Jan. 2, 1940. G. KAEDING ET AL 2,185,593

WRAPPING MACHINE

Filed July 27, 1937 5 Sheets-Sheet 1

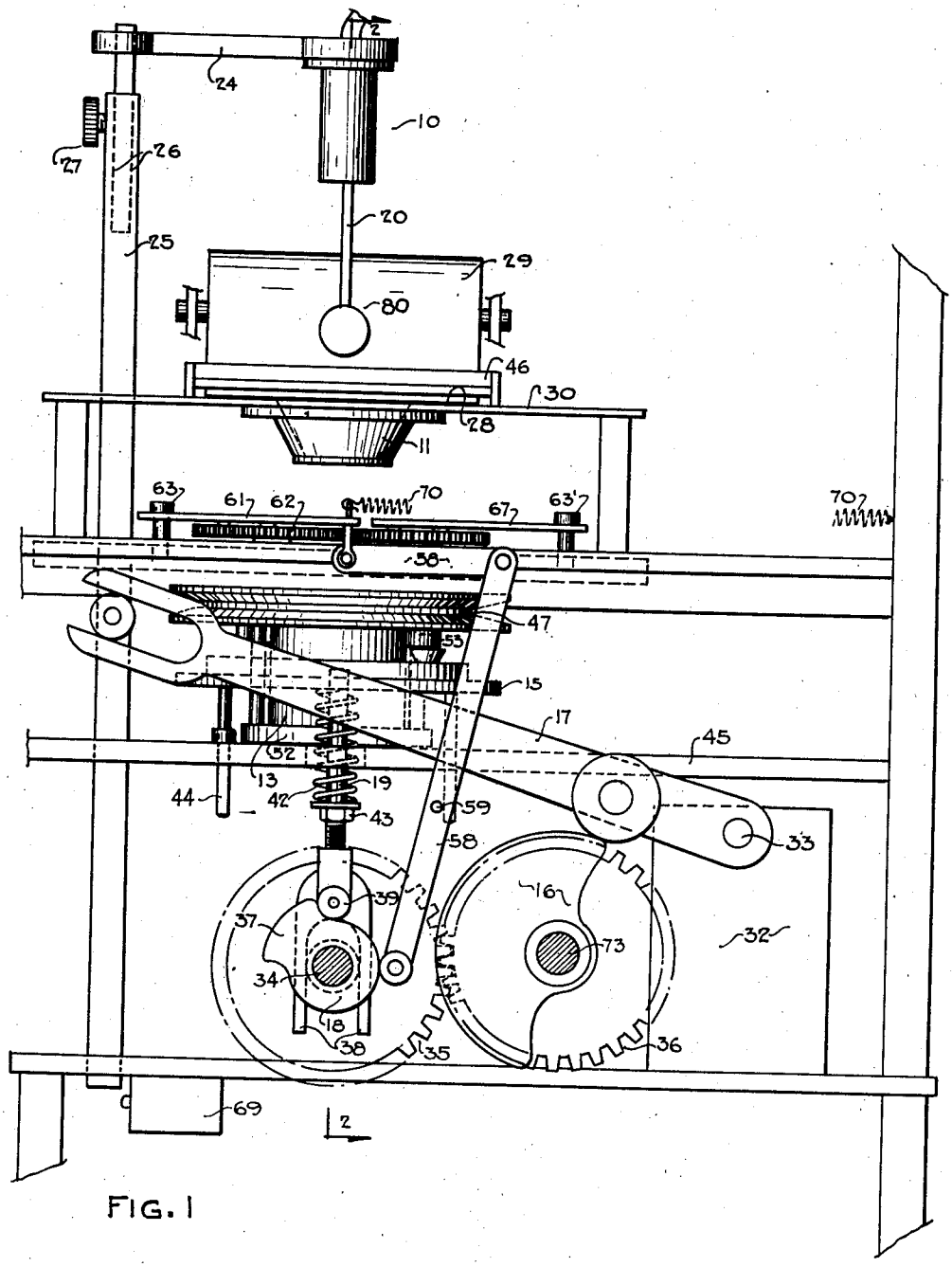


FIG. 1

INVENTOR.
GEORGE KAEDING.
HANS HOYER

BY Peter M. Boesen.

ATTORNEY.

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Filed July 27, 1937 5 Sheets-Sheet 2

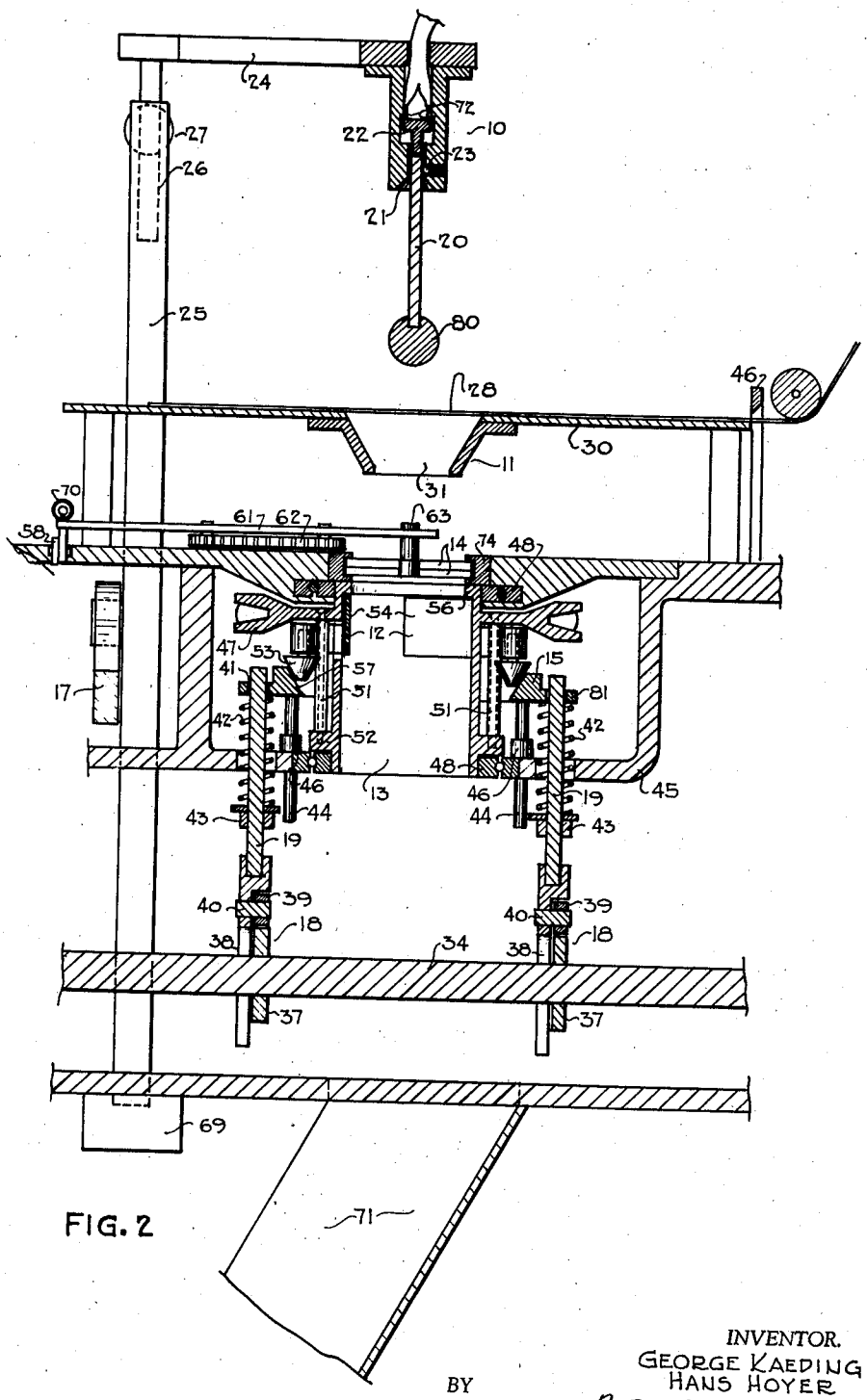


FIG. 2

INVENTOR.
GEORGE KAEDING
HANS HOYER
BY Peter W. Boesen
ATTORNEY.

Jan. 2, 1940. G. KAEDING ET AL 2,185,593

WRAPPING MACHINE

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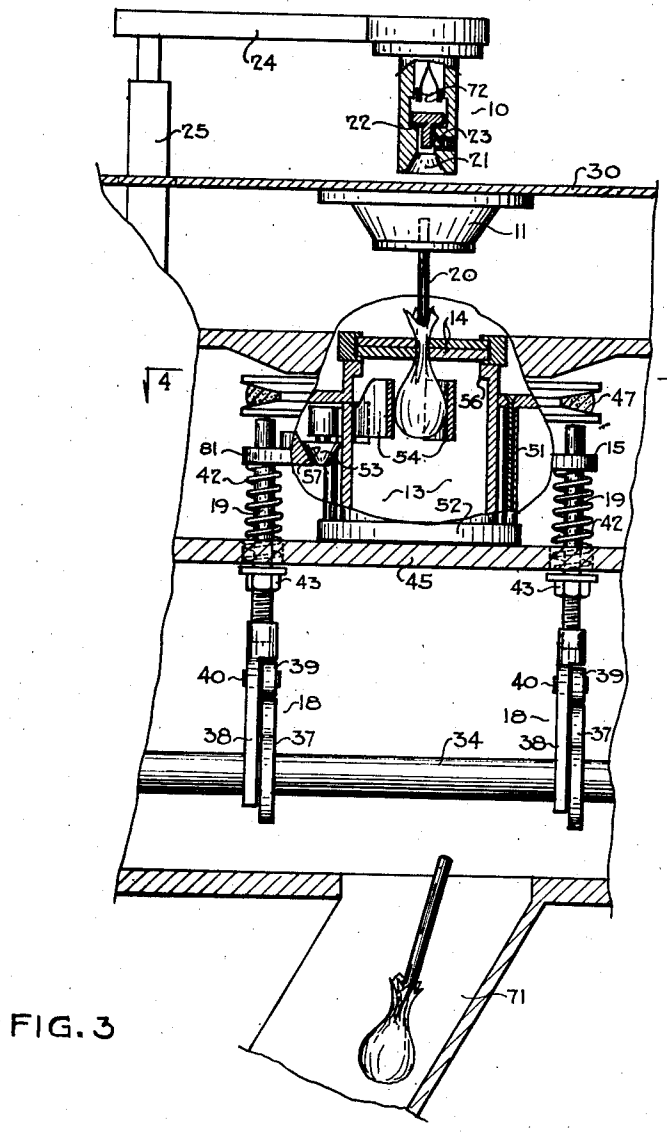


FIG. 3

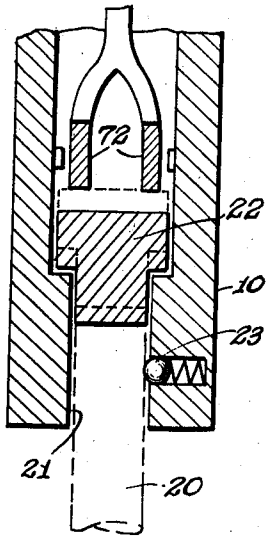


FIG. 10

BY

INVENTOR.
GEORGE KAEDING
HANS HOYER
Peter M. Boesen,
ATTORNEY.

Jan. 2, 1940. G. KAEDING ET AL 2,185,593

WRAPPING MACHINE

Filed July 27, 1937 5 Sheets-Sheet 4

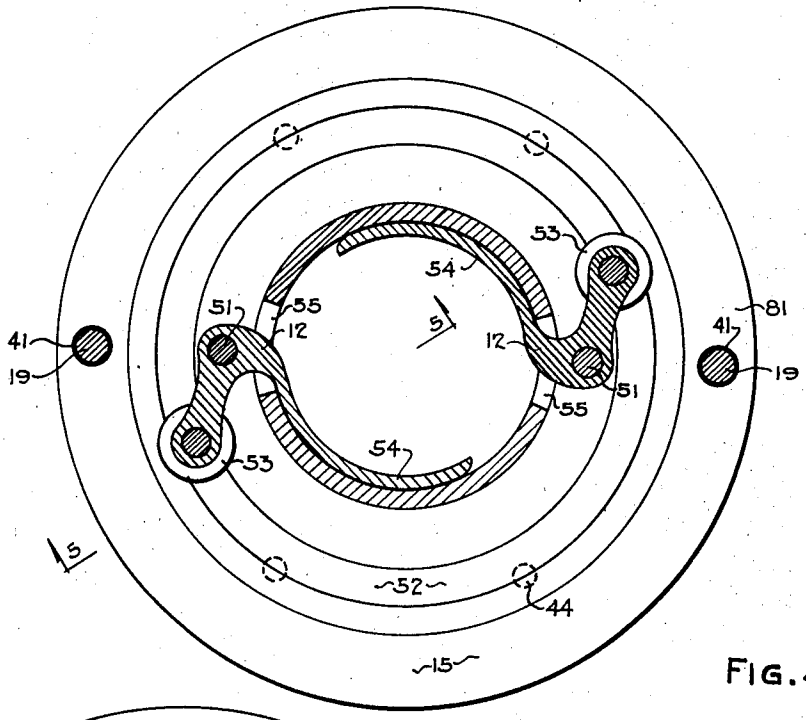


FIG. 4

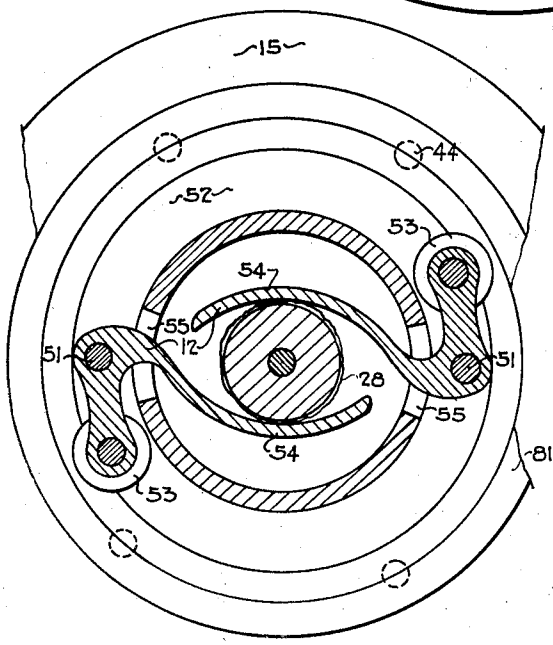


FIG. 5

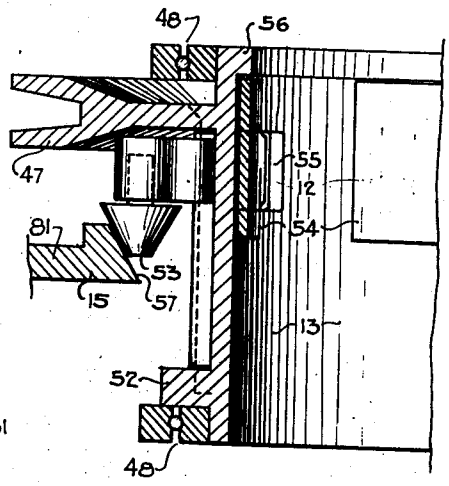


FIG. 6

BY

INVENTOR.
GEORGE KAEDING
HANS HOYER
Peter M. Boesen.
ATTORNEY.

Jan. 2, 1940. G. KAEDING ET AL 2,185,593

WRAPPING MACHINE

Filed July 27, 1937 5 Sheets-Sheet 5

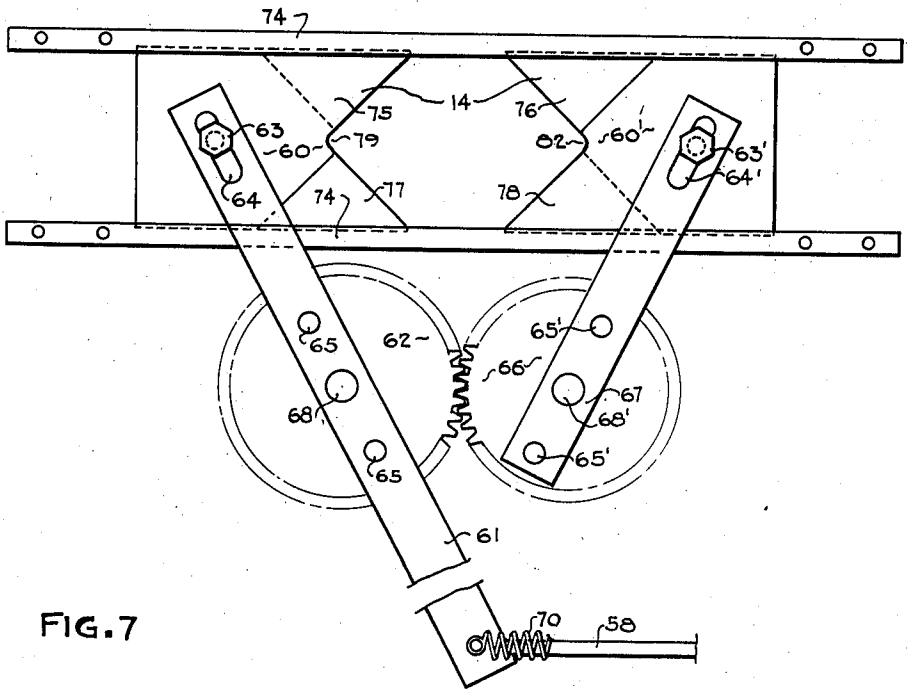


FIG. 7

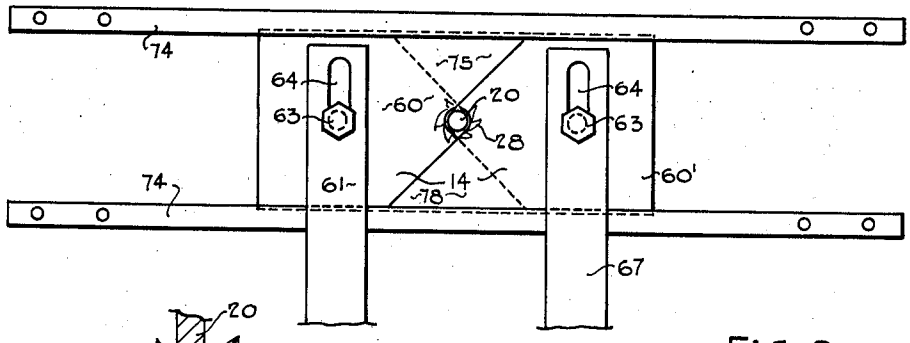


FIG. 8

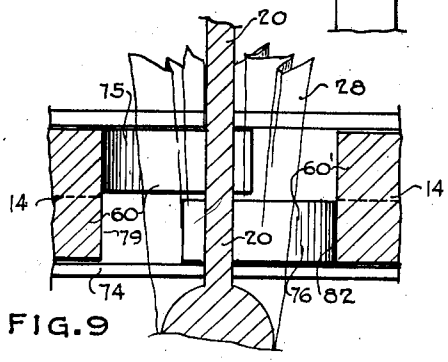


FIG. 9

BY

INVENTOR.
GEORGE KAEDING
HANS HOYER
Peter W. Boesen
ATTORNEY.

Patented Jan. 2, 1940 2,185,593

UNITED STATES PATENT OFFICE

2,185,593

WRAPPING MACHINE

George Kaeding, Astoria, and Hans Hoyer, Ozone Park, N. Y.

Application July 27, 1937, Serial No. 155,856

5 Claims. (Cl. 93—2)

This invention relates to new and useful improvements in wrapping machines, and it has for its special purpose to construct a machine, which will perform the entire act of wrapping articles, which are supported by, or mounted on sticks, such as candies, and the like.

The construction of our invention is to the effect, that when a stick is inserted in to an especially constructed holder, forming part of our said invention, and a suitable piece of paper is fed to the machine, the latter will wrap, or fold, said paper around the article to be wrapped, twisting said paper around the stick, or securing it to the latter, as well as disposing of the article after the aforesaid operation is completed.

It will be obvious that our said invention will constitute a great improvement as to time and labor saving, as one operator will be able to attend to two machines at the same time, while a speed as high as would be consistent with safety, may be attained in connection with a steady run of the machines, thus assuring a great and constant output.

It is further to be noted that this invention will constitute a great progress in the field of sanitation, as the wrapping performed by the device, for instance of candy, will prevent the latter being touched by the hands of anybody.

With the above and other objects in view, this invention consists of the novel features of construction, combination and arrangement of parts, hereinafter fully described, claimed and illustrated in the accompanying drawings, forming part of this application, and in which similar characters of reference indicate corresponding parts in all views, and in which:

Figure 1 is a side elevational view of the central part of our invention, showing part of the frame work removed.

Figure 2 is a transverse sectional view, taken on the line 2—2 in Figure 1.

Figure 3 is a front elevational view of our invention, showing it at a certain stage in its operation, with parts being shown in section.

Figure 4 is an enlarged detail transverse sectional view, taken on the line 4—4 in Figure 3, during one stage of the operation of the machine.

Figure 5 is a similar view, taken of the next stage in said operation.

Figure 6 is a detail sectional view, taken on the line 5—5 in Figure 4.

Figure 7 is a detail top plan view of the twisters of the machine, in an open position; while

Figure 8 shows the same, when closed;

Figure 9 is an enlarged detail transverse sectional view of the central portion of said twisters, when these are in a closing movement around the stick; and

Figure 10 is a detail view, showing specifically a construction illustrated in the Figures 2 and 3.

Referring more particularly to the drawings, the main features of our invention may be said to be embodied in the following, relatively cooperating elements: A holder, or apparatus, indicated at 10 and adapted to receive therein the stick of a piece of candy 80 to be wrapped; a cone- or funnnel-shaped collar, show at 11; claw-shaped members, indicated at 12 and forming part of a constantly rotating, tubular shaped body, shown at 13; a pair of twisters 14, gear operated, and adapted to wrap or twist a piece of paper 28 around the stick of the candy; a ring-shaped member 15 for the manipulation of the claws 12; and a cam and crank arrangement, of which the cam 16 in connection with a forked arm 17 forms part of the means for operating the holder 10, while cams 18 in conjunction with spring-actuated studs 19 impart motion to the aforementioned ring member 15.

The actual operation of our device may be said to be as follows:

When the stick 20, to which the candy 80 is secured, is inserted into the opening 21 of the holder 10, said stick will push a small connecting bar 22 upward, thereby closing a circuit in a built-in switch, the negative and positive poles of which are indicated by the numeral 72 in the Figures 2 and 3, and which switch, in turn, will start a motor, or other electrical means, and thus set the device in motion.

A small spring-actuated steel ball 23, will hold the stick 20 in place, temporarily, after said stick is inserted into the opening 21. The holder 10 is secured to an arm 24, which, in turn, is connected to a vertically operated bar 25.

As the sticks 20 will vary in length for the different kinds of articles, or candies, to be wrapped, the arm 24 is adjustable with respect to said bar 25, for instance, as indicated in Figure 1, by a telescoping arrangement 26, secured by a set screw 27.

Thus, in the relative operations, a piece of wrapping paper 28, is automatically fed from a paper roll 29, and automatically cut to the proper size, and placed above the funnel-shaped member 11; the latter is secured to a plate 30, as may, especially, be seen in the Figures 1 and 2.

As the paper roll 29 and the cutter 46 may be of any approved make, they are merely indicated on the drawings.

The holder 10, which is shown in Figure 1 at its highest point, will on its downward movement, caused by the force of gravity, and as soon as the cam-operated, fork-shaped arm 17 permits, force the piece of candy 80 through the funnel-shaped opening 31, thereby causing the paper 28 to fold around said candy and form a wrapper therefor as has been partly illustrated in the Figure 9.

The fork-shaped part of the arm 17 may be replaced, however, by a link-arm connection of the ordinary and well known make. The operation of said fork-shaped arm 17 is clearly illustrated in Figure 1 in connection with a cam 16 secured to an axle 73 to which latter is also secured a gear 36.

A block 32 to which the arm 17 is pivotally secured, as indicated by the numeral 33, forms part of the frame work of the invention.

An axle 34 provided with gears 35, in mesh with the gears 36, has two smaller cams 37 secured thereto, so that said cams, at the moment the holder 10 is at its lowest position or point, will start the upward movement of the two rods, or studs 19, which latter terminate at their lower ends in fork-shaped guiding members 38; small rollers 39, cooperating with the cams 37, are pivotally arranged on said fork-shaped members, as shown at 40.

The upper ends of said studs are slidably arranged in the outer and reduced portion 81 of the ring member 15, which latter is provided with openings 41, as may especially be seen in the Figures 2 and 4.

Springs 42, the action of which is regulated by setscrews 43, provide support for the ring member 15. A number of small studs 44, integral with the latter and slidably arranged in the frame 45, as shown at 46, provide an additional guidance and rigidity for the ring member 15 in its up and downward movement.

The tubular formed member 13, which during the operation of the device is kept constantly rotating by means of a belt-drive 47, or by suitable gears, has ball-bearings 48 arranged at the top and bottom thereof, in order to secure a smooth run of said member during the operation.

A suitable number of claw-shaped members 12—of which herein are shown two—are pivotally arranged on the outside of the rotating tubular member 13, thereby, in a sense, forming a part of the same, as may be seen, especially in the Figures 2, 4, 5 and 6. Studs or pivots 51 secured to the belt-drive member 47, and an extended ring-formed member 52 at the lower end of the drum, serve, respectively, as axles for said claws.

While one end of the claw is provided with a cut-off cone-shaped roller 53, pivotally mounted thereon, the other end of said claw terminates in a semi-circular flat portion 54, symmetrical in shape to the inside of the rotating drum and projecting through the wall of the same by means of cut-out portions 55 therein. Normally, the flat portions of the claws will, actuated by the centrifugal forces, rest against the inside of the drum-shaped member, below an inwardly extending ring-formed portion 56.

When the aforementioned cams 18 actuate the studs 19 in their upward movement, the increased spring action will force the ring member 15, the inside of which has a cone-shaped surface 57 similar to those of the rollers 53, up against the latter, thereby pressing said rollers inwardly towards the center. The semi-circular claw-shaped portions 54 on the inside of the drum will consequently be forced towards each other, thereby causing these to take hold of the article to be wrapped, with a predetermined pressure, and enough thereof, to start said article rotating with the drum, thereby causing the release of the stick of the article, or candy, from the holder 10, which now starts upon its upward movement again.

While the article to be wrapped now is held by the claws 12 rotating with the drum, another cam, similar to the one indicated at 37 (but not shown) arranged on the same axle 34, in conjunction with a link-arm 58, turnably arranged on the pivot 59, starts to move the two half-parts 60 and 60' of the twister towards each other guided by two tracks 74, which may be seen in the Figures 2, 7, 8 and 9. This arrangement is best illustrated in Figure 7, where the arm 61 is shown secured to a gear 62 by screws, or studs 65. A cut-out oblong portion 64, in the arm 61, in conjunction with a bolt 63 secured to the twister, provides the necessary sliding arrangement. Another gear 66 in mesh with the gear 62 and provided thereon with an arm 67, similar to the arm 61, but only shorter than the latter, operates the other half of the twister. The gears 62 and 66 are pivotally secured to the frame, as shown at 68.

It will easily be understood how the cam-operated link-arm 58 will force the two half-parts of the twister towards each other.

Thus one-half part of the twister 60 is formed with two reduced portions 75 and 77 of a triangular shape; the reduced portion 75 representing the upper half at the top of the part 60, while the reduced portion 77 represents the lower half of the part 60; said two parts terminating in a curved central portion 79.

A similar arrangement is to be found in regard to the part 60', wherein, however, the reduced portions 76 and 78 are reversely arranged in said part 60' in order to permit during operation, that the portion 75 will slide above the portion 76, and the portion 77 below the portion 78. By this time the claws will release their hold upon the candy, leaving the same to be held by the twister. It may here be noted that the central portion 82 is curved similarly to the before mentioned part 79.

A second switch 69, shown in Figure 1, and actuated by the vertical bar 25 upon the downward movement of the latter, will keep the device in motion after the circuit is broken upon the removal of the stick of the candy from the holder 10, when the latter is at its lowest position. Said switch 69 will subsequently cause the bar 25 to move upward again until this bar with the holder 10 has reached its original or highest position. At such time the contact between the bar 25 and the switch 69 will be broken, as may be seen in Figure 1; thus completing one cycle of operation.

When the next stick of a piece of candy is inserted into the holder 10, the motor again starts to operate the machine; the cam manipulating the twister, or the two parts composing the latter, will at the beginning of the new downward movement of the holder have completed its rotation, and the spring 70 fastened to the frame and the arm 61 will snap the parts of the twister back to the open position shown in Figure 7. The candy held by the twister will drop through an opening in the frame, and by means of a chute 71 be removed from the machine.

Instead of the arrangement described herein, our invention may be constructed as a double unit, making it possible for one operator to feed two holders.

In this case the second switch **69** can be eliminated, as the built-in-switch of the second holder will take the place of the switch **69**, for the second half of each cycle.

It is obvious that changes may be made in the construction, combination and arrangement of the parts within the scope of the appended claims, without departing from the spirit of the invention, and we do not, therefore, wish to limit ourselves to the exact construction and arrangement shown and described herein.

What we claim as new, and desire to secure by Letters Patent of the United States, is:

1. A wrapping machine for articles of candy and the like, comprising a holder adapted to receive the stick of a piece of candy therein, means for temporarily retaining said stick in the holder, a funnel-shaped member arranged below said holder, and adapted to receive a sheet of paper disposed on the top thereof, a revolving drum centrally arranged below the latter, a switch connection arranged in said holder adapted to be closed by the stick of said piece of candy and means controlled by said switch to set the holder in motion in a downward direction, whereby to convey the candy with the paper into said drum, jaws pivotally connected to the drum and mechanism to engage said jaws with the candy, a pair of twisters arranged above said drum means to actuate said twisters to twist the sheet of paper around the stick of the piece of candy, and comprising a gear-actuated arm connected to said twisters.

2. In a device of the class described, a movable holder formed to receive a stick of a piece of candy therein, a funnel-shaped member adapted to have a sheet of paper disposed on top thereof, a revolving drum centrally arranged below the funnel-shaped member, a switch connection arranged in said holder adapted to be closed by the stick of said piece of candy and mechanism actuated by said switch to set the holder in motion in a downward direction, whereby to convey the candy with the paper into said drum, the latter being formed with openings in the wall thereof, claw-shaped members pivotally mounted upon the outside of said drum member, said claw-shaped members having one arm thereof extending through the openings in the latter and adapted to engage said piece of candy, the other arms of said claw-shaped members having rollers mounted thereon, a vertically movable ring member arranged upon the outside of said drum and adapted to engage said rollers, whereby to actuate said claw-shaped members, the latter having the inner ends thereof terminating in a semi-circular flat portion adapted to normally rest against the inner side of the drum member, and a pair of twisters arranged above the revolving drum member and means to actuate said twisters to wrap the sheet of paper around the stick of candy.

3. In a device of the class described, a frame and a holder secured to the latter, said holder being formed with an electric contact in the top thereof, a member movable in said holder and adapted to engage said contact, the holder being at its lower end formed with an opening therein to receive the stick of a piece of candy, said stick being adapted to actuate said member, whereby to close the circuit, and a spring actuated ball disposed in the wall of said holder and adapted to secure the stick temporarily in the latter, a funnel-shaped member below said holder adapted to receive a sheet of paper on top thereof, a rotating drum having openings in the wall thereof and said drum being centrally disposed below the funnel-shaped member, means actuated by the closing of the circuit to move said holder downwardly, whereby to carry the piece of candy and paper through the funnel-shaped member and into the rotating drum, claw-shaped members pivotally mounted upon the outside of said drum and having one end thereof extending through the openings in the latter and adapted to engage the piece of candy, rollers mounted upon the other ends of said claw-shaped members, a ring member movably arranged upon the outside of the drum means to move said ring member to engage said rollers and actuate the claw-shaped members, movable twisters mounted above the drum, and a track adapted to accommodate the movement of said twisters, means to move the twisters to engage the stick of the candy upon release of said candy by the claw-shaped members.

4. A wrapping machine for articles of candy, and the like, comprising a holder secured to a horizontal arm and adapted to receive the stick of a piece of candy therein, a funnel-shaped member arranged below said holder, and adapted to receive a sheet of paper on the top thereof, a revolving drum centrally arranged below said funnel-shaped member, a cam-operated fork-shaped arm adapted to actuate said horizontal arm and holder in a downward direction, whereby to carry the piece of candy towards the sheet of paper, and together with the latter through the funnel-shaped member and into the revolving drum, said drum being formed with openings in the side thereof, claw-shaped members pivotally attached upon the side of the drum and having one end thereof projecting through the openings of the latter and adapted to engage said piece of candy, a vertically movable ring member arranged upon the outside of the drum member and beneath the claw-shaped members and adapted to actuate the latter, said ring member being formed with a number of studs made to slidably engage a frame, and means for actuating said ring member, a twister comprising two parts and being positioned above the drum member and adapted to twist the piece of paper around the stick above the piece of candy proper, said twister being made to retain the piece of candy upon release of the latter by the claws, and means for actuating said twister, substantially as shown and described.

5. A wrapping machine for articles of candy, and the like, comprising a holder secured to a support, and adapted to receive the stick of a piece of candy therein, a funnel-shaped member arranged below said holder, and adapted to receive a sheet of paper on the top thereof, a revolving drum centrally arranged below the said funnel-shaped member, and a cam-operated arm connected to said support and adapted to actuate the said support of the holder and move the latter downwardly, whereby the piece of candy is moved against the sheet of paper and carried with the latter through the funnel-shaped member and into the revolving drum, said drum being formed with openings in the side thereof, claws pivotally mounted upon said drum, each claw having one end thereof extending through the openings in the drum, said

claws being adapted to engage the piece of candy, a vertically movable ring member surrounding the revolving drum, a number of studs integral with said ring member and a cross-wise arranged frame slidingly receiving said studs, whereby to support the steady motion of said ring member, gear-actuated rods having springs mounted thereon slidingly connected to said ring member and adapted to actuate said ring member in its vertical motion, the other ends of the claws having cone-shaped rollers mounted thereon, the said ring member being formed with an inner slanting surface adapted to actuate the rollers of the claws in bringing the first said ends of the latter together, whereby to securely grasp the candy and release the stick of the latter from the holder, a pair of twisters arranged above the drum member and mounted to slide upon a track, arms mounted upon gears and being slidably connected to said twisters, a cam-operated vertical rod, and a horizontal arm for connecting said rod to one arm of the twisters, whereby to actuate the latter, said twisters being adapted to engage the stick of candy upon release of the latter by the claws, substantially as shown and described.

GEORGE KAEDING.
HANS HOYER.