

Oct. 3, 1939.

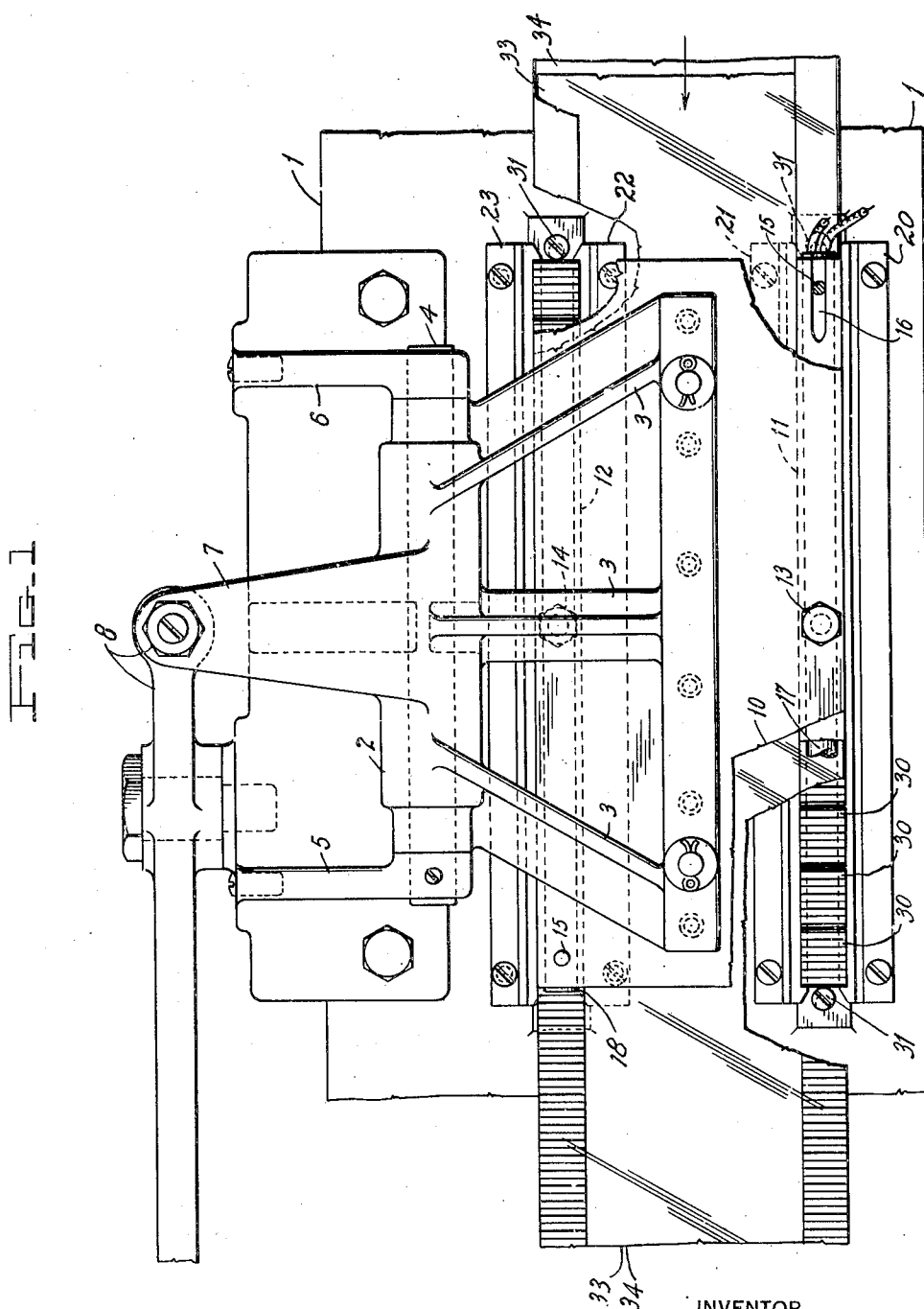
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2,175,031

CRIMPING SEALER CONSTRUCTION

Filed April 20, 1938

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

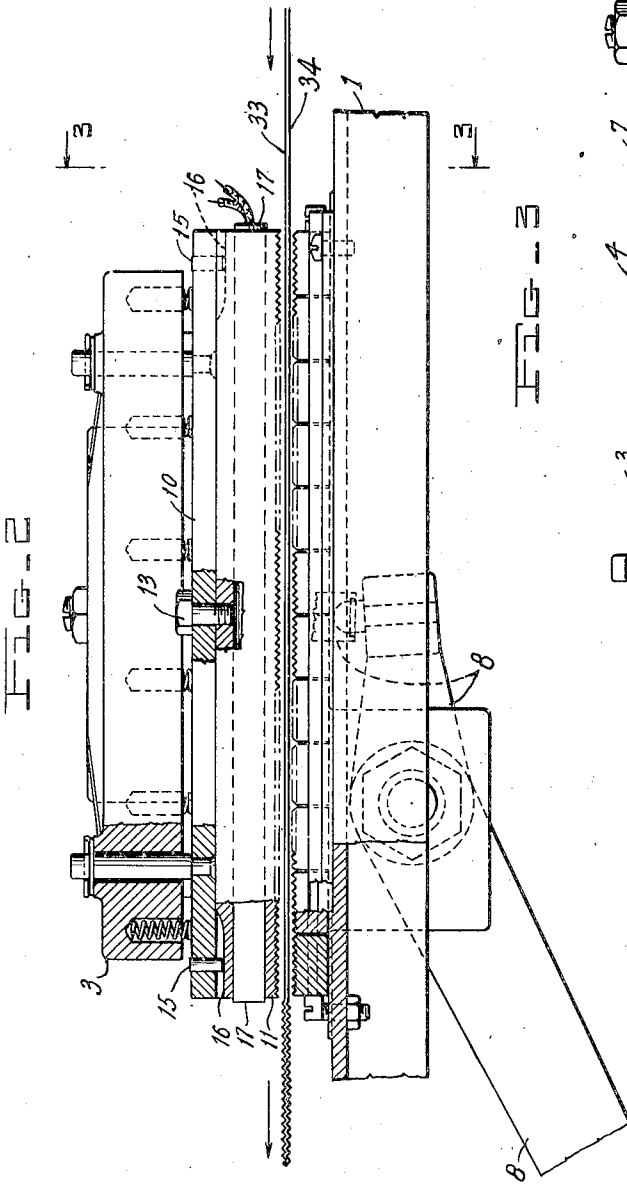
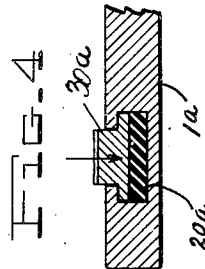
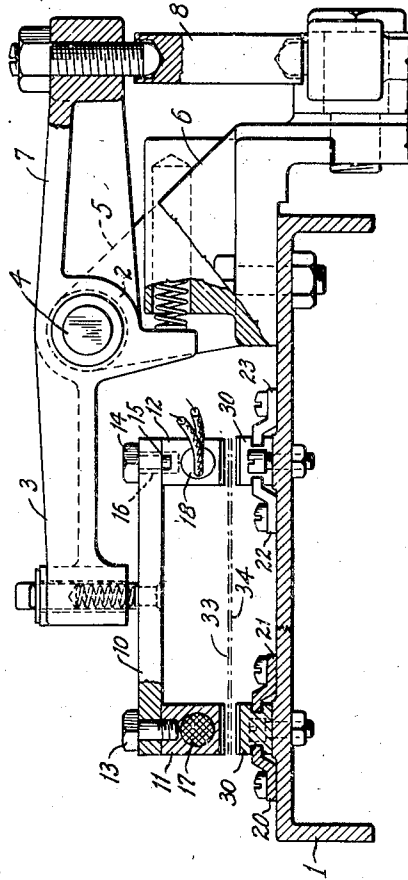


FIG. 3



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UNITED STATES PATENT OFFICE

2,175,031

CRIMPING SEALER CONSTRUCTION

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Application April 20, 1938, Serial No. 203,133

7 Claims. (Cl. 154-42)

This invention pertains in general to sealing and crimping mechanisms such as used in the manufacture of packages and containers.

An object of the invention consists in producing a construction of co-acting crimping structures, such that the crimping teeth in one structure will automatically align or register with the crimping teeth of the other structure despite expansion which may take place due to heat employed in a crimping and sealing operation.

A further object of the invention is to provide a crimping mechanism which shall have complementary jaws movable toward and from each other to receive and crimp material between them, one of said jaws having crimping parts fixed relatively to each other and the other jaw having crimping parts movable relatively to each other in the general plane of contact of said crimping jaws with said material to cause automatic alinement or meshing of the crimping parts of the two jaws by and upon engagement of said jaws with each other.

These and other objects will be apparent from the following, reference being made to the accompanying drawings in which like reference numerals designate corresponding parts, and in which:

Fig. 1 represents one embodiment of the mechanical construction of the invention showing the arrangement of the co-acting sealing and crimping structures;

Fig. 2 is a side elevation of the apparatus depicted in Fig. 1;

Fig. 3 is an end view of the same apparatus;

Fig. 4 is a fragmentary sectional view of an alternative form of crimping arrangement.

The invention contemplates a sealing mechanism for forming crimped seals in packaging material, particularly where such seals are formed with heat. In the use of crimping members, the use of heat produces expansion such that difficulties arise in attempting to make different co-acting crimping members align or register in a crimping operation. According to the invention, the crimping teeth or parts of one crimping bar are spaced in fixed relationship while the crimping teeth or parts of the other crimping bar are mounted for relative movement in a plane parallel with the general plane of contact of the crimping parts or teeth of the two bars with the layers so that the crimping parts of each bar automatically shall align, register or mesh with the crimping parts of the other bar in a sealing operation and thereby compensate for mechani-

cal expansion or contraction caused by varying temperature conditions.

Referring to the drawings in detail, the co-acting sealing structures consist of a stationary bed 1 and a movable structure 2 mounted thereabove. The structure 2 includes a jaw frame 3 mounted by a pivot 4 extending between bosses 5 and 6. An extending part 7, of the frame 3, is mechanically actuated by a lever 8 adapted to impart a reciprocative of rocking force to the frame 3.

Suspended from the jaw member 3, is a yoke structure 10 carrying a pair of crimping bars 11 and 12. The bars 11 and 12 are formed of metal and the under sides thereof are serrated to form crimping teeth or ridges. The bars 11 and 12 are attached to the yoke 10 by center bolts 13 and 14 and by end guide pins 15 which ride in end slots 16 of the yoke 10. Such a construction permits of expansion and contraction of the bars 11 and 12 with reference to the central points of support in the bolts 13 and 14. The bars 11 and 12 carry internal electric heating cartridges 17 and 18 which are connected with a suitable source of energy supply for heating the bars 11 and 12. The bed structure 1, which in effect co-acts as a complementary jaw for the frame 3, is provided with rails 20, 21, 22 and 23 positioned parallel upon the part 2. Between the pairs of rails 20-21 and 22-23 toothed crimping parts 30 are movably mounted. That is, the parts 30 are provided with central recesses which accommodate the edges of the rails 20 and 21 as shown, so that the parts 30 may slide back and forth parallel to the general plane of their toothed surfaces. The upper portions of the parts 30 are serrated so as to be mechanically complementary to the serrated ridges on the under side of crimping bars 11 and 12. Eccentric nuts 31 are provided at either end of the rails so as to limit or adjust the amount of freedom or movement of the parts 30, and also to permit of their removal and replacement.

In the manufacture of packages, opposed layers 33 and 34 of packaging material may be fed in adjacent or overlapping condition between the crimping bars 11 and 12 and the crimping parts 30. The crimping bars 11 and 12 are appropriately heated, and actuated by lever 8 to press the edges of the layers 33 and 34 into forced interdigitation or crimping relationship by virtue of the cooperating action of the crimping parts 11, 12 and 30. The expansion and contraction of bars 11 and 12 is compensated for by movable adjustment of the parts 30 which is effected

automatically when the ridges of the bars 11 and 12 press against the corresponding ridges of the parts 30. In this way, the proper registration of the crimping members is maintained at all times of operation of the sealing equipment.

Fig. 4 shows an alternative form of crimping arrangement. It will be seen that the crimping element 30a, including one or more teeth, is movably mounted in a flange member 1a for movement in directions perpendicular to the general plane of contact of said teeth with the layers of material. Beneath the crimping element 30a, a resilient supporting block 20a of rubber or the like is provided. When pressure is brought upon the crimping element 30a, the crimping element 30a will be depressed to accommodate itself for various thicknesses of material. Thus, when such resilient backing is provided as in the arrangement of Fig. 2, the various thicknesses of material, such as a bag with folded seams, can be sealed producing a uniform sealing throughout.

Although a preferred form of the crimping sealer construction has been disclosed, it will be recognized that various changes and modifications will occur to those skilled in the art but which will not depart from the intended scope of the invention. Therefore, no limitation is intended except as pointed out in the appended claims.

What is claimed as new and original to be secured by Letters Patent of the United States is:

1. In a crimping machine, a pair of co-acting crimping structures, one of said crimping structures carrying a plurality of movable crimping parts and having a resilient backing therefore to permit said crimping parts individually to yield for accommodating material having different thicknesses in different parts thereof during crimping operation upon said material.

2. In a mechanism for forming a seal between layers of material, two opposed members movable toward and from each other to press between them said layers of material, each having crimping parts to intermesh with the crimping parts of the other in contact with said layers of material, the crimping parts of at least one member being mounted freely movable in the general plane of contact of the crimping parts of said two members with said material, whereby the crimping parts of each member shall accurately mesh with the crimping parts of said other member in a sealing operation.

3. The mechanism set forth in claim 2, wherein said movable crimping parts are also mounted for movement in directions perpendicular to said general plane of contact of said crimping parts

of said two members, and with the addition of a resilient support for said movable crimping parts to permit said parts to yield individually for accommodating different thicknesses of layers of material at different locations between said members during sealing operations on said layers of material.

4. The mechanism set forth in claim 2, with the addition of means for heating the crimping parts of one of said members, and wherein movement of said movable crimping parts compensates for thermal expansion and contraction of the crimping parts.

5. In a mechanism for forming a seal between layers of material, two opposed members movable toward and from each other to press between them said layers of material, each having crimping parts to intermesh with the crimping parts of the other in contact with said layers of material, one of said members having a channel structure and a plurality of crimping parts that are freely slidably mounted in said channel structure to move in the general plane of contact of said crimping parts of the two members with said material, whereby said slidable crimping parts shall automatically mesh with the crimping parts of the other member during a sealing operation.

6. A crimping machine including a pair of co-acting jaws to receive material to be crimped between them, a plurality of crimping teeth fixedly mounted on one jaw and a plurality of toothed crimping parts complementary to said crimping teeth mounted on the other jaw whereby said crimping teeth and said toothed crimping parts intermesh with each other in contact with said material upon movement of said jaws toward each other, said toothed crimping parts being mounted individually freely movable in the general plane of contact of said crimping teeth and said toothed crimping parts with said material so as to ensure accurate meshing of said crimping teeth with said crimping parts during a crimping operation.

7. The crimping machine set forth in claim 6 wherein said toothed crimping parts are also movable in directions perpendicular to said general plane of contact of said crimping teeth and said crimping parts with said material, and with the addition of a resilient support for said crimping parts whereby said crimping parts can individually yield to accommodate different thicknesses of material at different locations between said crimping teeth and said crimping parts during a crimping operation.

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