Sept. 9, 1941. A. D. MacDONELL 2,255,709

ELECTRIC BUTTER SLICER

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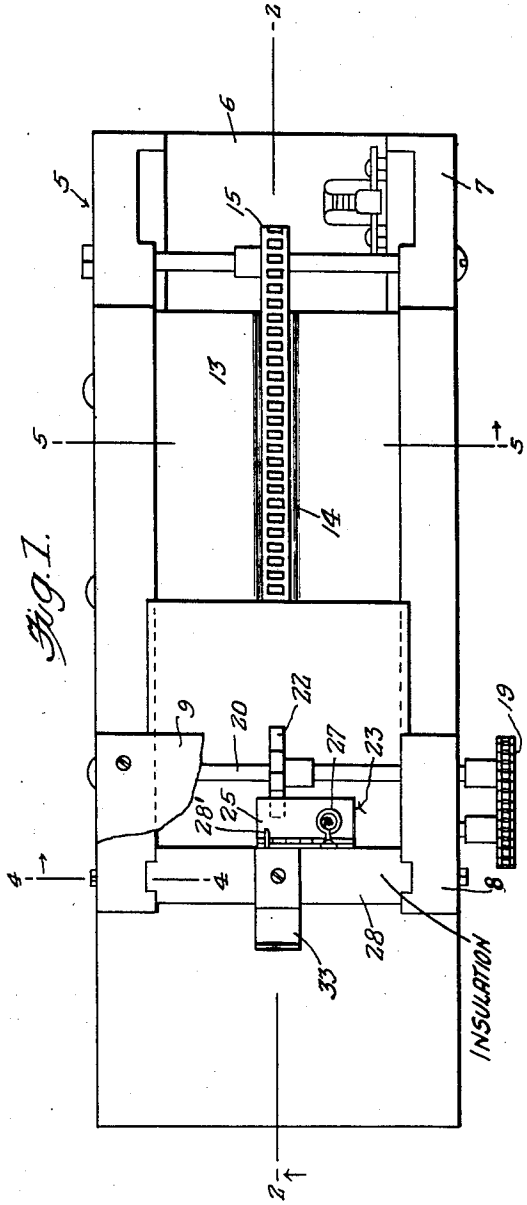


Fig. 1.

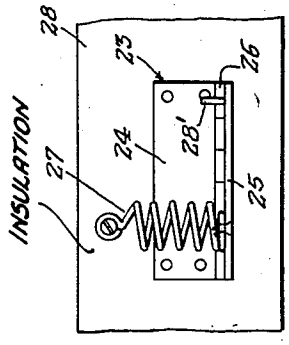


Fig. 7.

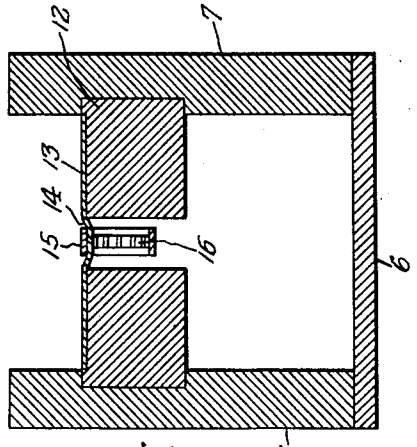


Fig. 5.

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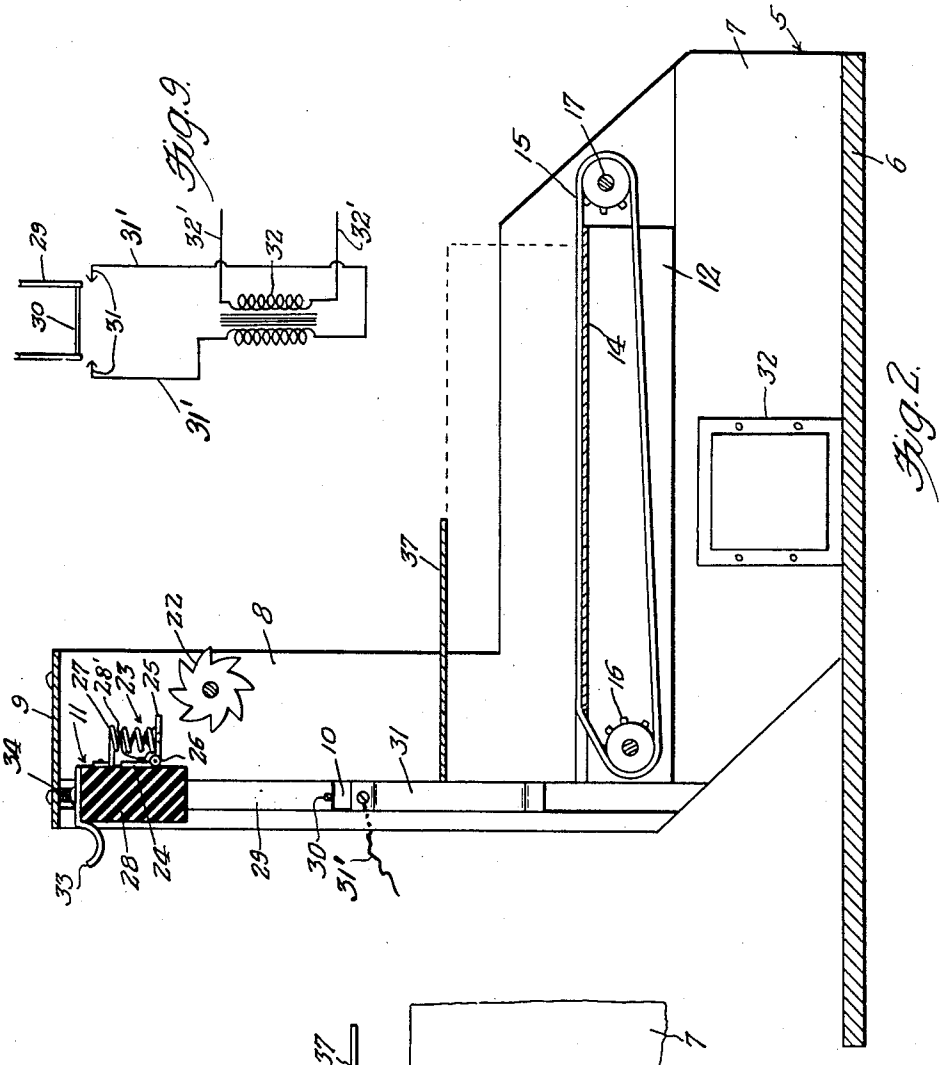
By Clarence A. O'Brien and Hyman Berman

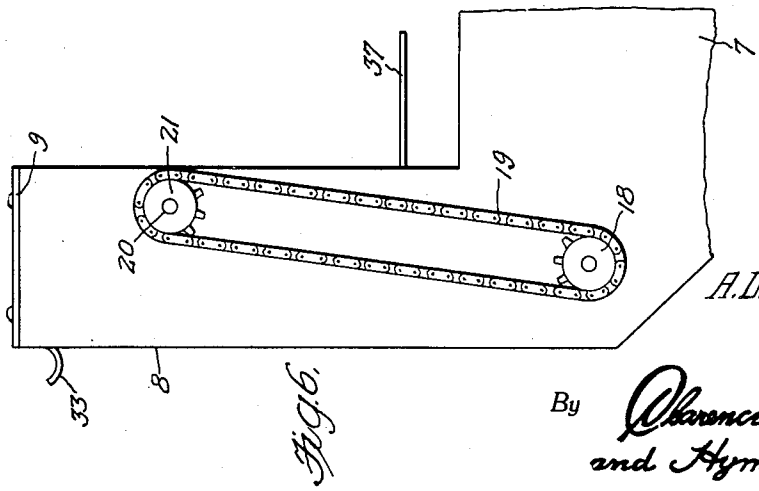
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ELECTRIC BUTTER SLICER

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ELECTRIC BUTTER SLICER

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Fig. 3.

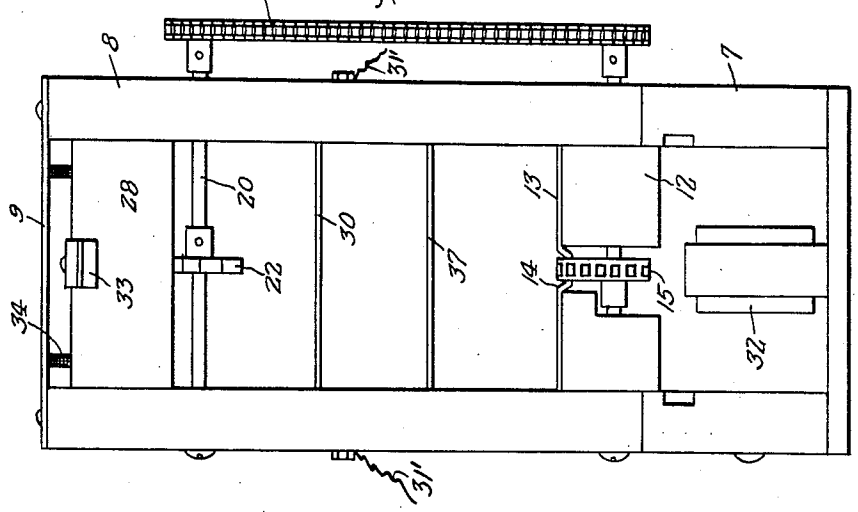


Fig. 4.

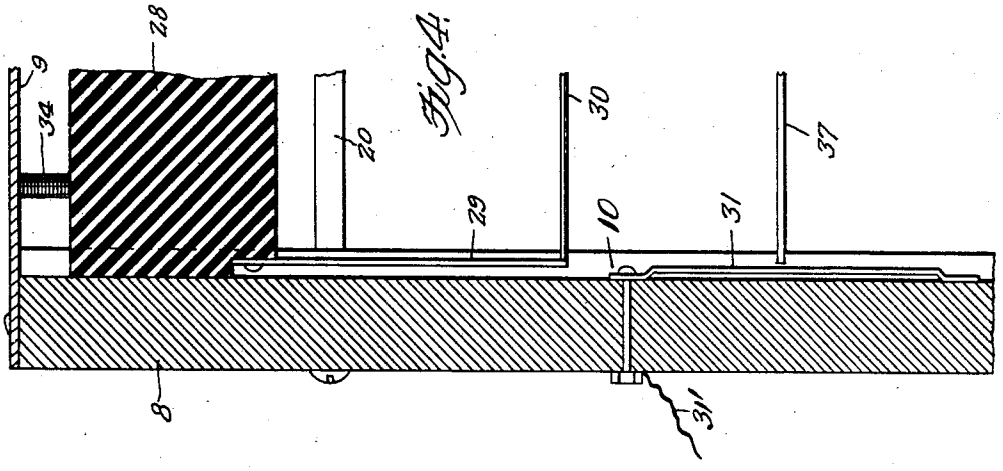
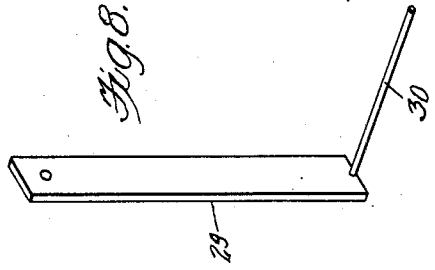


Fig. 8.



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Patented Sept. 9, 1941

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UNITED STATES PATENT OFFICE

2,255,709

ELECTRIC BUTTER SLICER

Alonzo D. MacDonell, Tulsa, Okla.

Application September 8, 1939, Serial No. 294,012

3 Claims. (Cl. 31—20)

This invention relates to an electric butter slicer, and has for the primary object the provision of a device of this character which will rapidly and neatly slice butter, which is prepared and sold in stick form of a quarter pound weight, into slices or butter patties for table use and which is extremely simple in construction and to operate and which may be manufactured and sold at a low cost.

With these and other objects in view, the invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a top plan view partly broken away illustrating a butter slicing device constructed in accordance with my invention.

Figure 2 is a vertical sectional view taken on the line 2—2 of Figure 1.

Figure 3 is an end elevation illustrating the device.

Figure 4 is an enlarged detail sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a transverse sectional view taken on the line 5—5 of Figure 1.

Figure 6 is an enlarged fragmentary side elevation illustrating a drive connection between a ratchet shaft and a conveyor shaft.

Figure 7 is an enlarged fragmentary elevational view illustrating a part of a ratchet mechanism.

Figure 8 is a fragmentary perspective view illustrating an electric contact.

Figure 9 is a diagrammatical view of the electric circuit for the cutting mechanism.

Referring in detail to the drawings, the numeral 5 indicates a supporting construction which includes a base plate 6 having secured thereto relatively spaced side walls 7, portions of which are extended to provide vertically arranged guide members 8 arranged adjacent one end of the base plate 6 and are connected at their upper ends by a tie plate 9 and provided in their opposed faces with vertically arranged guide grooves 10 to slidably receive a cutting mechanism 11 which will be hereinafter more fully described in detail.

Set in grooves formed in opposing faces of the side walls 7 are longitudinally arranged spaced members 12 connected by a bed plate 13 offset downwardly between said members 12 to form a channel 14 to receive an upper run of a slotted conveyor belt 15 supported by sprocket gears 16 secured on shafts 17 journaled in the side members 7. The members 12 and bed plate 13 form a rest to support a strip of butter for sliding movement by the conveyor belt toward one end of the base plate 6 or toward the cutting mechanism 11.

One of the shafts 17 has secured thereto a sprocket gear 18 over which an endless sprocket chain 19 is trained. A shaft 20 is journaled in the spaced guide members 8 and has secured thereto a sprocket gear 21 which has the sprocket chain 19 trained thereover. The shaft 20 carries a ratchet gear 22 operated by a ratchet element 23 carried by the cutting mechanism 11. The ratchet element is in the form of a pair of plates 24 and 25 hinged together, as at 26. The plate 24 is secured on the cutting mechanism 11 while the plate 25 normally extends at right angles to the plate 24 by a coil spring 27 connected thereto. A stop 28' is carried by the plate 25 for limiting the movement of the plate 25 under the influence of the spring 27 by abutting the plate 24. During the movement of the cutting mechanism 11 in one direction the ratchet element 23 engages a tooth of the ratchet gear 22 for the purpose of imparting movement of the conveyor belt to advance a strip of butter into position to be acted on by the cutting mechanism. On reverse movement of the cutting mechanism, the ratchet element 23 ratchets relative to the ratchet gear 22, permitting the conveyor belt to remain idle. Thus it will be seen that through the operation of the cutting mechanism the conveyor belt is caused to travel in a step by step movement for the purpose of advancing the strip of butter into position to be cut each time the cutting mechanism acts to slice the strip of butter into a butter patty for table use.

The cutting mechanism 11 consists of a cross member 28 constructed of insulating material and has its ends shaped to fit into the guide grooves 10 and has secured thereto and depending therefrom metallic members 29 operating in the guide grooves and connected together by a cutting element 30 in the form of a wire.

Mounted in the lower portion of the guide grooves and secured on the vertical guide members are elongated electric contacts 31 which are electrically connected in an electric circuit including an electric transformer 32 mounted on the supporting structure, as clearly shown in Figure 2. It is to be understood that the electric circuit referred to may be connected into an ordinary electric output. For instance, the pri-

mary coil of the transformer 32 is connected by the conductors 32' to a source of electrical supply. The secondary coil of the transformer is connected with the strips 31 by the conductors 31'.

The insulated member 28 has secured thereto a finger piece 33 whereby the operator may readily slide the cross member downwardly and as the ratchet element 23 carried thereby engages a tooth of the ratchet gear 22 the strip of butter is advanced into position to be cut and on further downward movement of the member 28 the metallic members 29 engage the contacts 31, closing the electric circuit to bring about heating of the cutting element 30 so that the latter will be hot as it engages the strip of butter to readily sever the butter neatly and rapidly. On the completion of the movement of the cutting element through the strip of butter the finger piece 33 is released and a suitable spring arrangement returns the member 28 to its uppermost position.

The spring means for returning the member 28 to its uppermost position is indicated generally by the character 34, and while the electric circuit and transformer 32 heretofore has been described as being connectible into an ordinary electrical output, it is to be understood any other conventional electric circuit source may be employed.

A guard plate 37 partly overlies the endless conveyor to prevent the stick of butter from rising off the conveyor as the butter is cut by the cutting mechanism.

While I have shown and described my invention as being hand operated, it is to be understood that through minor changes the device may be motor driven.

It is believed that the foregoing description, when taken in connection with the drawings, will fully set forth the construction and advantages of this invention to those skilled in the art to which this device relates, so that further detailed description will not be required.

Having thus described the invention, what I claim is:

1. An electric butter slicer comprising a horizontally arranged frame, vertically arranged uprights connected with the sides of the frame adjacent one end thereof and having vertical grooves in their inner faces, a member of insulating material having its ends slidably arranged in the grooves, spring means for normally holding the member in raised position, metal bars depending from the member and located in the grooves and spaced from the bottoms of the grooves, a wire extending between the bars and having its ends connected with the lower ends of said bars, spring contact strips in the lower portions of the grooves and engaged by the bars when the member is moved downwardly, means for connecting said contact strips to a source of supply to furnish current to the wire to heat the same when the bars engage the contact members, horizontally arranged conveying means in the frame for moving a piece of butter to place the end thereof between the uprights, and means for actuating the conveying means.

2. An electric butter slicer comprising a horizontally arranged frame, vertically arranged uprights connected with the sides of the frame adjacent one end thereof and having vertical grooves in their inner faces, a member of insulating material having its ends slidably arranged in the grooves, spring means for normally holding the member in raised position, metal bars depending from the member and located in the grooves and spaced from the bottoms of the grooves, a wire extending between the bars and having its ends connected with the lower ends of said bars, spring contact strips in the lower portions of the grooves and engaged by the bars when the member is moved downwardly, means for connecting said contact strips to a source of supply to furnish current to the wire to heat the same when the bars engage the contact members, horizontally arranged conveying means in the frame for moving a piece of butter to place the end thereof between the uprights, and means for actuating the conveying means, such conveying means including a horizontally extending plate in the frame and having a depression in its center, a belt having transverse slots therein, said belt being of endless form and having its upper reach passing through the depression, sprockets supported in the frame and over which the belt passes.

3. An electric butter slicer comprising a horizontally arranged frame, vertically arranged uprights connected with the sides of the frame adjacent one end thereof and having vertical grooves in their inner faces, a member of insulating material having its ends slidably arranged in the grooves, spring means for normally holding the member in raised position, metal bars depending from the member and located in the grooves and spaced from the bottoms of the grooves, a wire extending between the bars and having its ends connected with the lower ends of said bars, spring contact strips in the lower portions of the grooves and engaged by the bars when the member is moved downwardly, means for connecting said contact strips to a source of supply to furnish current to the wire to heat the same when the bars engage the contact members, horizontally arranged conveying means in the frame for moving a piece of butter to place the end thereof between the uprights, and means for actuating the conveying means, such conveying means including a horizontally extending plate in the frame and having a depression in its center, a belt having transverse slots therein, said belt being of endless form and having its upper reach passing through the depression, sprockets supported in the frame and over which the belt passes, said means for actuating the conveying means including a plate hinged to the insulating member, spring means for normally holding the plate in a substantially horizontal position, stop means for preventing upward movement of the plate, a ratchet engaged by the plate on downward movement of the insulating member for rotating the ratchet and means for imparting movement of the ratchet to one of the sprockets of the belt.

ALONZO D. MACDONELL.