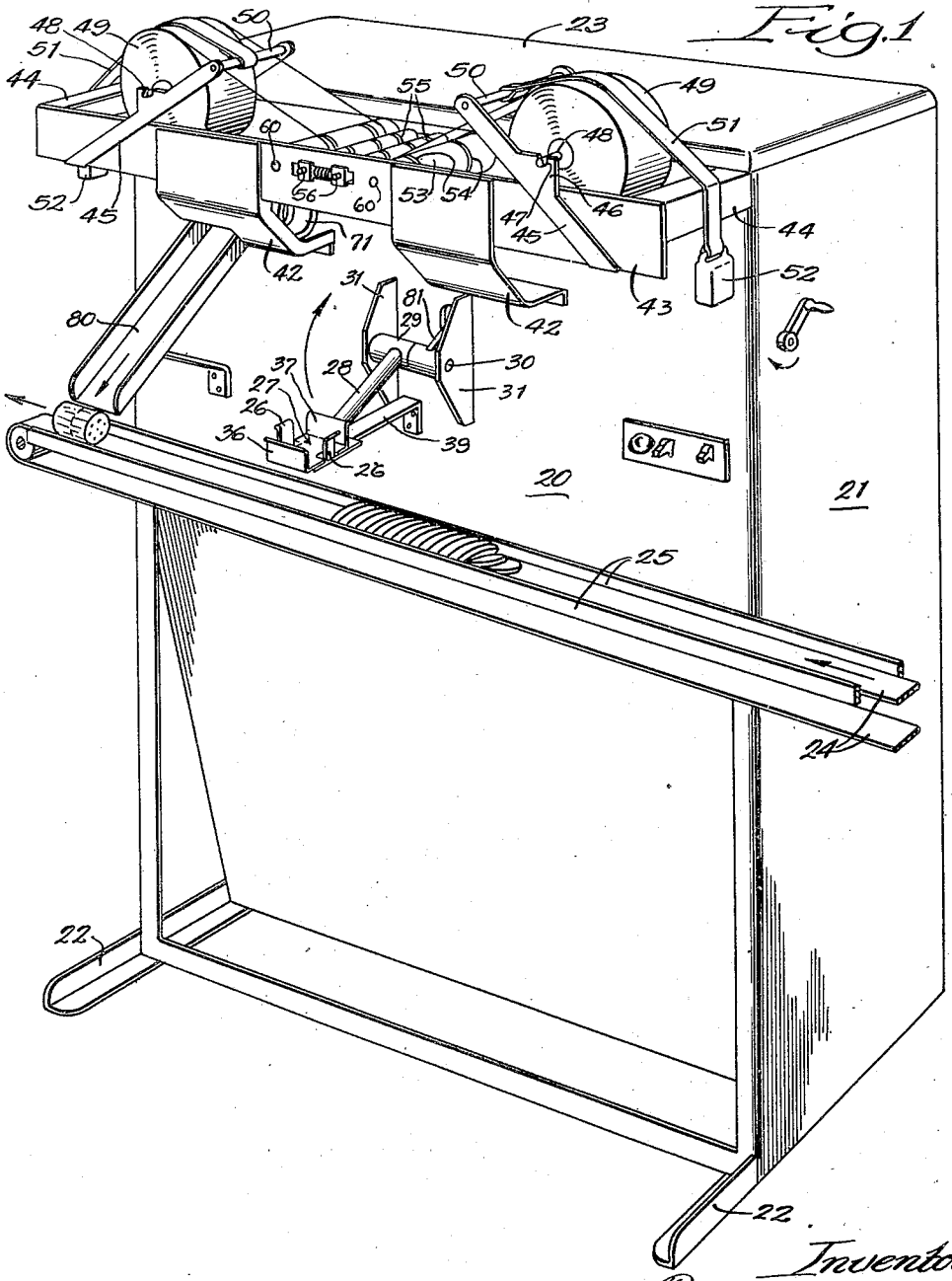
April 8, 1947. B. A. ARVIDSON 2,418,449

WRAPPING MACHINE

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Fig. 1



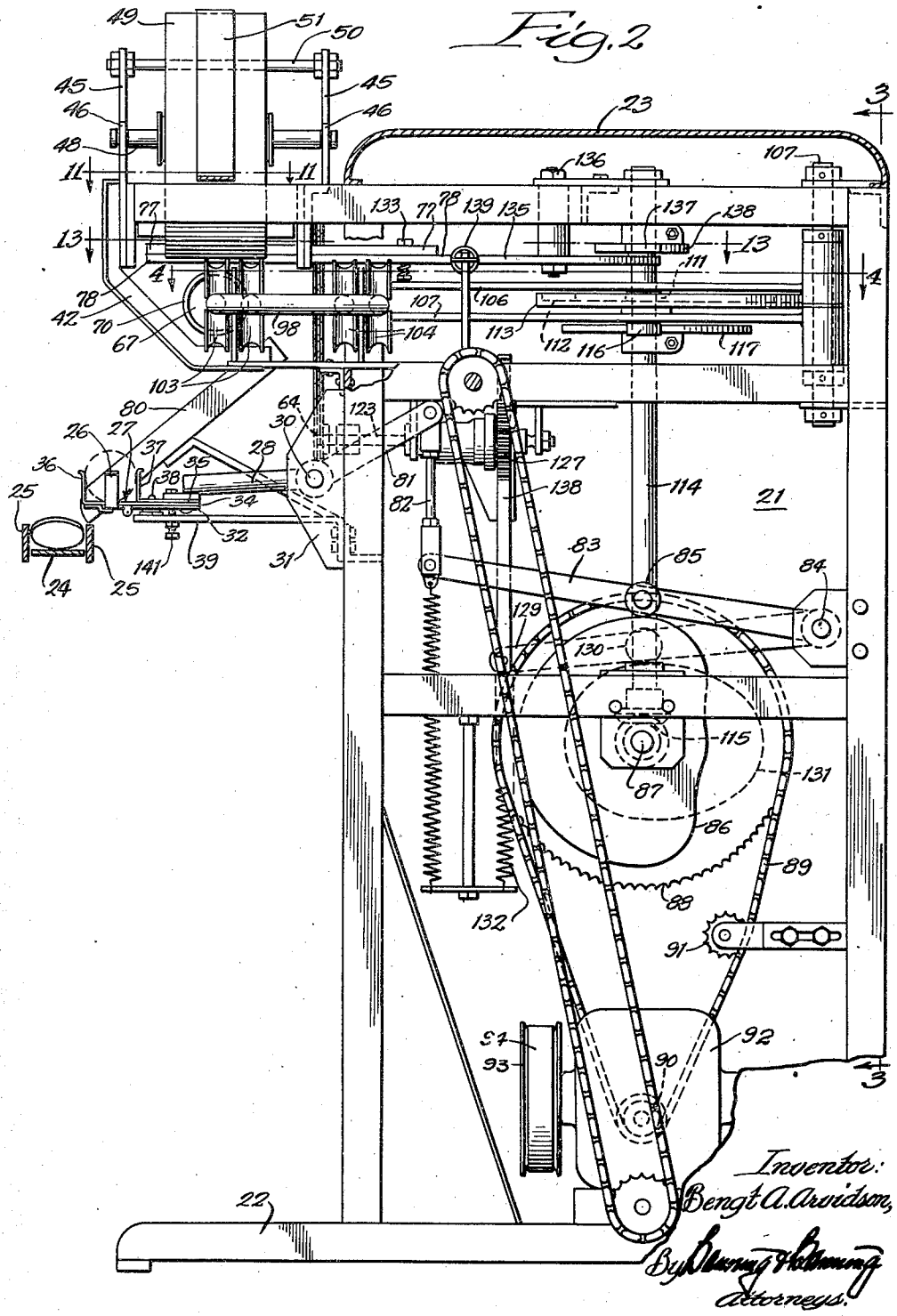
Inventor:
Bengt A. Arvidson,
By Banning & Banning
Attorneys.

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WRAPPING MACHINE

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Fig. 2



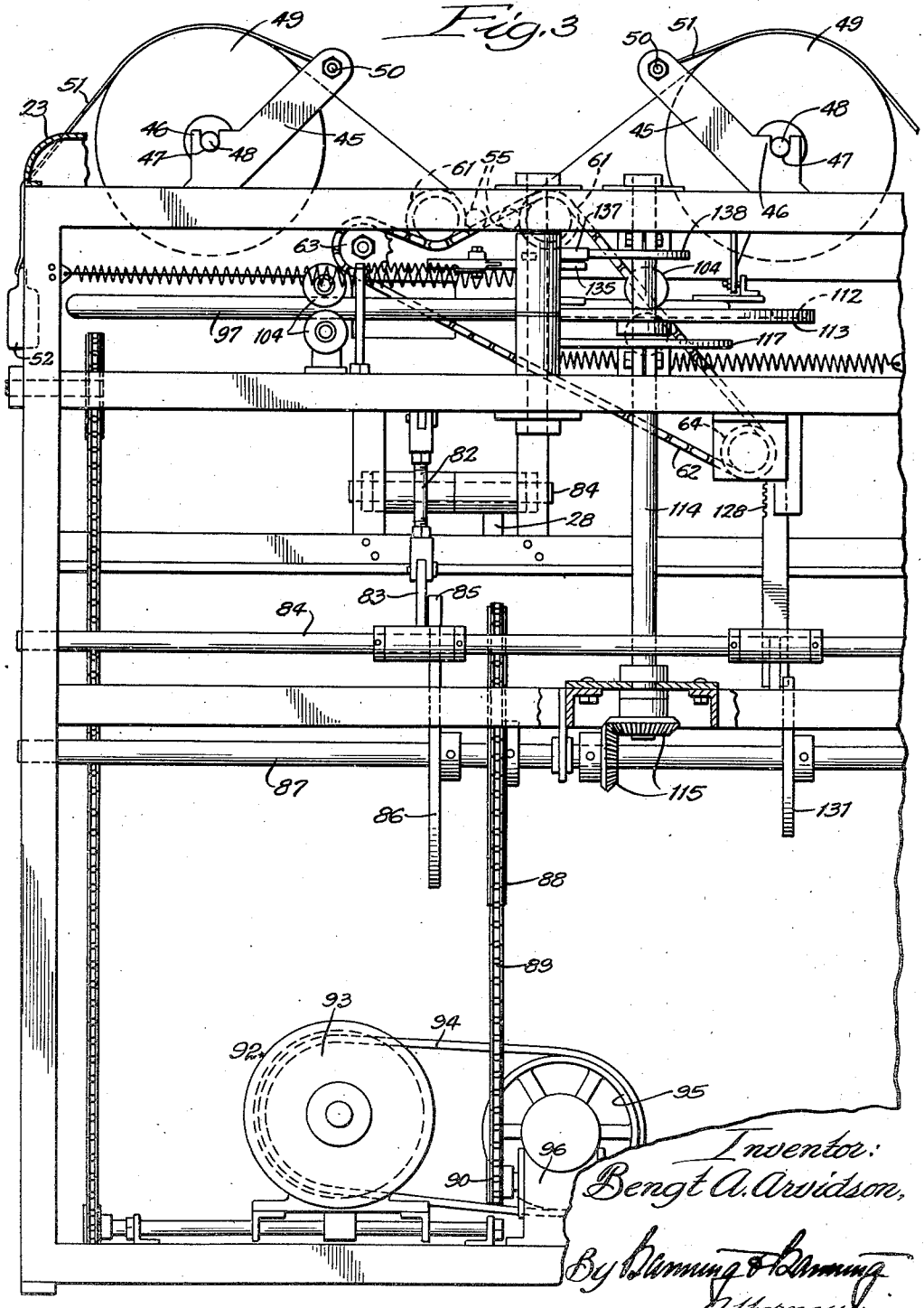
Inventor:
Bengt A. Arvidson,
By Burns & Holloway
Attorneys.

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WRAPPING MACHINE

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Fig. 3



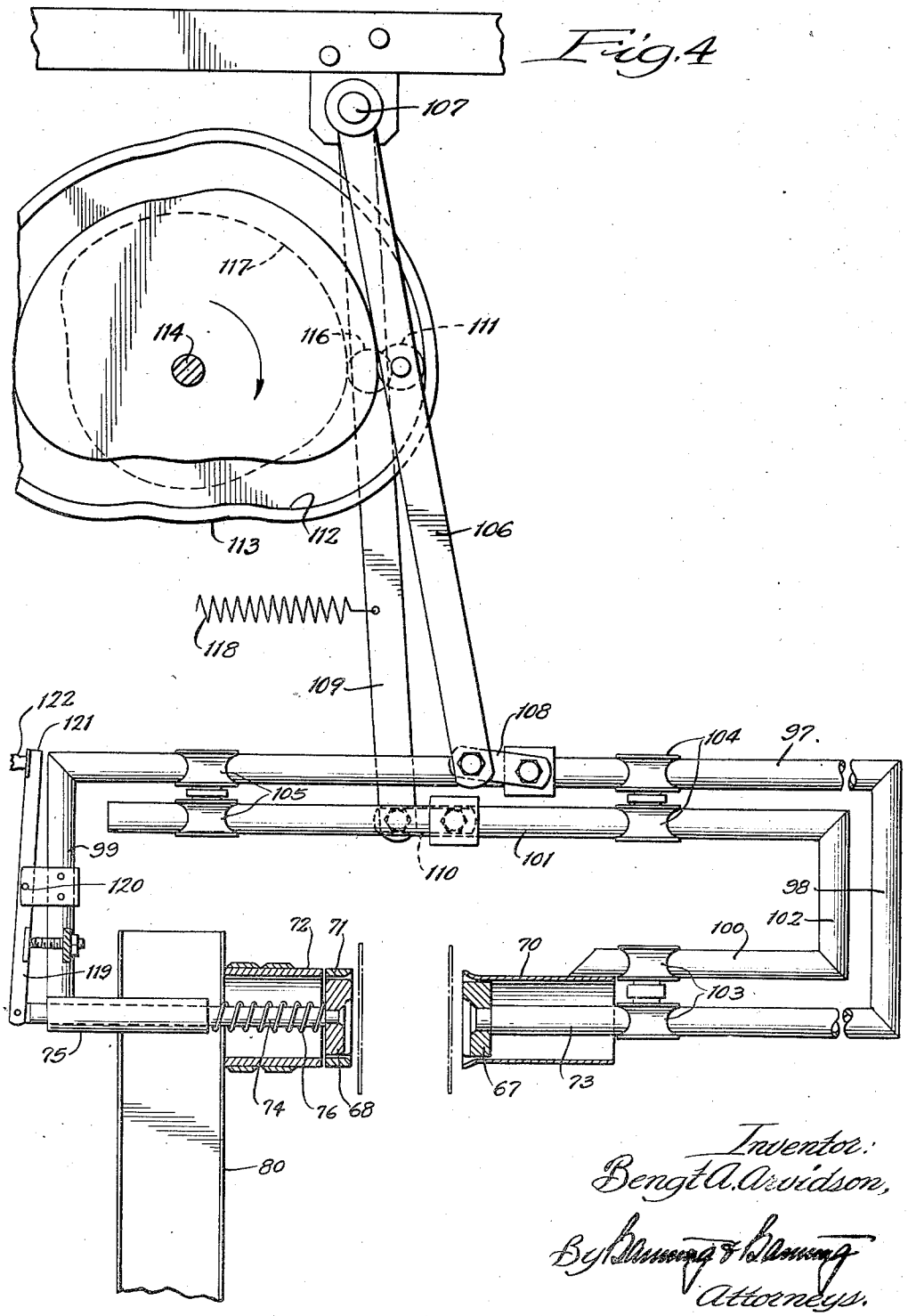
Inventor:
Bengt A. Arvidson,
By Banning & Banning
Attorneys.

April 8, 1947. B. A. ARVIDSON 2,418,449

WRAPPING MACHINE

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Fig. 4



Inventor:
Bengt A. Arvidson,
By Banning & Banning
Attorneys.

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WRAPPING MACHINE

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Fig. 5

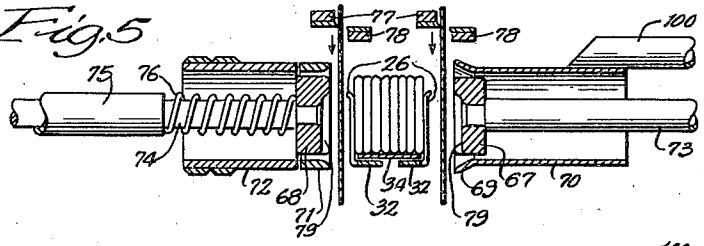


Fig. 6

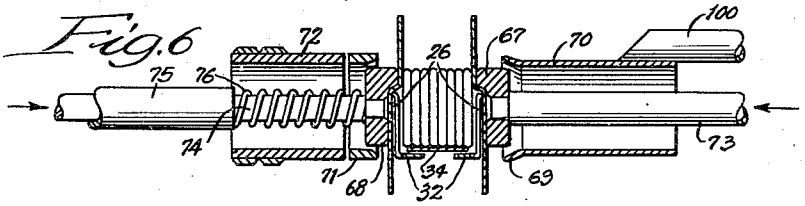


Fig. 7

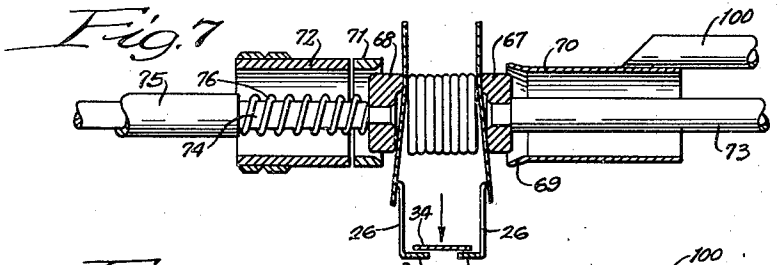


Fig. 8

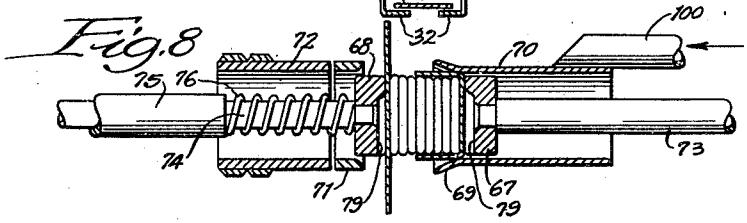


Fig. 9

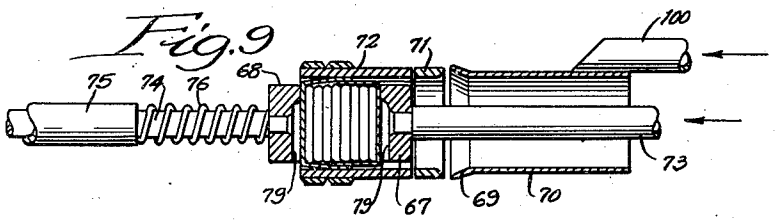
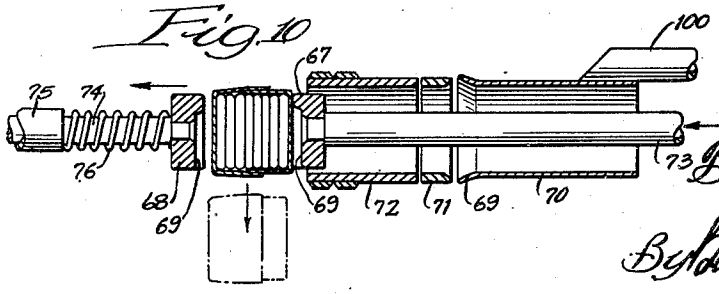


Fig. 10



Inventor:
Bengt A. Arvidson,
By Dunning & Dunning
Attorneys.

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WRAPPING MACHINE

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Fig. 11

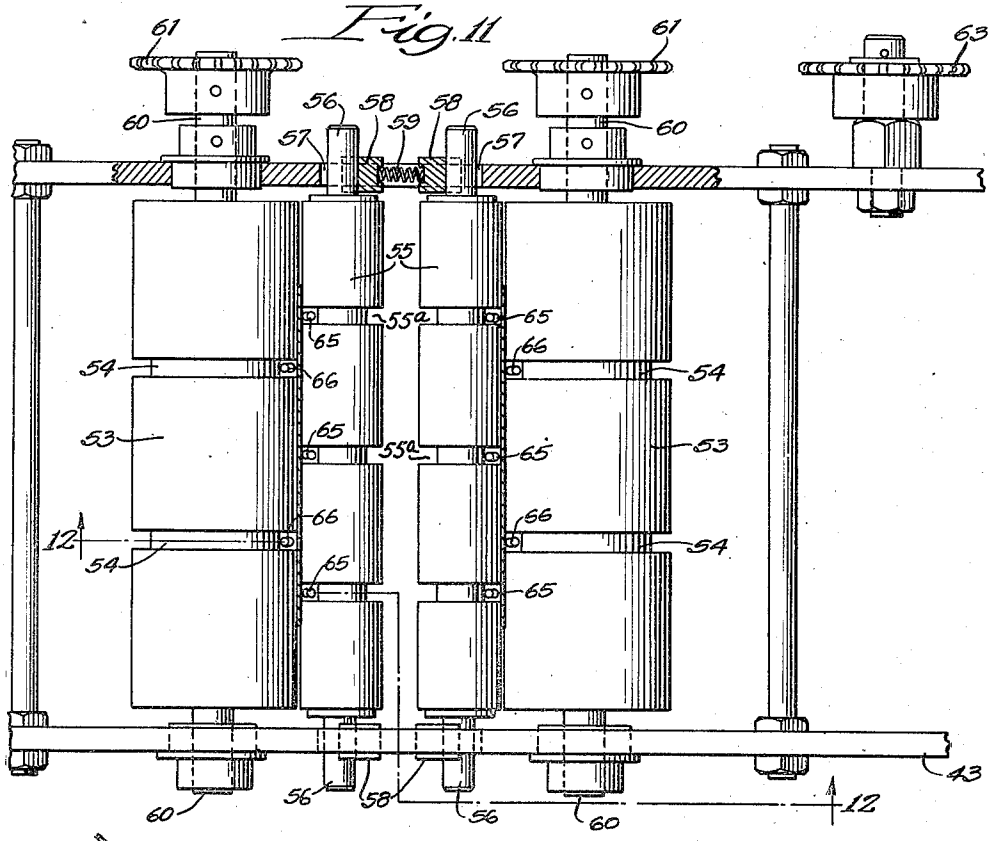
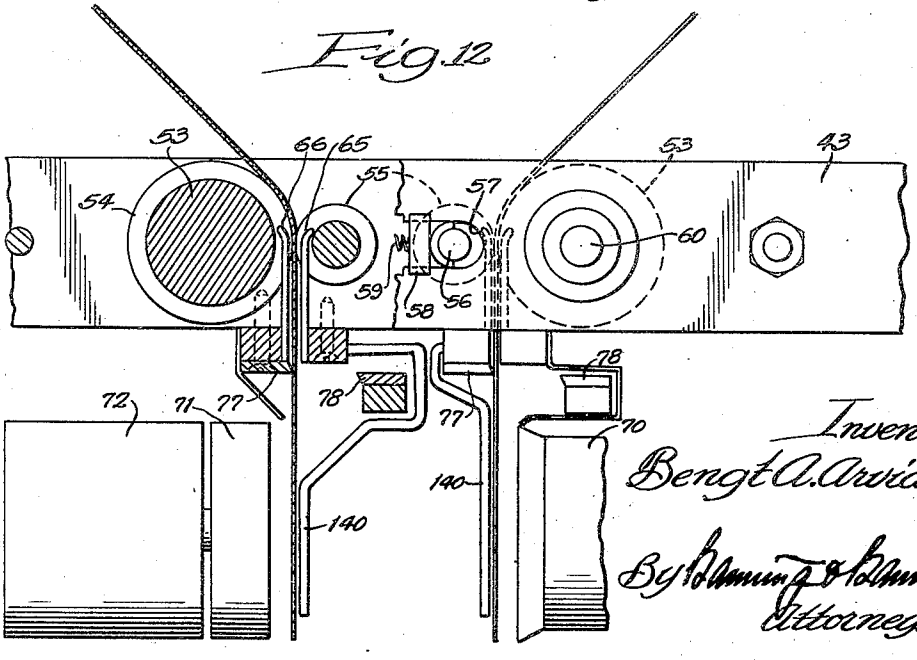


Fig. 12



Inventor:
Bengt A. Arvidson,
By Hamm & Hamm
Attorneys.

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WRAPPING MACHINE

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Fig. 13

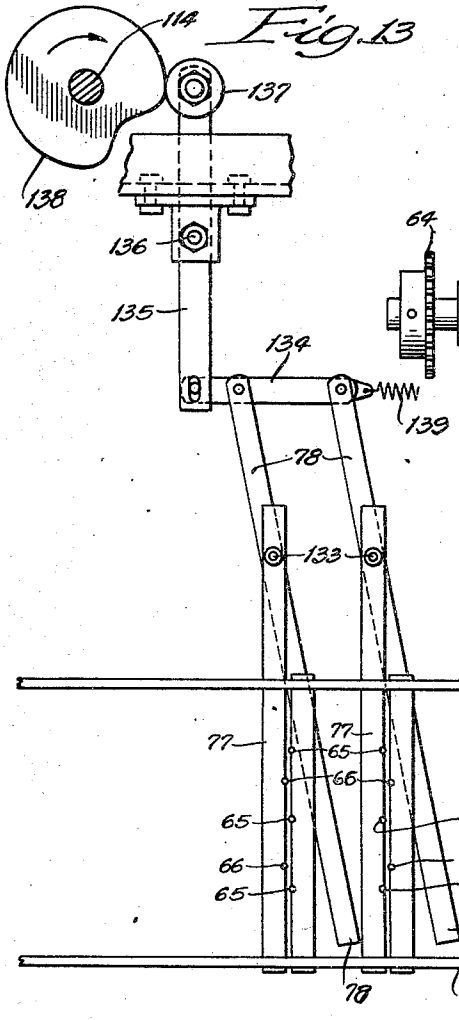


Fig. 14

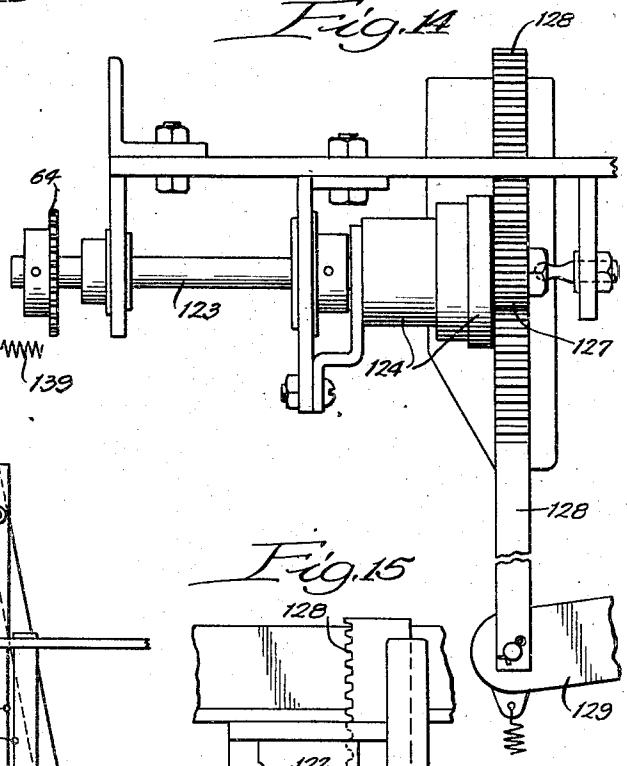
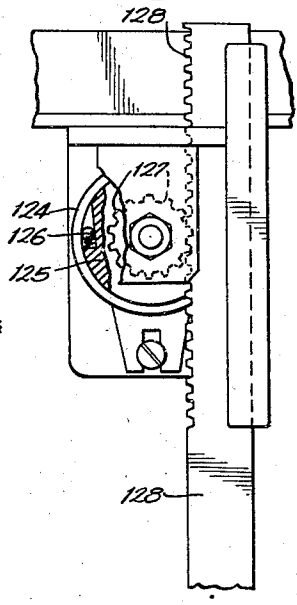


Fig. 15



Inventor:
Bengt A. Arvidson,
By Banning & Banning
Attorneys.

April 8, 1947. B. A. ARVIDSON 2,418,449

WRAPPING MACHINE

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Fig. 16

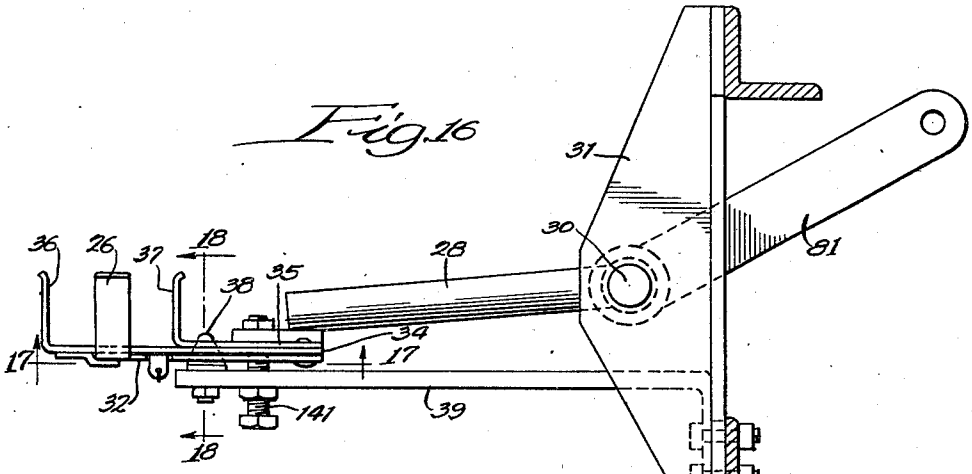


Fig. 17

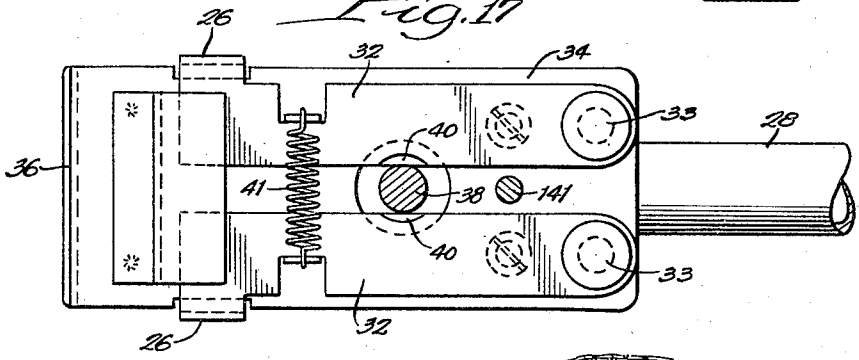
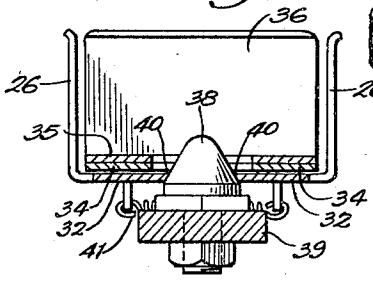


Fig. 18



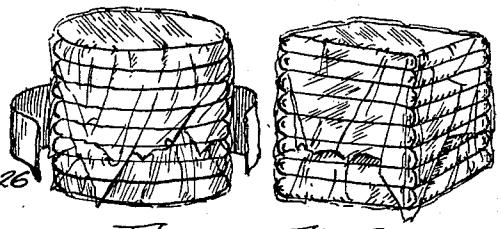


Fig. 19. Fig. 20.

Inventor:
Bengt A. Arvidson,
By Hamming & Hamming
Attorneys.

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UNITED STATES PATENT OFFICE

2,418,449

WRAPPING MACHINE

Bengt A. Arvidson, Villa Park, Ill., assignor to Miller Wrapping and Sealing Machine Company, Chicago, Ill., a corporation of Illinois

Application September 27, 1943, Serial No. 503,885

12 Claims. (Cl. 93—2)

1

The machine of the present invention is designed primarily for the wrapping of a stack of cracker sandwiches of a character now being widely sold which, when stacked, provide a cylindrical form although the invention is not in any way limited to the wrapping of sandwiches or the like, or even to the wrapping of articles cylindrical in form since variations in the nature of the product and in the form of the package may be made without departing from the spirit of the invention.

However, for purposes of description, reference will be made to a stack of cracker sandwiches, each consisting of two circular crackers with an interposed layer of peanut butter or the like, the individual sandwiches being wrapped as a package of six or more sandwiches. In the sale of packages of this character, it is desired to employ cellophane or similar transparent wrapping material which will smoothly overlie the ends of the package and be folded down and sealed along the sides which permits ready inspection of the contents while thoroughly sealing the same against the ingress of moisture or vapor.

The machine consists in general of means for delivering a column of cracker sandwiches or the like to the wrapping position, means for advancing strips of heat sealing material across each end of the column and severing the wrapping material to provide sections of the proper length, clamping the severed sections against the ends of the package, folding down one of the wrappers along the sides of the column, bodily advancing the column through a fixed ring or die to fold down the wrapper at the opposite end into overlapping relation with the side folds of the first wrapper, and continuing the advancement through a sealing ring to the point of final discharge.

The present invention embodies the above principle in mechanical form which makes provision for automatically timing the various operations in sequential order up to the point of final delivery. Further objects and details will appear from the description of the invention in conjunction with the accompanying drawings wherein—

Figure 1 is a perspective view of the front of the machine;

Fig. 2 is an end view into the interior of the machine with the right hand wall of the cabinet removed;

Fig. 3 is a view from the rear taken on line 3—3 of Fig. 2;

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Fig. 4 is an enlarged detail of the plunger mounting and cams for advancing the same, taken on line 4—4 of Fig. 2;

Figs. 5 to 10, inclusive, are sectional details of the plunger mechanism in successive positions from the initial delivery of a column of sandwiches through to the final discharge of the wrapped package;

Fig. 11 is a detail of the feeding rolls for the strip of wrapping material taken on line 11—11 of Fig. 2;

Fig. 12 is a sectional view of the same taken on the offset line 12—12 of Fig. 11;

Fig. 13 is a view of the cutters for severing the wrapper strips taken on line 13—13 of Fig. 2;

Fig. 14 is a detail of the cam feed for the wrapper rolls;

Fig. 15 is a similar view at right angles to that of Fig. 14;

Fig. 16 is a side elevation of the clamping jaws for delivering the column of sandwiches or the like to the wrapping position;

Fig. 17 is a view taken on line 17—17 of Fig. 16;

Fig. 18 is a cross sectional detail taken on line 18—18 of Fig. 16;

Figs. 19 and 20 are perspective views of two forms of package wrapped by the machine of the present invention.

The machine as a whole is mounted within a cabinet comprising a front wall 20, end walls 21, spaced base sills 22 and a cover panel 23. The sandwiches, crackers or the like, are carried across the front of the machine upon an endless carrier 24 running between guide rails 25. As the crackers or similar units approach the center of the cabinet, a specified number are removed from the carrier by the operator and held together in column form and placed between the jaws 26 of a swinging feeder 27 carried by an arm 28 which projects outwardly from a sleeve 29 through which is entered a spindle 30 mounted in spaced ears 31. The jaws 26 are best illustrated in Figs. 16, 17 and 18 from which it will be noted that the jaws extend outwardly from bars 32 each of which is pivoted at its inner end upon a pivot 33 entered through under and upper plates 34 and 35 which respectively terminate at their outer ends in spaced retaining fingers 36 and 37 which, in conjunction with the spring jaws 26, afford a receptacle for engaging and clamping a unit stack of the package items and hold them in column form during the upswing of the arm 28.

In order to hold the spring jaws separated during the positioning of the column of items, a

cone-shaped boss 38 is provided, the base of which is supported at the end of a bracket arm 39 bolted to the frame of the cabinet, which boss projects upwardly between the bars 32 which are preferably beveled along their contacting edges as at 40 (see Fig. 18). The arrangement is such that as the arm 28 is swung downwardly to its receiving position, the pivoted bars 32 will be slightly spread apart against the tension of a connecting spring 41 (see Fig. 17) so that clearance may be provided for the easy insertion of the column of items. As the arm 28 is swung upwardly, however, the bars will be freed from contact with the cone boss 38 so that they will draw together and clamp the ends of the column and hold the same against displacement. The outer end of the arm 28 is bolted to the superposed plates 34 and 35 which thus afford a rigid connection for the swinging feeder. On its upswing the carrier delivers the clamped column into the space between outstanding brackets 42 which carry a supporting bar 43, the ends of which are secured to outwardly projecting upper sills 44 which arrangement affords an outer frame for the support of the principal operating elements to be hereinafter described.

The outer frame is provided near each end with obliquely disposed inner and outer bracket arms 45 each of which is provided near its center with an outward projection 46 having a U-shaped notch 47 which aligned notches afford bearings for the spindles 48 which carry the rolls 49 of cellophane or other wrapping material. The ends of each pair of bracket arms are connected by a tie rod 50 which in each instance affords a point of connection for a brake strap 51 carrying a weight 52 and overlying the wrapper roll to prevent overrunning of the same. The ends of the respective wrapper strips are carried down over feed rolls 53 provided with grooves 54, the feed rolls coacting with spring pressed pressure rolls 55 provided with grooves 55a as shown in Fig. 11. Each pressure roll 55 is mounted upon a spindle 56 journaled within a slot 57 and contacted by a slidably mounted journal block 58, the two journal blocks being forced outwardly by an interposed spring 59, it being understood that the arrangement is duplicated at each end of the spindles 56. This arrangement permits the operator to draw back the spindles to provide clearance space between the feed rolls and the pressure rolls during the in-threading of the ends of the wrapper strips.

The feed rolls are carried by spindles 60 each having mounted thereon a sprocket wheel 61 which sprocket wheels are driven by a sprocket chain 62 which passes over and under the respective sprocket wheels 61 and around an idler 63 and a driving sprocket 64 which is recurrently operated by the mechanism shown in Figs. 14 and 15 to feed forward, during each operation, required lengths of wrapping material which are thereupon severed from the strip to provide wrappers for the opposite ends of the column unit. The spacing of the feed and pressure rolls is such that the wrapper strips will be fed down past the opposite ends of the column or other body to be wrapped, and, as indicated in Fig. 12, the leading ends of the strips are guided in each case between inner and outer guide fingers 65 and 66 (Fig. 12), the upper or free ends of which lie within the confines of the grooves 55a and 54 in the respective rolls.

The leading ends of the strip are brought into register with spaced companion plungers 67 and 68 which coact in the series of operations illustrated in Figs. 5 to 10 inclusive. The plunger 67, when retracted, lies within the throated end 69 of a tubular folder 70, while the plunger 68 is retracted within the guide ring 71 and in alignment with a heat sealing ring 72. The plunger 67 is carried by a thrust rod 73 and the plunger 68 by a thrust rod 74 telescoped through a sleeve 75 and surrounded by a coil spring 76 which bears against the plunger. Fig. 5 illustrates the relation of the parts immediately after the swinging feeder has delivered a column unit to the wrapping space which aligns with the axes of the plungers. As the feeder is swung upwardly, the leading ends of the wrappers will be fed downwardly in unison between cutters, each consisting of a fixed shearing blade 77 and a movable shearing blade 78 (shown in detail in Fig. 13). Immediately thereafter the shears will act to sever the sections in preparation for the inward advance of the opposed plungers, each of which on its acting face is provided with a recess 79 to afford clearance for the recession for the jaws of the feeder after the plungers have contacted and clamped the respective wrapper sections against the ends of the column of cracker sandwiches or other article of merchandise. Immediately thereafter the feeder will swing away leaving the column clamped between the plungers as in Fig. 7.

The next operation is performed by the advance of the tubular folder 70 as in Fig. 8 which folds down and drapes the edges of the wrapper around the cylindrical or otherwise configured walls of the package but with the plungers still maintaining the position indicated in Figs. 6 and 7. The final folding operation is performed by the continuing advancement of the thrust rod 73 throughout the range of movement indicated in Figs. 9 and 10. This movement first carries the partly wrapped package through the folder ring 71 which folds down or drapes the edges of the wrapper around the package and in overlapped relation to the opposing wrapper and the continued advancement of the thrust rod carries the completely folded package through the heat sealing ring 72 which is provided with heating elements to maintain a sufficient degree of temperature to fuse the draped and overlapped edges of the wrapper sections while the same are being driven through the sealing ring. This movement will continue until the package is ejected beyond the sealing ring at which point the plunger 68 will draw away from the end of the package to permit the same to fall by gravity, as in Fig. 10, into the discharging trough 80 shown in Fig. 1 which delivers the completely wrapped and sealed package on to the moving carrier 24 for final delivery.

The foregoing operations are performed in properly timed sequence and by mechanism which will now be described more fully in detail. The swinging feeder arm 28 mounted on the pintle 30 is provided with an inner extension 81 (Fig. 2) which is connected by a link 82 with the forward end of a lever 83, pivoted at its rear end upon a rod 84 and provided with a roller 85 which rides upon the surface of a cam 86 carried by a cam shaft 87 having a sprocket 88 mounting a sprocket chain 89 driven by a driving sprocket 90 and passing over an adjustable tension sprocket 91. The driving sprocket 90 is driven by a motor 92 (Fig. 3) through a pulley 93, belt 94, driven pulley 95 and gear reduction elements 96. Mountings and driving connections for the plungers are best

illustrated in Fig. 4. The thrust rod 73 which carried the plunger 67 is in the form of the forward leg of a rectangular open frame-like structure which in addition to the thrust rod includes a rear section 97 and connecting end sections 98 and 99, the latter of which carries the tube 75 through which the plunger thrust rod 74 is entered.

The outer frame coacts with an inner frame of smaller dimensions comprising a short forward leg 100 which carries the folding tube 70, a longer rear leg 101 and a connecting section 102. The outer and inner frames are guided for reciprocating movement between pairs of grooved rollers 103, 104 and 105, suitably mounted on the frame of the machine. The outer frame is reciprocated by the action of a lever 106 pivoted at its rear upon a fixed pivot 107 and connected at its forward end through a link 108 to the rear leg 97 of the outer reciprocating frame. The inner frame is actuated by a lever 109 pivoted at its rear end upon the pivot 107 and connected through a link 110 with the rear leg of the inner frame.

The lever 106 carries a roller 111 operating within a cam groove 112 in the upper face of a cam 113 (Fig. 2). The cam is mounted upon a vertical shaft 114 driven by beveled gearing 115 from the cam shaft 37. The lever 109 carries a roller 116 bearing upon the rim of a cam 117 also carried by the vertical cam shaft 114. The return movement of the lever 109 is effected through the tension of the spring 118.

The outer end of the thrust rod 74 is pivoted to a trip lever 119 fulcrumed at 120 in position to bring its free end 121 into coacting relation with a stop 122 which may be any fixed portion of the machine and so related to the trip lever that, when the plunger 68 approaches the position indicated in Fig. 10, the free end of the trip lever will strike the abutment before the movement of the outer frame is concluded, thereby drawing back the forward end of the trip lever and retracting the plunger 68 sufficiently to release the wrapped and sealed package as in Fig. 10.

The down feeding movements imparted to the wrapper strips are effected through the operation of the rack and pinion mechanism shown in Figs. 14 and 15. The sprocket 64 is carried by a shaft 123 carrying a clutch cup 124 surrounding a clutch block 125 having spring backed ball clutch elements 126 so arranged as to import a one-way drive to the shaft. The clutch block 125 is connected with a pinion 127 meshing with the teeth of a rack 128 operated by a lever 129, pivoted at its rear end upon the rod 64 and carrying a roller 130 which engages the rim of a cam disk 131 on the shaft 37 and acts against the tension of a spring 132. Cutters are shown in detail in Fig. 13 and it will there be noted that the movable shear blades 78—78 are pivoted to the fixed blades 77 by pivots 133 and that the upper ends of the shear blades are connected with a cross header bar 134 which is pivoted by a pin and slot connection to the lower end of a lever 135 pivoted at 136 and carrying a roller 137 at its upper end which rides upon a cam 138 and acts in opposition to a spring 139. The cam 138 is mounted upon the vertical cam shaft 114.

In order to more effectively guide the advancing ends of the wrapper strips after they pass the cutters, depending guide fingers 140 (Fig. 12) are provided which hold the ends of the strips in proper position adjacent the plungers 67 and 68. The receiving position of the swinging feeder can be adjusted by a screw stop 141 (Fig. 16) and

by corresponding adjustments in the links 82 which regulate the throw of the feeder with relation to the position of the plungers which may be desirable on occasion where the dimensions of the jaws and guide fingers of the feeder require adjustment to accommodate packages of varying size.

Operation

The units to be wrapped, whether the same be in the form of groups of sandwiches, cookies or the like, to be combined as a saleable unit, or whether in the form of cartons, containers or the like, are carried forward in processional form by the conveyor 24 and are lifted as units therefrom by the operator and deposited between the spring tensioned jaws of the swinging feeder which operates at timed intervals to carry the units up to the wrapping point. As the feeder swings upwardly, the jaws will be released from contact with the cone-shaped boss 38 and will be drawn together to clamp the ends of the unit and prevent its dislodgement as it is being swung into place between the plungers.

While the unit is being swung upwardly, the feeding rollers for the wrapper strips will act in unison to feed down two lengths of wrapper, one adjacent each end of the unit, and thereupon the plungers will advance to clamp the ends of the strips against opposite ends of the unit. As soon as this occurs the cutters will act to sever the strips, thereby providing wrapper sheets of the required length and width to permit the edges to be folded down and draped or lapped around the sides of the unit.

Thereupon the jaws of the feeder will withdraw and thus condition the machine for the folding operations. The tubular folder will first advance as in Fig. 8 to fold down and drape the edges of the adjacent wrapper sheet around the sides of the unit and thereafter both plungers with the interposed and partially wrapped unit will advance in unison through the stages indicated in Figs. 9 and 10 and, by continuous movement, carry the unit first through the wrapper ring 71 to fold back and drape the edges of the adjacent wrapper sheet around the sides of the unit and in overlapped relation to the previously draped edges of the companion wrapper sheet. With the unit thus completely enclosed at both ends and around the sides, the movement will continue through the heat sealing ring which, during the interval while the package is traversing the ring, will fuse the overlapped edges of the wrapper sheets and thus, in transit, seal the package before it reaches the point of discharge and is released by the plungers.

The machine is of rugged construction and the timing of the operation is such as to perform all the steps in practically continuous sequence and at a single level and by mechanism which avoids the use of folder blades or the like with a resultant reduction in the number of moving parts and a general simplification of the structure as a whole.

Although the invention has been described in full detail, it will be understood that numerous variations in structure and in the driving and transmission trains employed may be made without departing from the spirit of the invention.

The type of unit wrapped into package form may be cylindrical as in Fig. 19 or square as in Fig. 20 or of various intermediate forms depending upon the configuration of the plungers and dies employed to perform the folding and sealing

operations, but in all instances the completed package will have the end wrapper sections turned down and more or less irregularly folded around the sides and in overlapping relation to one another which provides along the edge of the overlapping wrapper section, an irregular series of free points, in the nature of tabs, which afford a finger hold in tearing the wrapper free from the enclosed unit.

If desired, an outer finishing strip of the character shown in Fig. 19 may encircle the sealed package to provide a label or the like, but this is not necessary in the provision of a sealed enclosure for the contents of the package.

I claim:

1. In a wrapping machine, the combination of a frame, means for delivering the unit to be wrapped to the wrapping position, means for positioning wrapper sheets adjacent opposite ends of the unit, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, mountings for the respective plungers and the tubular folder, and actuating means adapted to first advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and thereafter advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet, and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet.

2. In a wrapping machine, the combination of a frame, means for delivering the unit to be wrapped to the wrapping position, means for positioning wrapper sheets adjacent opposite ends of the unit, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring and a heat sealing ring in register with the folding ring, mountings for the respective plungers and the tubular folder, and actuating means adapted to first advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and thereafter advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet, and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet and carry the wrapped package through the heat sealing ring.

3. In a wrapping machine, the combination of a frame, a feeder mounted to swing in a vertical plane and having jaws adapted to receive and clamp the unit to be wrapped and deliver the same to the wrapping position, means for positioning wrapper sheets adjacent opposite ends of the unit, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, mountings for the respective plungers and the tubular folder, and actuating means adapted to first advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and thereafter advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet, and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet.

4. In a wrapping machine, the combination of a frame, a feeder mounted to swing in a vertical plane and having jaws adapted to receive and clamp the unit to be wrapped and deliver the same to the wrapping position, means for positioning wrapper sheets adjacent opposite ends of the unit, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, a heat sealing ring in register with the folding ring, mountings for the respective plungers and the tubular folder, and actuating means adapted to first advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and thereafter advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet, and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet and carry the wrapped package through the heat sealing ring.

5. In a wrapping machine, the combination of a frame, a feeder mounted to swing in a vertical plane and having jaws adapted to receive and clamp the unit to be wrapped and deliver the same to the wrapping position, means for positioning wrapper sheets adjacent opposite ends of the unit, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, mountings for the respective plungers and the tubular folder, and actuating means adapted to first advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and thereafter advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet, and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet, and means for spreading the jaws of the swinging feeder when lowered to permit insertion of a unit to be wrapped.

6. In a wrapping machine, the combination of a frame, a feeder mounted to swing in a vertical plane and having jaws adapted to receive and clamp the unit to be wrapped and deliver the same to the wrapping position, means for positioning wrapper sheets adjacent opposite ends of the unit, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, a heat sealing ring in register with the folding ring, mountings for the respective plungers and the tubular folder, and actuating means adapted to first advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and thereafter advance the tubular folder inwardly relatively to the encircled plunger to fold down the

edges of the proximate wrapper sheet, and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet and carry the wrapped package through the heat sealing ring, and means for spreading the jaws of the swinging feeder when lowered to permit insertion of a unit to be wrapped.

7. In a wrapping machine, the combination of a frame, a device for delivering the unit to be wrapped to the wrapping position, means for feeding two continuous strips of wrapping material to bring their leading ends adjacent the position occupied by the ends of the unit to be wrapped, cutters for severing the ends of the strips to provide wrapper sheets, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, mountings for the respective plungers and the tubular folder, and means adapted to first actuate the unit delivering device and strip feeders, and then, in timed sequence, to advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and actuate the cutters and then advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet.

8. In a wrapping machine, the combination of a frame, a device for delivering the unit to be wrapped to the wrapping position, means for feeding two continuous strips of wrapping material to bring their leading ends adjacent the position occupied by the ends of the unit to be wrapped, cutters for severing the ends of the strips to provide wrapper sheets, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, a heat sealing ring in register with the folding ring, mountings for the respective plungers and the tubular folder, and means adapted to first actuate the unit delivering device and strip feeders, and thereafter, in timed sequence, to advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the unit and actuate the cutters and advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and heat sealing ring and thereby fold down and seal the edges of the proximate wrapper sheet.

9. In a wrapping machine, the combination of a frame, a feeder mounted to swing in a vertical plane and having jaws adapted to receive and clamp the unit to be wrapped and deliver the same to the wrapping position, means for feeding two continuous strips of wrapping material to bring their leading ends adjacent the position occupied by the ends of the unit to be wrapped, cutters for severing the ends of the strips to provide wrapper sheets, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, mountings for the respective plungers and the tubular folder, and means adapted to first actuate the unit delivering feeder and strip feeders, and thereafter, in timed sequence, to advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and actuate the cutters and then advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and thereby fold down the edges of the proximate wrapper sheet.

10. In a wrapping machine, the combination of a frame, a feeder mounted to swing in a vertical plane and having jaws adapted to receive and clamp the unit to be wrapped and deliver the same to the wrapping position, means for feeding two continuous strips of wrapping material to bring their leading ends adjacent the position occupied by the ends of the unit to be wrapped, cutters for severing the ends of the strips to provide wrapper sheets, a pair of spaced plungers normally standing in proximate relation to the wrapper sheets at opposite ends of the unit, a tubular folder normally encircling one of the plungers, a folding ring normally encircling the other plunger, a heat sealing ring in register with the folding ring, mountings for the respective plungers and the tubular folder, and means adapted to first actuate the unit delivering feeder and strip feeders, and thereafter, in timed sequence, to advance the plungers inwardly relatively to one another to clamp the wrapper sheets against the ends of the unit and actuate the cutters and then advance the tubular folder inwardly relatively to the encircled plunger to fold down the edges of the proximate wrapper sheet and thereafter advance both plungers in unison to carry the partially wrapped unit through the folding ring and heat sealing ring and thereby fold down and seal the edges of the proximate wrapper sheet.

11. In a wrapping machine, the combination of a frame mounting opposed plungers normally standing opposite a unit to be wrapped, means for feeding two strips of wrapping material to positions adjacent opposite faces of the unit and the plungers adjacent thereto, a tubular folder encircling each plunger, mountings for the plungers and the tubular folders carried by the frame, actuating means adapted to first sever a wrapper sheet from each strip and advance the two plungers relatively to the wrapper sheets to hold the same against opposite faces of the unit and then relatively advance one tubular folder beyond its encircled plunger and thereafter to relatively advance the other tubular folder beyond both plungers to fold down the edges of the two wrapper sheets in overlapping relation around the unit, and means for holding the unit against displacement preliminary to the folding operation.

12. In a wrapping machine the combination of a frame whereon is mounted means for delivering the unit to be wrapped to the wrapping position, means for feeding two strips of wrapping material to positions adjacent opposite faces of the unit, means for severing from each strip a wrapper sheet while positioned adjacent one face of the unit, two plungers normally standing in proximate relation to opposite faces of the wrap-

per sheet and in alignment with the unit, a tubular folder encircling each plunger, mountings for the two plungers and the tubular folders, actuating means adapted to first advance both plungers inwardly to clamp the wrapper sheets against opposite faces of the unit, then advance one tubular folder inwardly beyond its encircled plunger to fold down the edges of one wrapper sheet around the unit, and then advance the two plungers relative to the other tubular folder to fold down the edges of the other wrapper sheet around the unit, and means for holding the unit against displacement preliminary to both folding operations, the two plungers near the conclusion of the operating cycle being thereafter movable in unison to further advance the wrapped unit

to effect its ejectment from the tubular folders, and its ultimate release and discharge.

BENGT A. ARVIDSON.

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