

Sept. 19, 1933.

T. JENSEN

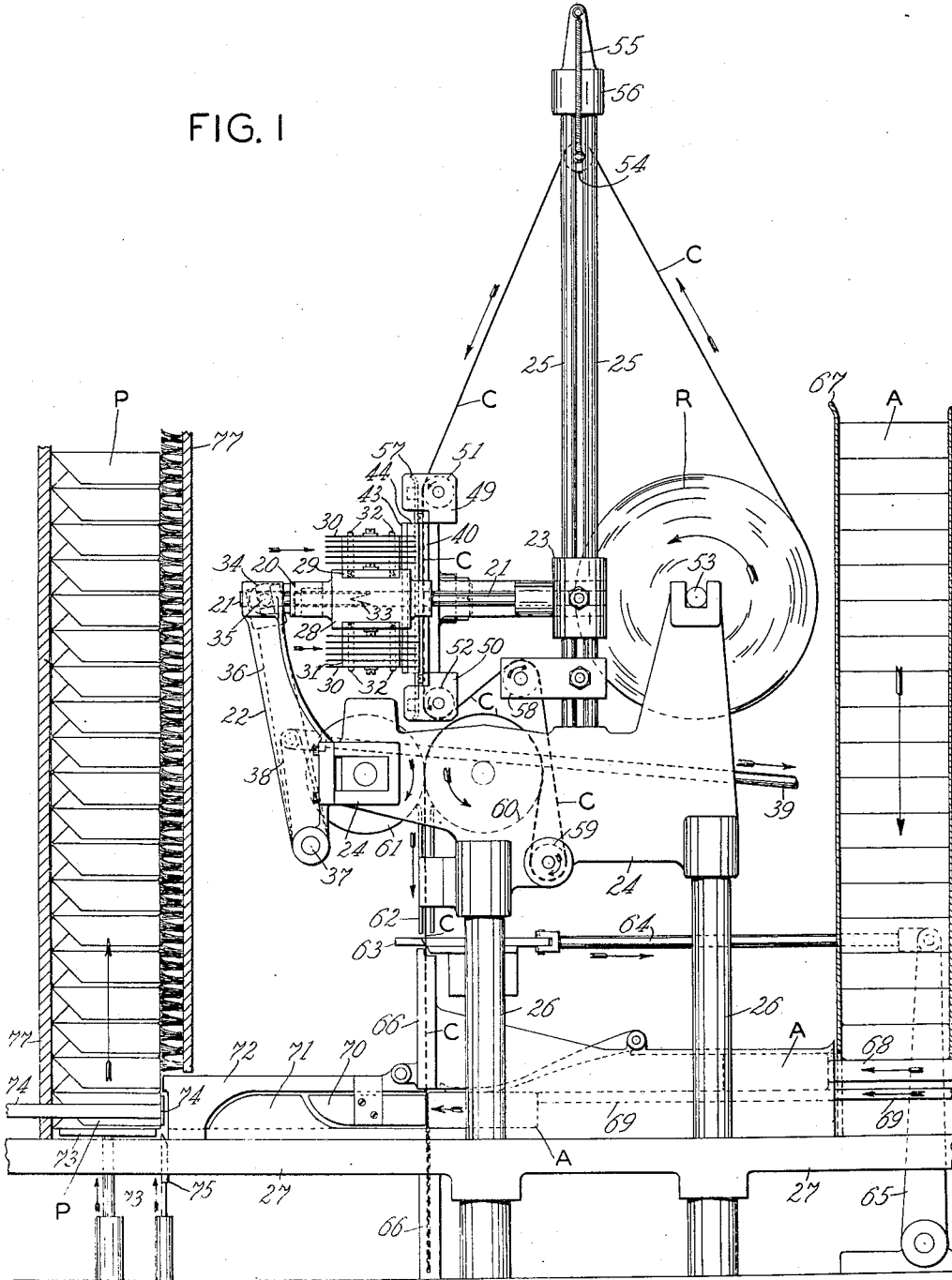
1,927,404

WRAPPER NICKING DEVICE

Filed June 12, 1931

3 Sheets-Sheet 1

FIG. 1



INVENTOR
Thormod Jensen
BY
Cydney J. Prescott
ATTORNEY

Sept. 19, 1933.

T. JENSEN

1,927,404

WRAPPER NICKING DEVICE

Filed June 12, 1931

3 Sheets-Sheet 2

FIG. 2

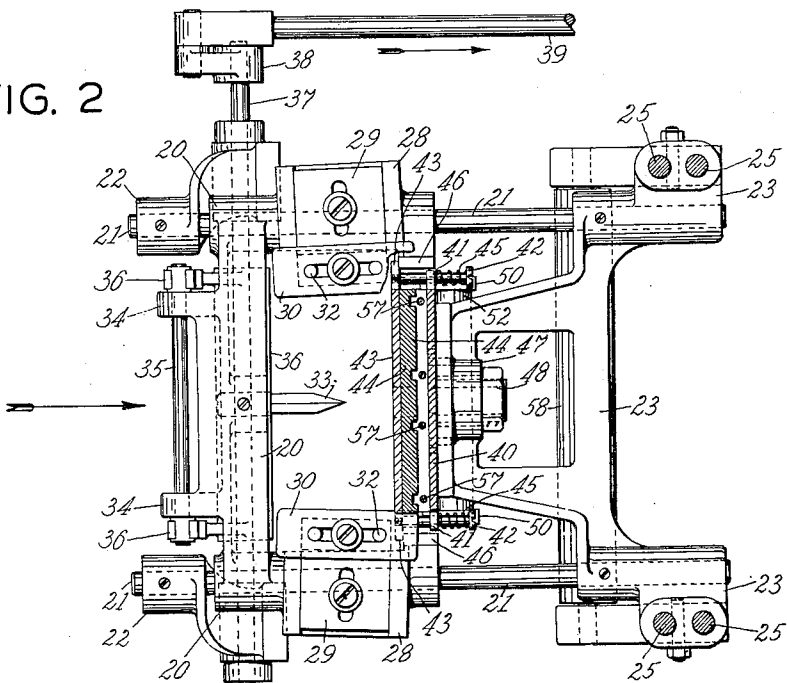
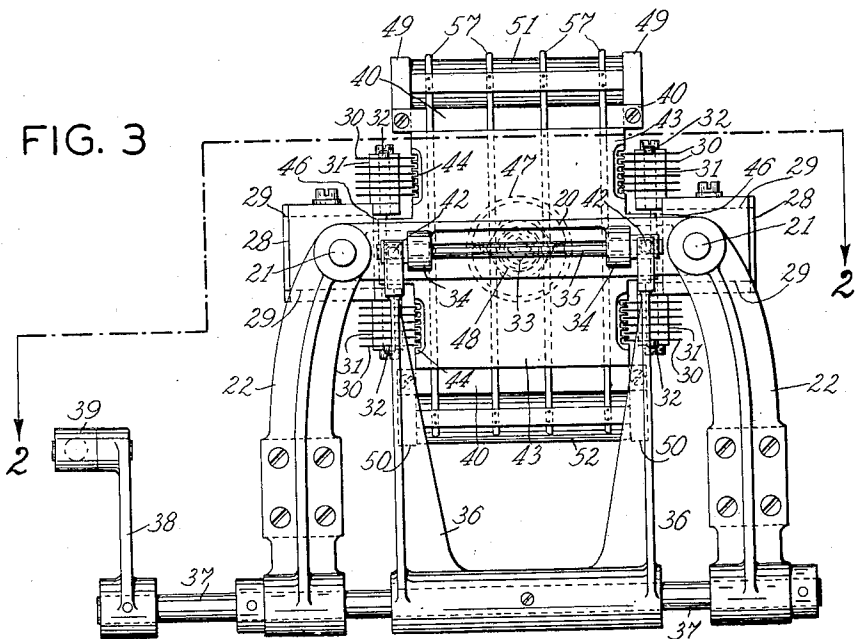


FIG. 3



INVENTOR
Thorvald Jensen
BY
Sydney Prescott
ATTORNEY

Sept. 19, 1933.

T. JENSEN

1,927,404

WRAPPER NICKING DEVICE

Filed June 12, 1931

3 Sheets-Sheet 3

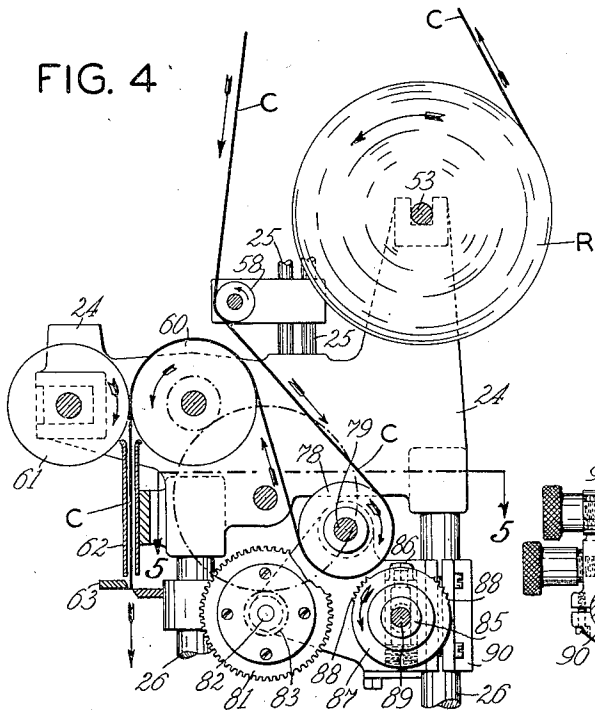


FIG. 5

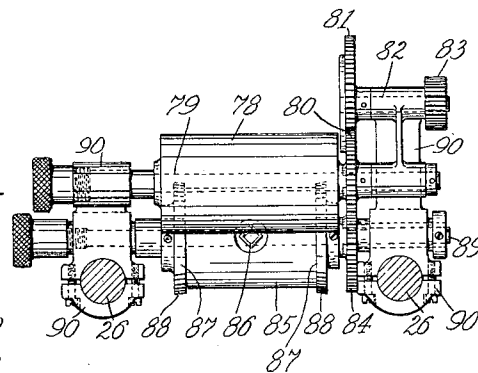


FIG. 6

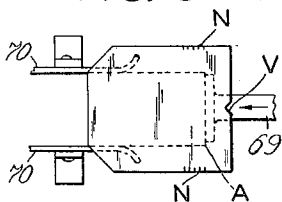


FIG. 8

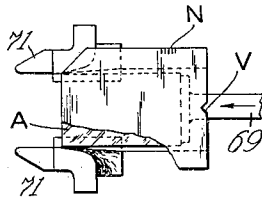


FIG. 10

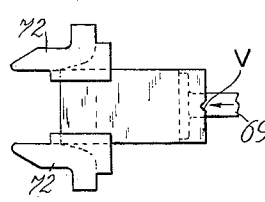


FIG. 7

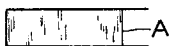


FIG. 9



FIG. 11

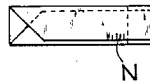


FIG. 12

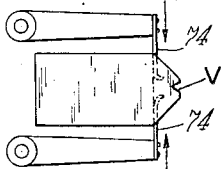


FIG. 14

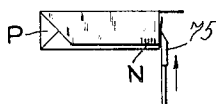


FIG. 15

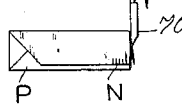


FIG. 13

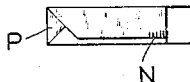
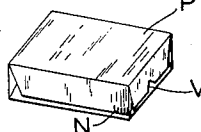


FIG. 16



INVENTOR
Thormod Jensen
BY Sydney J. Percott
ATTORNEY

UNITED STATES PATENT OFFICE

1,927,404

WRAPPER NICKING DEVICE

Thormod Jensen, Brooklyn, N. Y., assignor to
American Machine & Foundry Company, a
corporation of New Jersey

Application June 12, 1931. Serial No. 543,973

29 Claims. (Cl. 93—2)

This invention relates to wrapping machines, particularly to machines for wrapping articles or packages in wrapping material such as cellophane or glassine. The main object of this invention is to provide a novel attachment for wrapping machines which will supply the wrapper with small cuts or nicks which facilitate the unwrapping and tearing of the wrapper when the article is to be taken out of its wrapper. While the attachment is adapted to operate on any kind of wrapping material, it is particularly designed for cellophane or glassine which are very hard to tear when their edge is unimpaired. For this reason the present nicking attachment is provided to produce a wrapper having nicked side and end edges. A further object of the invention is to provide a novel method of forming such nicked wrappers. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations and a novel method hereinafter fully described and then specifically set forth in the claims hereunto appended.

The novel attachment may consist of four sets of razor blades placed on a slidable bar which moves the razor blades toward and away from the intermittently fed web of wrapping material, thereby providing small cuts or nicks in the side edges of the latter. In the center of the slidable bar is placed a cutter or punch working in synchronism with the razor blades which cuts a diamond shaped hole in the center of the passing cellophane or glassine web. When the wrapper is cut therefrom for a package, the cut passes through the middle of the diamond shaped perforation, so that each wrapper has on both ends a V-shaped nick which, together with the nicks on the side edges, facilitates tearing of the wrapper from the article.

The nicking attachment may be of the reciprocating type just described for use with a wrapping machine in which the web is fed intermittently, but it may also be of a rotary type, in which case the cuts are made by two rotating rings equipped with sharp teeth and fastened to a roller having a diamond shaped cutter. In the latter form of construction the web of wrapping material is fed over a guide roller of suitable material, with the teeth on the rings and cutter on the cutting roller pressing the web against the same. In the latter type of construction the web may be fed continuously or intermittently.

In the accompanying drawings which form a part of this specification and in which like char-

acters of reference indicate the same or like parts:

Fig. 1 is a side elevation of the novel nicking attachment of the reciprocating razor blade type as arranged on a wrapping machine of the type shown in the patent to H. Y. Armstrong, No. 1,244,277, granted October 23, 1917;

Fig. 2 is a sectional plan view of the razor blade type nicking attachment, taken on line 2—2 of Fig. 3;

Fig. 3 is a front elevation of the same;

Fig. 4 is a side elevation of a rotary type nicking attachment in connection with a wrapping machine;

Fig. 5 is a plan view of the same, taken on line 5—5 of Fig. 4;

Figs. 6 to 15 are views showing the successive steps of applying the nicked cellophane or glassine wrapper in a wrapping machine; and

Fig. 16 is a perspective view of the completed package which forms the subject matter of the copending application of Morehead Patterson, S. N. 537,450, filed May 14, 1931.

In carrying the invention into effect, there is provided a method of producing a nicked wrapper, and an apparatus for nicking the side edges and perforating the central portion of a web of wrapping material, then severing the web across the perforated portion to form a wrapper having nicked side and end edges, and then folding the wrapper about an article. In the best practice of the invention, the apparatus may include means for feeding a web of wrapping material into position to be operated on, means for nicking the side edges of the web, means for perforating the web, and means for severing the web across the perforated portion. The means for nicking the side edges of the web may include a plurality of sets of reciprocating razor blades, or it may comprise two spaced rings having teeth for nicking the side edges of the web; and the means for perforating the web may include a reciprocating cutter or punch cooperating with a die, or it may comprise a rotating roller having a cutter for perforating the web. The nicked wrapper can be produced by manual practice of the invention, but it is not the best way as it is not the most economical.

Referring now to Figs. 1, 2 and 3 of the drawings, the razor blade type nicking attachment consists of a bar 20 slidably supported by two rods 21 stationarily mounted in brackets 22 and 23. Brackets 22 are fastened to the feed supporting frame 24 of the wrapping machine, while bracket 23 is mounted on vertical rods 25 fastened to

frame 24 which is mounted on studs 26 attached to the main frame 27 of the wrapping machine. Slide bar 20 is equipped with two supporting lugs 28 carrying on their upper and lower faces the adjustably mounted supporting plates 29. Each of the latter carries a set of horizontally mounted razor blades 30 properly spaced with respect to each other by spacers 31 and held in alignment by guide pins 32 mounted on plates 29. Slide bar 20 furthermore carries the horizontally mounted diamond shaped cutter or punch 33 and has also two lugs 34 holding a rod 35 which engages in the swingable arm 36 mounted on shaft 37 supported in bearings of brackets 22.

On the shaft 37 is mounted a lever 38, which through connecting rod 39 receives reciprocating motion from the main drive of the wrapping machine. To bracket 23 is fastened a stationary plate 40 having lugs 41 acting as guides for pins 42 which carry compression plate 43 equipped with rubber clamping plate 44 and supported in a position parallel with plate 40. Pins 42 have compression springs 45 which press the compression plate 43 and the clamping plate 44 against plate 40. When the razor blades 30 are not in engagement with the web C, which passes between plates 40 and 44, the plate 43 is held back by stops 46. Only when the razor blades 30 and cutter 33 are advancing toward the web C the stops 46, which move with the lugs 28, release plate 43 and allow compression spring 45 to press plates 43 and 44 against plate 40 thereby holding the web C firmly between them assuring thereby a clean cut while the blades 30 form two sets of nicks on each side edge of the web. Bracket 23 is equipped with a lug 47 which carries, adjustably mounted, the female die or cutter 48 into which enters the diamond shaped male cutter 33, thus perforating the central portion of the web at the same time that its side edges are nicked. Plate 40 on its upper and lower ends carries lugs 49 and 50 which support the upper and lower guide rollers 51 and 52 for the web C.

The reel R of cellophane or glassine wrapping material is placed on a supporting rod 53 loosely mounted in bearings of frame 24, and the web C runs from the reel R over an adjusting roller 54 supported on two springs 55 pivoted to lugs 56 which are mounted on rods 25. Roller 54 serves the purpose of taking up any slack in the web and thereby avoiding breakage or jamming of the web which then passes over the guide rollers 51 and 52. Guide rods 57 mounted on lugs 49 and 50 prevent the web C from sticking to the rubber plate 44 when it is withdrawn from the plate 40. The web C is then guided over rollers 58 and 59 to the feed rollers 60 and 61 which are driven intermittently from the main drive of the wrapping machine by any suitable means, not shown. The web then passes between guide plates 62 and is cut into the required lengths, between the nicked portions of the web and across the diamond shaped perforation in its central portion, by a knife 63 which through connecting rod 64 and lever 65 is operated from the main drive of the machine, in this manner forming a wrapper which has nicked side edges adjacent both ends of the wrapper and V-shaped nicks on both end edges thereof. The cut wrapper is then held in a guide chute 66 where it meets the advancing article or package A taken from a magazine 67 by a plunger 68 on its forward stroke and pushed along the plunger 69 until it is engaged by a heavy latch which prevents rear-

ward movement of the package on the rearward stroke of the plunger 69.

The article then falls in front of the plunger 69, Figs. 1 and 6, which then pushes the wrapper and article through tuckers 70 and side folders 71 and 72, which fold over the sides of the wrapper as shown in Figs. 8 to 11, onto an elevator 73, Fig. 1, where the ends of the package are closed by end tuckers 74, Fig. 12, and by bottom end folders 75, Fig. 14, and top end folder 76, Fig. 15. Elevator 73 raises the finished package P into the drying stacker 77 (Fig. 1) of the wrapping machine. In Figs. 6 to 16, the V-shaped nicks in the ends of the wrapper are indicated by the letter V and the side nicks made by the razor blades 30, by the letter N.

In the modification of the nicking attachment shown in Figs. 4 and 5, the web C from reel R is fed over a guide roller 78 into the feed rollers 60 and 61. Guide roller 78 is made of a suitable resilient material as the nicking and perforating in this case is done directly on this roller which is mounted on shaft 79 carrying gear 80 which is driven from gear 81 on shaft 82 having another gear 83 actuated from the main drive of the machine. Gear 80 meshes with a gear 84 driving a roller 85 carrying an adjustably mounted diamond-shaped cutter 86. To each end of the roller 85 is fastened a ring 87 equipped with sharp teeth 88 which cut nicks into the side edges of the cellophane strip while the cutter 86 cuts a diamond-shaped perforation in the middle of the strip as in the razor blade type of attachment. Roller 85 is supported by shaft 89 mounted in brackets 90 fastened to studs 26. As the web may be fed over the guide roller 78 continuously or intermittently, in the latter case it will be necessary to provide a suitable take up device of well known construction for the leading end of the web before it reaches the guide plates 62 and knife 63.

In view of the foregoing, a detailed description of the method and mode of operation of the apparatus is deemed unnecessary and omitted in the interest of brevity.

What is claimed is:

1. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web in front of the severing mechanism and beyond the nicking and perforating means to draw the web into position to be nicked and perforated and draw the perforated portion of the web into position to be severed.

2. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges, said web feeding means including a rotatable support for a web of wrapping material, cooperating feed rollers engaging the leading end of the web beyond the perforating and nicking means for drawing the web from the reel on said support and drawing the perforated portion of the web into position to be severed, and vertically

spaced guide rollers for guiding said web into the range of action of said nicking and perforating means.

3. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, and mechanism for severing said web across the perforated portion to form a wrapper having nicked side and end edges, said web feeding means including a rotatable support for a reel of wrapping material, cooperating feed rollers for drawing the web from the reel on said support, spaced guide rollers for guiding said web, a stationary plate intermediate said guide rollers on one side of said web, a movable compression plate on the other side of said web, and means for pressing said compression plate against said stationary plate to clamp said web in position to be nicked and perforated.

4. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, and mechanism for severing said web across the perforated portion to form a wrapper having nicked side and end edges, said nicking means including a plurality of sets of spaced razor blades, a movable support for said sets of blades, and means for moving said support to engage said blades with the side edges of said web to nick them.

5. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges, said perforating means including a die on one side of said web, a cutter on the other side of said web, and means for moving said cutter into said die to perforate said web, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web in front of the severing mechanism and beyond the nicking and perforating means to draw the web into position to be nicked and perforated and draw the perforated portion of the web into position to be severed.

6. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges, said nicking means including a guide roller over which said web runs, and spaced rotating rings having teeth adapted to engage said web on said guide roller to nick the side edges of said web, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web in front of the severing mechanism and beyond the nicking and perforating means to draw the web into position to be nicked and perforated and draw the perforated portion of the web into position to be severed.

7. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges, said perforating means including a guide roller over which said web runs, and a rotating

roller having a cutter adapted to engage said web on said guide roller to perforate its central portion, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web in front of the severing mechanism and beyond the nicking and perforating means to draw the web into position to be nicked and perforated and draw the perforated portion of the web into position to be severed.

8. The combination with means for feeding a web of wrapping material, of means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked end edges, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web beyond said perforating means to draw the perforated portion of the web into position to be severed.

9. The combination with means for feeding a web of wrapping material, of means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked end edges, said perforating means including a die on one side of said web, a reciprocable cutter on the other side of said web, and means for moving said cutter into said die to perforate said web, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web beyond said perforating means to draw the perforated portion of the web into position to be severed.

10. The combination with means for feeding a web of wrapping material, of means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked end edges, said perforating means including a guide roller over which said web runs, and a rotating roller having a cutter adapted to engage said web on said guide roller to perforate its central portion, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web beyond said perforating means to draw the perforated portion of the web into position to be severed.

11. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, means for perforating said web, mechanism for severing said web across the perforated portion to form a wrapper having nicked side and end edges and means for folding said wrapper about an article, whereby said nicked portions facilitate tearing of the wrapper from the article.

12. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, mechanism for severing said web to form a wrapper having nicked side edges, and means for folding said wrapper about an article, whereby said nicked portions facilitate tearing of the wrapper from the article.

13. The combination with means for feeding a web of wrapping material, of means for perforating said web, mechanism for severing said web across the perforated portion to form a wrapper having nicked end edges, and means for folding said wrapper about an article, whereby said nicked portions facilitate tearing of the wrapper from the article.

14. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web with a series of closely spaced slits, and mechanism for clamping the web in nicking position, said mechanism including a pair of relatively movable plates cooperating to clamp the web, said plates being provided with closely spaced slots in their side edges to permit the side edges of the web to be nicked.
15. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, said nicking means including a plurality of sets of spaced razor blades, a movable support for said sets of blades, and means for moving said support to engage said blades with the side edges of said web to nick them.
16. The combination with means for feeding a web of wrapping material, of means for nicking the side edges of said web, said nicking means including a guide roller over which said web runs, and spaced rotating rings, each of said rings having two sets of closely spaced teeth adapted to engage said web on said guide roller to form two adjacent sets of closely spaced cuts or slits on the side edges of said web, and said web feeding means including a pair of cooperating feed rollers engaging the leading end of the web beyond the nicking means to draw the web into position to be nicked.
17. The combination with means for nicking the side edges of a web of wrapping material, of means for simultaneously perforating said web, means for clamping the portion of the web to be nicked and perforated while it is being nicked and perforated and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges.
18. The combination with means for nicking the side edges of a web of wrapping material, of means for perforating said web, and mechanism for severing said web across the perforated portion to form a wrapper having nicked side and end edges, said nicking means including a plurality of sets of spaced razor blades, a movable support for said sets of blades, and means for moving said support to engage said blades with the side edges of said web to nick them.
19. The combination with means for nicking the side edges of a web of wrapping material, of means for simultaneously perforating said web, means for clamping the portion of the web to be nicked and perforated while it is being nicked and perforated and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges, said perforating means including a die on one side of said web, a reciprocable cutter on the other side of said web, and means for moving said cutter into said die to perforate said web.
20. The combination with means for nicking the side edges of a web of wrapping material, of means for perforating said web, and mechanism for thereafter severing said web across the perforated portion with the line of cut at right angles to the edges of the web to form a wrapper having nicked side and end edges, said perforating means including a guide roller over which said web runs, and a rotating roller having a cutter adapted to engage said web on said guide roller to perforate its central portion, and said nicking means including spaced rings on the ends of said cutter roller each provided with two sets of closely spaced teeth adapted to nick the web in advance of and to the rear of the perforation in the web.
21. The combination with means for nicking the side edges of a web of wrapping material to form a plurality of sets of closely spaced cuts or slits therein, of means for simultaneously perforating said web, and means for clamping the portion of the web to be nicked and perforated while it is being nicked and perforated whereby said web may be severed across the perforated portions to form wrappers having nicked side and end edges.
22. The combination with means for nicking the side edges of a web of wrapping material, of means for perforating said web, whereby said web may be severed across the perforated portions to form wrappers having nicked side and end edges, said nicking means including a plurality of sets of spaced razor blades, a movable support for said sets of blades, and means for moving said support to engage said blades with the side edges of said web to nick them.
23. The combination with means for nicking the side edges of a web of wrapping material, of means for simultaneously perforating said web, and means for clamping the portion of the web to be nicked and perforated while it is being nicked and perforated whereby said web may be severed across the perforated portions to form wrappers having nicked side and end edges, said perforating means including a die on one side of said web, a reciprocable cutter on the other side of said web, and means for moving the cutter into said die to perforate the central portion of said web.
24. The combination with means for nicking the side edges of a web of wrapping material, of means for perforating said web, whereby said web may be severed across the perforated portions to form wrappers having nicked side and end edges, said perforating means including a guide roller over which said web runs, and a rotating roller having a cutter in the form of a diamond having a continuous cross-section adapted to engage said web on said guide roller to perforate its central portion, and said nicking means including spaced rings on the ends of said cutter roller each provided with two sets of closely spaced teeth adapted to nick the web in advance of and to the rear of the perforation in the web.
25. Means for nicking the side edges of a web of wrapping material, comprising a plurality of sets of spaced razor blades, a movable support for said sets of blades, and means for moving said support to engage said blades with the side edges of the web to nick them.
26. Means for feeding a web of wrapping material into position to be operated on, comprising a rotatable support for a reel of wrapping material, cooperating feed rollers for drawing the web from the reel on said support, spaced guide rollers for guiding said web, a stationary plate intermediate said guide rollers, a movable compression plate, and means for pressing said compression plate against said stationary plate to clamp said web in position to be operated on said plates being provided with slots in their side edges to permit the edges of the web to be nicked while clamped.
27. The combination with means for feeding

a web of wrapping material, of means for nicking the side edges of the web, mechanism for severing the web to form a wrapper having nicked side edges, means operating in timed relation to said nicking and severing means and coordinated therewith to fold the nicked wrapper about an article with an overlapping seam along one side and with said nicks in the overlapping edges forming said seam at a position near one end of the article whereby said nicked portions facilitate tearing across the seam in opening the wrapper.

28. The combination with means for feeding a web of wrapping material, of means for perforating said web, mechanism for severing said web across the perforated portion to form a wrapper having nicked end edges, and means operating in timed relation to said severing and nicking means and coordinated therewith for folding said wrapper about an article, with the nicked end edge in position to form an edge of an overlapping end flap.

29. The process of forming a wrapper blank having nicked side and end edges, comprising clamping a portion of a web of wrapping material, nicking the side edges of the clamped portion of the web, simultaneously perforating the clamped portion of the web, and thereafter severing the web across its perforated portion.

THORMOD JENSEN. 90

20 95

25 100

30 105

35 110

40 115

45 120

50 125

55 130

60 135

65 140

70 145

75