

S. McCONNELL & J. E. WILSON.
MACHINE FOR USE IN MANUFACTURE OF PLAIN BREAD, &c.
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2 SHEETS—SHEET 1.

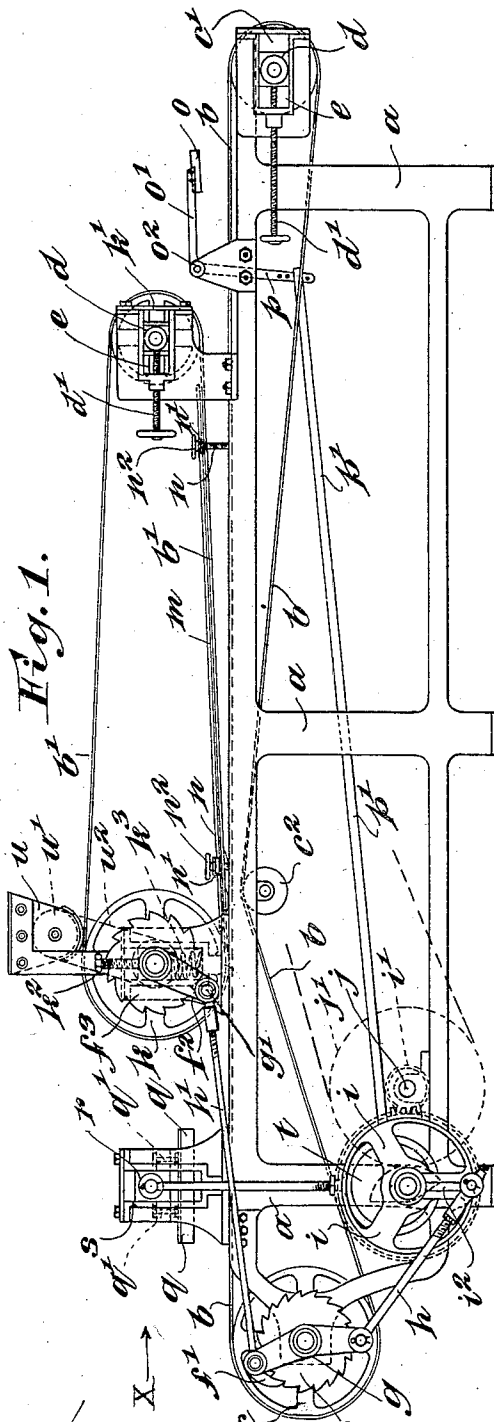


Fig. 1.

Witnesses:

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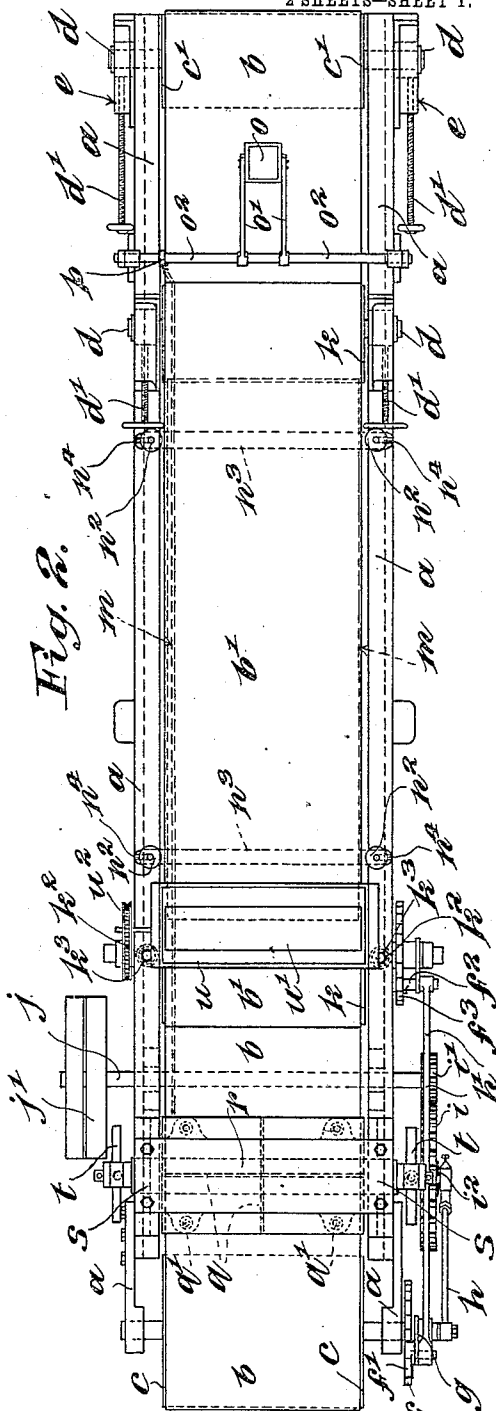


Fig. 2.

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UNITED STATES PATENT OFFICE.

SAMUEL MCCONNELL AND JAMES ELLIOTT WILSON, OF BELFAST, IRELAND.

MACHINE FOR USE IN MANUFACTURE OF PLAIN BREAD, &c.

943,364.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, SAMUEL MCCONNELL and JAMES ELLIOTT WILSON, both subjects of the King of Great Britain, both residing at Belfast, Ireland, have invented a certain new and useful Machine for Use in Connection with the Manufacture of Plain Bread, Fancy Bread, and Pastry, of which the following is a specification.

This invention relates to the manufacture of plain bread, fancy bread and pastry, and its object is to provide a machine for use in connection therewith which will perform more quickly and economically the operation known as rolling or pinning which has hitherto been usually performed by hand. The machine, which is capable of operating on plain bread, fancy bread, including oat cake, and any kind of short pastes or doughs tight or light is also capable of producing any desired thickness of paste which may be required, while suitable cutting mechanism is also provided whereby the paste after being rolled can be cut to any desired shape or size.

In order that our said invention may be properly understood we have hereunto appended two explanatory sheets of drawings, whereon:—

Figure 1 is a side view of a machine as constructed under our invention. Fig. 2 is a plan view of same. Fig. 3 is an end view looking in the direction of the arrow X Fig. 1. Figs. 4 and 5 are detail views to an enlarged scale of the adjustable board *m* and the mechanism for adjusting same. Fig. 6 is a detail view of the mechanism for operating the receptacle *o* used in connection with the placing of the dough on the traveling band *b*. Fig. 7 is a diagrammatic view of a slightly modified construction of machine.

In carrying out our invention the machine consists of a suitable framework *a* the upper part of which forms a table. An endless traveling band or web *b* arranged above and below the table is mounted on rollers *c*, *c*¹, fitted at each end of the machine the roller *c*¹ being preferably provided with suitable mechanism for adjusting or regulating the tension on the band or web *b*. As shown, this mechanism preferably consists of a sliding block *d* working in suitable bearings *e* at each side of the machine and in which the ends of the shaft of the roller *c*¹ are fitted.

By means of an adjusting screw or the like *d*¹ the block *d* can be actuated, in the desired direction and the necessary tension given to the band or web *b*. A supporting roller (or rollers) *c*² may be provided for supporting the lower portion of the endless band or web *b*.

The endless band or web *b* is caused to travel intermittently over the surface of the table by means of mechanism fitted at one end of the framework preferably consisting of a ratchet wheel *f* fitted on the shaft of the roller *c* and actuated by means of a pawl *f*¹ secured to one arm of a bell crank *g*, the other arm of said bell crank being connected by means of an adjustable connecting rod *h* with a driving wheel *i* which gears with a driving pinion *i*¹ fitted on a horizontal driving shaft *j* having at one side fast and loose pulleys *j*¹ or other suitable means of conveying motion to the cross shaft *j* from any suitable source of power.

The driving wheel *i* is provided with a slotted recess or the like *i*² into which is fitted the lower end of the adjustable connecting rod *h* thereby giving an oscillatory movement to same the extent of the movement being capable of variation in accordance with the amount of movement it is desired to give to the ratchet wheel *f* at each revolution of the wheel *i*. The movement given to the ratchet wheel *f* regulates the travel of the band or web *b*.

A second endless traveling band or web *b*¹ is fitted above the table and is mounted on rollers *k*, *k*¹, working in brackets or supports *l*, the roller *k*¹ being preferably provided with adjusting mechanism similar to the roller *c*¹ in order that the tension on the band or web *b*¹ can be regulated as desired. The roller *k* may also be made capable of adjustment vertically by means of the adjusting screws *k*² and springs *k*³ so that the one end of the band or web *b*¹ can be any desired distance from the surface of the web or band *b*.

The upper band or web *b*¹ is actuated synchronously with the lower band or web *b* through the medium of the bell crank *g* to the upper arm of which is connected one end of an adjustable connecting rod *h*¹ whose other end is secured to a crank *g*¹ provided with a pawl *f*² gearing with the ratchet wheel *f*³ fitted on the shaft of the roller *k* the arrangement being such that when the ratchet wheel *f* is actuated, as herein de-

scribed, the ratchet wheel f^2 is likewise actuated through the connecting rod h^1 , crank g^1 and pawl f^2 .

Fitted in connection with the band or web b^1 is a movable board or its equivalent m which is arranged at a suitable angle the lower part of said band or web being caused to pass under the board. The position of the board can be varied as desired by means of the adjusting screws n which are provided with screwed washers n^1 and nuts n^2 . Transverse straps or bands n^3 are fitted over the upper surface of the board m and extend from the back to front of the machine, being provided with slots or openings n^4 at each end through which the screws n pass. The arrangement is such that when the screwed washers and nuts n^1 , n^2 , are actuated the board m can be raised or lowered or the angle altered so that the lower portion of the band or web b^1 can be brought close to or away from the upper surface of the band or web b as may be required.

Situated on the table at one end of the machine immediately over the part of the lower band or web b for the time being traveling over the surface of the table is a hollow bottomless receptacle o of any suitable shape into which is placed each piece of dough or paste being operated on. The receptacle o is secured to arms o^1 fitted on a transverse shaft o^2 which can be rocked by crank lever mechanism consisting of a vertical lever p connected at its lower end to one end of an adjustable horizontal lever p^1 (see Fig. 6) the other end of which is supported by means of a swinging lever p^2 secured to the framework a and is provided with a roller or its equivalent p^3 which bears on a cam or its equivalent r fitted on the driving shaft of the machine, the arrangement being such that when the driving shaft rotates, the cam r through the lever p^2 and roller p^3 moves the lever p^1 horizontally thereby actuating the vertical lever p which causes the rocking shaft o^2 to be partially rotated so as to raise the receptacle o clear of the surface of the traveling band b as shown. As the driving shaft continues its rotary movement the cam r also rotates thereby allowing the lever p^1 to be moved horizontally in the opposite direction by the action of the spring p^4 and causing the vertical lever p to move also in the opposite direction and reversing the movement of the rocking shaft o^2 lowers the receptacle o once more until the lower end touches the surface of the traveling band or web b . When the machine is in operation the receptacle o rises up clear of the traveling band or web b and leaves a piece of dough or paste on the band, it is subsequently lowered again for the reception of the next piece of dough or paste, the band or web b being meantime moved along as already described the receptacle thereupon

rises once more and leaves the dough or paste in position on the band and so on as long as the machine is working.

As the machine is actuated intermittently at each movement thereof a fresh piece of dough or paste is placed in position on the band or web b , as described, which gradually moving along the surface of the table takes with it the pieces of dough or paste which are carried under one end of the movable board or its equivalent m thereby bringing them into contact with the lower surface of the band or web b^1 . As this band or web b^1 moves synchronously with the lower band or web b owing to the action of the bands or webs each piece of dough or paste is gradually pressed out or flattened, as in the operation of rolling and pinning, so that when the other end of the board is reached the pieces of dough or paste have been reduced to the desired thickness. By making the board m adjustable, as described, any desired degree of thickness can be obtained.

The lower traveling web or band b in its intermittent movement gradually carries the pieces of dough or paste which have been operated on, to the other end of the machine where they can be removed for subsequent treatment, or if desired, before being removed from the machine, they can be cut up into smaller pieces by means of suitable cutting mechanism consisting of a number of blades q suitably secured by means of screws or the like q^1 to a cutting block r which works in slotted uprights s secured to the framework a . The cutting block r is raised and lowered at the proper times by means of eccentrics or their equivalent t actuated from the shaft carrying the driving wheel i .

Suitable flour receptacles or dusters u of any well known construction may be secured to the machine for dusting the bands or webs with flour as required and these dusters may be so arranged that the dusting flour is only discharged therefrom at the proper times. As indicated at Figs. 1, 2, and 3, the duster therein shown is provided with an internal cylinder u^1 actuated by means of chain or like gearing u^2 , suitable openings being provided in the lower part of the casing for the admission of the flour.

The upper traveling band or web b^1 may, if desired, be provided with a box cover or top for excluding unnecessary dust or the like and such cover can be so arranged that when required it can be easily removed.

The machine may obviously be modified in its details to suit the class of goods for which it is intended to be used and if desired a slow continuous movement may be given to the bands or webs in place of the intermittent movement herein described. In Fig. 7 a diagrammatic view of a slightly modified construction of machine is indicated in which a slow continuous movement is given to both

the bands or webs b , b^1 , from the driving pulley j^1 the band or web b^1 being actuated through the belt or other suitable drive v as shown. With this construction the mechanism for placing the dough or paste on the band b may be dispensed with while the cutting mechanism, likewise, need not form a part of the machine, the dough or paste being simply placed on one end of the band b and, after passing between the bands, thereafter removed and cut in any desired manner.

Having now fully described our invention what we claim and desire to secure by Letters Patent is:—

1. A machine for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having in combination, a framework, upper and lower endless traveling bands fitted in connection with the framework, means for intermittently actuating the traveling bands, adjustable means acting on the upper band, means for feeding the dough or paste to the bands, and means for cutting or dividing the dough or paste after it has been operated on.

2. A machine for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having in combination, a frame work, upper and lower endless traveling bands fitted in connection with the framework, means for actuating the traveling bands, a movable board for adjusting the upper traveling band to different angles relatively with the lower band, and a bottomless receptacle actuated from the driving mechanism of the machine for feeding the dough or paste to the bands.

3. A machine such as described for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having in combination, a framework, upper and lower endless traveling bands fitted in connection with the framework, means for actuating the traveling bands, adjustable means acting on the upper band, and a bottomless receptacle for feeding the dough or paste to the bands actuated by means of a cam on the machine driving shaft through the medium of an adjustable horizontal lever supported at one end by a vertical swinging lever and connected at the other end with a bell crank lever fitted on a transverse horizontal shaft carrying the bottomless receptacle.

4. A machine such as described for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having in combination, a framework, upper and lower endless traveling bands fitted in connection with the framework, means for actuating the traveling bands, a movable board for adjusting the upper traveling band to different angles relatively with the lower band, a bottomless receptacle actuated from the driving mechanism of the machine for feeding the dough or paste to the bands, and cutting mechanism actuated from the driving mechanism of the machine for cutting up or dividing the pieces of dough or paste after being operated on.

5. In a machine for performing the operation of rolling and pinning in the manufacture of plain bread, fancy bread and pastry, having upper and lower endless traveling bands fitted in connection with a framework such as described, means for vertically adjusting one end of the upper band comprising a roller, vertically moving sliding blocks, adjusting screws and springs and means for adjusting the angle of the upper band relatively with the lower band comprising a movable board having transverse straps, adjusting screws, washers and nuts.

6. In a machine for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having upper and lower endless traveling bands fitted in connection with a framework such as described, means for intermittently actuating the lower traveling band comprising pawl and ratchet mechanism, a bell crank, adjustable connecting rod mechanism and a driving wheel gearing therewith, a pinion on the driving shaft of the machine.

7. In a machine for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having upper and lower endless traveling bands fitted in connection with a framework such as described, means for intermittently actuating the lower traveling band and means for varying the amount of intermittent movement thereof comprising pawl and ratchet mechanism connected by bell crank and connecting rod mechanism adjustably secured to a driving wheel which gears with a pinion on driving shaft of the machine.

8. A machine for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having in combination, a framework, upper and lower endless traveling bands fitted in connection with the framework, means for actuating the traveling bands, a movable board for adjusting the upper traveling band to different angles relatively with the lower band, a bottomless receptacle actuated from the driving mechanism of the machine for feeding the dough or paste to the bands and mechanism for cutting up or dividing the pieces of dough or paste after being operated on comprising a cutting block, cutting blades secured to the block, and eccentrics and eccentric rods actuated from the driving shaft of the machine.

9. A machine for performing the operation of rolling and pinning, in the manufacture of plain bread, fancy bread and pastry, having in combination, a framework, upper and lower endless traveling bands fitted in

connection with the framework, means for
intermittently actuating the traveling bands,
adjustable means acting on the upper band,
means for dusting the bands with flour, and
5 means for feeding the dough or paste to the
bands in order to produce dough or paste of
various thicknesses.

10 10. A machine for performing the opera-
tion of rolling and pinning, in the manufac-
ture of plain bread, fancy bread and pastry,
having in combination, a framework, upper
and lower endless traveling bands fitted in
connection with the framework, means for
intermittently actuating the traveling bands,
15 adjustable means acting on the upper band,

and means for dusting the bands with flour
comprising a receptacle, openings in the re-
ceptacle, a cylinder in the receptacle, means
for rotating the cylinder and means for feed-
ing the dough or paste to the bands in order 20
to produce dough or paste of various thick-
nesses.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

SAMUEL McCONNELL.
JAMES ELLIOTT WILSON.

Witnesses:

WILLIAM FLEMING,
THOMAS FREEBAIRN.