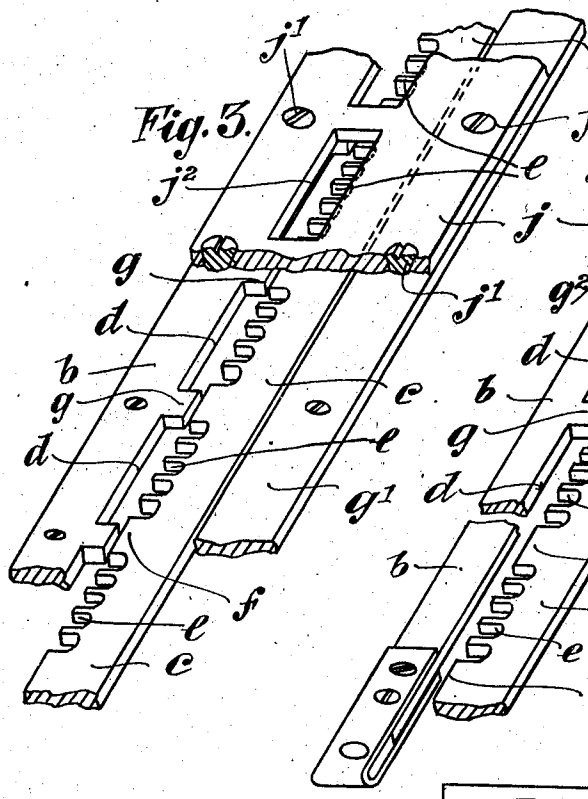


Fig. 4.

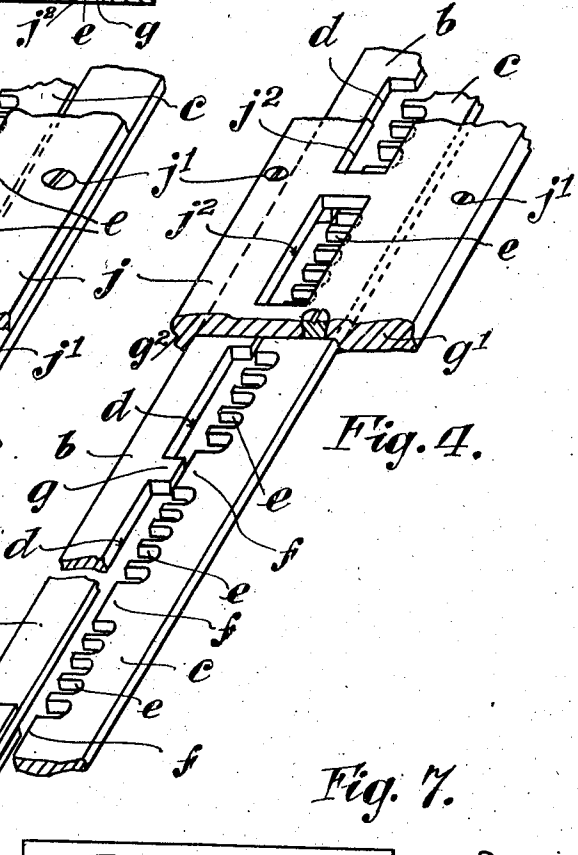
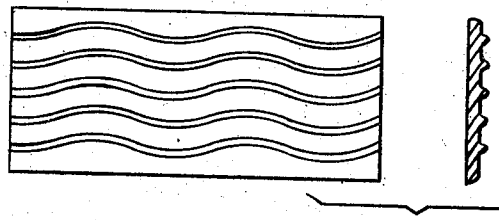


Fig. 7.



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No. 827,444. PATENTED JULY 31, 1906.

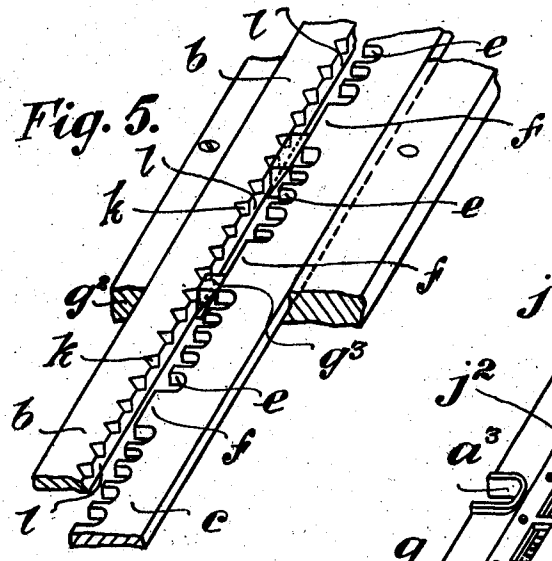
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BISCUIT MAKING MACHINE.

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2 SHEETS—SHEET 2.

Fig. 5.



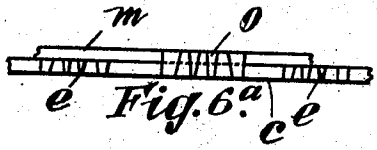
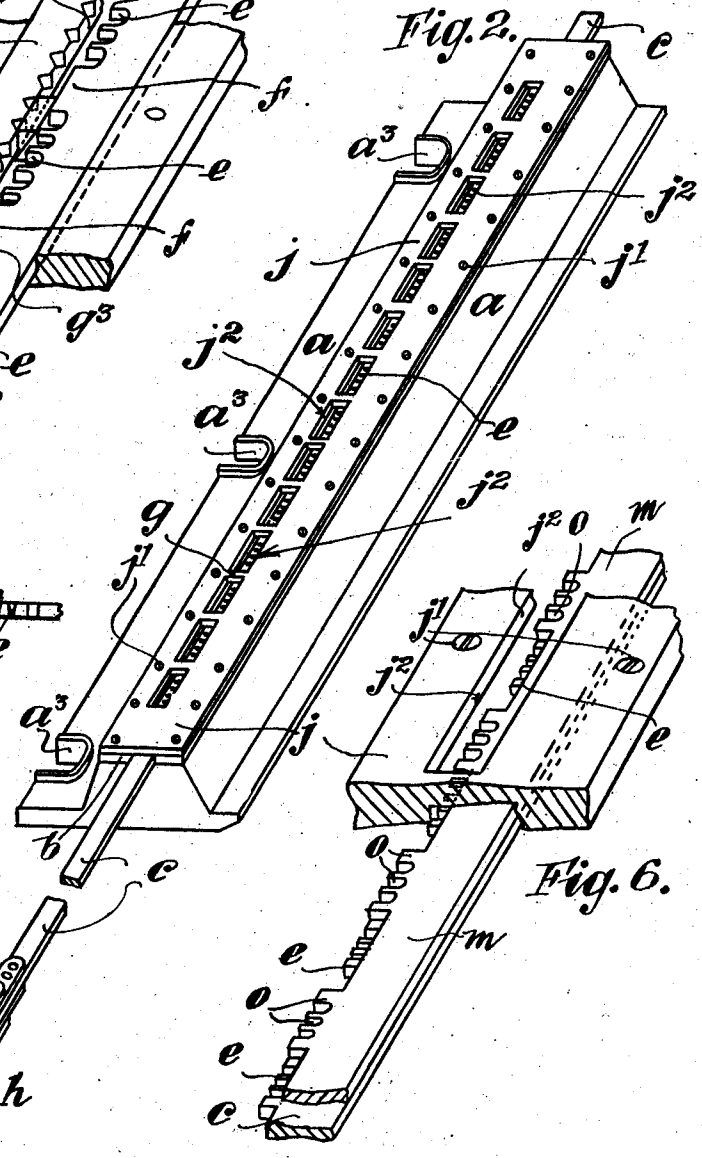


Fig. 6a.

Fig. 2.



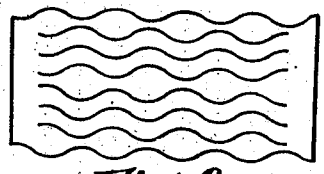


Fig. 9.

Fig. 6.

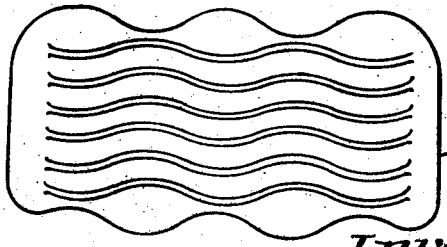


Fig. 8.

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UNITED STATES PATENT OFFICE.

GEORGE HERBERT, JR., OF GLASGOW, SCOTLAND.

BISCUIT-MAKING MACHINE.

No. 827,444. Specification of Letters Patent. Patented July 31, 1906.

Application filed November 22, 1905. Serial No. 288,584.

To all whom it may concern:

Be it known that I, GEORGE HERBERT, Jr., biscuit manufacturer, of 719 Shields road, Pollokshields, Glasgow, Scotland, have invented certain new and useful Improvements in Biscuit-Making Machines, of which the following is a specification.

This invention relates to biscuit-making machines of the class known as "rout," "bar," or "dough-pressing" machines; and its object is to produce, as desired, variations in the design and contour of the biscuit.

The improvements consist in making the die plate or plates of such machines movable, the movable part or parts being reciprocated laterally (with reference to the hopper) in any convenient manner by means of any suitable mechanism or by hand.

The invention can be carried out in various ways.

In order that my said invention may be clearly understood, I have hereunto appended an explanatory sheet of drawings, whereon—

Figure 1 is a sectional view of the die and die-holder attached to the hopper of a biscuit-making machine, the upper part of said hopper being broken off. Fig. 2 is an inverted plan view (drawn in isometric projection) of the die and die-holder, Fig. 1. Fig. 3 is an enlarged inverted perspective plan of part of the die and cover-plate. Fig. 4 shows a similar view of a modified arrangement of the die and cover-plate. Fig. 5 shows in perspective plan a second modified arrangement of the die and cover-plate. This is not an inverted view. Fig. 6 is an inverted view of a third modification. Fig. 6^a is a front view of the die-pieces *c m* in Fig. 6, showing the arrangement of their teeth. Figs. 7, 8, and 9 show views of biscuits made in accordance with my invention.

The same reference-letters wherever repeated indicate the same or similar parts.

In carrying out my invention under one arrangement, as shown at Figs. 1, 2, and 3, I fit in the usual die-holder *a* of the machine the die, which is made in two halves or pieces *b c*, the one piece *b* being made with a series of gaps or openings *d* of the width of the biscuit to be produced. The piece *b* is also rigidly secured to the die-holder *a*, while the other piece *c*, which I may call a "die-piece," is made at its edge with serrated portions *e*, alternating with plain portions *f* and is reciprocated laterally in the die-holder *a*. The die-holder is removably secured to the hopper *a'* in the usual manner by means of studs a^2, which pass through slots a^3. The serrated portions *e* of the movable die-piece *c* face the gaps or openings *d* of the fixed piece *b*, while the plain portions *f* face and work against the divisions or projections *g* on the piece *b*. These divisions, in conjunction with the bar *g'*, serve to guide the piece *c* in its lateral movements. A cover-plate *j* is fitted below the piece *b* and bar *g'* and is secured to the bottom of the die-holder *a* by means of screws *j'*, which pass through the cover-plate and the piece *b* and bar *g'*. The cover-plate *j* has openings j^2, which correspond with the gaps or openings *d*. The movable die-piece *c* is extended beyond the die-holder *a* at one end, as shown at Fig. 2, and is operated by suitable mechanism, such as a connecting-rod *h* and a rotating disk and pin *i*, which impart a laterally-reciprocating motion to the die-piece.

With the above-described arrangement of fixed and movable die-pieces a biscuit is produced having a waved or sinuous design on its upper surface, instead of the usual straight design or pattern, and also waved edges. As the material passes from the hopper through the gaps *d* and the serrations *e* the die-piece *c* is moved laterally, with the result that biscuits are formed such as shown at Fig. 8. When the die-piece *c* is moved to one side, the ridges are brought to this side of the biscuit, while when the die-piece is moved to the opposite side the ridges are moved over to that side of the biscuit, the alternating movements producing the wave design shown in Fig. 8. Owing to the fact that the dough passing through the serrations of *c* is united with the dough passing through gap *d*, the whole dough is affected by the lateral movement and results in the production of a biscuit, which has a waved design and also waved edges, the waves of the edges being opposite to those of the design. The depth of the gaps *d* determines the thickness of the biscuit, while the depth of the serrations *e* determines the height of the ridges, the divisions *g*, as usual, determining the width of the biscuit.

Fig. 4 shows an arrangement of die which is the converse of that shown in Figs. 1, 2, and 3, but which produces the same kind of biscuit. In this arrangement the die-piece *c* is fixed to the holder *a*, while the die-piece *b* is reciprocated laterally by means of a crank and connecting-rod or such like between

guide g^2 on the cover-plate j and the portions f of the piece c. In this case the die-piece c being rigid the ridges of the biscuit are not actually waved by said die-piece; but owing to the fact that the bottom part of the biscuit is moved as it passes through the die-opening j^2 from side to side by the action of the die-piece b the result is that a biscuit with waved ridges and edges, as shown at Fig. 8, is produced.

Fig. 5 shows another arrangement of die in which both die-pieces b c are reciprocated laterally, the die-piece b being made with a series of V-shaped notches k on the upper edge, while its lower edge l is made plain. The notched and plain face, combined with the laterally-reciprocating motion of the die-pieces in opposite directions, permits of the passage of currants or other fruit into the biscuit, while at the same time it gives a plane surface to one side of the biscuit. This arrangement makes a biscuit with a sinuous design on top and straight edges, such as shown at Fig. 7.

Fig. 6 shows another modification in which the arrangement of die is such as to give a waved or zigzag contour to the edges of the biscuit and also a double-waved or double-zigzag pattern on the top of the biscuit, such as shown at Fig. 9. This result is achieved by superposing the serrated die-piece c on a second serrated die-piece m of similar construction. The die-piece m, however, has its teeth or serrations o projecting upward, so as to be flush with the upper face of the die-piece c. (See Fig. 6^a.) Both die-pieces c m are reciprocated laterally and simultaneously and in opposite directions by suitable cam, lever, or other mechanism in order to produce the desired pattern of biscuit.

According to the way in which the movable die-pieces are reciprocated the shape and design of the biscuit can be altered.

The mechanism is preferably made so as to be entirely under the control of the person operating the machine.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for making biscuits, a die-holder, and a die forming the bottom thereof and comprising a movable part and a relatively fixed part in the same plane, one having serrations, the dough being disposed to pass between adjacent faces of said parts.

2. A die for a biscuit-making machine, comprising a plurality of parts mounted in the same horizontal plane with opposed edges with a space between them for the passage of the dough, and means for reciprocating one of said parts with relation to the other.

3. A die for a biscuit-making machine, comprising a plurality of parts, one only of which is mounted for reciprocation in the same plane with the other, said parts being mounted with a space between them for the passage of the dough, and one of said parts being serrated at the edge adjacent the other part.

4. A die for a biscuit-making machine, comprising a plurality of parts disposed in the same horizontal plane, one of which is mounted for reciprocation, and one of which is provided with a serrated edge having alternating plain portions.

5. A die for a biscuit-making machine, constructed in sections one of which is mounted for a laterally-reciprocating motion and adapted to form a wavy or sinuous design on the biscuit, said sections being disposed in the same horizontal plane and between which the dough passes.

6. A die for a biscuit-making machine, constructed in sections one of which is mounted for a laterally-reciprocating motion and adapted to form a wavy or sinuous design on the biscuit, said sections being disposed in the same horizontal plane and between which the dough passes and means for reciprocating one of said sections.

7. A die for a biscuit-making machine, constructed in sections one of which is mounted for a laterally-reciprocating motion and adapted to form a wavy or sinuous design on the biscuit, said sections being disposed in the same horizontal plane and between which the dough passes, means for reciprocating one of said sections, and guides on the opposed edges of said sections for the reciprocating section.

8. A die for a biscuit-making machine, constructed in sections one of which is mounted for a laterally-reciprocating motion and adapted to form a wavy or sinuous design on the biscuit, said sections being disposed in the same horizontal plane and between which the dough passes, means for reciprocating one of said sections, guides on the opposed edges of said sections for the reciprocating section, and a cover-plate having an opening.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE HERBERT, JR.

Witnesses:
CLAUDE GILLIES,
JNO. MCFADZEAN.