F. I. RUTLEDGE.

MACARONI TRIMMING MACHINE.

APPLICATION FILED JULY 12, 1920.

1,406,497.

Patented Feb. 14, 1922.

4 SHEETS—SHEET 1.

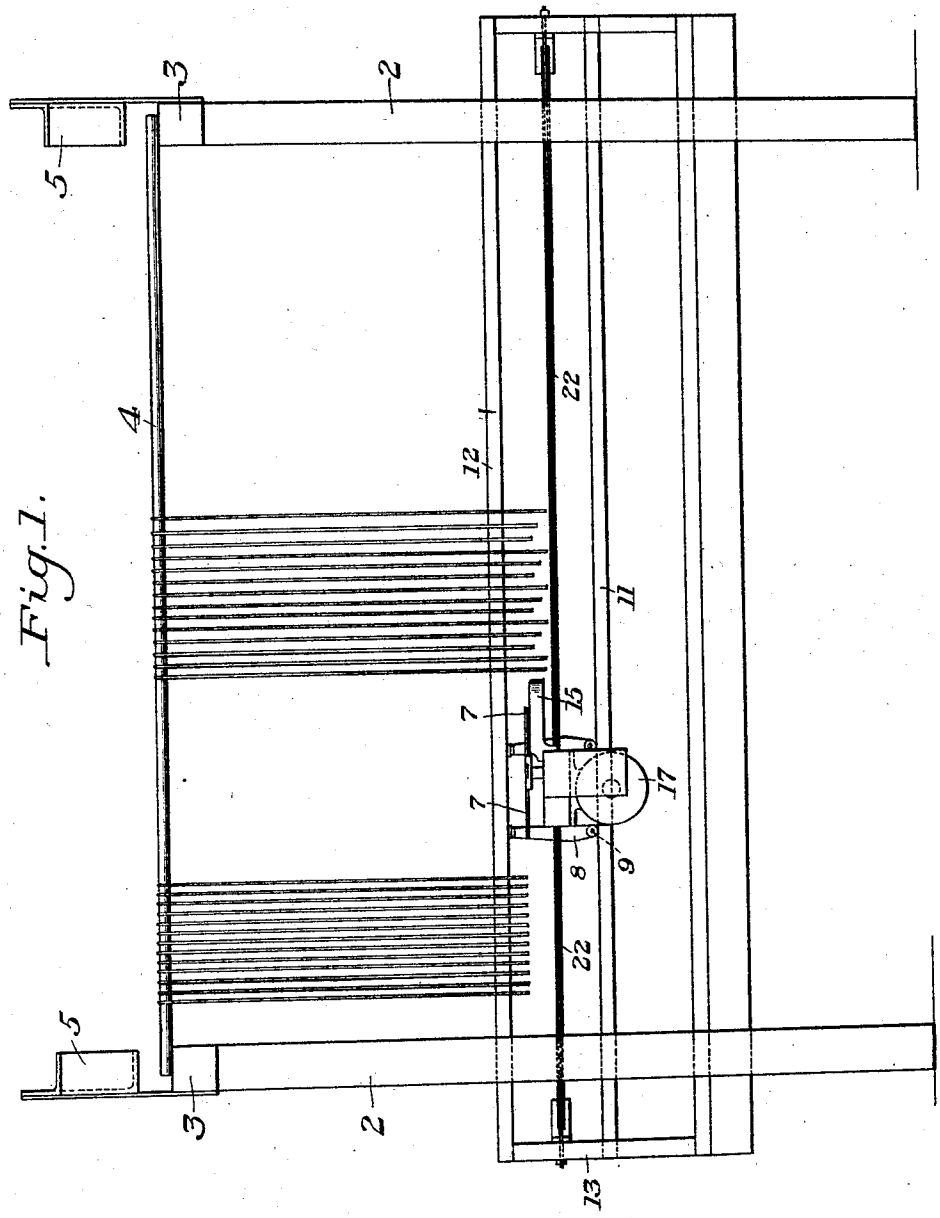


Fig. 1.

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4 SHEETS—SHEET 2.

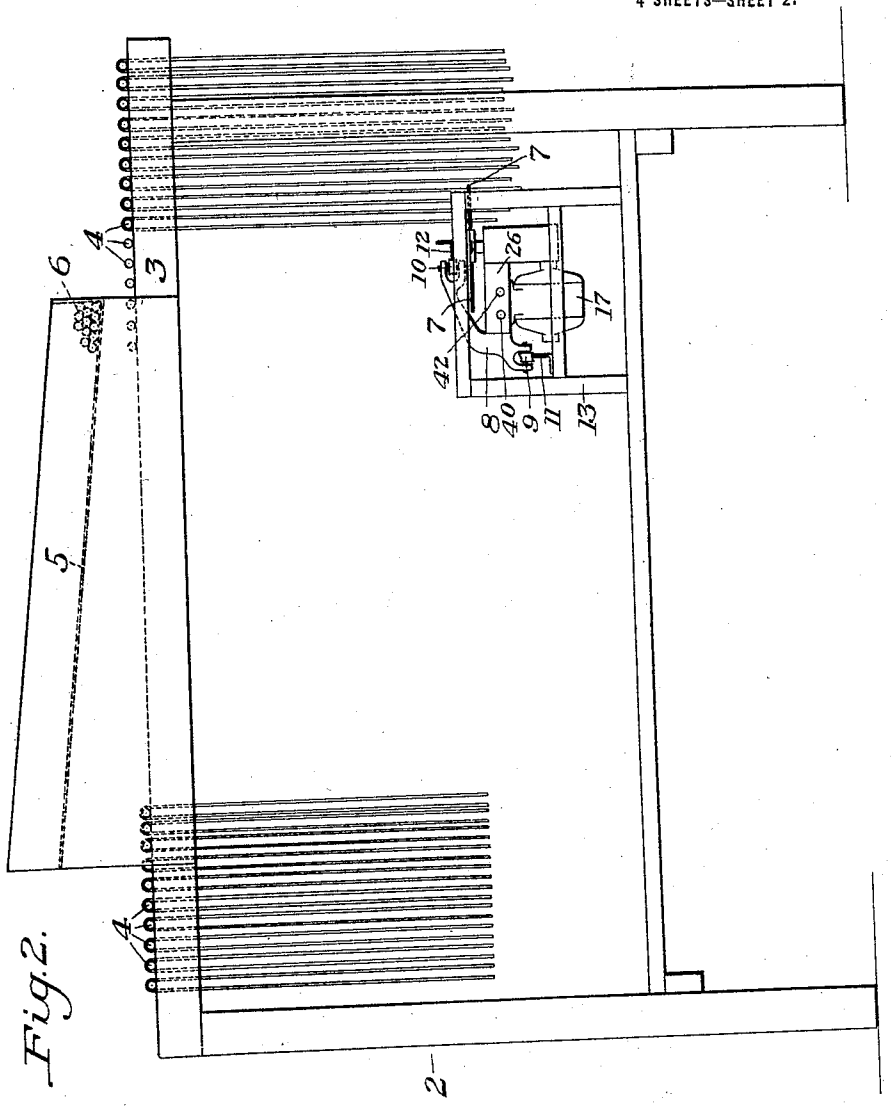


Fig. 2.

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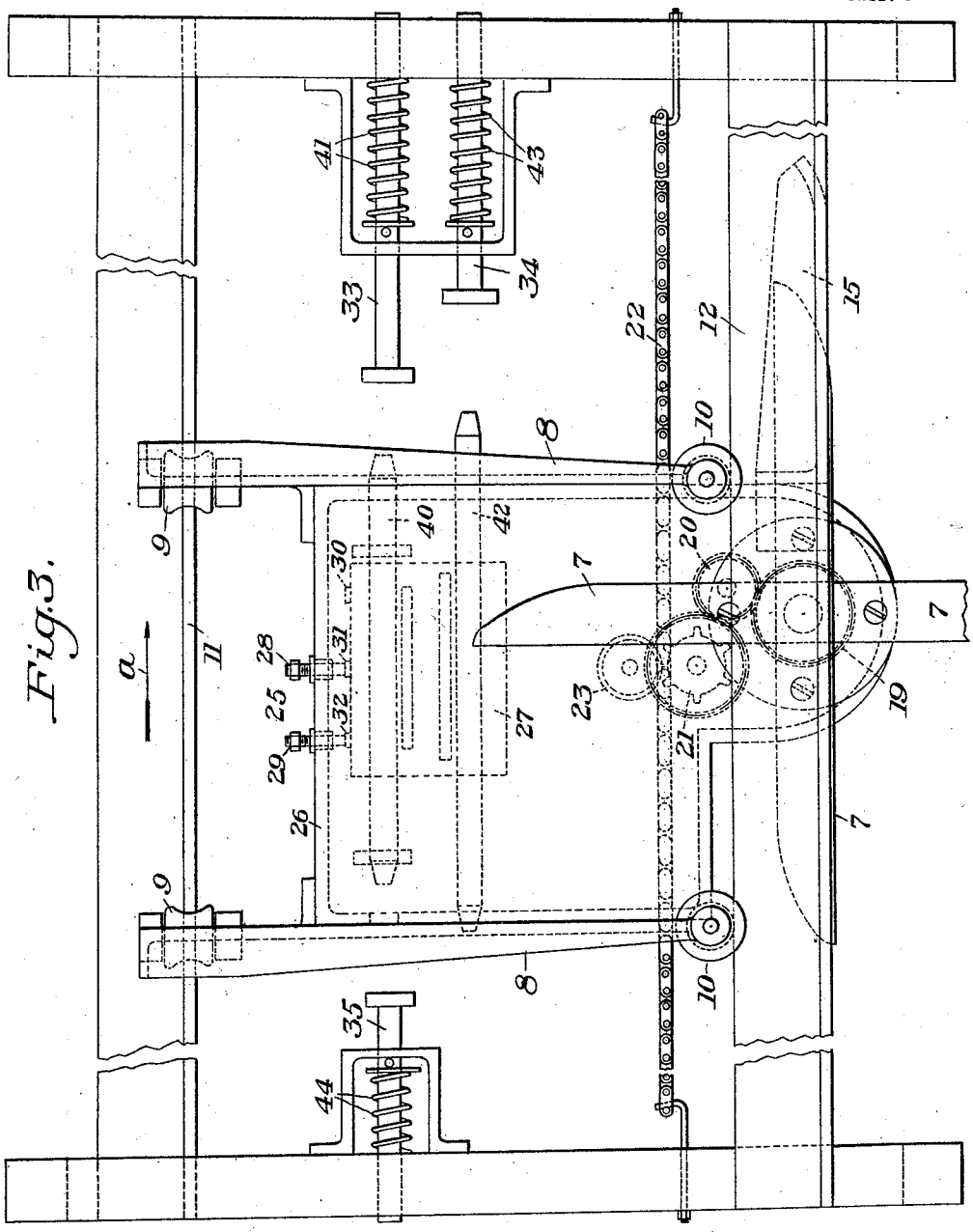
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4 SHEETS—SHEET 3.

Fig. 3.



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4 SHEETS—SHEET 4.

Fig. 4.

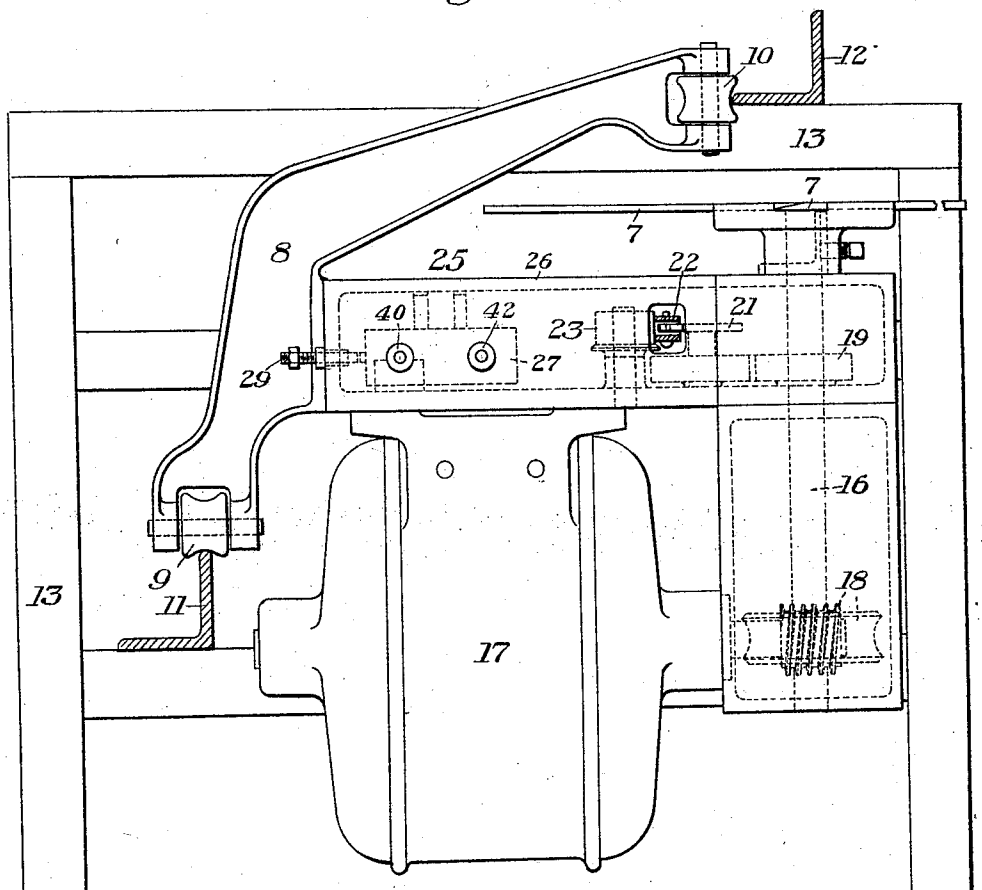


Fig. 5.

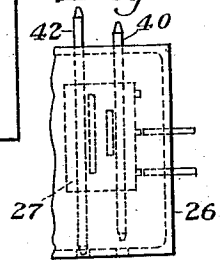


Fig. 6.

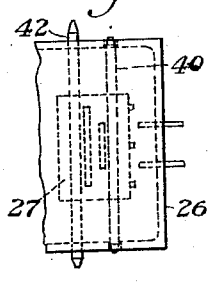
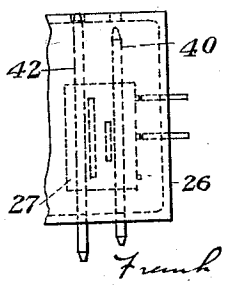


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK I. RUTLEDGE, OF PITTSBURGH, PENNSYLVANIA.

MACARONI-TRIMMING MACHINE.

1,406,497. Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed July 12, 1920. Serial No. 395,602.

To all whom it may concern:

Be it known that I, FRANK I. RUTLEDGE, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Macaroni-Trimming Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates to macaroni-trimming machines, and more particularly to machines for mechanically trimming off the ends of the macaroni as it is suspended from the sticks or hangers, upon which it is placed by the workmen when taken from the macaroni press.

In the present factory production of macaroni, the macaroni is expressed through a die having a large number of perforations. The macaroni as it comes from the press is taken by a workman and thrown over a "stick" which is a wooden rod several feet in length. The workman spreads the macaroni evenly along this rod, the individual pieces of macaroni hanging from the rod like inverted U's. The lower ends of the macaroni are irregular as they hang from the stick. The factory practice has been for a workman to take a pair of shears and trim off the irregular ends of the macaroni. After the macaroni is trimmed, the "green" or moist macaroni is placed in a curing or drying room in which it is hardened preparatory to being packed and sold.

The machine of the present invention is designed to replace the hand operation of trimming the irregular ends of the macaroni as it is suspended from the sticks or hangers.

In the drawings:

Figure 1 is a front elevation of a macaroni-trimming machine embodying my invention;

Figure 2 is a side elevation;

Figure 3 is a plan view;

Figure 4 is a detail view of the knife-carrying traveler; and

Figures 5, 6 and 7 are detail diagrammatic views illustrating the reversing switch in its different positions.

Referring to the illustrated embodiment of the invention, the trimming machine comprises a stand, indicated generally by reference numeral 2. The top of the stand has two spaced bars 3, which are adapted to support the sticks 4 upon which the macaroni is suspended. The operator takes one of the empty sticks and places upon it a batch of macaroni from the macaroni press, spreading the macaroni along the stick. The stick filled with macaroni is placed on the bars 3, at the front of the machine (the right hand end of the machine as viewed in Figure 2), and the sticks are pushed back along the machine as they are trimmed, the sticks moving from right to left as viewed in Figure 2. At the top of the machine is a hopper comprising two inclined bars 5, into which the operator at the back of the machine drops the empty sticks which roll forward to the front of the machine, as indicated at 6 in Figure 2.

As shown in Figure 2, the macaroni on the sticks with the irregular ends before it is trimmed is placed on the bars 3, at the front of the machine and is moved back into position to have the ends trimmed by a cutting knife 7, which is arranged to be moved back and forth across the front of the machine and longitudinally of the macaroni-suspending sticks 4. The knife 7 is a power-driven rotary knife carried on a traveling carriage, indicated generally by reference numeral 8, which is fed back and forth across the front of the machine. The carriage 8 is provided with trucks 9 and 10, which travel on the tracks 11 and 12, which are mounted on a frame 13 carried by the main stand 2.

The knife 7 is preferably a rotary knife, as shown in the drawings, having four blades and rotating in an anti-clockwise direction, as viewed in Figure 3. The carriage 8 has a shear member 15, against which the knife cuts. The macaroni hanging from the stick above the knife lies against the front of the track 12, which properly positions the ends of the macaroni in the path of travel of the knife 7 as it moves along beneath the stick.

The knife 7 is carried on a shaft 16, which is driven by an electric motor 17, through a worm gearing 18. The shaft 16 also carries a gear 19, which, through an idler 20, drives a sprocket wheel 21 which engages a chain 22 to move the carriage 8 back and forth. The small idler or backing roller 23 is mounted on the carriage opposite the sprocket 21 to hold the chain in secure engagement with the sprocket teeth.

The carriage 8 is arranged to start from one side of the machine, for example, the left-hand side of the machine, as viewed in Figure 1, and to travel across the frame

cutting the ends of the macaroni and then to automatically be reversed and return to its starting position. The forward or cutting movement of the carriage is preferably initiated manually, the operator starting the cutter into operation when a fresh stick of macaroni is to be trimmed. The travel of the carriage is controlled by an electric switch, indicated generally by reference numeral 25. The electric switch 25 comprises a switch box or casing 26, within which is slidably mounted an insulating block 27. In the switch casing 26 are two electric contact terminals 28 and 29, which are connected to the feed or supply circuit.

Carried on the insulating block 27 are three contacts 30 and 31 and 32, which are arranged to be brought against the contacts 28 and 29, and which are connected to the motor, so that when the parts are in the position shown in Figures 3 and 7, the motor will be driven in a direction to drive the cutting knife forwardly in its cutting direction and to feed the carriage 8 from left to right across the front of the machine as viewed in Figure 1. When the block 27 is shifted to the position shown in Figure 5, the contacts reverse the current through the motor and drive the knife backwardly and feed the carriage 8 from right to left as viewed in Figure 1, back to its starting position. In order to automatically operate the switch to stop and to reverse the movement of the carriage 3, stops or buffers 33, 34 and 35 are provided. The operation of the switch and stops is as follows:

Assume that the machine is running and the carriage 8 is moving in a forward direction, as indicated by the arrow *a* in Figure 3. The contacts 31 and 32 are against the contacts 28 and 29, respectively. The carriage will continue to move until it reaches the stops 33 and 34. The stop 33 will first engage the end of a rod 40, rigidly secured in the insulating block 27 and projecting from the switch casing 26. The stop 33 will move the rod back until its end is flush with the outer side of the casing 26, thus bringing the switch to its middle position, as indicated in Figure 6, in which the motor circuit is broken. The momentum of the carriage will continue its movement compressing the spring 41 of the buffer 33 to cushion the stopping of the carriage. The end of a second rod 42, also rigidly secured in the insulating block, next comes in contact with the buffer or stop 34, and the switch is moved to the position shown in Figure 5, in which the contacts 30 and 31 are brought against the contacts 28 and 29, respectively, and the current to the motor is reversed, whereupon the carriage 8 automatically begins its backward travel to its starting position. The stop 34 is also provided with a buffer spring 43.

The carriage continues its reverse travel until it reaches the left hand side of the machine, as viewed in Figure 1, whereupon the other end of the rod 40 contacts with the stop 35 and the switch 25 is moved to its neutral or stopping position shown in Figure 6. The buffer spring 44 assists in checking the momentum of the carriage. The trimmer is now stopped and the machine is in readiness to receive a stick of fresh macaroni to be trimmed. When a stick of fresh macaroni is pushed in position to be trimmed, the operator manually moves the switch into its starting or forwardly running position by pressing on the end of the rod 42.

While the machine is particularly designed for operation upon the macaroni suspended from the sticks, in common use in macaroni factories, it is obvious that the macaroni might be otherwise suspended and that various other modifications and changes may be made within the scope of the claims. The term "macaroni" as herein used, is intended as a word of general description and to include other food products of the same nature, such, for example, as the variety of macaroni known to the trade as "spaghetti".

I claim:

1. A macaroni-trimming machine, comprising sticks for supporting the macaroni, a stand for holding the sticks upon which the macaroni is suspended, and a power-driven cutter arranged to travel back and forth longitudinally of the sticks and trim off the ends of the macaroni suspended therefrom, substantially as described.

2. A macaroni-trimming machine, comprising a hanger for suspending the macaroni, and a power-operated cutter arranged to travel back and forth beneath the hanger and trim off the ends of the macaroni suspended therefrom, substantially as described.

3. A macaroni-trimming machine, comprising sticks for supporting the macaroni, a stand for receiving a plurality of such sticks and permitting the sticks to be moved along the stand, and a power-operated cutter arranged to travel beneath the sticks and trim off the ends of the macaroni suspended therefrom, substantially as described.

In testimony whereof, I have hereunto set my hand.

FRANK I. RUTLEDGE.