

May 13, 1952

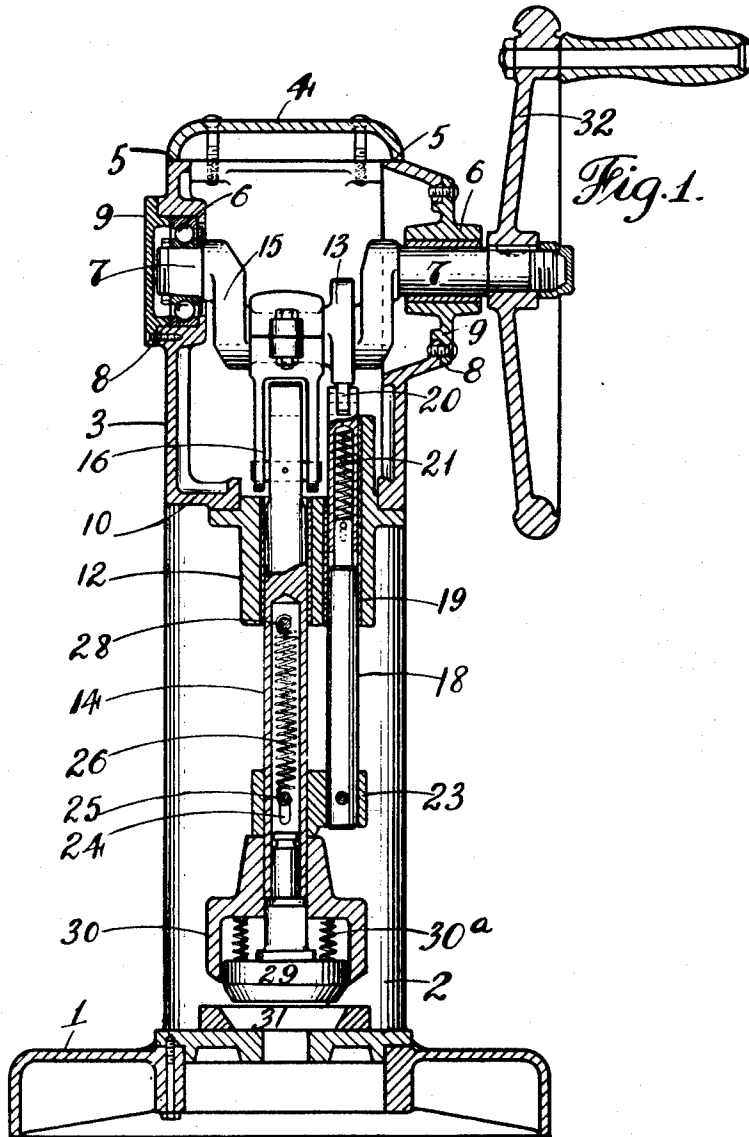
W. H. ELVIS

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MACHINE FOR MOLDING PIES

Filed April 26, 1947

2 SHEETS—SHEET 1



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HIS ATT'Y

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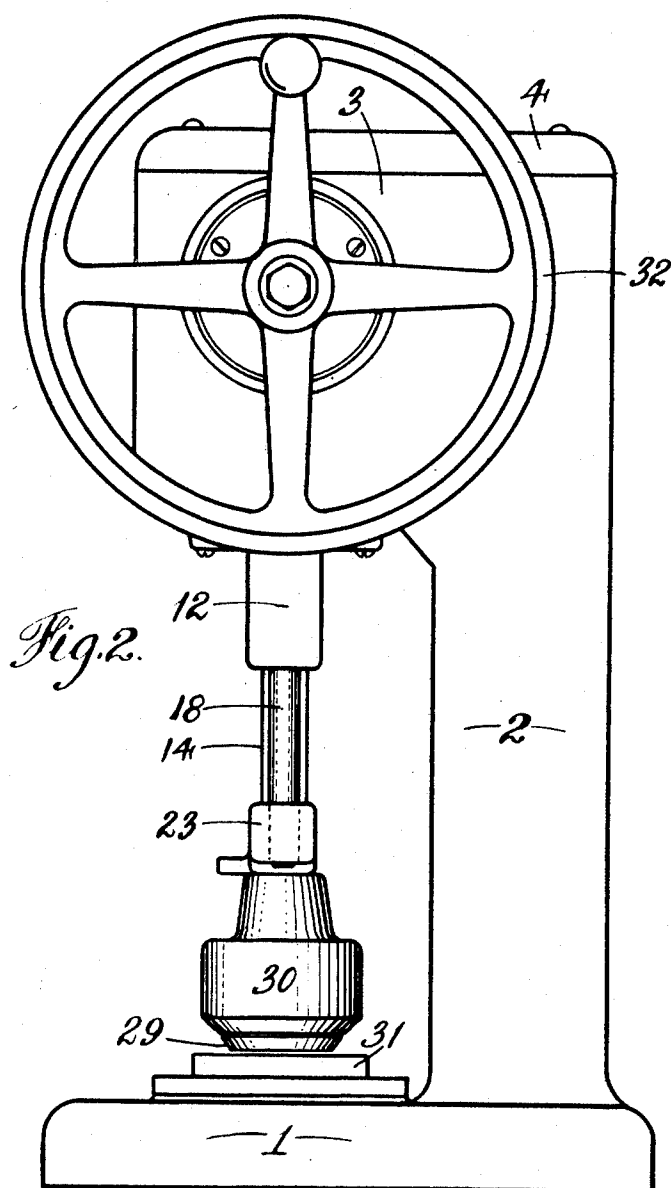
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UNITED STATES PATENT OFFICE

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MACHINE FOR MOLDING PIES

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Application April 26, 1947, Serial No. 744,182
In Great Britain March 21, 1946

Section 1, Public Law 690, August 8, 1946
Patent expires March 21, 1966

2 Claims. (Cl. 107-15)

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This invention relates to a machine for moulding and trimming pie bodies or the like adapted to receive edible products, such as jam, custard and like confection, of the kind in which a ram carrying a moulding tool is adapted to be reciprocated by crank mechanism of a crankshaft supported on a horizontal axis in bearings at the head of the machine, and in which a trimming tool slidably mounted over the moulding tool is adapted to be depressed by spring-loaded mechanism actuated by the crank for the purpose of removing excess material from the moulding. It has been proposed to provide a cam on each side of the crank and which, on rotation of the crankshaft, operates on the upper ends of the two spring-loaded vertical plungers whose lower ends are connected to the trimming tool through springs and through slidable bolts.

The present improvements are directly concerned with this art and have for their objects the provision of a machine of the kind which while operating in the known manner embodies a novel design admitting of lower production costs and man hours, and at the same time provides a none the less efficient machine available at relatively lower cost.

The invention consists of a moulding and trimming machine of the aforesaid kind wherein a single cam on the ram driving crank operates a single spring-loaded telescopic plunger which transmits depressive movement to the trimming tool through a block slidable on the ram and rigidly connected to the lower end of the plunger, said block being also connected to the ram by a spring which is rendered inoperative during the moulding stroke and which serves during the idle stroke of said ram to assist in raising the block and plunger into inoperative position.

The plunger consists of a telescopic unit with a spring interposed between the elements thereof and the block is rigidly connected to the lower element and to the ram by a pin and slot coupling in combination with a tension spring in the bore of the ram operating between the ram and the block.

The invention residing in a combination of parts will now be described in detail with reference to the annexed explanatory drawings wherein:

Fig. 1 is a vertical section of the improved moulding machine including moulding and trimming tools, and

Fig. 2 is a side elevation of the machine.

In the drawings, 1 indicates a pedestal, 2 a pillar offset from the axis of the pedestal and

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3 a hollow head aligned with said pedestal and formed integral with said pillar as a sand or die casting; 4 is a removable cap providing access to the interior of the head 3. Opposite sides of said head are provided with co-axial opening 5 in which removable journals 6 for a crankshaft 7 are fitted and are screwed flush at 8 by their flanges 9 to the adjacent sides of the head. Similarly, the open base 10 of the head 3 has a vertical sleeve 12 screwed flush thereto by screws, said sleeve forming a bearing for a ram 14 reciprocated vertically therein by a crank 15 and its connecting link 16. The sleeve 12 is also bored in parallelism at 17 to receive a spring-loaded plunger 18 actuated by a single cam 13 integral with the crank 15. It will be seen, therefore, that whether the head and pillar be a sand or die casting a minimum of machining is required in connection with the fitting of the journals 6 and the sleeve 12 for reception of the crankshaft, ram 14 and plunger 18 respectively.

The plunger 18 consists of a telescopic unit comprising a sleeve 19 having a roller 20 at its head to co-operate anti-frictionally with the cam 13, and a compression spring 21 interposed between the sleeve 19 and the head of the plunger 18.

The lower end of the plunger 18 rigidly carries a plunger block 23 which is slidable on the ram 14 and connected thereto by a pin and slot engagement 24, 25, the pin 25 being loaded by a tension spring 26 housed in the bore of the ram 14 and anchored at its upper end at 28 thereby normally to retain the block 23 in a raised position. Co-axial moulding and trimming tools 29, 30, are fitted to and carried by the ram 14, the moulding tool 29 being rigid with the ram whereas the trimming tool 30 is relatively slidable thereon and is urged upwardly away therefrom by compression springs 30a until it is depressed by the block 23 under control of said plunger 18. The moulding and trimming tools 29, 30 are known per se. These tools 29, 30, co-operate with a matrix 31, supported on the pedestal 1, adapted to receive dough or paste tins and the arrangement is such that descent of the ram depresses the moulding tool 29 and effects the moulding operation and the subsequent automatic descent of the trimming tool 30 under control of the cam 13, plunger 18 and block 23 causes the trimming tool 30 to slide relatively to the moulding tool 29 and trim the surplus or spew around the perimeter of the moulding whereby the mouth thereof is ensured of a neat appearance. The tension spring 25

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operates subsequently to the trimming operation and during the idle stroke of the ram to raise the block 23 and the plunger 18 against its compression spring 21 so that the trimming tool is brought into an inoperative position, the pin and slot engagement 24, 25, between the block and the ram rendering the tension spring 26 inoperative during the power stroke of the ram.

The crankshaft 7 is rotated by a hand wheel 32, or by a motor as desired, so that towards the end of the down stroke imparted to the ram 14 the moulding tool 29 co-operates with the mould 30. The contour of the cam 13 is so designed that it will depress the plunger 18 through contact with the anti-friction roller 20 at, or near, the end of the completion of the moulding process and cause the plunger block 23 to depress the trimming tool 30 and skim the perimeter of the moulding. When the plunger block 23 has been displaced to the limit governed by the guide slot 24 further depressive action of the cam 13 on the plunger 18 is absorbed by the spring 21.

What I claim is:

1. In a machine of the kind described for moulding and trimming pie bodies and the like, the combination of a ram having fixed to its lower end a moulding tool and driven at its upper end by a crank on a driving shaft, a trimming tool mounted slidably over the ram and the moulding tool and normally spring lifted to inoperative position a telescopic plunger containing a spring in compression connecting its telescoping parts and operated from a single cam on the crank and connected rigidly at its lower end to a block slidable on the ram so as to depress said block, and a spring operating in ten-

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sion between the block and the ram to lift said block independently of the trimming tool after the trimming operation.

2. In a machine of the kind described for moulding and trimming pie bodies and the like, the combination of a ram having fixed to its lower end a moulding tool and driven at its upper end by the crank on the driving shaft, a trimming tool mounted slidably over the moulding tool and normally lifted to inoperative position by compression springs disposed within the trimming tool between the moulding tool and the trimming tool, a telescopic plunger containing a spring in compression connecting its parts and operated from a single cam on the crank, said plunger being connected rigidly at its lower end with a block slidable on the ram, and a spring operating in tension within the ram to normally lift the block after the trimming operation independently of the lift of the trimming tool.

WILFRED HANSON ELVIS.

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