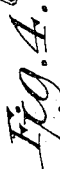


1,121,709.

2 SHEETS—SHEET 1.



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A. BRYNER.
MACHINE FOR SEALING FOIL ENVELOPS.
APPLICATION FILED NOV. 4, 1913.

1,121,709.

Patented Dec. 22, 1914.

2 SHEETS—SHEET 2.

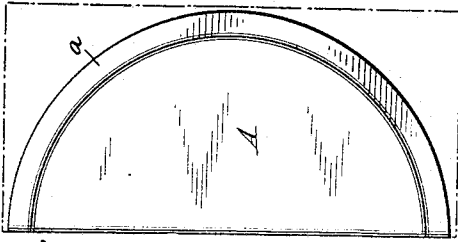


Fig. 5.

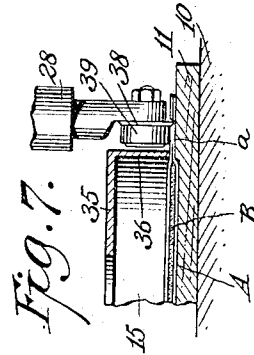


Fig. 7.

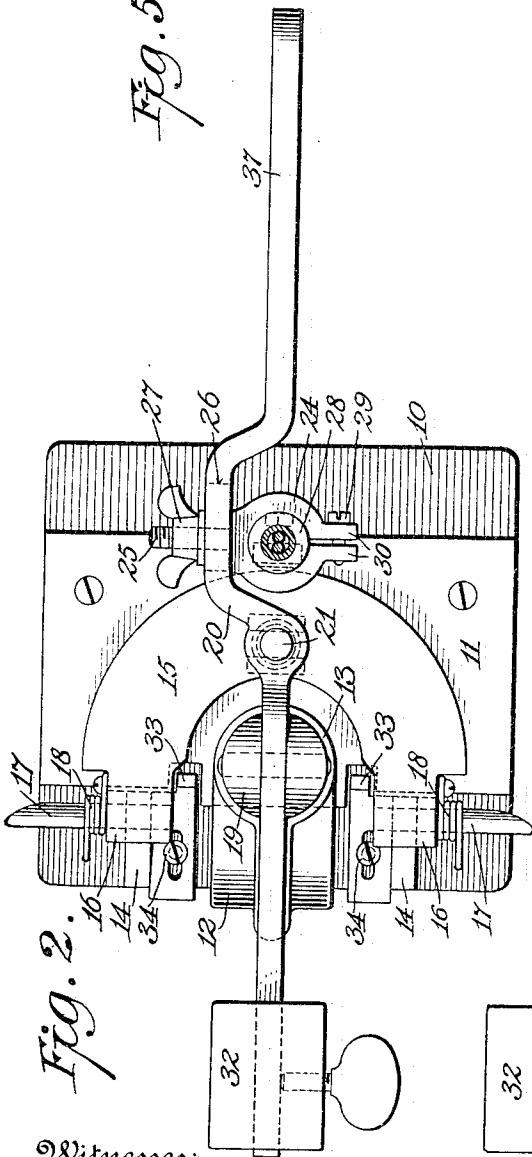


Fig. 2.

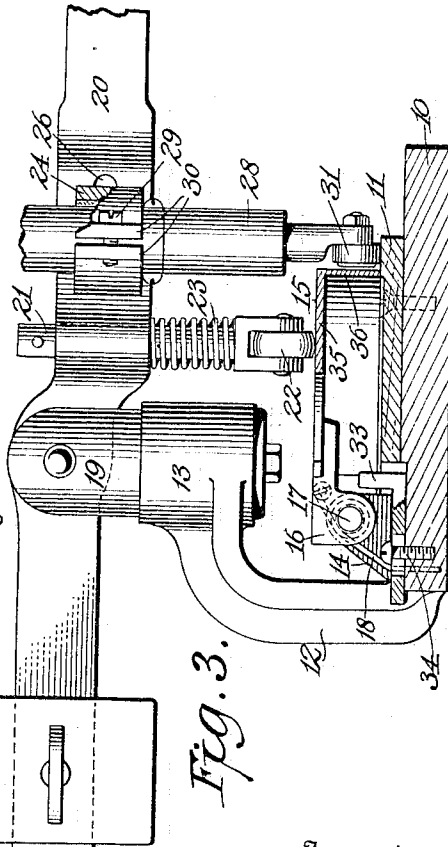


Fig. 3.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR SEALING FOIL ENVELOPS.

1,121,709.

Specification of Letters Patent.

Patented Dec. 22, 1914.

Application filed November 4, 1913. Serial No. 799,206.

To all whom it may concern:

Be it known that I, ADOLF BRYNER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Machines for Sealing Foil Envelops, of which the following is a specification.

This invention relates generally to a machine for joining the overlapping edges of metal foil sheets by applying to said edges or seam a heated member and, moving the same along the seam, fusing together the overlapping edges thereof; and more particularly to a machine for sealing foil envelops or containers about articles which it is desired to hermetically inclose by folding each of said envelops or containers over the article or articles and then fusing together the contacting overlapping edges.

The principal object of the invention is to provide a simple, direct acting machine that clamps the free edges of a folded foil envelop or container, and while holding said edges in intimate contact applies thereto a heated member that may be moved over said edges to fuse them inseparably together and absolutely air tight.

To set forth the invention attention is directed to the accompanying drawings which illustrate one embodiment of the same in its simplest form. Various changes however, may be made in the details of construction and in the arrangement of parts without departing from the spirit of the invention.

Referring to the drawings—Figure 1 is a front elevation of an envelop sealing machine showing one embodiment of the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation of the machine in operative position with the lower part in section. Fig. 4 is an elevation of the lower part of the machine from the opposite side in position to receive an envelop or container. Fig. 5 is a plan view; and Fig. 6 a central cross sectional view, of an envelop or container sealed. Fig. 7 is a detail view of a modification.

In the drawings 10 indicates a flat base plate firmly secured to a rigid support, upon the upper surface of which plate is fastened a bed 11, in the present instance made of wood for a purpose to be set forth hereinafter. From one edge, preferably the rear,

of the base plate 10 there rises a standard 12 that may project over the bed 11 a suitable distance above the same and carries a bearing 13, the axis of which stands vertical. Affixed to the base 10 on each side of the standard 12 is an upstanding ear 14 upon which are pivoted the rear ends of a foil envelop clamping jaw or clamp 15, said clamp in the present instance having a flat top and a semi-circular forward edge. From the straight rear edge of the clamp 15 project two hinge members 16 that are pivotally connected to the ears 14 by hinge pins 17 upon which pins the clamp 15 is adapted to rock to and from the bed 11. Surrounding each pin is a coiled spring 18 the ends of which springs are connected respectively to the base 10 and the clamp 15 and normally hold said clamp above the bed 11. The position of the clamp over the bed is such that when depressed into contact with said bed the axis of its outer curved edge will be coincident with the axis of the bearing 13.

Mounted to rotate horizontally in the bearing 13 is a vertical stud 19 that carries a traveling member 20 here represented as an arm which may be pivoted on said stud to swing in a vertical plane, as shown, or rigidly affixed thereon. Slidable vertically through a socket in the traveling member 20 from its under side is a pin 21 provided with a friction roller 22 on its lower end to bear upon the top of the clamp 15 and depress the same. A spiral spring 23 surrounds the pin 21 to hold the same in its lowermost position and provide a yielding pressure on the clamp 15. A split collar 24 is adjustably secured to the traveling member 20 beyond the pin 21 by means of a screw 25 extending through a horizontal slot 26 in said member and fastened in position by means of a thumb nut 27. Within the collar 24 is a heater 28 adjustable therein in a vertical direction and clamped fast by a screw 29 passing through ears 30 projecting from the collar. A packing of asbestos or other nonconductor of heat is placed between the collar 24 and the heater 28 to prevent the passage of heat therefrom to the traveling member 20. At the lower end of the heater 28 is a heating member 31 shown in the present instance as a roller adapted to bear upon the foil envelop supported on the bed 11 and held thereto by the clamp 15.

The function of the heating member 31 is to press the foil along a line extending transversely to and preferably substantially at right angles to the clamping edge. The movement of the traveling member 20 moves this line of pressure in a direction lateral to itself, so that speaking in a geometric sense, it describes a zone of pressure extending along near the clamping line. This function is admirably performed by a small roller the axis of which is substantially at right angles to the edge along which the roller is guided because the pressure is concentrated on the line of tangency of the roller as the roller moves easily along the foil. By making said bed of wood, little or no heat is lost through conduction. A counterweight 32 is carried by the rear end of the traveling member 20, when pivoted to swing in a vertical direction, on the side of its pivotal connection opposite the heater to normally elevate said heater above the bed and out of the way, and the pin 21 above the clamp so that the latter will stand above the bed 11 when not in use that envelops may be placed thereon.

Fastened on the base 10 at the rear edge thereof, preferably within the ears 14, are two stops 33, each of which is formed of an L-shaped plate, as shown, adjustably fastened to the base 10 by screws 34 passing through longitudinal slots in said stop plates. These stops are adjusted as desired to properly position the envelop beneath the clamp.

In the form of the device shown in Figs. 1 to 4, articles to be sealed are placed upon a circular sheet of metal foil and the latter folded over said article or articles and the edges of the foil brought together in alignment, thus forming a semi-circular package. This package is placed upon the bed 11 beneath the clamp 15 with the straight edge of the package bearing against the stops 33, the traveling member 20 having been swung to one side until the heating member 31 is behind the package and is in contact with one of the hinge pins 17 which project to serve as stops. The traveling member is then depressed, causing the roller 22 on the pin 21 to ride over the clamp 15, rocking the same on its axis and bringing the lower edge thereof in contact with the curved edge of the foil envelop a short distance within its outer margin. Preferably the clamp 15 is made L-shaped in cross section, that is to say it has a circular top plate 35 upon which the roller 22 bears and a vertical front wall 36 which may serve as a guide for the heating member 31. By making the clamp in this form there is provided a space beneath the same to receive bulging or thick packages which may be placed in the machine to be sealed. After depressing the traveling member 20 to actuate the clamp 15 and

bring the heating member 31 into contact with the envelop, said traveling member is then swung about the axis of the stud 19, the heating member 31 pressing the two edges of the foil together and against the bed and fusing their contacting surfaces as it travels thereover. This movement is continued until the heating member strikes the other projecting hinge pin 17, or has passed off the envelop, whereupon the handle 37 of the arm 20 is released and the counterweight 32 permitted to raise the heated member and the roller 22. The clamp 15 thus relieved of pressure will be raised by its springs 18 so that the sealed envelop may be withdrawn and another inserted in its place.

Figs. 5 and 6 illustrate in plan view and cross section the sealed envelop or container made of a circular sheet A of foil doubled upon itself and over a substance B which it is desired to preserve from contact with the atmosphere. The curved edges *a* of the sheet lying one upon the other have been subjected to the sealing machine and fused inseparably and hermetically together. The traveling member 20 is shown in the present embodiment as mounted to swing in both a horizontal and vertical direction to perform certain functions in connection with the complete operation of the machine. This member may be otherwise mounted if desired, to accomplish the necessary results, without departing from the principle of the invention.

The heating member 31 may be in the form of a roller as shown or in any other form capable of fusing the envelop. A modification of the heating member is illustrated in Fig. 7 wherein a circular knife 38 is shown projecting beyond the periphery of a heating roller 39 on one side to trim the edge of the envelop simultaneously with the fusing action of the roller. When a heating member of this type is used, the foil sheet from which the envelop is made may be of any shape, such for instance as shown in dotted lines Fig. 5, as after passing through the machine it will be properly trimmed.

It will be apparent that instead of swinging the arm 20 by hand as hereinabove described the same may be operated by power suitably applied in any convenient way, and further that the clamp 15 may be depressed by other means than that herein shown. No power mechanism has been shown in connection with this machine as such was not considered necessary, there being no claim for a specific means of operating the machine, the same being operable by hand or by power as desired. Electricity, gas, or other means may be employed to heat the member 31 or 39 as will be most convenient.

The heating member 31, adjustably

mounted as shown, on the traveling member 20 by means of the fastening screw 25 carried in the horizontal slot 26, permits said heating member to be moved to and from the stud 19 when desired to seal envelopes of different sizes. The clamp 15 may also be removed and one of a different size substituted to accommodate the larger or smaller envelop.

What I claim is:—

1. A machine for sealing the overlapping edges of sheets of foil comprising a clamp for holding the overlapping edges together along a clamping line, pressing means for pressing and heating the foil in a pressure line, extending transversely to the clamping line, and means for moving said pressing member along the clamping line so that the pressure line moves laterally to itself and describes a zone extending along and adjacent to the clamping line.

2. A machine for sealing the overlapping edges of sheets of foil comprising a clamp for holding the overlapping edges together along a clamping line, pressing means for pressing and heating the foil in a pressure line extending transversely to the clamping line, and a traveling member carrying said pressing member for moving said pressing member along the clamping line so that the pressure line moves laterally to itself and describes a zone extending along and adjacent to the clamping line.

3. A machine for sealing the overlapping edges of sheets of foil comprising a clamp for holding the overlapping edges together along a clamping line in the form of an arc, pressing means for pressing and heating the foil in a pressure line extending transversely to the clamping line, and a traveling member mounted to turn about a pivot, carrying said pressing member for moving said pressing member along the clamping line so that the pressure line moves laterally to itself and describes a zone extending along and adjacent to the clamping line.

4. A machine for sealing the overlapping edges of sheets of foil comprising a flat bed a hollow swinging clamp with a curved depending flange adapted to bear on said bed between which flange and the bed the edges of the sheets to be sealed only are held, and a heated member movable in an arc about said clamp over and in contact with the overlapping edges of the foil to fuse them together.

5. A machine for sealing the overlapping edges of sheets of foil comprising a clamp for holding the overlapping edges together along a clamping line, pressing means for pressing and heating the foil in a pressure line, extending transversely to the clamping line, and means for moving said pressing member along the clamping line so that the pressure line moves laterally to itself and

describes a zone extending along and adjacent to the clamping line, said last means being movable toward the clamp to apply said pressing means to the foil, and means cooperating therewith for actuating the said clamp to hold the foil.

6. A machine for sealing the overlapping edges of sheets of foil comprising a movable clamping jaw for clamping the sheets of foil along a clamping line, means tending to move said jaw toward its open position, pressing means arranged to be heated and adapted to press and heat the foil in a line transverse to and adjacent to the clamping line, a traveling member carrying said pressing member and adapted to swing about over said clamp to move said pressing member along said edge, said traveling member being movable toward said clamping jaw and arranged to engage said jaw yieldingly to hold the same clamping the foil when said traveling member is moved toward the said jaw.

7. In a machine of the class described, a bed for supporting an envelop to be sealed, a pivoted clamping member for the envelop adapted to swing toward and from the bed, a traveling member movable vertically to and from said clamping member and in a curved path about the same, said traveling member pressing the clamping member upon the envelop, and a heated pressing member carried by said traveling member and adapted during its traveling movement to press upon and fuse the overlapping edges of the envelop.

8. In a machine of the class described, a flat bed for supporting an envelop to be sealed, a clamping member for holding said envelop, pivoted to said bed and movable toward and from the same, a traveling member movable in two planes at right angles to each other, means carried by said traveling member for depressing said clamping member when moved in one of its planes of movement, and a heated member also carried by said traveling member and adapted to press upon and fuse the overlapping edges of the envelop when moved in its other plane of movement.

9. In a machine of the class described, a bed for supporting an envelop to be sealed, a clamping member for the envelop pivoted to said bed and normally held out of contact therewith, a traveling member adapted to swing in a plane above said bed and also in a plane at right angles thereto, means carried by said traveling member to depress said clamping member into engagement with said envelop to hold it stationary on the bed, and a heated member also carried by said traveling member and adapted during its traveling movement about the clamping member to press upon and fuse the overlapping edges of the envelop.

10. In a machine of the class described, a rigid bed for supporting a foil envelop to be sealed, an envelop clamping member hinged to said bed and normally held out of contact therewith, adjustable stops on said bed to regulate the position of said envelop, a standard rising from said bed and provided with a vertical bearing, a traveling member carried by said bearing and movable in a horizontal plane, yielding means carried by said traveling member for depressing the clamping member upon the envelop, and an adjustable heated member also carried by said traveling member adapted to press upon and fuse the overlapping of the envelop.

11. In a machine of the class described, a rigid bed for supporting a foil envelop to be sealed, an envelop clamping member having a curved edge hinged to said bed and normally held out of contact therewith, adjustable stops on said bed to regulate the position of said envelop, a standard rising from said bed and provided with a vertical bearing above and coincident with the axis of the curved edge of said clamping member, a traveling member carried by said bearing and movable in a horizontal plane above said clamping member, yielding means carried by said traveling member for depressing the clamping member into contact with said envelop, and an adjustable heated member also carried by the traveling

member adapted to press upon and fuse the overlapping edges of the envelop.

12. In a machine of the class described, a rigid bed for supporting a foil envelop to be sealed, an envelop clamping member having a curved edge hinged to said bed and normally held out of contact therewith, adjustable stops on said bed to regulate the position of said envelop, a standard rising from said bed and provided with a vertical bearing above and coincident with the axis of the curved edge of said clamping member, a stud mounted to turn in said bearing, a traveling member pivotally connected to said stud to swing in a vertical plane thereon and to travel in a horizontal plane therewith above said clamping member, yielding means carried by said traveling member for depressing the clamping member into contact with said envelop, and a heated member also carried by said traveling member and adjustable thereon adapted to press upon and fuse the overlapping edges of the envelop as it is moved around the curved edge of the clamping member.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ADOLF BRYNER.

Witnesses:

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L. A. HAMMERSLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."