Jan. 14, 1947. E. S. WOLLETT 2,414,282

WRAPPING MACHINE

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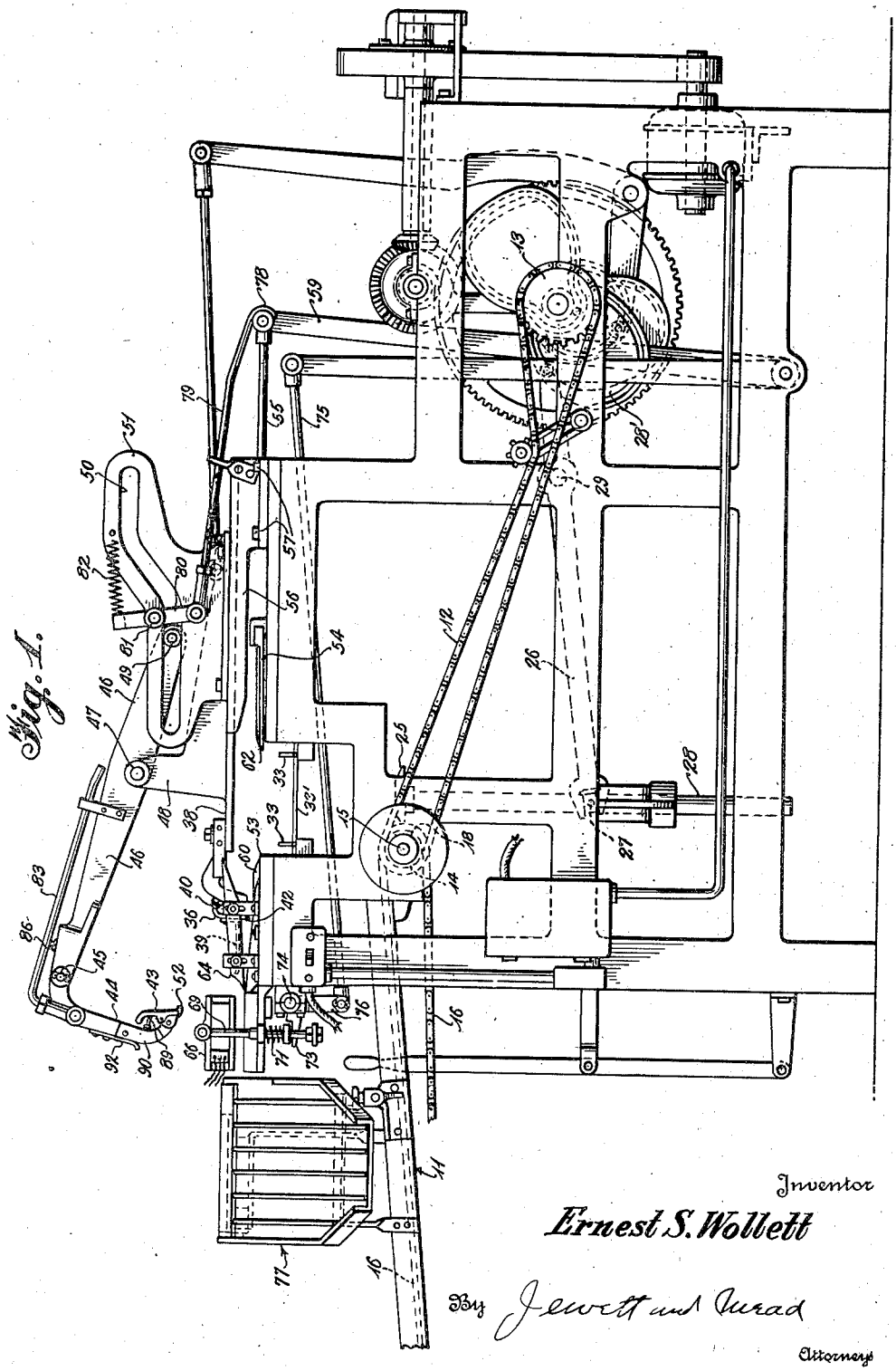


Fig. 1.

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Fig. 2.

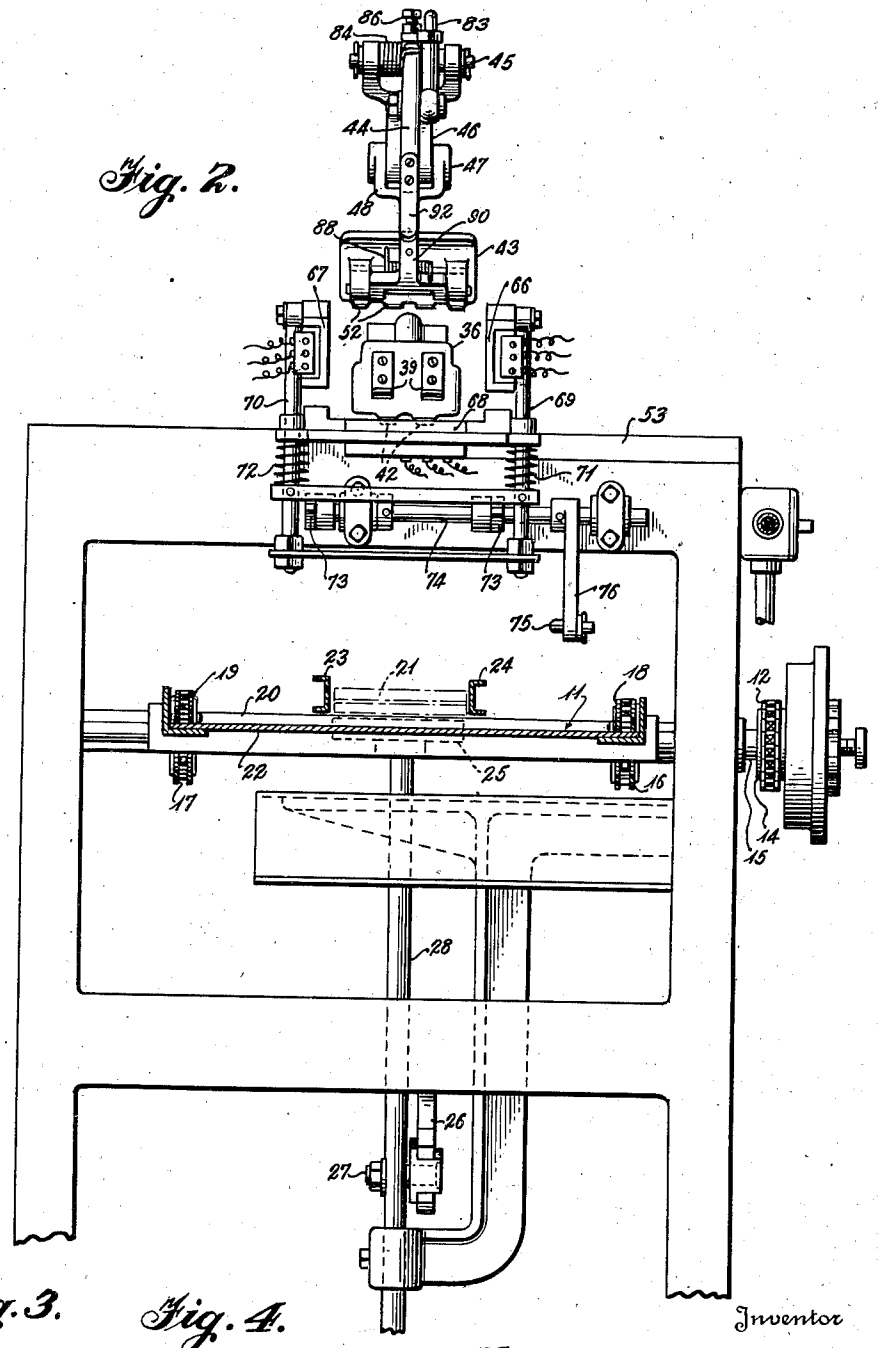
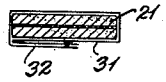


Fig. 3.



Fig. 4.



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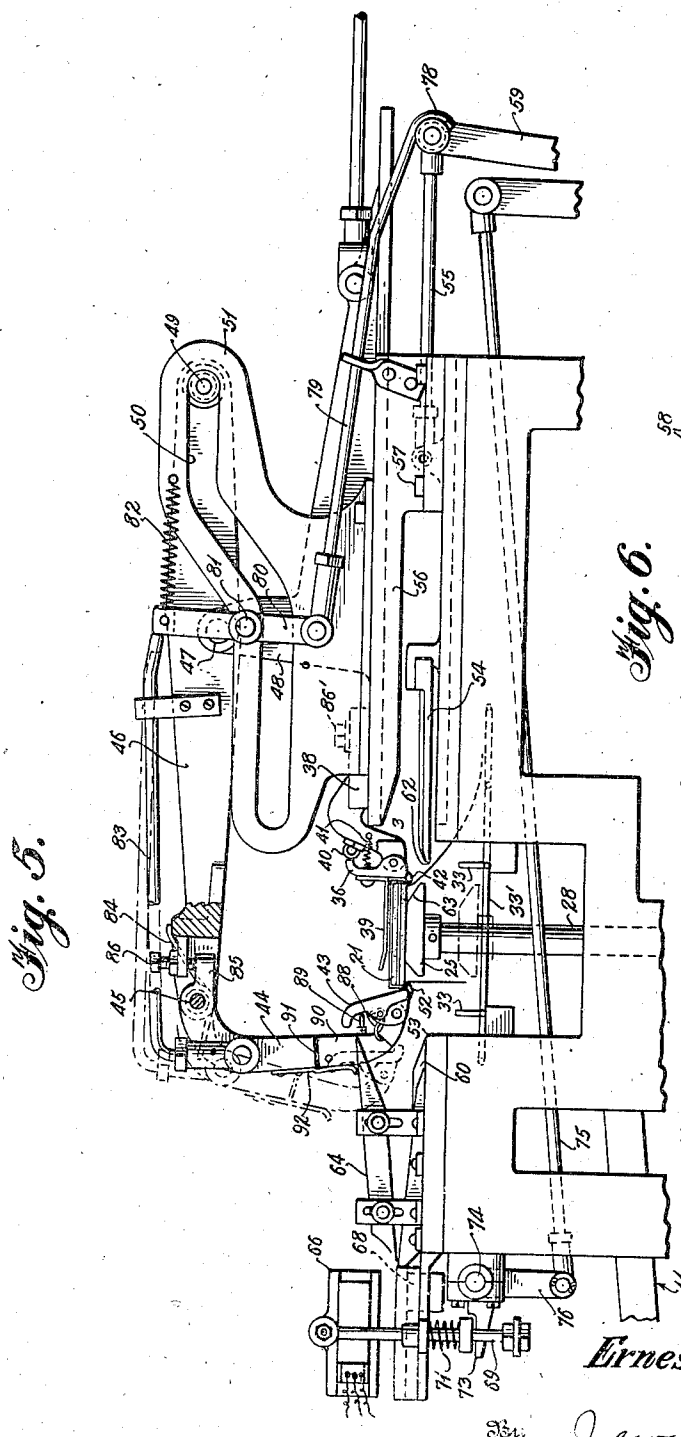


Fig. 5.

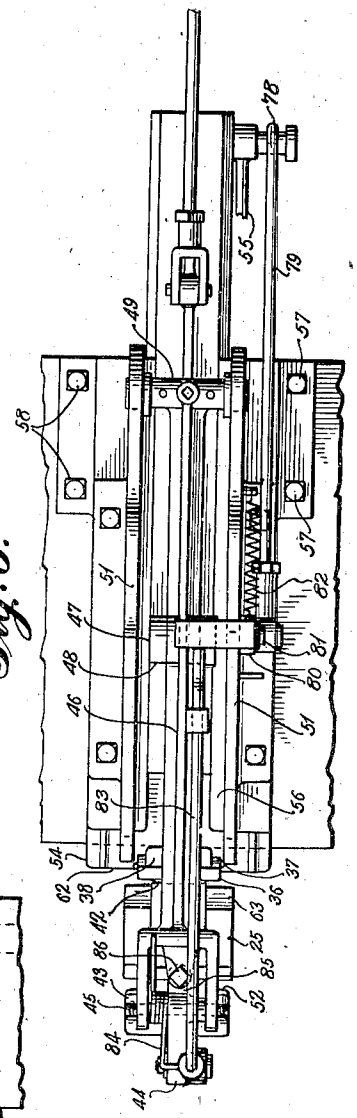


Fig. 6.

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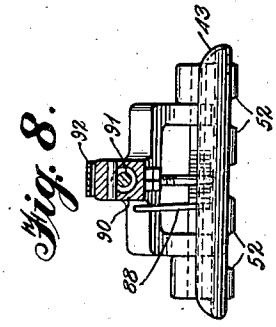


Fig. 8.

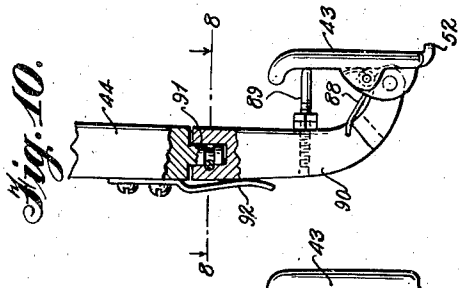


Fig. 10.

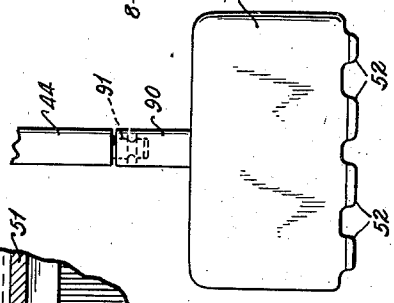


Fig. 9.

Fig. 7.

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UNITED STATES PATENT OFFICE

2,414,282

WRAPPING MACHINE

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Application March 22, 1943, Serial No. 480,067

2 Claims. (Cl. 93—2)

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The invention relates to wrapping machines and has as an object the provision of a machine particularly adapted to the wrapping of flexible objects such as sandwiches.

The machine wrapping of sandwiches presents difficulties due to the flexibility of the article and to the fact that the separate parts must not be dislocated. These difficulties are increased where, as in the instance of the present machine, the wrapping is to be with Cellophane and the wrapper is to be sealed by application of heat.

It is therefore an object to provide a machine, upon the feeding conveyor of which prepared sandwiches may be laid by hand, which will so manipulate the sandwich and a Cellophane wrapping as to enclose the sandwich and seal the wrapping substantially airtight, without displacing the parts of the sandwich.

Further objects of the invention will appear from the accompanying drawings showing an illustrative embodiment of the invention, and wherein—

Figure 1 is a side elevation showing the sandwich carrier advanced toward wrapper-sealing position;

Fig. 2 is a front elevation of the machine, showing the feed conveyor in section and with the delivery chute omitted;

Figures 3 and 4 are respectively sections through a sandwich wrapped by the machine of the invention, sections taken at right angles to each other;

Fig. 5 is a detail side elevation of the upper central portion of the structure of Figure 1 drawn to an enlarged scale;

Fig. 6 is a detail plan view of a portion of the structure of Figure 5;

Fig. 7 is a detail plan view with the portions shown in Figure 6 omitted;

Fig. 8 is a detail horizontal section on line 8—8 of Figure 10;

Fig. 9 is a front view to a still further enlarged scale, of the front article-supporting member; and

Fig. 10 is a side view partly broken away, of the structure of Figure 9.

As stated above, the invention herein adapts an existing machine to the wrapping of sandwiches and the like. The drive mechanism including the motor, gearing cams and levers to the right in Figure 1 are the same as those shown in patent to Hayssen No. 1,977,307, dated October 16, 1934, omitting the crank disc 45, link 46 and the intermittent conveyor drive there shown.

To drive the endless conveyor 11, chain 12 driven from sprocket 13 drives sprocket 14 on shaft 15, the conveyor comprising chains 16, 17 passing about sprockets 18, 19, to which chains are secured bars 20 which push the articles 21 along the chute 22 between the guide channels 23, 24.

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The articles, as sandwiches 21, are fed to an elevator 25 which is caused to elevate the same by lever 26 acting through pin 27 on rod 28. The lever 25, fulcrumed at 29 is driven by cam 28' in timed relation with the delivery of the articles.

In advance of each upward movement of the elevator the wrapping material feed device 30, Figure 7, which in itself is well known and in common use, projects the wrapping material, as Cellophane, across the path of upward movement of the elevator. The said material is wide enough to provide the closure laps 31, 32, Figure 4, and the length fed for each article will extend into contact with stop wires 33, Figures 1, 5, and 7, which stops control movement of the flimsy material as it falls upon grille 33'.

This extent of material provides for the sealed end closures 34, Figure 3. In timed relation with, and just before the upward movement of the sandwich into contact with the Cellophane, the latter is severed from the roll 35 by well known mechanism not shown. The wires 33 control the fall of the wrapper upon the grille so that it will be square with the sandwich when raised by the elevator.

When downward movement of the elevator 25 begins the sandwich overlaid by the Cellophane is supported and controlled from above, at opposite edges and below, as follows: A plate 36 pivoted at 37 on slide 38 carries fingers 39 which overlie the Cellophane and sandwich. The plate 36 is held against a stop 40 by weak spring 41. The plate 36 has projections 42 from its lower edge that provide support for the edge of the sandwich.

Opposing plate 36 is a plate 43 carried by an arm 44 pivoted at 45 upon a tiltable member 46 pivoted at 47 on a standard 48 rising from slide 38. Motion of member 46 about its pivot is caused by rollers carried on a pin 49 traveling in identical cam slots 50 formed in parallel wings 51 fixed with the frame of the machine. The plate 43 has projections 52 from its lower edge to underlie the edge of the sandwich and control it in its advancement. The projections 52 are shown as spaced apart, as are the projections 42, to pass between the ridges 60 on plate 61 along which the sandwiches slide to the sealing means, the ridges being provided to lessen friction.

To produce the under lap 31 of the wrapper and to support the sandwich during its advancement to plate 53 upon which the sandwich slides to the heated sealing means, a plate 54 is reciprocated by link 55. The plate 54 slides below the frame plate 56 which supports the wings 51 and is bolted to the frame at 57, 58. The lever 54 which drives the plate 59 is timed to move the plate as the elevator starts to recede from its highest point. As the elevator lowers, the plate 54 is advanced so that the leading edge 62 thereof moves closely adjacent the slope 63 of the elevator carrying the wrapper with it.

The plate moves until the edge 62 closely approaches the plate 43, before the plates 36, 43 begin to forward the sandwich. At this stage one margin of the wrapper will be hanging downward from said edge 62 in close proximity to its opposite edge hanging down from the edge of the sandwich gripped by projections 52 on plate 43. The slide 38 then operates to move the plates 36 and 43 toward the sealing means, the plate 54 moving also at the same speed until its edge 62 approaches the plate 53 whereupon plate 54 stops and plates 36 and 43 continue to move the sandwich along plate 53 with the ends of the wrapper between converging guides 64, 65.

Just previous to the arrival of plate 36 at the position shown in Figure 1, the form of slot 50 causes movement of arm 46 to raise the plate 43 so as to clear the sealing means. The sealing means comprises spaced electrically heated presser shoes 66, 67 and a bottom electrically heated plate 68.

As best shown in Figure 2 the shoes 66, 67 are carried by reciprocating shafts 69, 70, urged to sealing position by compression springs 71, 72, normally resisted by cranks 73 on shaft 74. At the proper time link 75 through crank 76 lowers the cranks 73 allowing the shoes to descend and seal the wrapper ends, the plate 68 at the same time effecting the sealing of overlaps 31, 32. The movement of the succeeding sandwich to the sealing means pushes the wrapped and sealed one out to fall on the delivery chute 77.

Just prior to the portion of the cycle shown in Figure 5, the plates 36 and 43 have arrived at their full line position shown in said figure but the elevator has not yet reached its full upward position with the article. At this time the lever 59 approaches its rearmost position to pull upon hook 78 and rod 79 to move lever 80 about its pivot 81 against tensile spring 82 to push on rod 83 whereby to swing arm 44 about its pivot 45 against the resistance of coil spring 84 (Figure 2) to the dotted position of Figure 5.

The lever 59 immediately starts its forward

movement when spring 84 returns the arm 44 to full line position of Figure 5, returning the projection 85 to contact with adjustable stop 86.

The spacing of the plates 36 and 43 to the size of the sandwich is adjustable by said stop 86 and by moving the mount of plate 36 on cap screws 86' said mount being slotted as at 87 for the purpose.

To enable plates 36 and 43 to move for adjustment to small variations in size of sandwiches, plate 36 is urged by a delicate spring 41 against its stop 40 and plate 43 by delicate spring 88 against a stop 89. To allow plate 43 to swivel to compensate for out of square sandwiches, the portion 90 of arm 44 is pivoted as at 91 on the main portion of the arm, a leaf spring 92 impinging against a flat surface of portion 90 to keep the plate normally parallel with plate 36.

The operation of the machine will be clear from the above description.

Minor changes may be made in the physical embodiment of the invention within the scope of the appended claims without departing from the spirit thereof.

I claim:

1. A wrapping machine comprising, in combination: a slidable member; an arm pivoted on said member; plates pivotally carried by said member and said arm respectively in article spaced relation, for motion of separation of their lower edges about horizontal axes; pivot means mounting one of said plates for rotation on an axis perpendicular to its first named axis to accommodate an out of square article; lugs carried by the lower edges of the respective plates to project under an article whereby to support the same by its lower corners; means to adjust the spacing of the lower edges of the plates to avoid compression of deformable articles; means to feed an article to said plates for support on said lugs with a wrapper covering the article at three surfaces; means to fold the wrapper at a fourth side of the article; and subsequently acting means to permanently close the projecting unfolded ends of the wrapper.

2. The combination of claim 1 with a fixed plate to which the partially wrapped article is delivered; a pair of normally separated, sealing blocks, situated at each side of said plate; at least one of each pair of blocks provided with heating means; with converging plates at each side of said fixed plates to guide the projecting unfolded wrapper ends to the space between said blocks; and with means, acting in time with feed of articles, to press the wrapper ends between said blocks to seal the same.

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