Sept. 15, 1931. F. PENZA 1,822,904

MANUFACTURE OF MACARONI

Filed Oct. 22, 1930

Fig. 1

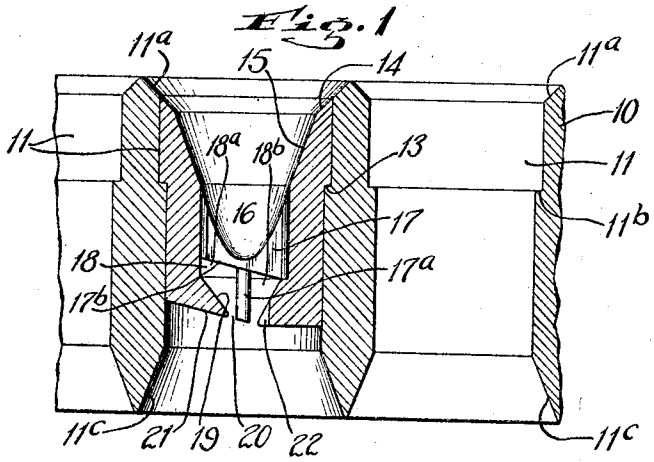


Fig. 2

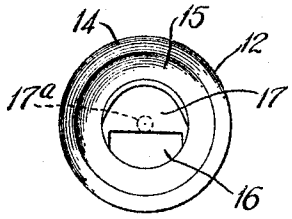


Fig. 3

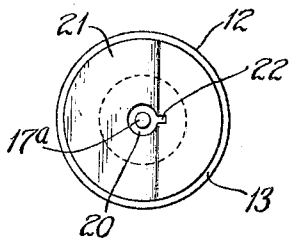


Fig. 4

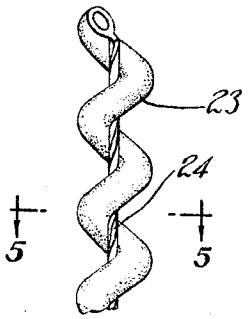
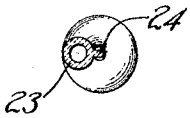


Fig. 5



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UNITED STATES PATENT OFFICE

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MANUFACTURE OF MACARONI

Application filed October 22, 1930. Serial No. 490,381.

This invention relates to a macaroni product; and the object of the invention is to provide a product of this class in the form of a coiled or spiralled body, the coils of which are preferably tubular in form and held in their coiled or spiralled relation by a central, relatively straight supporting fin or web which will maintain the product in proper shape in the process of cooking the same; a further object of the invention being to provide an improved die construction by means of which my improved macaroni product may be produced; a further object being to provide a die structure having means for guiding the macaroni in its discharge from the die, and other means facilitating the spiral or coil formation of the product; and with these and other objects in view, the invention consists in a product of manufacture of the class and for the purpose specified, which is simple in construction, efficient in use, and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a transverse, sectional view through a die plate showing one of my improved dies arranged therein.

Fig. 2 is a top plan view of the die shown in Fig. 1, detached.

Fig. 3 is a bottom plan view of said die.

Fig. 4 is a side view of a small section of macaroni made according to my invention; and,

Fig. 5 is a section on the line 5—5 of Fig. 4.

For the purpose of illustrating one method of forming my improved macaroni product, I have shown at 10 in Fig. 1 of the drawings, a die plate or block commonly employed in macaroni machines of the class under consideration, said plate having a series of vertically arranged passages 11 spaced about the entire area thereof. Said passages have beveled upper walls 11*a*, an intermediate shoulder 11*b* and a flared discharge 11*c* at their lower ends.

I also employ suitable dies, one of which is shown mounted in one of the passages 11 of the plate 10 in Fig. 1 of the drawings, and detached in Figs. 2 and 3 of the drawings. Said dies consist of a tubular body 12 having a shoulder portion 13 adapted to rest upon the shoulder 11*b* in supporting the die in the respective passages 11, the bore of the body 12 being tapered as seen at 14 to register with the taper 11*a*, and having another tapered wall 15 for directing the dough downwardly through the body and through a passage 16 formed at one side of a die pin 17.

The passage 16 is semi-conical at its upper end as clearly seen in Figs. 1 and 2 of the drawings and opens into a chamber 18 below the top portion of the pin 17 which chamber terminates in a contracted, conical discharge 19, centrally of which is disposed the reduced core forming pin 17*a*. The latter produces a tubular discharge of the macaroni from the chamber 18 through the discharge 20 at the lower end of the body 12. The discharge 20 opens outwardly through an inclined wall 21, which inclines in the direction of the enlarged side 18*a* of the chamber 18 as compared with the smaller side 18*b*. This structure causes a freer flow of the macaroni from the side 18*a* as compared with the side 18*b*, causing the macaroni to be discharged in a spiral fashion. Opening into the discharge 20, is a relatively thin passage 22 which also communicates with the side 18*b* of the chamber 18, thus discharging a straight fin or web of macaroni around which a tubular body is spiralled.

In Figs. 4 and 5 of the drawings, I have shown the product produced by my improved die. In said figures, 23 represents the tubular coil or spiral which is coiled or spiralled around the fin or web 24, the latter being straight and disposed intermediate the separate coils 23 forming a binding fin or web which maintains the separate coils against separation, especially in the process of cooking. Thus, the shape of the product when cooked, will be substantially similar to the shape of the product in its raw or manufactured state, except as to the

change in dimensions brought about through the expansion of the dough in cooking.

It will be noted that the lower surface 17*b* of the head of the pin 17 is beveled to correspond to the beveling of the surface 21, thus forming the enlarged side 18*a* of the chamber 18. The flared and projecting walls 11*c* of the die plate 10 serve to guide the first end of the macaroni in its production in a downward path and to prevent the discharge of one coil or spiral of macaroni from interfering with the discharge of an adjacent coil discharged from the die, it being understood that any desired number of the die units may be arranged in the plate 10 in relatively close proximity. For the sake of clearness, only one of the die units is shown in the plate, but three of the passages 11 are indicated.

It will be understood that my invention is not limited to any specific, cross sectional form of the tubular coil or spiral body of the macaroni product, nor to the specific form of the fin or web shown, and various other changes in and modifications of the construction herein shown and described, may be made within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

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

1. An article of manufacture comprising a macaroni product consisting of a tubular, coiled macaroni body and a relatively straight fin extending from one side of said coiled body and disposed between the respective coils thereof to maintain said coils against separation.

2. An article of manufacture comprising a macaroni product consisting of a spiral body of macaroni including a relatively straight supporting web disposed intermediate the coils of said spiral body.

3. An article of manufacture comprising a macaroni product consisting of a spiral body of macaroni including a relatively straight supporting web disposed intermediate the coils of said spiral body, and said body being tubular in form.

4. In the manufacture of a macaroni product, a die plate having a plurality of passages through which the dough used in producing macaroni is passed, a die in each of said passages, said die consisting of a tubular body having a relatively small discharge port at the lower end thereof, a die element arranged in the bore of said body and having a pin arranged centrally of said discharge port and in spaced relation to the walls thereof to provide a tubular discharge of the dough in forming a tubular strand of macaroni, a relatively narrow passage in said body and opening into said discharge port at one side thereof to provide a discharge of a fin-like strand of macaroni integrally joined with the tubular strand, and means providing a freer discharge of the macaroni at one side of said tubular strand to effect a coiling of the tubular strand around said fin-like strand.

5. In the manufacture of a macaroni product, a die plate having a plurality of passages through which the dough used in producing macaroni is passed, a die in each of said passages, said die consisting of a tubular body having a relatively small discharge port at the lower end thereof, a die element arranged in the bore of said body and having a pin arranged centrally of said discharge port and in spaced relation to the walls thereof to provide a tubular discharge of the dough in forming a tubular strand of macaroni, a relatively narrow passage in said body and opening into said discharge port at one side thereof to provide a discharge of a fin-like strand of macaroni integrally joined with the tubular strand, means providing a freer discharge of the macaroni at one side of said tubular strand to effect a coiling of the tubular strand around said fin-like strand, and said last named means involving a relatively large chamber at the side of the pin opposite said narrow passage.

6. In the manufacture of a macaroni product, a die plate having a plurality of passages through which the dough used in producing macaroni is passed, a die in each of said passages, said die consisting of a tubular body having a relatively small discharge port at the lower end thereof, a die element arranged in the bore of said body and having a pin arranged centrally of said discharge port and in spaced relation to the walls thereof to provide a tubular discharge of the dough in forming a tubular strand of macaroni, a relatively narrow passage in said body and opening into said discharge port at one side thereof to provide a discharge of a fin-like strand of macaroni integrally joined with the tubular strand, means providing a freer discharge of the macaroni at one side of said tubular strand to effect a coiling of the tubular strand around said fin-like strand, said last named means involving a relatively large chamber at the side of the pin opposite said narrow passage, and the lower surface of the tubular body through which the discharge port opens being inclined.

7. In the manufacture of a macaroni product, a die plate having a plurality of passages through which the dough used in producing macaroni is passed, a die in each of said passages, said die consisting of a tubular body having a relatively small discharge port at the lower end thereof, a die element arranged in the bore of said body and having a pin arranged centrally of said discharge port and

in spaced relation to the walls thereof to provide a tubular discharge of the dough in forming a tubular strand of macaroni, a relatively narrow passage in said body and opening into said discharge port at one side thereof to provide a discharge of a fin-like strand of macaroni integrally joined with the tubular strand, means providing a freer discharge of the macaroni at one side of said tubular strand to effect a coiling of the tubular strand around said fin-like strand, said last named means involving a relatively large chamber at the side of the pin opposite said narrow passage, the lower surface of the tubular body through which the discharge port opens being inclined, and the walls of the die plate around said tubular body projecting below the lower surface of said body and being flared outwardly.

8. A die for machines of the class described comprising a tubular body having a discharge port at the lower end thereof and a narrow discharge passage arranged radially with respect to said port, a die pin disposed in the bore of said body and comprising a substantially semi-circular head, and a small depending pin, the lower end of which terminates centrally of said discharge port, the lower surface of the head of said die pin being beveled to form therebelow and around the extending pin a chamber having greater area at one side of the pin than at the other to cause a spiral discharge of a tubular strand of macaroni from said die.

9. A die for machines of the class described comprising a tubular body having a discharge port at the lower end thereof and a narrow discharge passage arranged radially with respect to said port, a die pin disposed in the bore of said body and comprising a substantially semi-circular head and a small depending pin, the lower end of which terminates centrally of said discharge port, the lower surface of the head of said die pin being beveled to form therebelow and around the extending pin a chamber having greater area at one side of the pin than at the other to cause a spiral discharge of a tubular strand of macaroni from said die, said radial passage discharging a relatively straight web of macaroni around which the tubular strand is spiralled, and the lower surface of said tubular body through which the port opens being beveled.

10. The herein described method of producing a spiral body of macaroni having a fin interposed between the coils of the spiral to maintain said coils in predetermined spaced relation, which consists in feeding macaroni dough through a suitable die to discharge a relatively straight fin of macaroni therefrom, and a tubular body integral with said fin and increasing the feed of the macaroni at one side of the tube to cause the same to be spiralled around said fin.

11. The herein described method of producing a spiral body of a plastic product having a web interposed between the coils of the spiral body to maintain said coils in fixed relation, which consists in feeding the plastic product through a suitable die to discharge therefrom a relatively straight thin web of said product, and a tubular strand integral with said web and increasing the feed of the product at one side of said tubular strand to cause the same to be discharged in spiral fashion from said die and around said web.

In testimony that I claim the foregoing as my invention I have signed my name this 20th day of October, 1930.

FREDERICK PENZA.