

July 14, 1931.

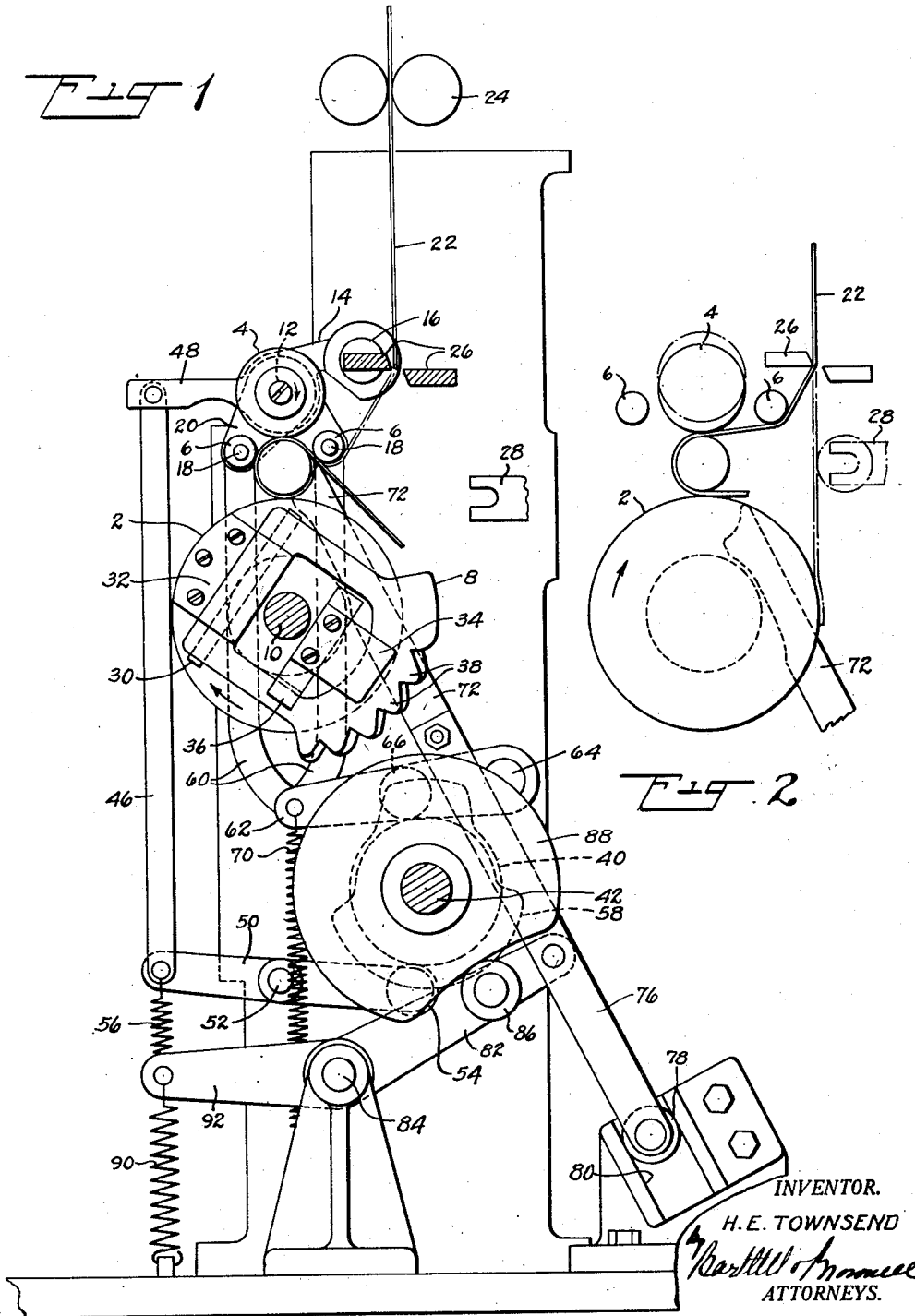
H. E. TOWNSEND

1,813,974

WRAPPING MACHINE

Filed May 3, 1928

2 Sheets-Sheet 1



July 14, 1931.

H. E. TOWNSEND

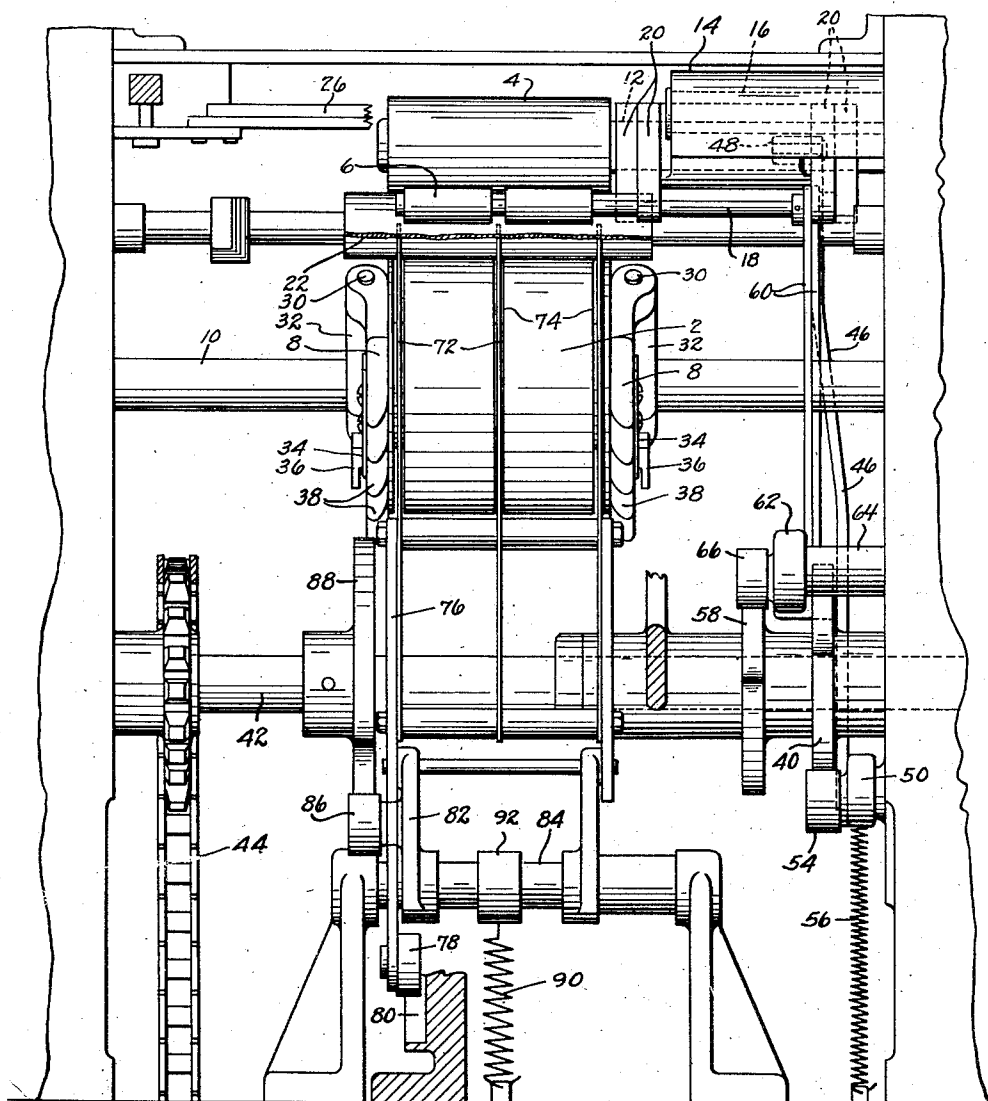
1,813,974

WRAPPING MACHINE

Filed May 3, 1928

2 Sheets-Sheet 2

Fig 3



INVENTOR.

H. E. TOWNSEND.

BY *Carl H. Brown*
ATTORNEYS.

UNITED STATES PATENT OFFICE

HARRY E. TOWNSEND, OF BROOKLYN, NEW YORK

WRAPPING MACHINE

Application filed May 3, 1928. Serial No. 274,710.

My invention relates particularly to machines for wrapping hard candies and other articles that are in the form of circular disks, and has for its object to improve the construction and mode of operation of machines of this character.

The several features of the invention, whereby this object is attained, will be clearly understood from the following description and accompanying drawings, in which:

Figure 1 is a longitudinal sectional view of a portion of a wrapping machine embodying the features of the invention in their preferred form;

Fig. 2 is a diagrammatical view corresponding to a portion of Fig. 1 but showing certain parts in a different position; and

Fig. 3 is a front view, partly broken away, of a portion of the machine.

The machine illustrated in the drawings is of the type of the one described and claimed in my pending application Serial No. 74,293, filed December 9, 1925. As shown, the machine is provided with lower and upper wrapping rolls 2 and 4, respectively, arranged horizontally in the same vertical plane for receiving the article to be wrapped between them, and is further provided with retaining rolls 6 for engaging opposite sides of the article so as to retain the article between the wrapping rolls during the wrapping operation. The wrapping rolls serve to wind the wrapper about the article with the ends of the wrapper projecting beyond the ends of the article, and tucking members 8 are arranged adjacent the ends of the lower roll for tucking in the projecting ends of the wrapper over the ends of the article after the wrapper has been wound about the article. The lower wrapping roll is carried by a shaft 10 which drives the roll in suitable timed relation to other parts of the machine. The upper roll 4 is carried by a shaft 12 which drives the roll at the same peripheral speed as the lower roll. The shaft 12 extends through a bearing in the end of a carrier lever 14 fulcrumed on a stud shaft 16 projecting from the machine frame. The retaining rolls 6 are mounted on the outer ends of stud shafts 18 which have their inner ends

secured to the ends of arms 20 which are pivotally mounted upon the stud shaft 12 at opposite sides of the carrier lever 14. The strip of wrapping material 22, from which the wrappers are formed, is fed downwardly by means of feed rolls 24 between cutting knives 26, the lower end portion of the strip being fed across the path of the article as the article is carried to the wrapping rolls. A suitable article conveying device 28 conveys the articles to the wrapping rolls.

Except as hereinafter described, the parts above referred to may be and preferably are the same in both construction and mode of operation as the corresponding parts of the machine of said pending application Ser. No. 74,293, to which reference may be had for a full and complete description of the same.

In the illustrated construction, the lower wrapping roll 2 is of relatively large diameter, and the tucking members 8 are carried by the ends of the roll. Each tucking member comprises a plate having projecting arms that are pivotally mounted on the ends of a pivot pin 30 which extends through a bracket plate 32 secured on the end of the roll. Each tucking member is pressed toward the end of the roll by means of a leaf spring 34 having one end secured to a bracket bar 36 secured on the end of the roll and its other end bearing on the free end of the tucking member. The free end of the tucking member is provided with a series of suitably formed tucking fingers 38 which project beyond the peripheral surface of the lower wrapping roll.

The upper wrapping roll 4 is raised and lowered through connection with a cam 40 carried by a shaft 42, the shaft being driven as by a chain 44 which passes over a sprocket wheel secured on the shaft. Said connection comprises a rod 46 which has one end pivotally connected with the ends of an extension 48 on the carrier lever 14, and its other end pivotally connected to the outer end of a cam lever 50 pivoted at 52 on the machine frame and provided with a cam roll 54 on its other end which engages the cam 40, the cam roll being held in engagement with the cam by means of a coiled spring 56 connected with

the outer end of the cam lever. The retaining rolls 6 are moved toward and from the sides of the articles by connection with a cam 58 carried by the shaft 42. This connection
 5 comprises rods 60 which have their upper ends pivotally connected with the retaining roll shafts 18, and the lower ends of both of them pivotally connected with one end of a
 10 cam lever 62 fulcrumed at 64 on the machine frame. This cam lever 62 carries a cam roll 66 which engages the cam 58, the roll being held in engagement with the cam by means of a coiled spring 70 connected with the outer
 15 end of the cam lever.

The machine is further provided with a plurality of tucking fingers 72 for tucking in one end of the wrapper over the back of the article, the ends of the tucking fingers being curved to conform with the peripheral
 20 surface of the article. These tucking fingers 72 are inclined downwardly and rearwardly and are reciprocated longitudinally toward and from the article, the lower wrapping roll 2 being provided with annular clearance
 25 grooves 74 through which the fingers work. The tucking fingers 72 are carried by a longitudinally movable carrier 76 which is guided at its lower end by a roll 78 secured thereon which works in a guideway 80 on a bracket
 30 block secured to the machine frame. The carrier 76 is pivotally connected at a point spaced a distance from its lower end with the rear end of a cam arm 82 which has its other end secured on a rock-shaft 84. The
 35 cam arm 82 carries a cam roll 86 which is engaged by a cam 88 carried by the cam shaft 42, the cam roll being held in engagement with the cam by means of a coiled spring 90 connected with an arm 92 secured to the rock-shaft 84.

In the operation of the machine, as the article is conveyed by the device 28 to the wrapping rolls, it engages the lower end portion of the strip 22 and carries it therewith
 45 to its position between the wrapping rolls. As the article approaches its position between the wrapping rolls, the actuating cam 40 for the upper roll permits this roll to be moved downwardly by its spring 56 so as to
 50 cause the said lower portion of the strip to be tightly drawn about the forward portion of the article. The tucking fingers 72 then act to tuck in or lay the lower end of the strip up against the back portion of the article.
 55 Immediately following this operation the cutting knives 26 cut off the length of the strip 22 extending below the knives to form the completed wrapper, and the retaining rolls are moved downwardly by their
 60 spring 70 to engage the sides of the partly wrapped article, the rear retaining roll tending to bend the projecting upper portion of the wrapper down over the lower end portion which is still held in position by the tuck-
 65 ing fingers 72.

The wrapping rolls are then rotated to cause the wrapper to be wound about the article, the tucking fingers 72 being withdrawn from the article after the wrapping
 70 rolls commence to rotate. After the wrapper has thus been completely wound about the article and during the continued rotation of the wrapping rolls, the tucking members 8 act to tuck in the ends of the wrapper over
 75 the ends of the article, the tucking members being yieldingly pressed against the ends of the article so as to insure tight and even tucks being formed. After the article has thus been completely wrapped, the upper
 80 wrapping roll 4 and the retaining rolls 6 are raised out of engagement with the article so as to permit the article to be removed and to permit the next article to be wrapped to be delivered to them.

In the illustrated construction, the wrapper is of sufficient length and the lower wrapping roll is of sufficient diameter to cause the wrapper to be wound twice around the roll before the tucking members act to
 85 tuck in the ends of the wrapper.

As will be evident to those skilled in the art, my invention permits various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls for winding a wrapper about the peripheral surface of the article, and devices carried by one of the rolls
 100 for tucking in the ends of the wrapper over the ends of the article and for yieldingly pressing the tucked in ends of the wrapper against the ends of the article.

2. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls for winding a wrapper about the peripheral surface of the article, and means for tucking in the ends of the wrapper over the ends of the article comprising tucking members pivotally mounted adjacent the ends of one of the rolls, and means for yieldingly pressing said members toward the ends of the article during the tucking operation.

3. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls for winding a wrapper about the peripheral surface of the article, and devices rotating simultaneously with one of the rolls for tucking in the ends of the wrapper over the ends of the article after the wrapper has been wound at least once completely around the article.

4. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls for winding a wrapper about the peripheral surface of the article, and means for tucking in the ends of the wrapper over the ends of the article com-
 130

prising tucking members mounted on the ends of one of the rolls so as to rotate with said roll, and springs for yieldingly pressing said members toward the ends of the article during the tucking operation.

5 5. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls for winding a wrapper about the peripheral surface of the article, and means for tucking in the ends of the wrapper over the ends of the article comprising members extending over the ends of one of the wrapping rolls, each having one end pivotally mounted on the roll and its other end provided with a plurality of tucking fingers projecting beyond the peripheral surface of the roll, and springs for yieldingly pressing the outer ends of said members toward the ends of the article during the tucking operation.

20 6. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls, means for delivering the article to a position between the rolls, means for feeding the end of a strip of wrapping material across the path of the article whereby one end portion of the strip is carried by the article to the wrapping rolls, means for cutting off a length of the strip to form a completed wrapper after the article has been delivered to the rolls, and means for bending in one end of the wrapper against the article whereby upon subsequent rotation of the rolls the wrapper will be wound about the article, said bending in of one end of the wrapper and the winding of the wrapper about the article being effected while the article is held in fixed position with relation to the wrapping rolls.

35 7. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls horizontally arranged, means for delivering the article to a position between the rolls, means for feeding the end of a strip of wrapping material downwardly across the path of the article whereby the lower portion of the strip is carried by the article to the wrapping rolls, means for cutting off a length of the strip to form a completed wrapper after the article has been delivered to the rolls, and means for bending in the lower end of the wrapper against the article whereby upon subsequent rotation of the rolls the wrapper will be wound about the article, said bending in of one end of the wrapper and the winding of the wrapper about the article being effected while the article is held in fixed position with relation to the wrapping rolls.

60 8. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls horizontally arranged, means for delivering the article to a position between the rolls, means for feeding the end of a strip of wrapping material

downwardly across the path of the article whereby the lower end portion of the strip is carried by the article to the wrapping rolls, means for cutting off a length of the strip to form a completed wrapper after the article has been delivered to the rolls, means for bending in the lower end of the wrapper against the article, and means for bringing the other end portion of the wrapper down over the tucked in end portion and holding it in position during the subsequent rotation of the wrapping rolls, said bending in of the lower end of the wrapper against the article and bringing the other end portions of the wrapper down over the tucked in end portion, being effected while the article is held in fixed position with relation to the wrapping rolls.

70 9. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls arranged one above the other, means for delivering an article with its wrapper to a position between the rolls, and means comprising longitudinally reciprocating fingers for bending in one end portion of the wrapper against the article whereby upon subsequent rotation of the wrapping rolls the wrapper will be wound about the article with said bent in end underlying, said bending in of one end portion of the wrapper and said winding of the wrapper about the article being effected while the article is held in fixed position with relation to the wrapping rolls.

85 10. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls, one of the rolls having a plurality of annular grooves, means for delivering an article with its wrapper to a position between the rolls, and means for bending in one end of the wrapper against the article comprising longitudinally reciprocating fingers working through said grooves in the roll.

100 11. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls, means for delivering an article with its wrapper to a position between the rolls, a carrier longitudinally movable, fingers mounted on the carrier and movable therewith for bending in one end of the wrapper against the article, and means comprising a cam for actuating the carrier.

115 12. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls arranged horizontally one above the other and adapted to receive an article and its wrapper between them, means comprising a cam and suitable connections for moving the upper roll downwardly into a position to engage the article as the article is presented to the rolls, retaining rolls for engagement with opposite sides of the article to retain the article between the wrapping rolls, and means comprising a second

cam and suitable connections for moving the retaining rolls toward and from the article.

13. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls for winding a wrapper about the peripheral surface of the article while the axes of the wrapping rolls and article are held in relatively fixed position, and devices carried by one of the wrapping rolls for tucking in the ends of the wrapper over the ends of the article after the wrapper has been wound at least once around the article by the wrapping rolls.

14. A machine for wrapping a cylindrical article of the class described having, in combination, wrapping rolls arranged one above the other, means for delivering the article to a position between the rolls with the axis of the article in the plane of the axes of the rolls, means for feeding the end of a strip of wrapping material downwardly across the path of the article whereby the lower end portion of the strip is carried by the article to the wrapping rolls, means for cutting off a length of the strip to form a completed wrapper after the article has been delivered to the rolls, devices for bending the lower end of the wrapper upwardly against the article and for bending the unwrapped other end portion of the wrapper downwardly over said lower bent in end thereof, and means for subsequently rotating the rolls to cause the wrapper to be wound about the article.

In testimony whereof, I have signed my name to this specification this 1st day of May, 1928.

HARRY E. TOWNSEND.

40

45

50

55

60

f