

No. 822,218.

PATENTED MAY 29, 1906.

S. MUELLER.
MACARONI SAWING MACHINE.
APPLICATION FILED JAN. 16, 1905.

3 SHEETS—SHEET 1.

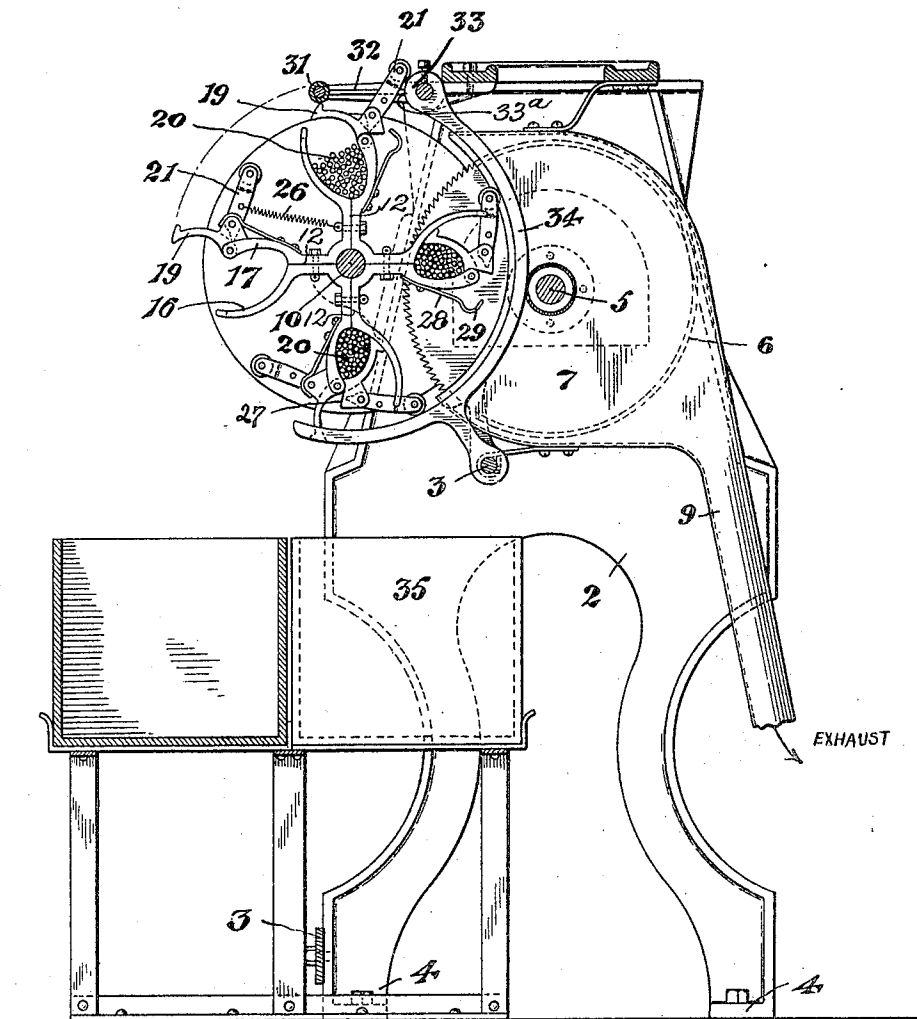


Fig. 1.

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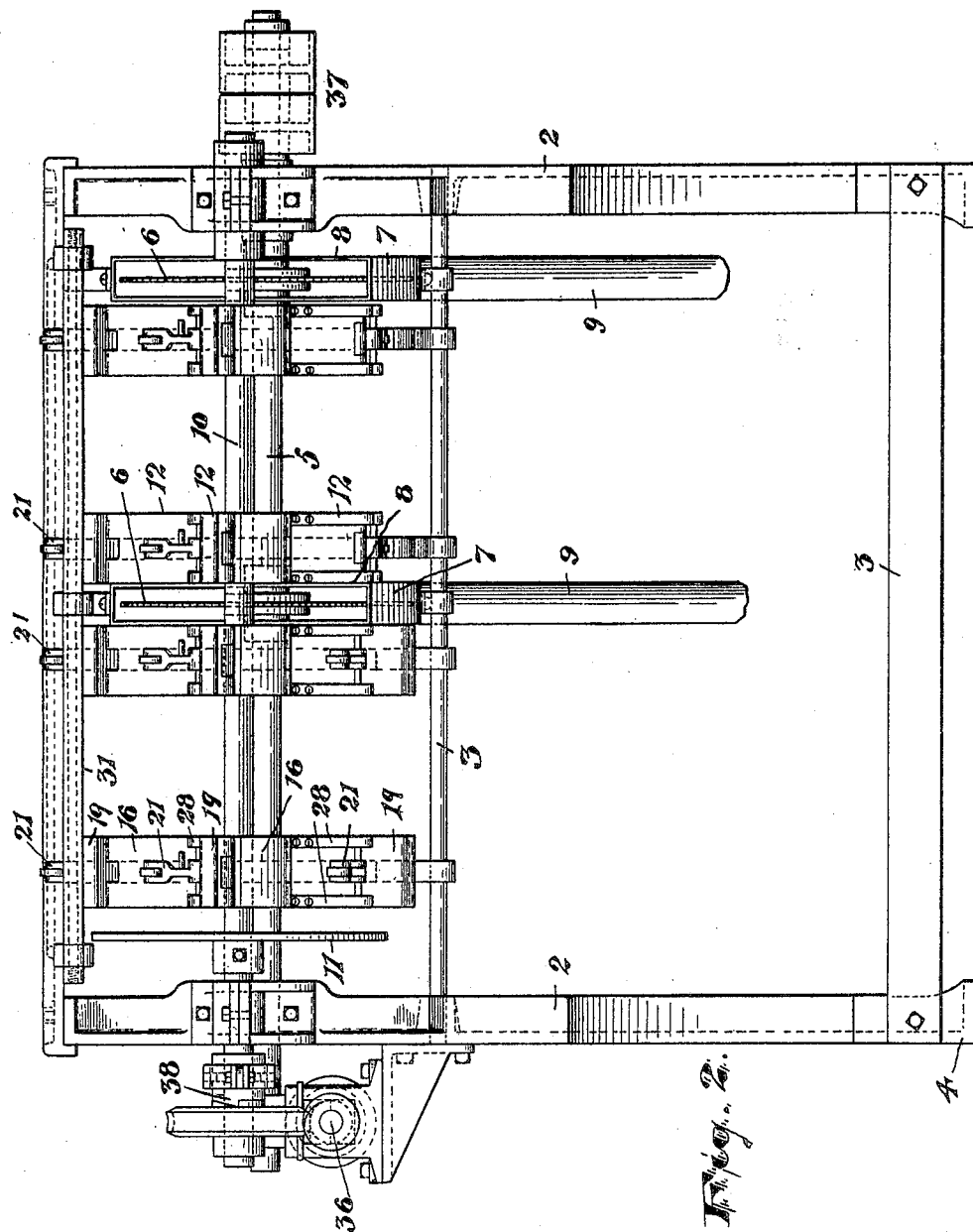
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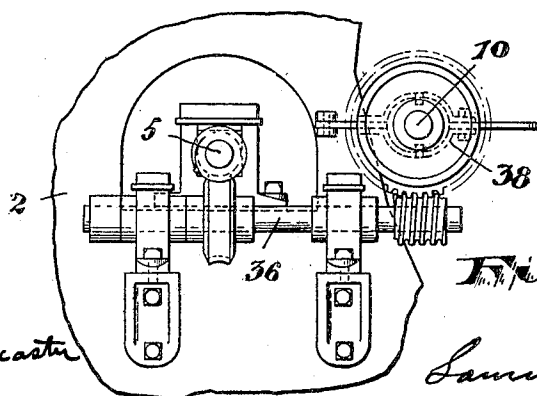
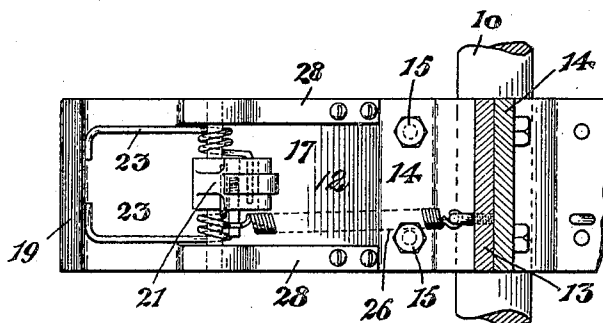
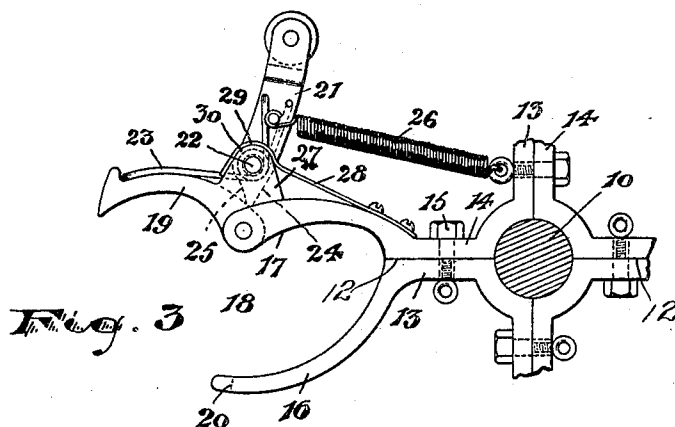
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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MACARONI-SAWING MACHINE.

No. 822,218.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed January 16, 1905. Serial No. 241,173.

To all whom it may concern:

Be it known that I, SAMUEL MUELLER, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Macaroni-Sawing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide a machine for sawing macaroni into suitable lengths for packing, to thus enable the strips of macaroni to be cut into lengths mechanically and with greater accuracy than can be attained in cutting them by hand, to enable a large number of macaroni sticks to be cut at one time, to secure a rigid holding of the macaroni during said cutting, to obtain a machine which shall perform the cutting rapidly and with little attention upon the part of the operator, to enable the cutting to be done with less care and skill than hand-work requires, and thus reduce the labor and cost, and to obtain other advantages and results, some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved macaroni-sawing machine and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like reference-numbers indicate corresponding parts in each of the several figures, Figure 1 is a cross-sectional view of a machine of my improved construction. Fig. 2 is a front elevation of the same. Figs. 3 and 4 are details in side elevation and plan, respectively, of one of the holding-arms; and Fig. 5 illustrates the driving connections of the machine located at the end of the same.

In said drawings, 2 2 indicate end frames or plates of my improved machine, which are adapted to support between themselves the shafts and working parts hereinafter described, said end plates or frames 2 being held in relative parallel positions by means of suitable tie-rods 3, said plates 2 providing at their bottoms feet 4 to stand upon or be

bolted to the floor. Between the upper parts of said plates 2 2 extends a rear shaft 5, having fast upon itself saws 6, which are stationed at suitable intervals to cut the macaroni into such lengths as may be desired. Said saws 6 are each inclosed in a casing 7, which is open at its front side, as at 8, to provide access to the macaroni and at the rear has a tubular extension 9, which is connected with any ordinary style of blower (not shown) to draw or carry away the sawdust which arises from the cutting of the macaroni. Forward of the rear shaft 5 is arranged a second shaft 10, also having bearings at its ends in the said plates or frames 2 2. Upon this shaft close to one of the side plates 2 is arranged a transverse plate or stop 11, against which the ends of the macaroni to be sawed may abut to secure their being even, said stop being located at a suitable distance from the saws 6. Said saws are preferably adjustable lengthwise of the shaft 5, so that the same machine can be adjusted to cut different lengths. The shaft 10, furthermore, carries at suitable points circular series of radially-projecting arms 12, which are adapted to grasp and hold the bundle of macaroni being sawed. In the drawings I have shown one circle of holding-arms adjacent to the stop-plate 11 and two others, one on each side of the first saw and a fourth at the inner side of the second saw, the short ends which are severed by said second saw being drawn away with the sawdust by the blower.

Each of the holding-arms 12 comprises halves 13 14, adapted to be bolted together, as at 15. (See Figs. 3 and 4 particularly.) Preferably a series of the arms 12 is arranged around the shaft 10, so that a plurality of bunches of macaroni may be inserted at each revolution of the shaft 10. Obviously the number of arms thus employed in a series will be limited only by the speed of rotation and the dexterity with which the operator can insert the macaroni. I have shown in the drawings four such arms 12 in a circular series, and in this case the upper part 14 of one arm is preferably cast in one piece with the under part 13 of the next arm, so that all the arms together completely encircle the shaft and by being bolted together clamp themselves thereon, as shown in the drawings.

The under part 13 of each arm has a downwardly and forwardly concavely curved extension 16, upon which as the arm is brought

upward by the revolution of the shaft 10 the bundle 20 of macaroni sticks is adapted to be laid. The upper member 14 has an oppositely-curved extension 17, which projects, however, only partially as far as the first-mentioned extension 16, so as to leave between the ends of said extensions 16 17 an opening 18, through which the sticks of macaroni may be inserted. The holding-arms 12, it will be understood, are sufficiently broad to form a suitable seat for the sticks of macaroni.

To close the opening 18 of a holding-arm and to bind the macaroni in place while being sawed, I have provided upon the extremity of the upper arm extension 17 a hinged gate 19, which is adapted to close across the opening 18, passing at its extremity along the inner surface of the extension 16 of the under member 13 of the arm and closely adjacent thereto. This gate can close inward until it strikes the bundle of macaroni and thus it adapts itself to any size of bundle, always grasping in an equally effective manner. Furthermore, I provide means for automatically opening the gate 19 as the arm comes into position to receive the macaroni and for again closing the same tightly against the sticks as they pass away from the operator to the saw. For this purpose I have shown in the drawings a lever-arm 21, pivoted upon the base of the said gate 19, as at 22. The inner end of this lever-arm forms a V-shaped lug 24, engaging the back of the gate 19 when said gate is open and preventing the lever-arm 21 from being forced back by the power of springs 26 23 into another than perpendicular relation to said gate. The said spring 23, being bent around the pivot-pin 22, is fastened to lever-arm 21 at one end, at the opposite end engaging the outer extremity of the gate 19. A spiral spring 26 extends from the said lever-arm 21 to some part of the mechanism which is fixed with reference to the holding-arm as a whole, preferably the body portion of the next holding-arm, as shown in the drawings. The effect of this spiral spring 26 is therefore to hold the gate 19 open to admit macaroni. At the rear extremity of gate 19 are formed two projections 27, adapted to engage the extension 17 and limit the opening of the gate 19, and between which is pivoted the lever-arm 21. As will be understood, and furthermore, a detent leaf-spring 28 may be provided upon the arm member 14 or its extension and curved at its extremity 29 to snap over a shoulder 30 of the gate 19. For forcing said gate 19 shut after the macaroni has been inserted a roller 31 is held in position to engage the outer end of the gate 19 as the same projects out, tending to close said gate and throwing the outer end of the lever-arm 21 upward between said roller 31 and the end 33 of a curved track 34, which extends

around the inner or concave face of the semi-circular guide which lies in the same plane and in the path of the holding-arms. Said curved track forms a cam having an enlarged upper extremity 33 with a convex face 33^a. The extremity of the lever-arm 21 is armed with an antifriction-roll, which traveling upon the convex surface forming the entering portion of track 34 forces the arm back and closes the gate 19, as shown particularly in Fig. 1, and, furthermore, it will force through the spring 23 the macaroni into a compact mass, the spring, however, taking up excess pressure, so that the stock will not be crushed or broken. Holding the macaroni as thus described, the arms carry it against the saws 6, and after leaving said saws or at the lower part of the rotation said arms discharge the sawed macaroni, as will be next described.

A box or tray 35 is set beneath the arms and the track 34 is terminated at such a point that as the lever-arm 21 runs off said track the spiral spring 26 throws the gate 19 wide open, when one length of the macaroni will drop in the said box or tray 35. It will be understood that since the adjacent bundles of macaroni are separated by only a saw-slit the box or trays for the different lengths cannot be arranged in line, but must be staggered, and I therefore terminate the tracks at different points, so that each bunch of macaroni will be dropped into its appropriate box.

For driving the mechanism described I have shown in the drawings belt-pulleys 37 upon the saw-shaft 5 and a short end shaft 36, which transmits motion from said saw-shaft 5 by means of a worm-and-gear connection to the forward shaft 10. A clutch 38 is preferably employed upon this last or holding-arm shaft 10, so that the feeding of macaroni to the saws is under the immediate control of the operator.

Having thus described the invention, what I claim as new is—

1. In a macaroni-cutting machine, the combination of parallel shafts, saws mounted on one of said shafts, a longitudinal series of macaroni-holding arms on the other shaft, each of said arms providing at their end a recess with curved walls to receive macaroni sticks, a gate pivoted on one side wall of the recess of each holding-arm and adapted to close into the said recess with its extremity describing the curve of the inner surface of the opposite side walls, a track adapted to engage the outer portion of said gate and close the same against the power of said spring, and a roller adapted to be engaged by the inner portion of the gate before said track is reached to throw the outer portion into position to engage said track.

2. In a macaroni-sawing machine, the combination with a saw, of a holding-arm

having an inwardly concave curved extension and a shorter similarly-curved extension opposite the first, a gate pivoted upon said shorter arm whose extremity is adapted
5 to describe the curve of the inner surface of the opposite extension, a lever-arm pivoted on said gate, a spring normally holding said lever-arm away from the gate, a track adapted to engage the outer portion of said gate
10 and close the same against the power of said spring, and a roller adapted to be engaged by the inner portion of the gate before said track is reached to throw the outer portion
15 into position to engage said track, and a spring normally holding the gate open, and means for moving the holding-arms with respect to the saw.

3. In a macaroni-sawing machine, a saw,

a pair of holding-arms, a shaft supporting and rotating the arms, one of the holding- 20 arms being longer than the other, a pivoted arm on the end of the short arm, a lever-arm on the pivoted arm, a spring between the lever-arm and the pivoted arm and more yielding than the macaroni, and a track con- 25 centric of the shaft to engage the lever-arm of the pivoted arm, to close the holding-arms during part of the rotation.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of 30 December, 1904.

SAMUEL MUELLER.

Witnesses:

CHARLES H. PELL,
RUSSELL M. EVERETT.