A. J. ROEDEL.

WRAPPING MACHINE.

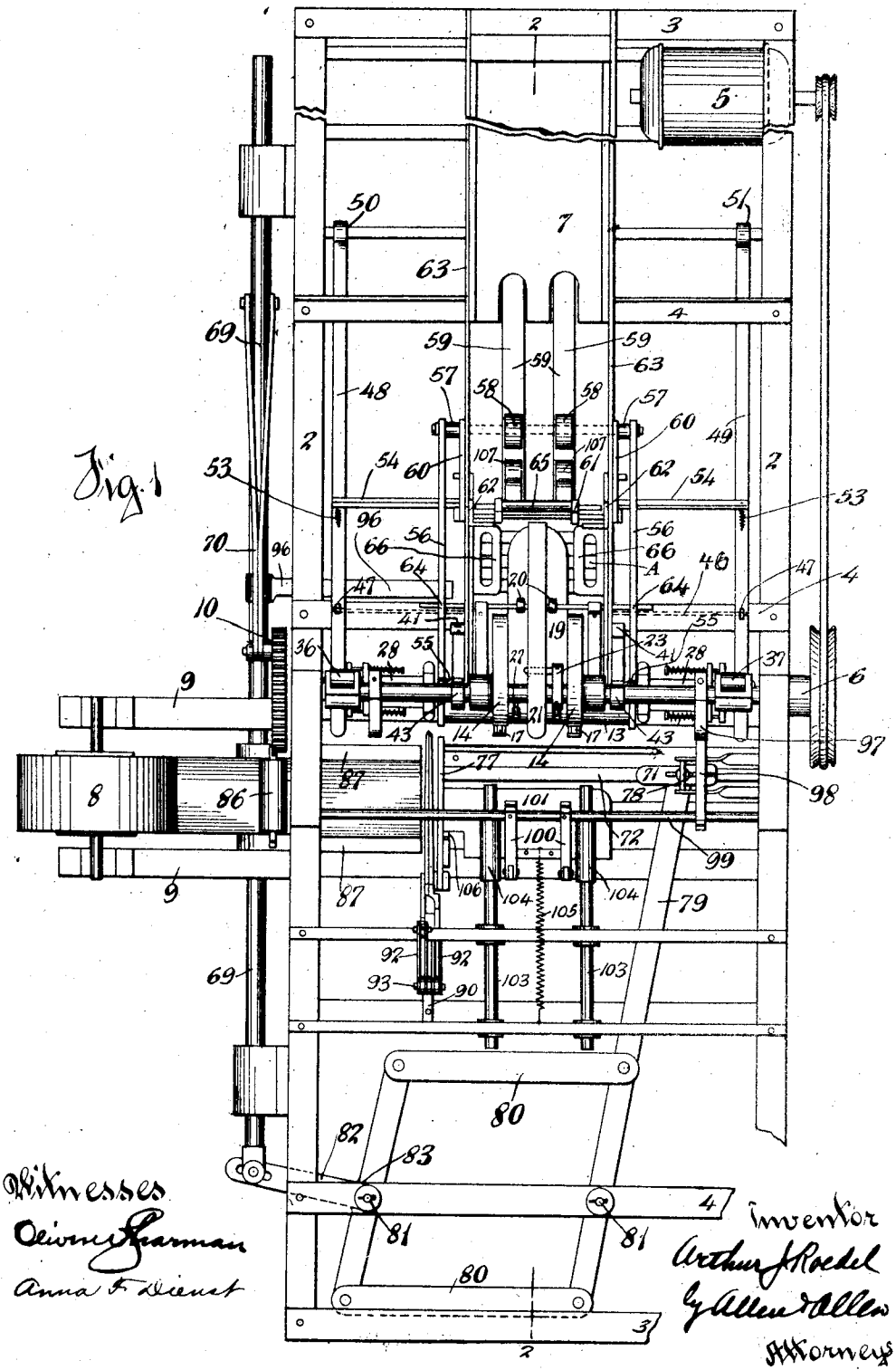
APPLICATION FILED DEC. 12, 1913.

1,107,360.

Patented Aug. 18, 1914.

4 SHEETS—SHEET 1.

Fig. 1



Witnesses

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4 SHEETS—SHEET 2.

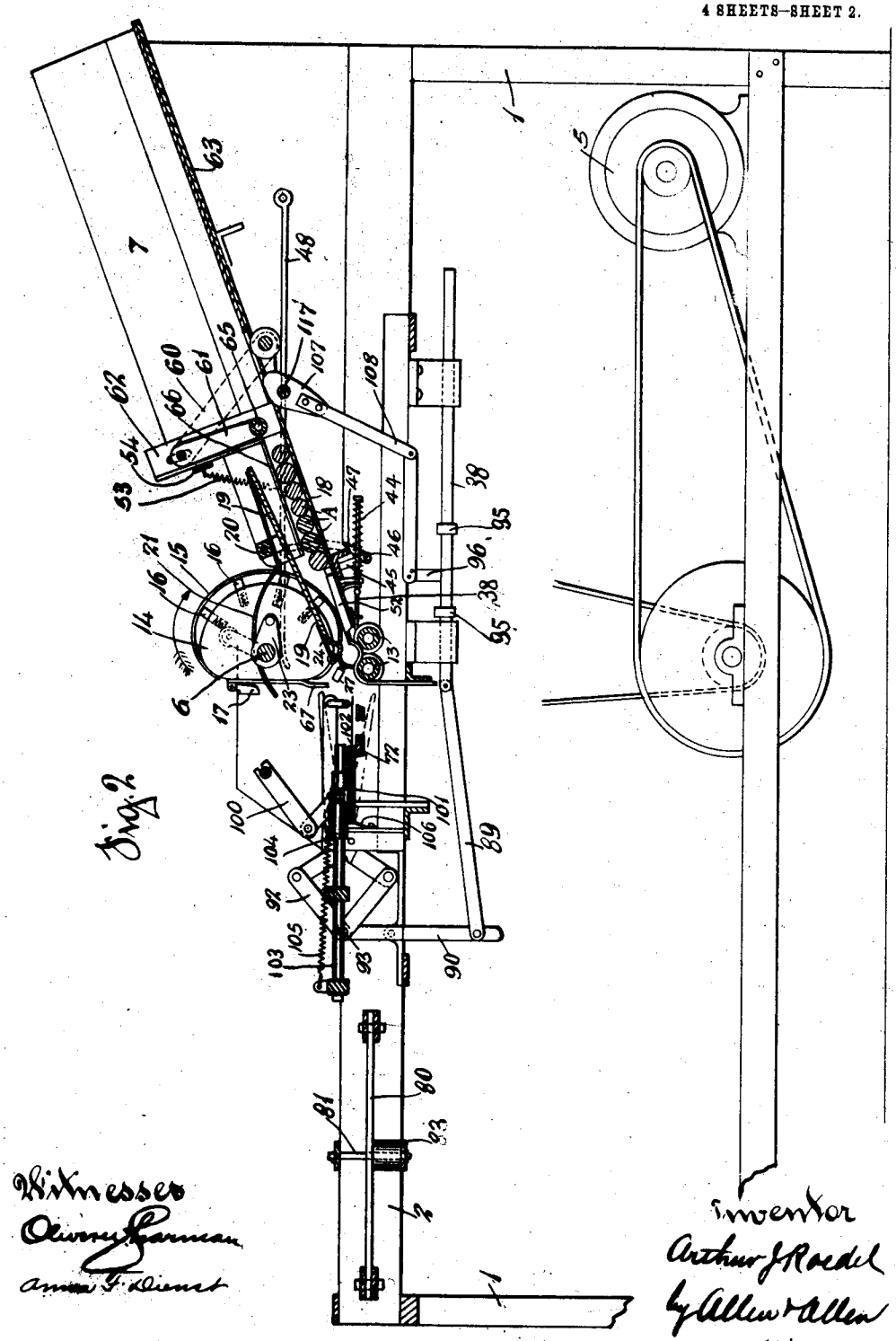


Fig. 2.

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4 SHEETS—SHEET 3.

Fig. 3

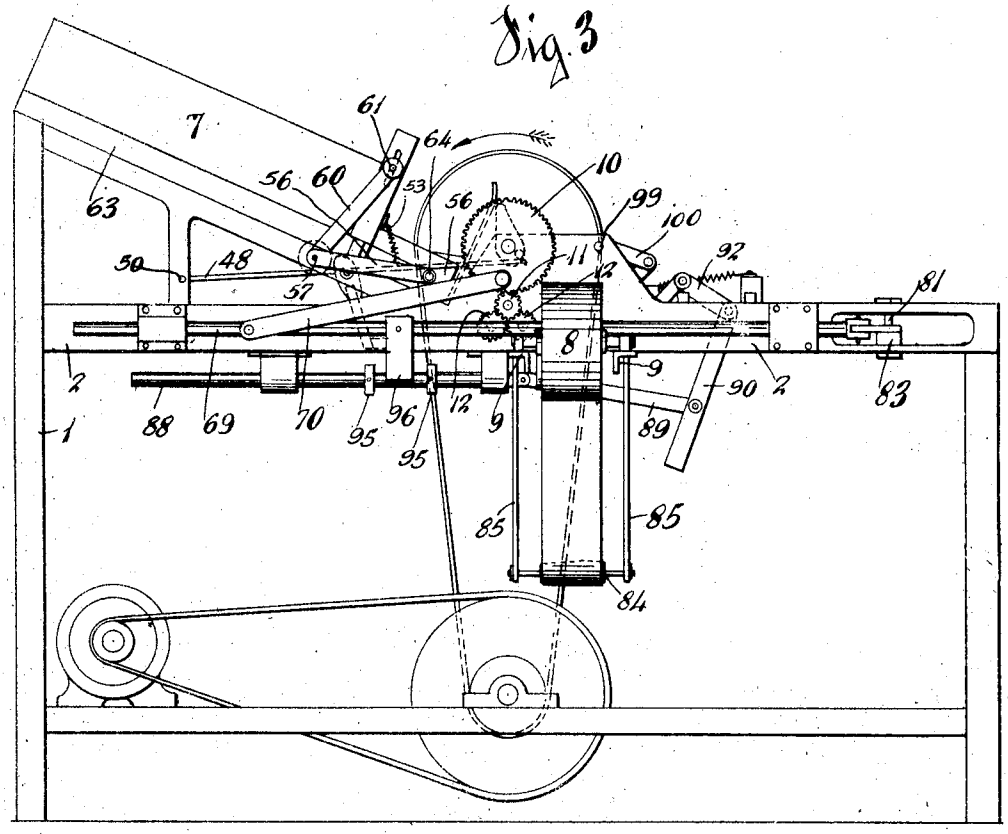
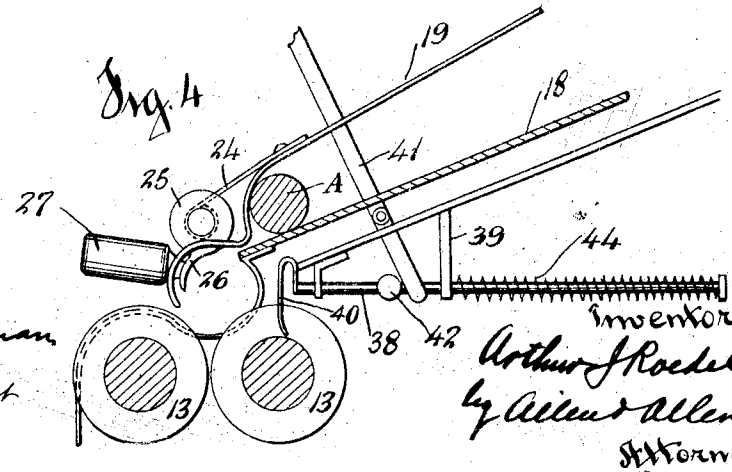


Fig. 4



Witnesses

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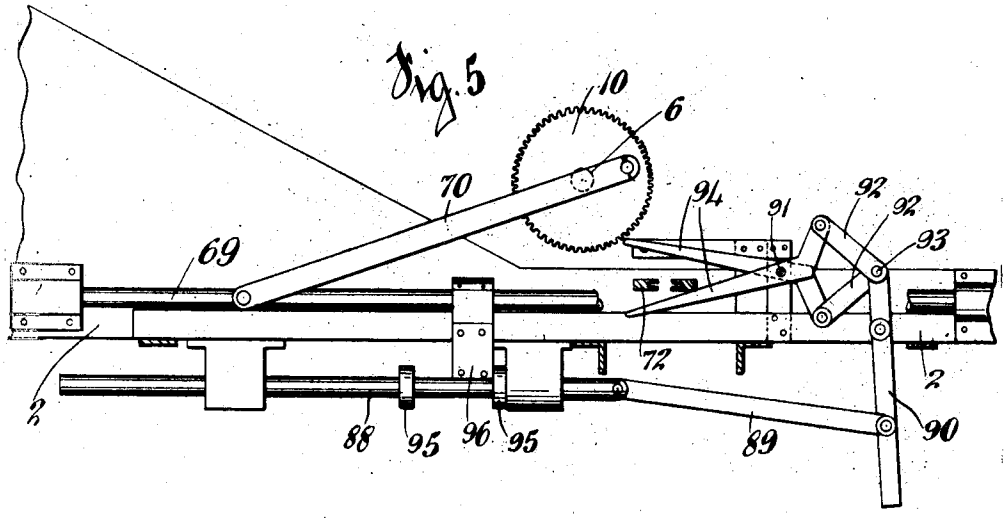
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4 SHEETS—SHEET 4.

Fig. 5



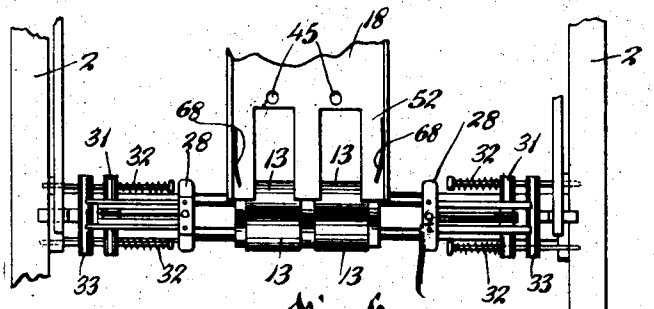


Fig. 6

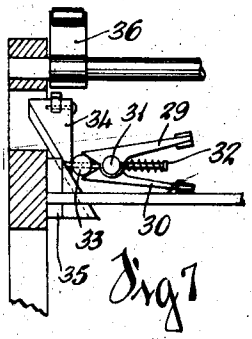
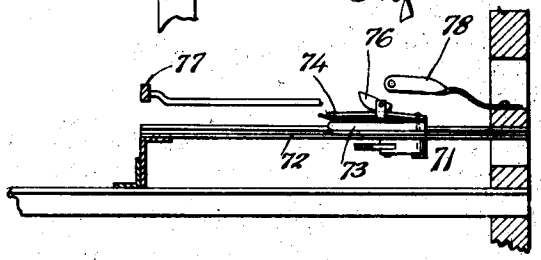


Fig 7

Fig. 8



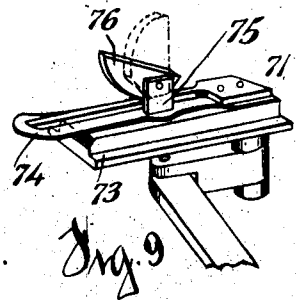


Fig. 9

Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR J. ROEDEL, OF CINCINNATI, OHIO.

WRAPPING-MACHINE.

1,107,360. Specification of Letters Patent. Patented Aug. 18, 1914.

Application filed December 12, 1913. Serial No. 806,156.

To all whom it may concern:

Be it known that I, ARTHUR J. ROEDEL, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Wrapping-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

In machines for wrapping with a piece of paper or similar material, a cylindrical surface, such as a stick of candy, difficulty has been found in a number of directions. Especially in the wrapping of candy, there is the tendency of breakage, due among other things to the clogging of the feed of supply to the wrapper and the rolling and twisting motion in the wrapper proper. It has been found difficult also to provide a proper feed of paper and a wrapping means which will adapt itself to usual variations in size of the sticks to be wrapped.

My invention has special reference to stick candy wrapping machines, and has as its direct object the improvement over my former device described and claimed in United States Patent No. 1,072,505 to which reference is hereby made, whereby a continuous strip of paper is fed into the machine, cut, and advanced for wrapping, and whereby the feeding of the candy at several points is made most efficient and secure, as will be hereinafter specifically pointed out and claimed.

In the drawings, Figure 1 is a top plan view of my machine. Fig. 2 is a vertical section on the lines 2, 2, of Fig. 1, looking toward the left. Fig. 3 is a side elevation of the same taken from the left. Fig. 4 is an enlarged side elevation detail of the wrapping rolls, holder and ejector. Fig. 5 is a similar detail of the paper shears and its operating device. Fig. 6 is a top plan view of the wrapper and grabbers, with the main operating shaft removed. Fig. 7 is a detail showing one of the grabbers in side elevation, together with the wedges which operate it. Fig. 8 is a side elevation of the paper grabbing finger and slide. Fig. 9 is an enlarged detail of the paper grabber.

The frame of the machine is shown with uprights 1, 1, side pieces 2, 2, end pieces 3, 3, and cross braces 4, 4, 4. A motor 5 is mounted, if desired, on the base of the frame and connected by belts to the driving shaft 6 of the machine so as to turn it in clockwise rotation. A trough or feed chamber 7 is set at an angle at one end of the machine in the lower end of which are the agitators which constitute part of my improvement over my former structure. At the left hand side of the machine, as shown, is mounted the paper roll 8, journaled in arms 9, 9 bolted to the frame.

The paper used in the candy wrapping art is usually waxed paper, of a width to wrap securely an ordinary sized cylindrical stick of candy. This roll, and the shears for cutting it, the grabbing finger for drawing it into the machine and the plate for advancing a cut strip to the wrapper proper are all located in the forward part of the machine. Together with some auxiliary devices in the wrapper, these parts now mentioned comprise the essential difference of the present machine over my former one above indicated. It should be noted here that the machine is intended to turn out one completely wrapped stick of candy per revolution of the main driving shaft.

In view of the fact that the parts of the wrapper proper are not broadly new in principle, the description of them will be supplied first. At the left hand side of the machine, as shown in Fig. 3, the main driving shaft 6 carries a gear 10 meshing with a pinion 11, which in turn meshes with two pinions 12, 12, mounted parallel to each other. On these pinions 12, 12, are the shafts which carry the rolling cylinders 13, 13. The shaft 6 imparts rotation in its own direction, *i. e.*, clockwise, to the cylinders 13, 13. It is not a requisite to perfect working of this machine to have a rubber or leather wrapper for the rollers 13, 13, and in the preferred form here they are of brass with fine lengthwise corrugations.

On the main shaft midway between its terminals and over the rollers 13, 13, are mounted two cams 14, 14, each of which carries a resilient band 15, mounted on a plurality of spring-pressed pins 16 (Fig. 2), which slide into sockets arranged for them in the rounded portion of the cams. The ends of the strip are secured to the flat portion of each cam. The spring-pressed pins are used instead of the springs of my former application, and the cams also differ by having instead of the fingers 43, Fig. 3 of the

United States patent referred to, the pivoted dogs 17, 17. These dogs are at the top of the cams at the beginning of a revolution, and when the cams turn they swing over, striking the stick of candy a quick blow sufficient to insure its ejection without jamming by the ejector proper.

Presupposing that a piece of paper has been placed on the rollers and a stick of candy A has been fed to the rollers from the inclined trough 18, the candy will lie on the paper between the two rollers 13, 13, which are revolving. A guard plate 19 (Fig. 2) which has an arched end adapted to fit over the candy will then fall down over the candy and hold it and the paper. This plate 19 is mounted at 20 on a part of the frame, and has an upwardly extending portion 21, which lies on the shaft 6, and lies by gravity against the rollers, unless it is raised by the part 21. This portion 21, on the shaft, is adapted to be raised by the pin on a cam 23 on the shaft. The location of this cam is such that it raises the plate from holding position at times when paper is inserted, candy injected and candy ejected from the rollers. On this plate on the curved end for falling over the candy is a further departure from my former invention. As shown in Fig. 4, extensions 24 from the guard plate 19 carry a pivoted roller 25. This roller is so mounted over a slot, not shown, in the holder plate that an extension 26 from its periphery will swing therein. Weights 27 on the extension cause it to bear slightly on the surface of any piece of candy under the holder. These weights assist gravity in keeping the holder down. By this means I gain a holder which securely engages all sizes of sticks of candy within a reasonable range. The inequality of size which is bound to occur in any batch of candy is thus fully provided for. As the piece of paper, as will be later on developed, is advanced onto the rollers, and a piece of candy delivered at the end of the trough, the extension strips 67 on the cams are so turned as to engage the candy, roll it onto the rollers and then the cams frictionally engage the paper, thus rolling the candy in the paper, this operation guarded by the holding means above described. The paper is wide enough to extend away from the candy at each end, and these ends are seized by a pair of grippers 28, and held firmly while the ends are twisted to fasten the wrapping. The grippers are also cam controlled. They are formed of two gripping members 29 and 30 (Fig. 7), pivoted on a spindle 31, which slides against spring pressure on the parallel rods 32 (Fig. 6). When sliding forward against the spring pressure, the grippers advance to a position to seize the paper. A sliding bar 33 is mounted on the rods 32 behind the spindle. This bar is pushed forward by the vertical edge of a movable wedge 34 which has its bearing on a fixed wedge plate 35. Cams 36 and 37 on the main shaft, depress the movable wedges at the proper time for the paper to be seized. The sliding bar will then push forward the grippers and as soon as the spring pressure is great enough, by spreading the opposite ends of the gripper arms, close the grippers over the paper. This structure is the same substantially as that described in my former application. The candy having been wrapped, a pair of ejectors push it out from the rolls into a container (not shown). These comprise a reciprocating rod 38 mounted in brackets 39 on the trough 18, so that their ends bearing the pushing finger 40 will advance alongside of the rollers 13 and push the candy off of them. An arm 41 pivoted on the trough 18 with one end bearing against a roller 42, pivoted to each reciprocating rod, is so held between the parts that its other end is in position to be engaged by the cam 43 on the main shaft (Fig. 1). This cam lifts up the arm which swings its other end forward and pushes forward the rod and finger. A spring 44 returns the parts to normal position when the cam has passed. The cams 43 are timed, of course, so as to eject the wrapped candy at the proper moment during each revolution of the machine. The dogs on the cams will also give an added blow to the wrapped stick, insuring its ejection.

The feed of candy to the inclined trough 18, as will be developed, is one stick at a time (see Fig. 2). At the end of the trough the sticks are met and held by two fingers 45, 45, which extend up through the bottom of the trough. These pins are mounted on a rod 46, which extends clear across the machine and is slidably attached to depending arms 47 from rods 48, 49. These rods are pivoted on top of the movable wedges above referred to and on the other end are pivoted at the rear of the machine at 50, 51. As the wedges are depressed, the rod 46 is pushed down, allowing a stick of candy to lie in the trough up against the edge of a slightly raised portion 52 thereof. When the cams have released the movable wedges, springs 53, 53, attached to a cross arm 54 on the box 7, will pull up the rods 48 and 49, the wedges to which they are attached and the rod 46. The rod 46 raises the fingers 45 which force the stick of candy up and allow it to roll down the raised portion of the trough, at the same time stopping the next stick. Thus it can be seen that the sticks are stepped up one by one to the portion 52, whence they are rolled onto a piece of paper on the wrapping rolls.

Rollers 55 on the cams 43 which work the ejector, contact with arms 56, 56, which are pivoted at 64 to swing upwardly upon being

depressed by the cams, a shaft 57 journaled on them. This shaft (Fig. 1) carries rollers 58, 58, which are situated in slots 59, 59, of the box 7. On this shaft 57 are journaled the upwardly extending arms 60, 60, which raise and lower a frame 61, mounted in the end 62 of the box holder 63. A roller 65 is carried by this frame at its lower end, and as the rollers 58, 58 are raised and lowered in the base of the box, the roller 65 is raised and lowered. These devices together with one further device which is attached to the parts which work the shears, agitate the supply to be wrapped at the delivery end of the box 7.

The trough 18 begins at the opening (not shown) at the bottom of the box holder end 62, and laterally extending plates 66 (Fig. 1) from the sides of the trough allow room for but one stick of candy at a time to run down the trough. This structure now described follows a stick of candy from the time it is put into the box 7, which is preferably slidably mounted on its holder 63 so as to be removable, until it is wrapped. It will be understood that when the stick reaches the raised portion 52 of the trough (Fig. 6), it is then moved forward by the extension strips 67 on the main cams 14 and constantly kept in contact with these cams until ejected. To insure the final true delivery of the stick of candy to the wrapping device, light spring plates 68, 68 are set in the sides of the trough, extending out over the portion 52 (Fig. 6).

The parts which comprise the balance of the machine are all operated from a driving rod 69 journaled to the side of the main frame and driven by the crank 70 on the gear 10 of the main shaft. These parts are the paper roll, the reciprocating finger which draws the paper into the machine and through a slotted plate, the shears which cut the paper leaving it in the plate, which said plate is advanced to deliver the paper to the wrapper by cams from the main shaft.

The finger 71 (Figs. 8 and 9) is mounted to reciprocate in guideways 72 across the frame. The finger comprises a sliding plate 73, which carries the spring clamping finger 74 and a bracket 75, carrying pivoted on it a cam 76. The normal spring tension of the clamping or grabbing finger 74 keeps the cam turned obliquely and thus keeps said finger out of contact with the plate 73. As the whole is pushed forward on its guides, it approaches the end of the paper strip which is led to the end of the guideway as will be described. The paper is so placed as to slide between the plate and the finger. A cross bar 77 then strikes the cam 76, raising it and clamping the finger to the position shown in dotted lines in Fig. 9. Owing to the shape of the cam, it will remain raised and will push down the finger 74 so that the paper will be seized and held. The finger is then drawn back drawing the paper with it, until an arm 78 on the frame where the stroke began, throws down the cam and releases the paper. The entire grabbing finger 71 is reciprocated by a lever 79 extending from a swinging frame 80 at the forward end of the machine, said frame having four pivoted corners and mounted under the cross bar 4 at that end of the machine on pins 81, 81. An arm 82 is secured at 83 to the frame at the left hand pin, and said arm is provided with a slotted connection to the driving rod 69. As the rod is reciprocated, the frame is swung, and the end of lever 79 will advance and withdraw said grabbing finger 71.

The paper roll 8 is journaled on the arms 9, 9, as mentioned above, and the strip is drawn down and around a heavy roller 84, which slides up and down in a pair of arms 85, 85, depending from the arms 9 (Fig. 3). The paper is then drawn up and inserted under a roller 86, mounted over the paper guideway 87 in the frame. As will be shown, the paper extends to a point between the cutting members of the shears, across this frame and the guideways 72 of the grabber 71 extend (Fig. 5) to this point also. Thus the cut end of the paper will always be ready to be seized by the grabber. The heavy roller 84 keeps enough supply of paper for the machine unrolled, and the roller 86 keeps the strip taut for efficient use in the machine.

A driving rod 88 for the shears is located under the body of the machine and journaled there. A link 89 from this rod works a lever 90. The shears are mounted on the machine at their pivot 91, and the arms beyond the pivot extend outwardly in opposition to one another. Levers 92 from these ends come together and are pivoted on a pin 93 which also carries the end of the lever 90, to form a toggle for opening and closing the shears. When the driving rod is drawn back, the lever 90 pushes forward the pin 93 and thus brings the cutting edges 94, 94, of the shears together. As above mentioned, these cutting edges when not operating, lie one over and one under the end of the guideway 72 for the grabbing finger. The rod 88 has two annular bosses 95, 95, spaced apart for proper timing of the action of the shears. A downwardly depending and inwardly extending arm 96 from the driving rod 69 has its lower surface sliding on this rod 88, and located between the two bosses. At the end of each half of the stroke of the rod, then, the rod 88 is actuated first to close the shears and then to open them. At the end of the first half of the stroke, the grabber 71 will be just at the point of seizing the paper cut at the previous operation of the shears.

The final closing of the shears, entirely severing the paper, will occur just after the grabber releases the paper at the end of its stroke. Timed to come into operation at this instant, a cam 97 on the driving shaft 6 strikes up a cam 98, secured fast to an oscillating rod 99, mounted in the main framework. Keyed on this rod are toggle levers 100, 100. The other end of these levers are pivotally attached to a slotted plate 101 (Fig. 2), the slot 102 of which is adapted to hold the strip of paper. This plate slides back and forth on parallel rods 103, 103, by means of sleeves 104, 104 on the plate. A strong spring 105 on the frame pulls this plate toward its outward position.

When the grabber draws the strip of paper across the machine, it draws it through the slot 102, owing to the location of parts. When it reaches the end of its stroke and releases the cut-off piece of paper, the cams then oscillate the shaft, causing the toggle levers to push forward the plate. The piece of paper will ride onto the wrapping rollers, when the other cams, located relatively to do so, will drop a stick of candy on the paper, and allow the guard plate to fall down over the candy and the paper.

The rest of the operations of the machine have been mentioned, and their timing of operation. It is essential that the moment the cam which works the oscillating rod for the paper plate, passes its coöperating cam on the rod, that then the spring should jerk the plate back out of the way of the then advancing finger or grabber 71. To take up the jar resulting from this, the spring finger 106 is provided (Fig. 2) as an abutment for the plate.

The additional agitator in the feeder box 7, coöperating with the rollers 58, 58 and 65, referred to but not described, comprises cams 107, 107, mounted at 117 under the holder for the box 7, so as to protrude partly through the slots before mentioned in the bottom of the box. Levers 103 mounted at one end on an offset from the inwardly extending arm 96 of the driving rod 69, and attached at the other end to the cams, cause the cams to make a stirring motion in the bottom of the feed box. This movement, coöperating with that of the rollers, will break up, and has been found to break up, all chances of arching or jamming of the candy sticks. It can be realized that this agitation is an important item when it is remembered that stick candy often becomes gummy and would not feed properly.

The actual wrapping of candy, as far as theory is concerned, is done in the same manner as in my former patent. The several improvements and advantages of the new structure here have been described in detail and the whole operation of the machine as clearly as possible with an eye to brevity. It will be understood that specific structure as described is not the only method by which the improvements here might be gained, and it is not desired that the claims which follow be limited in scope by the specific mechanical expedients chosen for operation, the number, in duplicated parts, or other non-essential details of structure.

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

1. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, a unitary means for loosely holding and advancing for feeding while so held a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, and means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets.

2. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, a unitary means for loosely holding and advancing for feeding while so held a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, and means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets, and means for holding the paper at the ends from rotating during the rotation of the material.

3. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, means for feeding a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, and means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets, a source of supply of material to said feeding means and agitators operating in said source of supply to provide a continuous supply of material to the feeding means.

4. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, means for feeding a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, and means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets, a source of supply of material to said feeding means, and a plurality

of co-acting agitators operating in said source of supply to provide a continuous supply of material to the feeding means.

5. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, means for feeding a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets, means for holding the paper at the ends from rotating during the rotation of the material, a source of supply of material to said feeding means and agitators operating in said source of supply to provide a continuous supply of material to the feeding means.

6. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, a unitary means for loosely holding and advancing for feeding while so held a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, grippers to grasp and hold the paper at the ends, means for advancing the grippers toward the material to be wrapped during the rotation thereof, and means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets.

7. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, means for feeding a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, grippers to grasp and hold the paper at the ends, means for advancing the grippers toward the material to be wrapped during the rotation thereof, means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets, and a source of supply of material to said feeding means, and agitators operating in said source of supply to provide a continuous supply of material to the feeding means.

8. In a machine of the character specified, means for rotating the material to be wrapped, a unitary means for loosely holding and advancing for feeding while so held a sheet of wrapping paper to be engaged by the rotated material, means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets.

9. In a machine of the character specified, means for rotating the material to be wrapped, a unitary means for loosely holding and advancing for feeding while so held a sheet of wrapping paper to be engaged by the rotated material, means for feeding a continuous strip of paper to the machine, means for drawing the strip of paper into engagement with the sheet feeding means and means for cutting said paper to form a sheet of uniform size while in engagement with said sheet feeder.

10. In a machine for rolling in a sheet of paper pieces of cylindrical material, in combination with a unitary means for loosely holding and advancing for feeding while so held sheets of paper into the machine, a means for holding a continuous strip of paper, a means of drawing said paper into the machine into engagement with the sheet feeding means, and a means for cutting said strips to form a sheet of proper size.

11. In a machine for rolling in a sheet of paper pieces of cylindrical material, in combination with a unitary means for loosely holding and advancing for feeding while so held sheets of paper into the machine, a means for holding a continuous strip of paper, a means of drawing said paper into the machine into engagement with the sheet feeding means, and a means for cutting said strips to form a sheet of proper size while in engagement with the sheet feeding means.

12. In a machine for rolling in a sheet of paper pieces of cylindrical material, in combination with a unitary means for loosely holding and advancing for feeding while so held sheets of paper into the machine, a means for holding a continuous strip of paper, a reciprocating grabber for drawing said paper into the machine and into engagement with the sheet feeding means, and a means for cutting said strip to form a sheet of proper size.

13. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, means for feeding a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, cams coöperating with the rollers to roll the material, fingers to eject the wrapped material and means on the cams for coöperating with said fingers.

14. In a machine of the character specified, a rolling means comprising upper and lower rotating surfaces, means for delivering separate pieces of material one at a time to said rolling means, means for feeding a sheet of paper to be engaged by the rolling means and the material to be rolled, and a removable supply box, with means for agitating the supply in said supply box to insure continuous feed of material to the delivering means.

15. In a machine of the character specified, a rolling means, comprising upper and lower rotating surfaces, means for delivering separate pieces of material one at a time to said rolling means, a reciprocating slotted plate for holding and advancing a sheet of wrapping paper to be engaged by the rolling means and the material to be rolled, means for feeding a continuous strip of paper to said sheet feeding means and for cutting the same into sheets.

16. In a machine of the character specified, a pair of rollers in close proximity to each other, with means for rotating the same in the same direction, means for delivering separate pieces of material one at a time to said rollers, means for feeding a sheet of wrapping paper to be engaged by the rollers and the material to be rotated, cams coöperating with the rollers to roll the material, fingers to eject the wrapped material, and pivoted means on the cams for coöperating with said fingers.

17. In a machine of the character specified, a rolling means comprising parallel rollers below and cams above, means on the cams for drawing pieces of material onto the rollers, means for feeding pieces of material one at a time to said cam means, means for feeding a sheet of wrapping paper to the material on the rollers whereby said material is wrapped, means for forcing material off of the rollers as soon as it is wrapped and pivoted means on the cams to insure such removal.

18. A stick candy wrapping machine comprising a source of supply of candy, means for agitating the candy therein, coöperating upper and lower rotating surfaces, means for drawing sticks one at a time to be engaged by said surfaces, means for supporting and feeding a continuous strip of paper and means for cutting it into sheets and delivering the sheets one at a time to said surfaces at the same time as the sticks.

19. A stick candy wrapping machine comprising a source of supply of candy, means for agitating the candy therein, parallel rotating rollers, cams rotating above and coöperating with the rollers, means on the cams for drawing sticks onto the rollers, means for delivering sticks one at a time to the cam means, means for ejecting wrapped material and auxiliary means on the cams for ejecting wrapped material.

20. A stick candy wrapping machine comprising a source of supply of candy, means for agitating the candy therein, coöperating upper and lower rotating surfaces, means for drawing sticks one at a time to be engaged by said rotating surfaces, means for supporting and feeding a continuous strip of paper, means for cutting and delivering flat sheets thereof one at a time to said surfaces, grabbers to hold the ends of the paper while rolled around the sticks between said surfaces, and means for ejecting the wrapped sticks from the machine.

21. A stick candy wrapping machine comprising a source of supply of candy, means for agitating the candy therein, coöperating upper and lower rotating surfaces, an arched contact plate over the lower one, means for drawing sticks one at a time to be engaged by said surfaces and plate, means for supporting and feeding a continuous strip of paper and means for cutting it into sheets and delivering flat the sheets one at a time to the said surfaces at the same time as the sticks.

22. A stick candy wrapping machine comprising a source of supply of candy, means for agitating the candy therein, coöperating upper and lower rotating surfaces, an arched contact plate over the lower one, means for drawing sticks one at a time to be engaged by the surfaces and plate, means on the plate to provide automatic adjustment of its contacting surface, a means for supporting and feeding a continuous strip of paper and means for cutting it into sheets and delivering the sheets one at a time to the said surfaces at the same time as the candy.

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Attest:

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