Oct. 16, 1951 M. O. SIMPSON 2,571,300

MIXING AND CUTTING MACHINE

Filed March 7, 1949

Fig. 1.

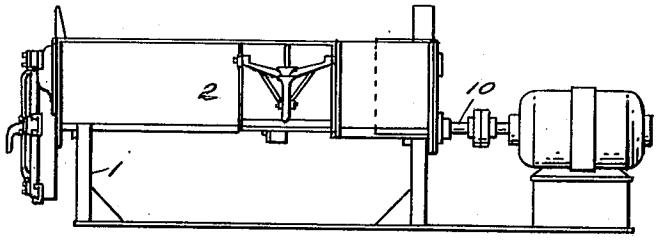


Fig. 2.

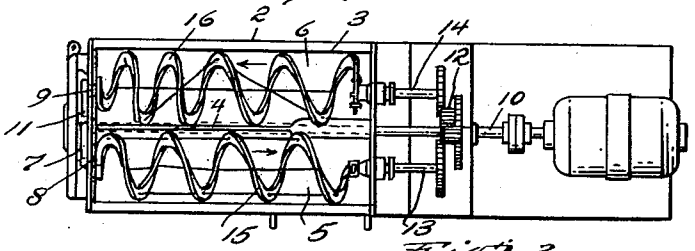
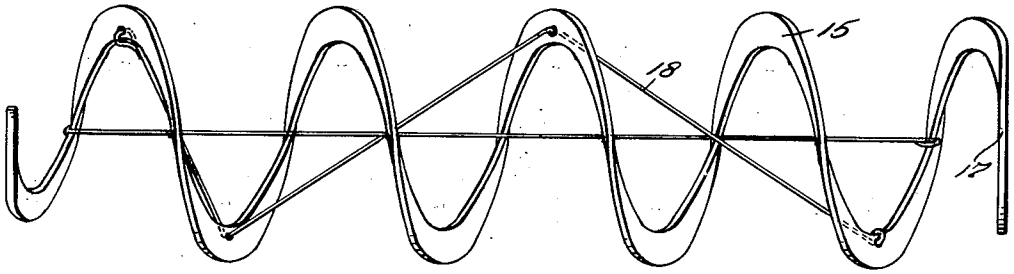


Fig. 3.



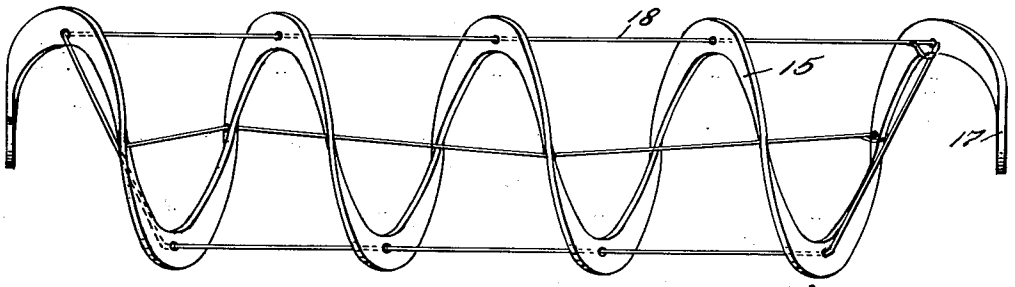
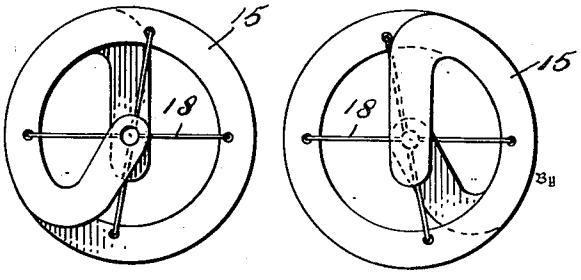


Fig. 5. Fig. 6. Fig. 4.



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MIXING AND CUTTING MACHINE

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Application March 7, 1949, Serial No. 79,991

3 Claims. (Cl. 259—136)

1

The object of this invention is to devise a novel method of and apparatus for mixing and cutting material, wherein the material to be treated is fed to and from a cutting mechanism in a continuous path. The broad cycle of such operation is disclosed in the Hottmann Patent No. 1,237,907 and the Offenhauser Patent No. 1,750,645.

Where a machine of this type is used for the mixing of dry ingredients such as are employed for bakery products, and especially where shortening is employed, it has been found that the material balls up within the tubular feed members, and the proper mixing is not attained within the required time. I have found as the result of numerous experiments that this problem is solved if the tubular, helical feed members are provided with a wire arranged so that as the feed members revolve it will cut through the material contained within the feed members.

With the foregoing and other objects in view as will hereinafter clearly appear, my invention comprehends a novel method of and apparatus for cutting and mixing.

It further comprehends a novel construction and arrangement of a mixing and cutting feed member.

For the purpose of illustrating the invention, I have shown, in the accompanying drawings, a preferred embodiment of it which I have found to give satisfactory and reliable results in practice. It is, however, to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and the invention is not limited to the exact arrangement and organization of these instrumentalities as herein set forth.

Figure 1 is a side elevation of a cutting and mixing machine, embodying my invention.

Figure 2 is a top plan view of the machine.

Figure 3 is a top plan view of a feed member.

Figure 4 is a top plan view of a feed member in a different position from that seen in Figure 3.

Figure 5 is an end elevation viewed from the front end of the feed member.

Figure 6 is an end elevation viewed from the rear end of the feed member.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:

Since the general construction of the mechanism to effect the feed of the material being treated to and from a cutting chamber is similar to that of the Hottmann Patent No. 1,237,907 which has been on the market for a number of

2

years and is well known in this art, it is believed to be unnecessary to describe and illustrate the machine in complete detail.

The machine has a frame 1 which carries a casing 2 having a mixing chamber 3. This chamber 3 has a partition 4 in the form of an upstanding rib which defines feed channels 5 and 6 which are in communication with each other at their rear ends. A cutting chamber 7 at the front end of the machine communicates with the feed channel 5 by a controllable opening 8 and by an opening 9 with the feed channel 6.

A motor driven shaft 10 extends into the cutting chamber and is provided with blades 11 of any desired character. The shaft 10 is intergeared at 12 with shafts 13 and 14 to which the feed members 15 and 16 are respectively connected. Each feed member is of the same construction but is revolved in opposite directions, and is in the form of a hollow helix having at its rear end a tang 17 secured in a slot in its shaft 13 or 14.

Each feed member has a cutter 18 in the form of a wire which extends longitudinally at opposite sides of the member in a novel arrangement so that it will cut through any core which may form within the helix. This wire has straight stretches at two of the opposite sides of the loops of the helix and at the other two opposite sides the wire has two stretches which extend diagonally across the loops. At the ends of the feed member, the wire has substantially a rectangular arrangement. The wire is secured to the feed member by passing it through holes in the helix and the free ends of the wire are connected together in any desired manner such as twisting the free ends together or welding them.

It has been found in practice that by the use of the wire cutter a better mix of the ingredients has been obtained in two to three minutes which heretofore has taken thirty minutes.

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

1. A feed member comprising a hollow, helical strip, and a member having longitudinally extending stretches at two opposite sides connected with said strip at peripheral portions of its convolutions and having at the other two opposite sides diagonal portions extending across the median line of the strip and through the peripheral portions of convolutions of the strip, to thereby prevent the accumulating of a core with-

in the strip when the latter is revolved in a mixing chamber containing materials to be mixed.

2. A feed member in the form of a helical strip, and a wire extending longitudinally of the strip through the outer portion of its convolutions at one side and then through the outer portion of the convolutions at the opposite side, and diagonally across the median line of the strip and through alternate convolutions at the two other opposite sides.

3. The combination with a hollow, helical feed member, of a wire cutter having straight stretches at opposite sides of the feed member extending through loops of the helix near the outer periphery of the feed member and having at the other two opposite sides the wire cutter extending diagonally across the median line of the strip and through the peripheral portions of the loops of the helix, with the free ends of the wire cutter being connected at one end of the feed member.

MARTHA OFFENHAUSER SIMPSON.

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