(No Model.)

4 Sheets—Sheet 1.

R. D. NUTTALL.

CANDY MACHINE.

No. 442,732. Patented Dec. 16, 1890.

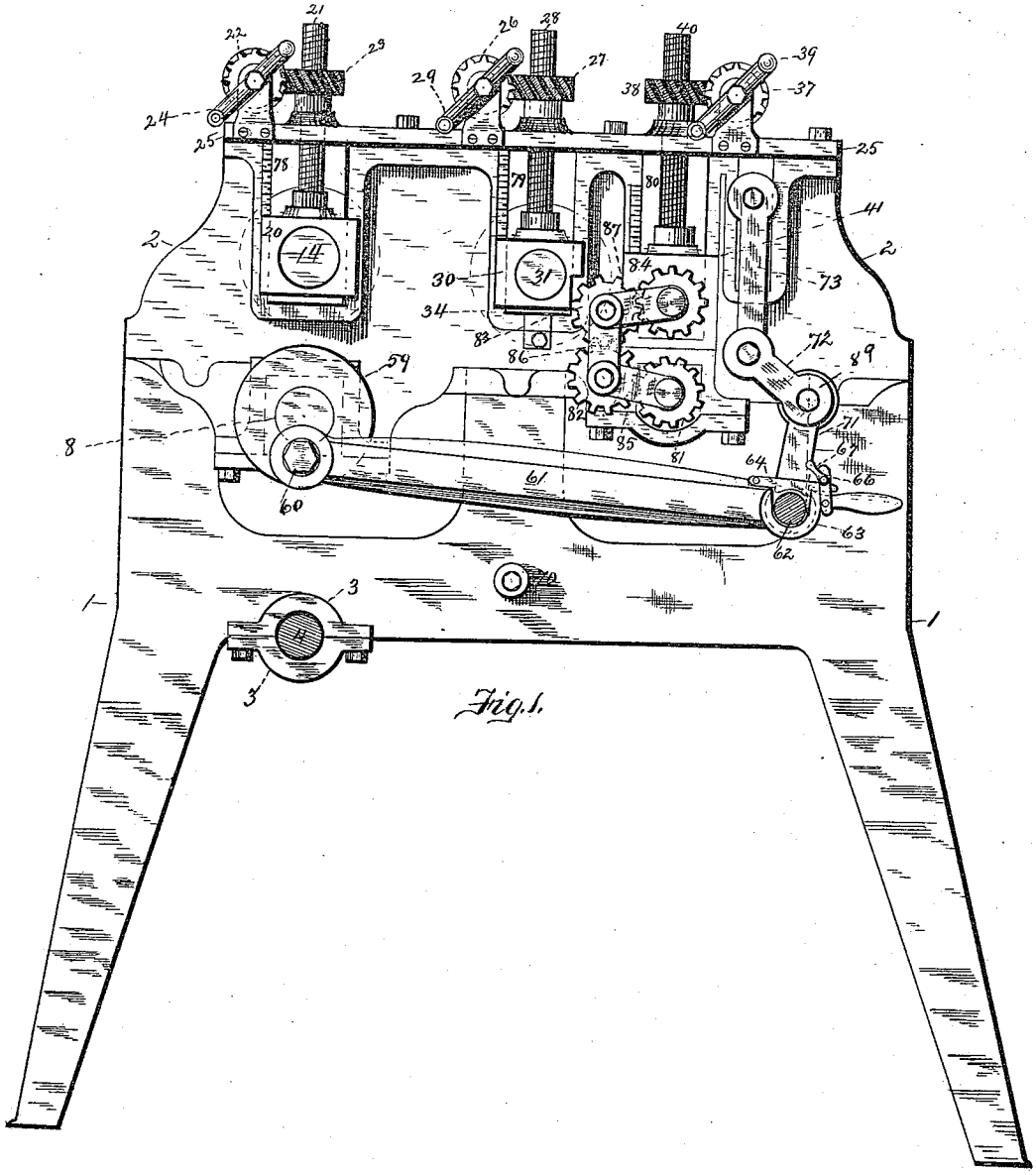


Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

R. D. NUTTALL.

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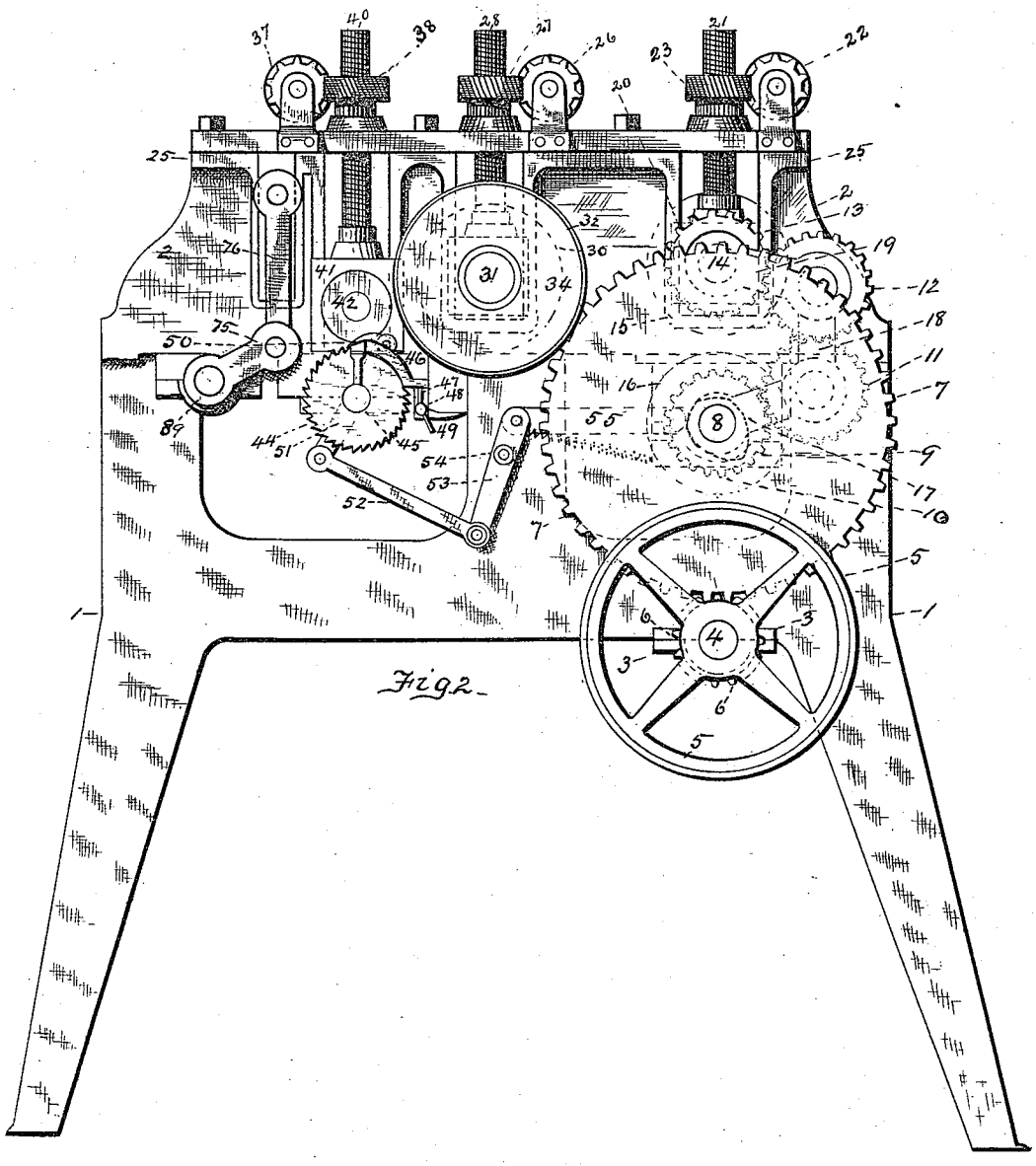


Fig 2.

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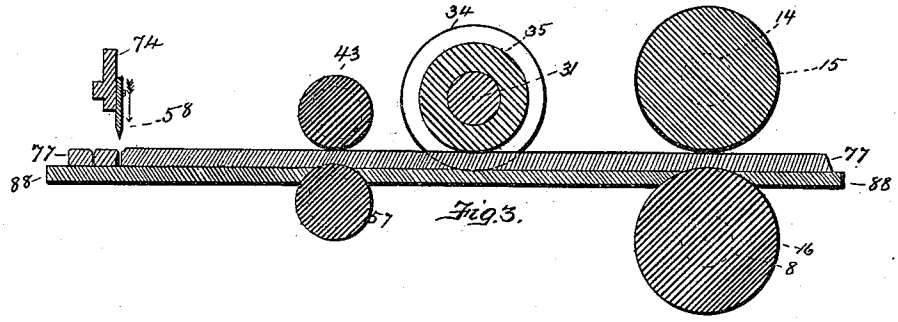


Fig. 3.

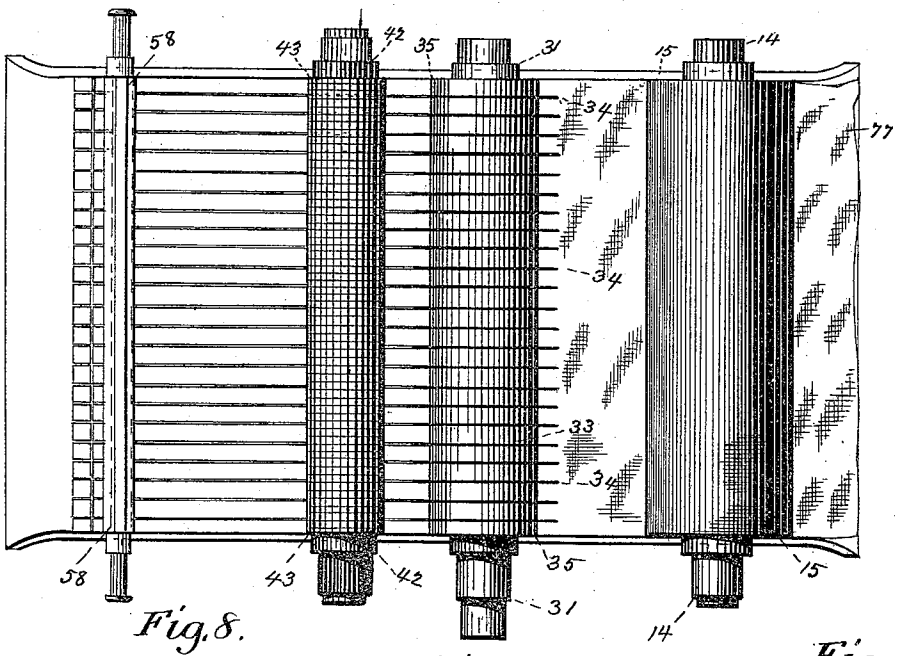
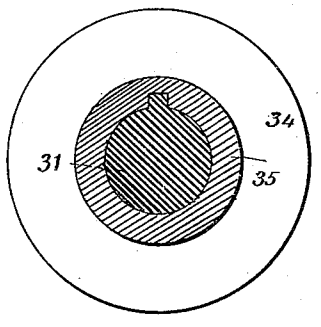


Fig. 8.

Fig. 4.



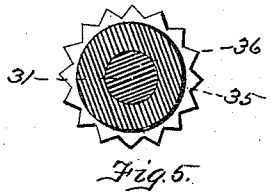
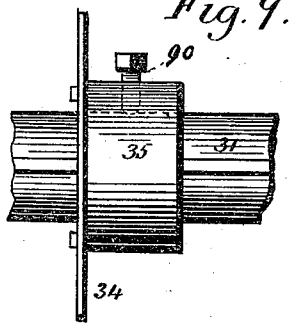


Fig. 5.

Fig. 9.



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(No Model.) 4 Sheets—Sheet 4.

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CANDY MACHINE.

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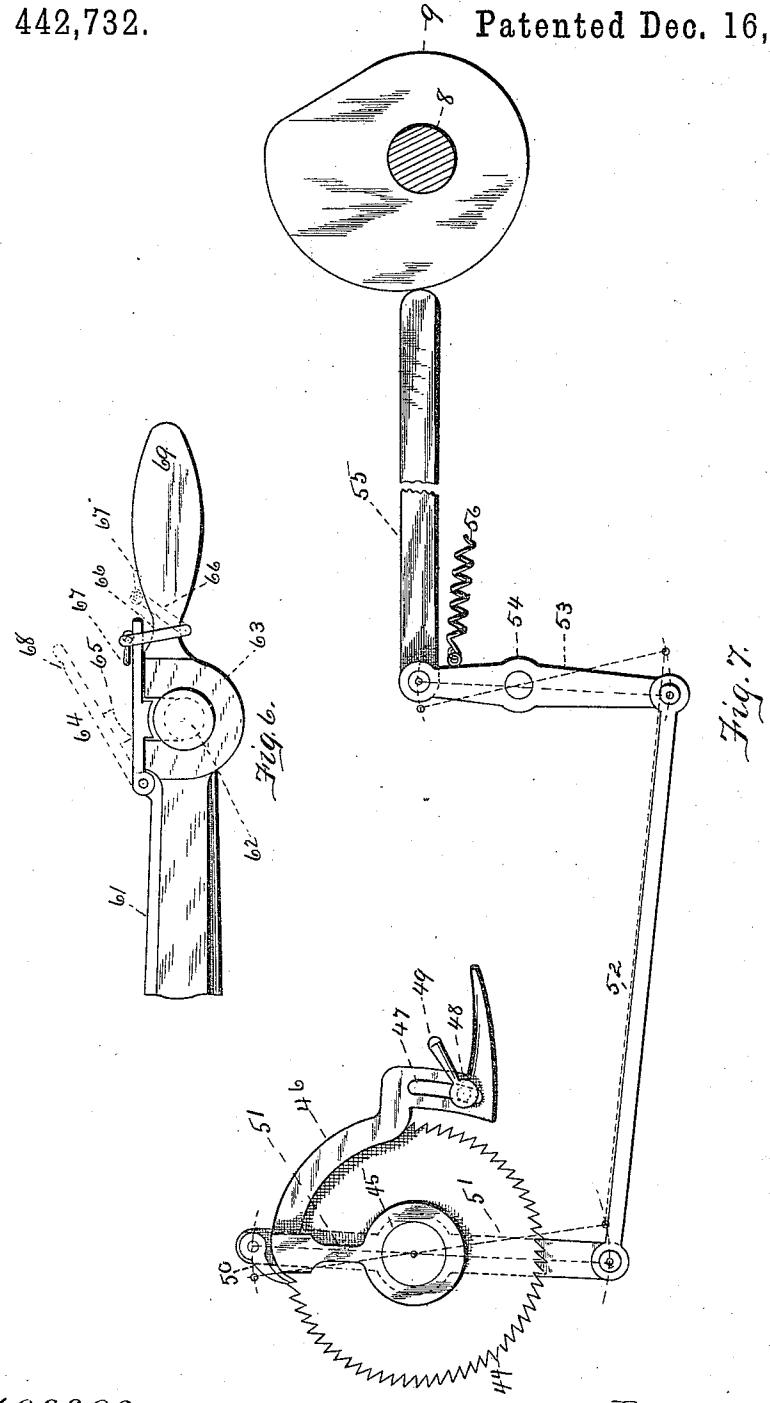


Fig. 6.

Fig. 7.

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Wm. L. Pierce.

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UNITED STATES PATENT OFFICE.

ROBERT D. NUTTALL, OF ALLEGHENY, PENNSYLVANIA.

CANDY-MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,732, dated December 16, 1890.

Application filed January 2, 1890. Serial No. 335,622. (No model.)

To all whom it may concern:

Be it known that I, ROBERT D. NUTTALL, a citizen of the United States, residing at Allegheny, county of Allegheny, and State of Pennsylvania, have invented a certain new and useful Improvement in Candy-Machines, of which improvement the following is a specication.

In the accompanying drawings, which make part of this specification, Figure 1 is a right-hand side elevation of the machine. Fig. 2 is a left-hand side elevation of the same. Fig. 3 is a longitudinal central section through the rolls and knives. Fig. 4 is a plan view of the rolls, knives, and a sheet of candy. Fig. 5 is a side elevation of a modification of one of the slitting-knives. Fig. 6 is a side elevation of the gripping device for the handle of the lever working the cross-cut knife, and Fig. 7 a like view of the feed-adjustment; Fig. 8, an enlarged detail section of one slitting-knife, its collar, and the shaft; and Fig. 9, a side elevation of the same enlarged, showing manner of securing said parts to each other.

The purpose of my invention, generally stated, is to build a single machine for reducing, slitting, and cross-cutting candy or similar material at a high rate of speed.

My invention consists in the construction, combination, and relative arrangement of the reducing-rolls, slitting-knife roll, feed-rolls, and cross-cut knife in candy or like machines.

My machine is constructed as follows: Upon the frame is set the housing 2, which acts as a bearing for several different shafts.

3 3 are the boxes, of Babbitt or other suitable metal, for the shaft 4 of the main driving-pulley 5. A small cog-wheel 6 is made fast to the shaft 4 and meshed into the large cog-wheel 7 on the shaft 8. On the shaft 8 back of the cog-wheels is the cam 9, the operation of which will be hereinafter described. On the same shaft 8 is also the cog-wheel 10, meshing into the cog-wheel 11, meshing into the cog-wheel 12, which meshes into the cog-wheel 13 on the shaft 14, on which is the upper fluted reducing-roll 15. The lower fluted reducing-roll 16 is on the shaft 8.

17, 18, and 19 are links respectively connecting the cog-wheels 10, 11, 12, and 13.

20 is a box for the upper shaft 14, moved up and down in a slot of the housing 2 by the adjusting-screws 21 21 and the worms and worm-wheels 22 22 and 23 23. The worms and worm-wheels are turned by the hand-lever 24. All the different adjusting-screws work in the plate 25, bolted to the housing 2.

26 27 are the worm and worm-wheel which by the hand-lever 29 work the adjusting-screw 28 of the box 30, in which turns the shaft 31, driven by the pulley 32, which is driven at a high rate of speed by an independent belt from any suitable source. The shaft 31 is made with a feather its entire length. Upon said shaft are slipped any desired number of collars 35 35, notched to fit the feather on the shaft 31. Said collars are prevented from rotating by the feather and notches, and there is also a set-screw 90 for each one to secure said collar to the shaft. To each of said collars 35 35 is bolted a cutting-disk 34, the center of said disk being cut out to permit said disks to be slipped upon the shaft 31. It is apparent that by means of the set-screws 90 90 the cutting-disks 34 34 may be spaced any required distance apart, so that the candy may be cut in wide or narrow slits.

37 38 are the worm and worm-wheel, worked by the hand-lever 39, which move the adjusting-screw 40 of the box 41, sliding in a groove in the housings 2. The shaft 42 of the upper feed-roll 43 turns in the box 41. Both the upper feed-roll 43 and lower feed-roll 57 have rough surfaces, being covered with blunt teeth in the form of truncated pyramids.

44 is a ratchet (best seen in Fig. 7) turning upon the shaft 45 in the housing 2. It has a hood 46, in the lower end of which is a slot 47. By means of the nut 48 in the slot 47, worked by the hand-wrench 49, the hood 46 may be advanced or drawn back to cover the desired number of teeth in the ratchet 44. The pawl 50 is bolted to the lever 51, pivoted on the shaft 45. To the lever 51 is pivoted the lever 52, to which is pivoted the lever 53. The lever 53 is pivoted at 54 to the frame and is also pivoted to the lever 55, the end of which is pressed against the cam 9 by the spring 56, attached to the lever 53 and to the frame. The shaft of the ratchet-wheel 44 forms the shaft for the cog-wheel 81, which

meshes into the cog-wheel 82, which meshes into cog-wheel 83, which meshes into cog-wheel 84, which drives the upper feed-roll 43.

85, 86, and 87 are links connecting, respectively, cog-wheels 81, 82, 83, and 84.

58 is the cross-cut knife, to which motion is imparted by the following devices:

Upon the shaft 8 of the lower reducing-roll 16 is fixed a disk 59, upon the rim of which is the stud 60. The connecting-rod 61 leads from the stud 60 to the wrist-pin 62, which it partly surrounds on the lower side in the piece 63. A hinged lid 64, with concave lower side 65, (seen in Fig. 6,) drops down upon the wrist-pin 62. The three-part link 66 is pushed by the small handle 67 over and into the groove 68 in the hinge 64, locking the whole apparatus.

69 is the large handle by which the connecting-rod 61 is raised. When the cross-cut knife 58 is out of use, the connecting-rod 61 is dropped down upon the carrier-wheel 70.

71, 72, and 73 are the levers connecting wrist-pin 62 with frame 74 of knife 58. On the other side of the machine 75 and 76 are the levers corresponding to 72 and 73.

89 is a shaft running across the machine connecting the two sets of levers just above mentioned.

77 represents a sheet of candy or like material being fed into the machine upon the bed 88.

78, 79, and 80 are graduated scales to which the boxes of the several rolls may be accurately set, as required.

The operation of the machine will now be clear. The candy 77 or like material in a semi-plastic condition is fed into the rolls 15 and 16, which have been previously adjusted to give the right thickness, as above described. After two passes through the rolls, the knives being thrown out of action, the proper thickness is gained and the candy is ready to be slitted, or slitted and cross-cut, or cross-cut only, as may be desired. If it is to be slitted and cross-cut, the shaft 31, with its knives, is set to the proper depth, as above described. The feed mechanism, also, is set to the proper depth, as above described, and the hood 51 advanced or drawn back to cover the proper number of teeth, that the pawl 50 may pass over one or more teeth, as required, which determines the length of the pieces of candy. The machine having thus been properly set, the candy passing from the reducing-rolls 15 and 16 is slit by the knives 34 34, which are run at a very high rate of speed by the separate pulley attached to the shaft of the slitting-knife roll. The material then passes between the feed-rolls 43 and 57, whose roughened surfaces both pull and push it forward in exact quantities, determined by the position of the hood 46, as above described. The movement of the feed-rolls is also regulated by the cam 9, which pushes the lever 55 forward when the convex surface of the cam is presented to the lever and permits the lever to fall back when the flat surface of the cam is presented to the lever. The candy then passes under the cross-cut knife 58, which has a reciprocating motion from the eccentric movement of the stud 60 and its connected levers. The cut candy is then pushed from the machine and drops into any proper receptacle. The feed-rolls 43 and 57 may have smooth surfaces, but will then not grip the sheet of candy so satisfactorily. My machine differs from all prior machines by combining in compact form and small space the three operations of reducing, slitting, and cross-cutting, thus avoiding the use of large tables and several machines.

Having fully described my invention, I claim—

1. In a candy or like machine, the combination of feed-rolls with the ratchet 44, pawl 50, levers 51, 52, 53, and 55, adjustable hood 46, spring 56, and cam 9, all substantially as shown and described.

2. In a candy or like machine, the combination of the cross-cut knife 58, disk 59, pin 60, connecting-rod 61, locking devices for said connecting-rod, and toggle-levers, all substantially as shown and described.

3. The combination, with a candy or like machine, of the feathered shaft, notched collars adjustably secured thereto, and cutting-disks bolted to said collars, all substantially as shown and described.

In testimony whereof I have hereunto set my hand.

ROBERT D. NUTTALL.

Witnesses:
WM. L. PIERCE,
C. C. LEE.