April 21, 1925.

1,534,465

H. D. SAWKINS

BAG CLOSING TOOL

Filed Jan. 12, 1925

2 Sheets-Sheet 1

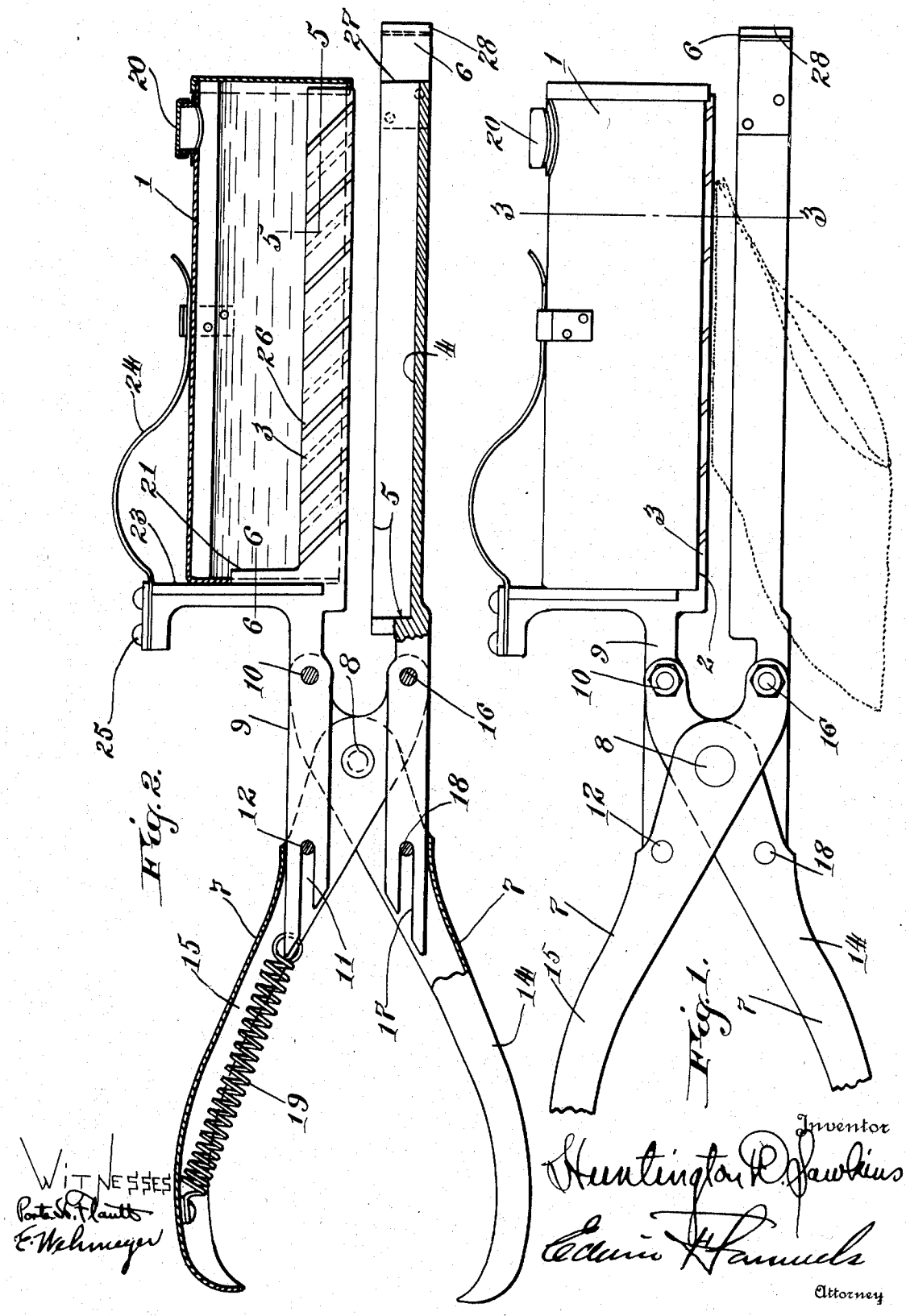


Fig. 2.

Fig. 1.

WITNESSES

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2 Sheets-Sheet 2

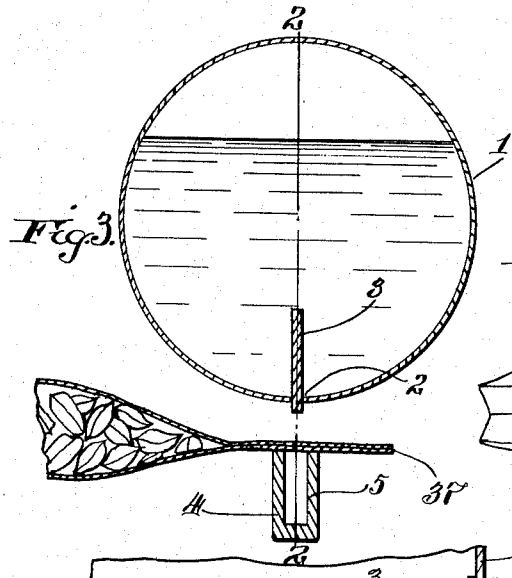


Fig. 3.

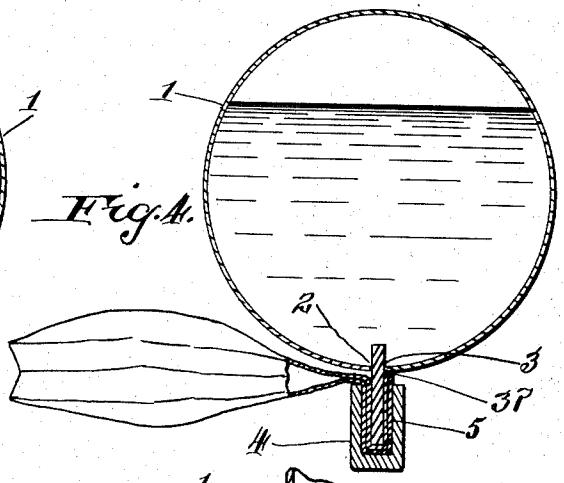


Fig. 4.

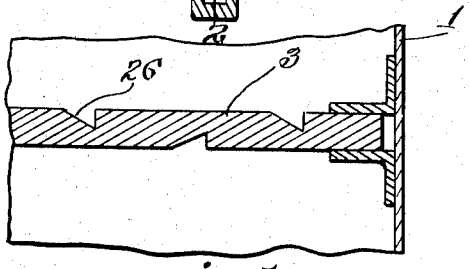


Fig. 5.

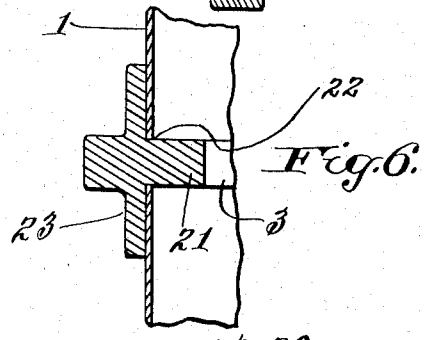


Fig. 6.

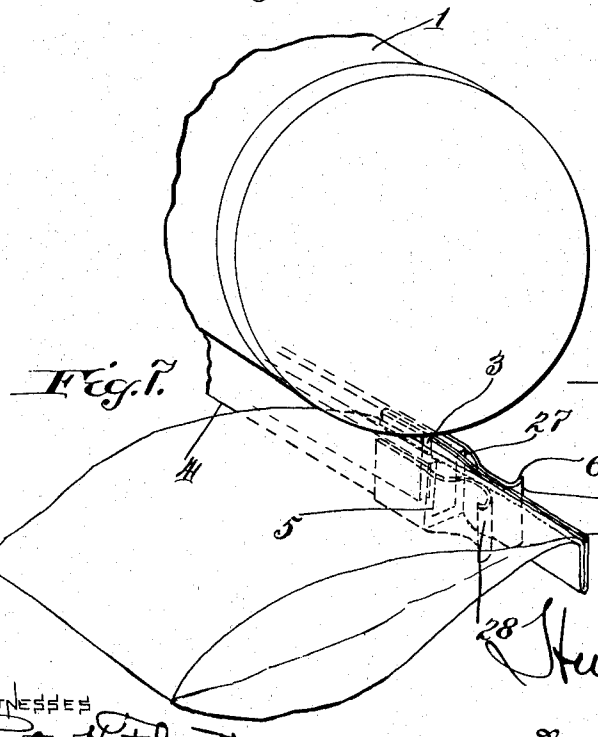


Fig. 7.

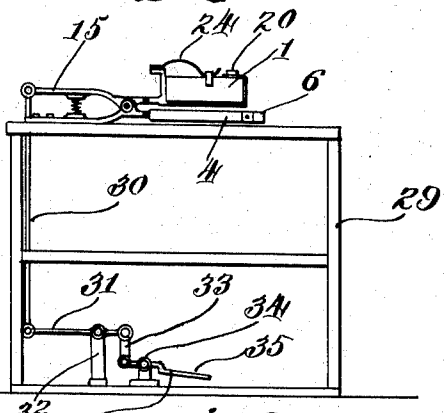


Fig. 8.

Witnesses

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Patented Apr. 21, 1925. 1,534,465

UNITED STATES PATENT OFFICE.

HUNTINGTON D. SAWKINS, OF BALTIMORE, MARYLAND.

BAG-CLOSING TOOL.

Application filed January 12, 1925. Serial No. 1,947.

To all whom it may concern:

Be it known that I, HUNTINGTON D. SAWKINS, a citizen of the United States of America, residing in the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Bag-Closing Tools, of which the following is a specification.

Commodities such as salted peanuts and other edibles as crackers and cakes which must be kept dry, are frequently packed in bags and envelopes and other types of wrappers, such bags, wrappers and envelopes being made of paraffin paper. Great difficulty has, however, been experienced in effecting a tight closure of such packages which will exclude moisture, as the paraffin-coated paper is not easily secured by means of adhesive.

The present invention relates to an apparatus by which the bags are folded over at the top, such fold having a tendency to assist in the closure so that the strain on the pasted surfaces is reduced.

The fold is secured by paste applied to the outside of the bag and inside the fold. This method has the additional advantage that it protects the contents of the bag from contact with the paste and makes it possible to use in the paste a solvent for the paraffin which causes the paste to enter between the fibres of the paper.

Described in general terms the apparatus consists of a paste-pot or receptacle, a folding knife which passes through a slot in the receptacle, and a grooved folder into which the top edge of the bag is pressed by the folding knife, folding the top edge portion back upon itself, and at the same time coating with paste the surfaces which are thus brought together. The top edges of the bag which are thus folded and paste-coated inside the fold, are then pressed by presser fingers on the tool to complete the closure.

In the accompanying drawing I have illustrated a bag-closing apparatus embodying the features of my invention in the preferred form.

In the drawing—

Figure 1 is a side elevation of the apparatus.

Figure 2 is a vertical central section taken on a longitudinal plane as on line 2, 2 of Fig. 3.

Figure 3 is a section on line 3, 3, Figure 1, showing the apparatus in the position which it takes just before the folding operation, showing a bag in operative position.

Figure 4 is a similar view showing the apparatus in engagement with the top edge of a bag which has been folded and pasted.

Figure 5 is a section on the line 5, 5 of Figure 2 showing the horizontal cross-section of the knife.

Figure 6 is a section on the line 6, 6 of Fig. 2.

Figure 7 is a perspective view of the apparatus showing the bag being withdrawn from the presser fingers whereby the folded edges are pressed and permanently closed.

Figure 8 is a view showing the apparatus mounted on a bench or table and adapted to be actuated by a foot lever.

Referring to the drawings by numerals, each of which is used to indicate the same or similar parts in the different figures, the apparatus as shown comprises a paste receptacle 1 in the form of a cylinder which is slotted longitudinally at 2, see Figs. 3 and 4, a folding knife 3, a grooved folding arm, and the groove being indicated by reference character 5, spring presser fingers 6 and plier actuating members 7 to which the folder arm 4 and the folding knife 3 are connected, to be moved toward and from each other, maintaining the parallel relation, the paste receptacle being mounted to yield and pass the knife as the latter enters the groove 5 in the folder arm.

The plier members 7 are of the ordinary type comprising two cross-arms pivoted to swing relatively to each other by a pivot 8 passing through the intersecting or overlapping portions. The folding knife 3 is carried on a support 9 which is elongated in the general direction of the knife pivoted at 10 to the end of one cross-arm 14 of the pliers on the opposite side of the pivot 8 from the handle and extending beyond the pivot in the direction opposite from the knife is slotted at 11 longitudinally, the slot being engaged by pin 12 seated in the other arm 15 of the pliers. The grooved folder arm 4 is similarly mounted, being pivoted at 16 to the end of the plier arm 15 corresponding to the pivot point 10 and slotted at its rear end at 17, said slot being engaged by a pin 18 corresponding to the pin 12. The pliers are held normally open by a helical spring 19 secured at one end to one arm of the pliers near the handle end thereof and at the other end to the near end of the knife support. It is clearly apparent that as the pliers are closed and per-

mitted to open, a parallel or rectilinear motion is imparted to the knife blade 3 and the folder arm 4, causing the knife blade to enter the groove in the folder arm as the pliers are closed.

The paste receptacle 1 in the form of a small elongated cylinder having a filler opening and cap 20 near one end or at any convenient point, is mounted on the knife support 9 on a guide 21 at right angles to the length of the knife blade which fits in a slot 22 in the paste receptacle, the guide 21 projecting from an upright plate 23 extending upward from the knife support against the face of which the end of the cylinder which is the paste receptacle bears. The paste receptacle is, as already described, slotted at 2 to pass the folding knife 3, and the paste receptacle is supported on the guide by a spring 24 engaging the top centre of the receptacle as shown and being secured to a suitable surface on the upright 23 by screws 25, which spring support holds the paste receptacle normally in position with the blade 3 just inside the receptacle and projecting slightly therefrom as shown in Figs. 1 and 2; however, when closing pressure is applied to the plier arms 14 and 15 and the knife 3 moves into the groove 5, the paste receptacle thereby engaging the upper surfaces of the arm 4 is thrust backward relatively to the knife so that the knife is permitted to pass downward through the slot, entering the groove 5 in the arm 4.

The receptacle 1 is normally filled or partially filled with a heavy semi-fluid paste which may be of a starchy nature like wall paper paste and which preferably contains as an ingredient a solvent of paraffin as benzol, kerosene or gasoline in mechanical mixture therewith. The paste is of such consistency that it does not leak out through the openings, which are more or less completely closed by the knife and by the guide 21, and the knife 3 is preferably slotted at 26 to assist in the passage of the paste into contact with the paper.

The presser fingers 6 referred to, form an extension of the groove or slot 5 which is open at the end at 27. These presser fingers 6, see particularly Fig. 7, are in the form of curved plate springs secured to the folder arm on each side and converging preferably into close contact with each other beyond the folder arm. The ends of the springs at 28 are then turned outwardly to avoid injury to the paper.

In Fig. 8 I have shown the bag-closing tool secured to a bench 29, that is, the lower arm of the pliers is made straight and the folder arm is in alignment therewith, and these two members are secured to the bench. The upper arm 15 of the pliers is connected at its end to a tension rod 30 which extends downwardly to a lever 31 pivoted on an upright 32 to the opposite end of which is connected a thrust rod 33 which extends downwardly to a pedal lever 36 pivoted at 34 and having a pedal 35 at its opposite end. Foot pressure on the pedal lever causes the lever 31 to rock, drawing downwardly on the tension member 30 and closing the plier member of the tool and causing the knife 3 to enter the groove 5 of the folder arm and to likewise pass out of the paste receptacle, carrying with it sufficient paste to coat the folder portion of the bag.

Referring now to Figures 3 and 4, in operation the top open edges 37 of the bag are placed on the folder bar spanning the groove on a line parallel to the open edges and spaced backwardly from a half to three quarters of an inch. Pressure applied to the plier handles 14 and 15 closes them, causing the knife 3 to enter the groove 5 in the folder arm 4 and to pass through the slot 2 out of the paste receptacle so that the paste-coated knife in entering the groove carries with it the registering edges of the bag, folding them back upon themselves and coating the adjacent surfaces with paste, which as aforesaid preferably contains a solvent which will dissolve the paraffin and permit the paste to enter into and between the fibres of the bag paper.

As soon as this folding and paste coating has been accomplished, the pressure on the pliers being slightly relaxed, the bag is then drawn to the right, Fig. 7, passing the fold through the pressure fingers 6 which serve to press it tightly together, completing the closing operation.

I have thus described specifically and in detail a single embodiment of my invention in order that the nature and operation of the same may be clearly understood; however, the specific terms are used descriptively rather than in their limiting sense, the scope of the invention being defined in the claims.

What I claim and desired to secure by Letters Patent is:

1. A tool for closing bags comprising a folding knife, means for supplying paste to the lateral surfaces of the folding knife, a folding arm having a cavity to fit and receive the knife, means for supporting the arm and the knife, and means for moving one of said members toward and from the other causing the knife to reciprocate into and out of the cavity.

2. A tool for closing bags, comprising a folding knife, means for supplying paste to the lateral surfaces of the folding knife, a folding arm having a cavity to fit and receive the knife, means for supporting the arm and the knife, and means for moving one of said members toward and from the other, causing the knife to reciprocate into and out of the cavity, said paste-supplying

means being in the form of a tank having a slot to pass the knife, and means yieldably supporting the tank to the knife whereby the knife is caused to emerge from the tank through the slot as it enters the cavity, and to re-enter the tank through the slot as it is withdrawn from the cavity.

3. A hand tool for closing bags comprising a pasting and folding knife, a folding arm having an aperture to receive the knife, a paste receptacle slotted to pass the knife, means supporting the paste receptacle providing for relative motion between the same and the knife, permitting the latter to pass backward and forward through the slot and manually controlled means for moving the knife relatively to the arm and paste receptacle, causing it to pass in and out of the receptacle through the slot, entering the aperture in the folding arm as it leaves the receptacle and vice versa, and pressing means for closing the fold formed by the knife and arm.

4. A tool for closing paper bags and packages comprising a folding knife, a paste receptacle slotted to pass the knife, yielding means supporting the receptacle on the knife providing for motion of the knife relative to the receptacle, permitting it to pass into and out of the receptacle through the slot, a folding arm having an aperture to receive the knife as it emerges from the paste receptacle, means for actuating the parts, causing the knife to move toward and from the arm reciprocating into and out of the aperture therein, the apparatus including a stop surface which engages the paste receptacle, flexing the yielding support causing the knife to pass outwardly through the slot in the receptacle as it is moved into the aperture in the folding arm and pressing means at the outer end of the aperture in the folder arm.

5. A tool for closing paper packages producing an external fold or pleat filled with paste and closing the fold, comprising pivoted cross-levers, a folding knife and a folding arm apertured to receive the knife mounted on said cross-levers to be reciprocated thereby, causing the knife to approach and recede from the folder arm and to enter and leave the aperture therein, and a paste receptacle slotted to pass the knife, means yieldably supporting the paste receptacle on the knife, the device including means for stopping the receptacle as the knife enters the arm whereby the knife is caused to pass out of the receptacle as it enters the arm, the resilient member causing it to re-enter the receptacle as it leaves the aperture in the arm and pressing means at the outer end of the arm.

6. A tool for closing paper packages comprising cross plier levers pivotally connected at the intersection, a folding knife and a folding arm having an aperture to receive the knife, means supporting the arm and knife on the respective plier arms for reciprocation of the knife into and out of the aperture in the arm, a paste receptacle slotted to pass the knife, means supporting the same on the knife to slide transversely thereto and in the direction of the slot opening, and yielding means controlling the position of the receptacle on said slide whereby the receptacle is caused to yield away from the arm as the knife enters the aperture in the arm, and pressing means at the outer end of the tool.

7. A tool for closing paper packages comprising cross plier levers pivotally connected at the intersection, a folding knife and a folding arm having an aperture to receive the knife, means supporting the arm and knife on the respective plier arms for reciprocation of the knife into and out of the aperture in the arm, a paste receptacle slotted to pass the knife; means supporting the same on the knife to slide transversely thereto and in the direction of the slot opening, and yielding means controlling the position of the receptacle on said slide whereby the receptacle is caused to yield away from the arm as the knife enters the aperture in the arm, and pressing means at the outer end of the tool, the said supporting means comprising, a pivot pin connecting the knife to the outer end of one plier arm, a corresponding pin connecting the folder arm to the outer end of the other plier arm, and a pin on each plier arm on the opposite side of the plier pivot, from the first mentioned pivot pins, the pin in the first-mentioned plier arm engaging a longitudinal slot in the end of the folder arm and the pin in the second-mentioned plier arm engaging a longitudinal slot in the folder blade member.

Signed by me at Baltimore, Maryland, this 30th day of December, 1924.

HUNTINGTON D. SAWKINS.

Witnesses:

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E. WEHMEYER.