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W. E. MILLER WRAPPING MACHINE

Filed Feb. 1, 1922

7 Sheets-Sheet 1

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Attorneys

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W. E. MILLER WRAPPING MACHINE

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INVENTOR. William E. Miller



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W. E. MILLER

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INVENTOR. William E. Miller 0 ATTORNEYS.

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INVENTOR. CO William E. Miller



ATTORNEYS.

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Patented Nov. 18, 1924.

WILLIAM E. MILLER, OF KALAMAZOO, MICHIGAN.

UNITED STATES PATENT OFFICE.

WRAPPING MACHINE.

Application filed February 1, 1922. Serial No. 533,219.

To all whom it may concern: Be it known that I, WILLIAM E. MILLER, shown as they are duplicated on the other

a citizen of the United States, residing at side. Kalamazoo, county of Kalamazoo, State of 5 Michigan, have invented certain new and chines, of which the following is a specifi- initial position. cation.

10 wrapping machines.

My improved wrapping machine is especially designed by me for the wrapping of waxed paper upon loaves of bread and the like, although certain features are desirable 15 for use in other relations; that is, for the wrapping of other articles.

The main objects of this invention are: First, to provide an improved wrapping machine by means of which loaves of bread 20 may be rapidly and neatly wrapped.

Second, to provide an improved wrapping machine which is simple and convenient to use.

Fig. VI, Sheet 5, is a vertical longitudinal section on a line corresponding to line 6-6 useful Improvements in Wrapping Ma- of Fig. VIII with the folder members in 60

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Fig. VII, Sheet 6, is a vertical longitudi-This invention relates to improvements in nal section corresponding to that of Fig. VI with the parts in the actuated position shown in Fig. III.

Fig. VIII, Sheet 7, is a transverse vertical section through the flap folding mechanism on a line corresponding to line 8-8 of Figs. I and VI.

Fig. IX, Sheet 7, is a detail section on a 70 line corresponding to line 9-9 of Figs. VIII and X.

Fig. X, Sheet 7, is a detail section on a line corresponding to line 10—10 of Fig. IX. Fig. XI, Sheet 1, is a vertical transverse 70 section on a line corresponding to line 11-11 of Figs. I and II.

Third, to provide an improved wrapping 25 machine which is very compact in structure although of large capacity.

machine which may be adjusted to accom- arrows at the ends of the section lines and modate loaves of different lengths and similar numerals of reference refer to sim-30 depths.

Further objects, and objects pertaining to

following specification. The invention is 5 being connected by the slotted cross piece clearly defined and pointed out in the claims. 7 while the uprights 6 are connected by the ment of the invention is clearly illustrated plates 9 and 10 are provided for the sealing 40 part of this application in which:

Fig. XII is a detail section on a line corresponding to line 12-12 of Fig. III.

In the drawing the sectional views are 00 Fourth, to provide an improved wrapping taken looking in the direction of the little ilar parts throughout the several views.

Referring to the drawing, I provide a 85 details and economies of construction and sealing way 1 and a cooling way 2 in the operation will definitely appear from the form of flat plates or tables across which detailed description to follow. the articles are pushed. These ways or ta-I accomplish the objects of my invention bles are supported by the standards 3. Upby the devices and means described in the rights 4, 5 and 6 are provided, the uprights so A structure which is a preferred embodi- slotted cross or top piece 8. Yielding side in the accompanying drawing forming a and cooling ways, these side plates being os continuous. Heating units 11 are mounted Fig. I, Sheet 1, is a right-hand side ele- on the forward ends of these side plates. vation of my improved wrapping machine. The side plates are supported by bolts 12, 45 Fig. II, Sheet 2, is a plan view, the wrap- those of the outer side plates being mounted on the uprights to reciprocate there- 100 Fig. III, Sheet 3, is a similar elevation through while the bolts of the inner side showing the flap folders in one flap turning plate are mounted upon the bar 13 to reciprocate therethrough. Coiled springs 14 on these bolts yieldingly support the plates. folding mechanism with the flap folders in The bar 13 is carried by angle shaped hang- 105 completely actuated position. ers 14' adjustably mounted on the cross Fig. V, Sheet 4, is a detail vertical section pieces 7 and 8 by means of the bolts 15 enon a line corresponding to line 5-5 of Fig. gaging the longitudinal slots 16 thereof so

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- ping mechanism being broken away.
 - position.
- Fig. IV, Sheet 4, is a side elevation of the 50

that the inner side plate 11 may be adjusted to with pins 33 engaging slots 34 in the inner loaves of different lengths. These side plates flanges 35 of the slides 30 thus providing a yieldingly engage the folded flaps of the lost motion connection between the actuatwrapped articles, the heating units carried ing levers of these slides. The slides have wrapper sufficiently to cause the flaps to ad-these uprights are provided with projecting here upon cooling which takes place as they stude 36 adapted to coact with the segmental are pushed rearwardly over the cooling way. slots 37 in the links 31. At the lower ends The sealing way 1 has a heating unit 17 of the slots the links have outwardly offset 10 mounted on the under side thereof so that portions 38 adapted to permit the stude to 75 the overlapped edges of the wrapper are pass from and enter into the slots, the offsets also sealed. The wrapped articles are de- in effect providing openings for the lower

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5 by the plates melting the paraffin of the U-shaped uprights 30' at their rear ends and 70 livered to the sealing way from my improved ends of the slots through which the studs ders_which ride upon the stude as the parts 80 The supporting frame comprises a pair are engaged and disengaged from the slots. ward owing to the engagement of the links with the stude 36 until the stude pass out of 85 the slots when the slides stop. The continued forward movement of the links is permitted owing to the lost motion connection of the parts previously described. To automatically return the actuating 90 levers to position engaging the slots and studs coiled springs 39 are connected to the rearwardly projecting arms 40 on the slides and to the clips 41 carried by the pivots 33 30 responding to the adjustment of the side for the links. When the slides have reached 95 plates of the ways. As these folding mecha- the limit of their forward movement and the nisms are duplicates a description of one will stude 36 pass from the slots 37 continued suffice. They are, however, actuated to- forward movement of the links places the

wrapping mechanism which I will now de- may pass. The offsets also provide shoul-15 scribe.

of transverse bed pieces 18 on which are Thus arranged, when the levers 27 are acmounted side plates 19 and 20. The side tuated forwardly the slides are carried forplate 19 has an inwardly projecting flange 20 21 secured to the bed pieces by bolts 22 while the side plate 20 has a similar inwardly projecting flange 23 adjustably secured to the bed pieces by means of the bolts 24 engaging the longitudinal slots 25 in the 25 bed pieces. The folding mechanism is duplicated on each side, the only difference therein being that one side is adjustable as indicated so that the mechanism may be adjusted to articles of different lengths corgether, the actuating rock-shaft 26 being op- springs 39 under stress so that when the ac-

described.

The rock-shaft 26 is provided with a pair of actuating levers 27 disposed one at each side so that they may be conveniently 40 grasped with either hand thus permitting the machine to be operated from either side concerned, so that the articles are disenor permitting two operators to use it alter-gaged from the slides. These pushers are nately. These levers 27 are adjustably provided with forwardly projecting arms mounted upon the rock-shaft by means of 43 mounted upon the pivots 33. The acin the side members 19 and 20. The side able folders. In wrapping articles such as members 19 and 20 have slide ways 29 at loaves of bread the wrapper is placed over the upper edges thereof, the same being the loaf with the edges overlapping on the preferably in the form of flanges formed in- under side thereof. This operation is perchannel shaped slides 30 are reciprocatingly with the wrapper around it upon the slides mounted. These slides travel back and described between the disk-like flap folders forth upon the side members as the folding 44, which, when the levers are in normal

35 eratively associated with both as will be tuating levers are released they are returned 100 to the position shown in Fig. VII.

Pushers 42 are mounted on the slides to \cdot push the articles therefrom on the lost motion movement of the levers, that is, the lost motion movement so far as the slides are 105 45 the clips 28. The rock-shaft is journaled tuating levers also serve to actuate the mov- 110 50 tegral with the side plates on which the formed by the operator who sets the loaf 115 mechanism is actuated and also serve as sup- position, project upwardly at the outer side 55 ports for the article to be wrapped while of the slides so that, as the loaf is placed be- 120

the wrapper is subjected to the wrapping tween them the bottom flap 45 of the wrapoperations. The wrapped articles are per 46 is turned upwardly. pushed from these slides onto the sealing The flap folder 44 has a disk-like adjustway, the advancing articles pushing the same able section 47 which is secured thereto by 60 along on the sealing way and on to the the set screw 48 so that the section 47 may 125 cooling way and discharging the same therebe adjusted relative to the edge of the member 44 according to the size of the article to from. Each lever 27 has an actuating link 31 be wrapped. The adjustable section 47 is connected thereto by the pivots 32. These secured on the outer side of the flap folder 65 links are provided at their forward ends 44 and has an offset 47' therein so that the 130

face of the adjustable section is flush with the overlapping parts to adhere when the the face of the folder 44, see Fig. XII. wax is cooled, which takes place while the The folders 44 are pivoted at 49 upon the flaps are still held by the side plates of the outer sides of the slides 30, the folders be- cooling way. 5 ing provided with arms 50 mounted upon My improved wrapping machine is com-70 the pivots. Links 51 connect the folders to paratively simple in structure and easily opthe pins 52 on the side plates so that, as the erated, it being practical for two operators slides are moved forwardly, the folders are to work the same, one standing at each side thrown down out of the way of the rear flap so that the wrappers may be wrapped around 10 folders 53. These rear flap folders 53 are the articles and alternately placed in the 75 mounted on the pivots 49 and are slotted at machine. A further advantage is that the 54 to engage the pins 52 so that, as the machine is adapted for right or left handed slides are moved forwardly by the actuat- operators. ing levers, these rear flap folders are swung As previously stated, the machine is capa-15 forwardly to fold the rear flaps forwardly ble of adjustment to various sizes of arti- 80 upon the bottom flaps 45. The continued cles, the structure being designed to accomforward movement of the slides swings the modate the full range of loaves of bread. top flap folders 56 downwardly upon the top I have illustrated and described my imflaps 57 folding the same upon the previ- provements as I have embodied them in 20 ously folded bottom and rear flaps. These bread wrapping machines. I have not at-85 flap folders 56 are pivoted at 58 to the uptempted to illustrate any adaptation for rights 30' on the slides and the lower ends other articles as I believe the disclosure are engaged by the links 59 mounted on the made will enable those skilled in the art to pins 52 and connected to the flap folders by which my invention relates to embody or 25 the pivots 60 so that, as the slides move for- adapt the same as may be desired. 90 ward, the upper ends of the folders 56 swing Having thus described my invention what downwardly to engage the flaps 57. These I claim as new and desire to secure by Letmovements are completed during the move- ters Patent is: ment of the slides. 1. In a structure of the class described, 30 When the actuating levers are disengaged the combination of side members, one of 95 from the slides by the passing of the stude which is mounted for lateral adjustment, in-36 from the slots 37 the articles are pushed verted channel shaped slides mounted on the forwardly from these flap folders between tops of said side members and adapted to the flap folders 61 which have moldboard receive the articles to be wrapped, said slides ³⁵ shaped edges by which the front flaps 62 are having longitudinal slots in their inner 100 engaged and folded rearwardly upon the flanges, inwardly projecting studs on said previously folded flaps. The flap turners 61 slides, a rock-shaft journaled in said side are provided with arms 63 at their lower members, actuating levers, one at least of ends mounted upon the pivots 52 and the which is adjustably mounted on said rock-40 bolts 64 engaging the slots 65 in the side shaft, actuating links pivotally connected to 105 members. This permits the swinging adsaid actuating levers and having inwardly justment of these flap folders to the height offset portions at the lower edges thereof and transversely disposed segmental slots of the article. The return of the operating lever to ini- extending into said offsets to coact with 45 tial position returns all of the movable flap said studs during partial movement of said 110 folders to their initial position so that an- links, said links being also provided with other loaf or article may be placed in posi- pins engaging said slots in said slides protion on the slides and the operation repeat- viding a lost mot on connection for the actued; namely, placing the loaf with the wrap- ating levers to the slides, pushers slidably 50 per folder around the same between the flap mounted on said slides and provided with 115 folders 44, folding the bottom or first flap, forwardly projecting arms engaging said the initial actuation of the levers actuating pins on said links, bottom flap folders pivthe rear or second flap folders to fold the otally mounted upon said slides to project second flap, continued actuation bringing above the slides when in initial position, rear 55 the top flap folders 56 into engagement with flap folders pivotally mounted on said slides 120 the third or top flaps 57 down upon the and having forwardly projecting arms propreviously folded flaps, the further actua- vided with segmental slots, top flap folders tion of the levers actuating the pushers and pivotally mounted on said slides, studs on carrying the article between the relatively said side members engaging said slots in fixed flap folders 61, folding the front flaps said rear flap folder arms, links connecting 125 60 62, and thus completing the folding opera- said bottom flap folders to said studs of said tion. As the article is pushed upon the seal- side members, links connecting said top flap ing conveyor with its folded flaps between folders to said studs on said side members the yielding sealing plates, the paraffin of whereby on the movement of the slides the ⁶⁵ the coated paper is sufficiently fused to cause several flap folders are actuated, front flap 130

folders mounted on said side members to en-slides, pushers slidably mounted on said gage the front flaps as the articles are car-slides and provided with forwardly proried from said slides by said pushers, said jecting arms engaging said pins on said front flap folders being provided with rear- links, coiled springs connecting the pins engaging with said studs on said side members, said side members having segmental slots, and clamping bolts for said rear flap folders engaging said slots whereby the said 10 front flap folders are supported for adjustment.

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5 wardly projecting arms at their lower ends of said links with said slides whereby the 70 springs are placed under stress after the disengagement of the links from the studs, bottom flap folders pivotally mounted upon said slides to project above the slides when in initial position, rear flap folders pivotal- 75 ly mounted on said slides and having forpivotally mounted upon said slides to proon said slides, said flap folders being op-

2. In a structure of the class described, the wardly projecting arms provided with segcombination of side members, inverted chan- mental slots, top flap folders pivotally nel shaped slides mounted on the tops of mounted on said slides, studs on said side 15 said side members and adapted to receive members engaging said slots in said rear flap 80 the articles to be wrapped, said slides having folder arms, links connecting said bottom longitudinal slots in their inner flanges, in- flap folders to said studs of said side memwardly projecting studs on said slides, ac- bers, links connecting said top flap folders tuating levers, actuating links pivotally con- to said studs on said side members whereby 20 nected to said actuating levers and having on the forward movement of the slides the 85 inwardly offset portions at the lower edges several flap folders are actuated, and front thereof and transversely disposed segmental flap folders mounted on said side members slots extending into said offsets to coact to engage the front flaps as the articles are with said studs during partial movement carried from said slides by said pushers. 25 of said links, said links being also provided 4. In a structure of the class described, 90 with pins engaging said slots in said slides the combination of side members, one of providing a lost motion connection for the which is mounted for lateral adjustment, actuating levers to the slides, pushers slid- slides mounted on the tops of said side memably mounted on said slides and provided bers and adapted to receive the articles to ³⁰ with forwardly projecting arms engaging be wrapped, said slides having longitudinal ⁹⁵ said pins on said links, bottom flap folders slots therein, inwardly projecting studs en pivotally mounted upon said slides to pro- said slides, a rock-shaft journaled in said ject above the slides when in initial posi- side members, actuating levers, one at least tion, rear flap folders pivotally mounted of which is adjustably mounted on said rock-³⁵ on said slides and having forwardly pro- shaft, actuating links pivotally connected ¹⁰⁰ jecting arms provided with segmental slots, to said actuating levers and having intop flap folders pivotally mounted on said wardly offset portions at the lower edges slides, studs on said side members engaging thereof and transversely disposed segmental said slots in said rear flap folder arms, links slots extending into said offsets to coact with connecting said bottom flap folders to said said studs during partial movement of said 105 studs of said side members, links connecting links, said links being also provided with said top flap folders to said studs on said side pins engaging said slots in said slides promembers whereby on the forward movement viding a lost motion connection for the of the slides, the several flap folders are actuating levers to the slides, pushers slidactuated, front flap folders mounted on ably mounted on said slides and provided 110 said side members to engage the front flaps with forwardly projecting arms engaging as the articles are carried from said slides said pins on said links, bottom flap folders by said pushers. 3. In a structure of the class described, ject above the slides when in initial position, ⁵⁰ the combination of side members, inverted rear and top flap folders pivotally mounted 115 channel shaped slides mounted on the tops of said side members and adapted to re- eratively connected to said side members so ceive the articles to be wrapped, said slides that on the forward movement of the slides

having longitudinal slots in their inner the flap folders are actuated, and front flap 55 flanges, inwardly projecting studs on said folders adjustably mounted on said side 120 slides, actuating levers, actuating links members to engage the front flaps as the pivotally connected to said actuating levers articles are carried from said slides by said and having inwardly offset portions at the pushers. lower edges thereof and transversely dis- 5. In a structure of the class described, the posed segmental slots extending into said combination of side members, slides mounted 60 125offsets to coact with said studs during on the tops of said side members and adaptpartial movement of said links, said links ed to receive the articles to be wrapped, being also provided with pins engaging said said slides having longitudinal slots therein, slots in said slides providing a lost motion inwardly projecting studes on said slides, ac-connection for the actuating levers to the tuating levers, actuating links pivotally con-

inwardly offset portions at the lower edges during partial movement of said links, said thereof and transversely disposed segmental links being slidably engaged with said slots slots extending into said offsets to coact with in said slides providing a lost motion conlinks, said links being also provided with pushers operatively connected to said links, pins engaging said slots in said slides providing a lost motion connection for the actuating levers to the slides, pushers slid-10 ably mounted on said slides and provided ports so that on the forward movement of 75 with forwardly projecting arms engaging the slides the several flap folders are acsaid pins on said links, bottom flap folders tuated, and front flap folders mounted on pivotally mounted upon said slides to project above the slides when in initial posi-15 tion, rear and top flap folders pivotally mounted on said slides, said flap folders being operatively connected to said side members so that on the forward movement of the slides the flap folders are actuated, and 20 front flap folders adjustably mounted on said side members to engage the front flaps pushers operatively connected with said acas the articles are carried from said slides fuating members, bottom flap folders pivotby said pushers. 25 the combination of side members, slides and slot connection with said supports, top 90 mounted on the tops of said side members and adapted to receive the articles to be wrapped, said slides having longitudinal slots therein, inwardly projecting studs on 30 said slides, actuating levers, actuating links folders are actuated, and front flap folders 95 pivotally connected to said actuating levers mounted on said side members to engage the and having inwardly offset portions at the front flaps as the articles are carried from lower edges thereof and transversely dis- said slides by said pushers. posed segmental slots extending into said 9. In a structure of the class described, 35 offsets to coact with said studs during the combination of support members, slides 100 partial movement of said links, said links mounted thereon, actuating members having being also provided with pins engaging said lost motion connection to said slides, botslots in said slides providing a lost motion connection for the actuating levers to the slides, rear flap folders pivotally mounted slides and provided with forwardly project- nection with said supports, top flap folders ing arms engaging said pins on said links, pivotally mounted on said slides, and links coiled springs connecting the pins of said links with said slides whereby the springs to said supports whereby on the forward ment of the links from the studs, bottom ers are actuated. flap folders pivotally mounted upon said 10. In a structure of the class described, slides to project above the slides when in the combination of support members, slides initial position, rear and top flap folders mounted thereon adapted to receive the ar-50 folders being operatively connected to said having lost motion connection to said side members so that on the forward move- slides, pushers operatively connected with ment of the slides the flap folders are ac- said actuating members, bottom, rear and

nected to said actuating levers and having mental slots adapted to coact with said studs 5 said studes during partial movement of said nection for the actuating levers to the slides, 70 bottom, rear and top flap folders pivotally mounted upon said slides, operating connections for said flap folders to said supsaid side members to engage the front flaps as the articles are carried from said slides by said pushers. 8. In a structure of the class described, the combination of support members, slides mounted thereon adapted to receive the articles to be wrapped, actuating members having lost motion connection to said slides, 85 ally mounted on said slides, rear flap folders 6. In a structure of the class described, pivotally mounted on said slides having a pin flap folders pivotally mounted on said slides, links connecting said bottom and top flap folders to said supports whereby on the forward movement of the slides the several flap tom flap folders pivotally mounted on said slides, pushers slidably mounted on said on said slides having a pin and slot con- 105 connecting said bottom and top flap folders are placed under stress after the disengage- movement \overline{of} the slides the several flap fold- 110 pivotally mounted on said slides, said flap ticles to be wrapped, actuating members 115 tuated, and front flap folders mounted on top flap folders pivotally mounted on said said side members to engage the front flaps slides, operating connections for said flap 120 are actuated, and front flap folders mounted on said side members to engage the front ing lost motion connection to said slides, levers and having transversely disposed seg- bottom, rear and top flap folders pivotally 130

as the articles are carried from said slides folders to said slides so that the flap folders by said pushers.

7. In a structure of the class described, the combination of support members, slides flaps as the articles are carried from said mounted thereon and adapted to receive the slides by said pushers. articles to be wrapped, said slides having 11. In a structure of the class described, longitudinal slots therein and provided with the combination of support members, slides projecting studs, actuating levers, actuating mounted thereon, actuating members havlinks pivotally connected to said actuating

mounted on said slides, and operating con-ticles to be wrapped, actuated members ers are actuated.

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5 the combination of support members, slides mounted on said slides having a pin and slot 35 mounted thereon adapted to receive the ar- connection with said supports, and front ticles to be wrapped, actuating members flap folders mounted on said side members having lost motion connection to said slides, to engage the front flaps as the articles are pushers operatively connected with said ac- carried from said slides by said pushers. 10 tuating members. flap folders pivotally 15. In a structure of the class described, 40 mounted on said slides, links connecting said the combination of support members, slides flap folders to said supports whereby on mounted thereon and adapted to receive the the forward movement of the slides the flap articles to be wrapped, flap folders pivotally folders are actuated, and front flap folders mounted on said slides, and links connecting 15 mounted on said side members to engage the said flap folders to said supports whereby 45 front flaps as the articles are carried from on the forward movement of the slides the said slides by said pushers. flap folders are actuated. 13. In a structure of the class described, 16. In a structure of the class described, the combination of support members, slides the combination of support members, slides 20 mounted thereon adapted to receive the ar- mounted thereon and adapted to receive the 50 ticles to be wrapped, actuating members articles to be wrapped, flap folders pivothaving lost motion connection to said slides, ally mounted on said slides having a pin and pushers operatively connected with said ac- slot connection with said supports, and fuating members, and front flap folders means for actuating said slides whereby 25 mounted on said side members to engage the the flap folders are actuated on the forward 55 front flaps as the articles are carried from movement of the slides. said slides by said pushers. In witness whereof, I have hereunto set 14. In a structure of the class described, my hand and seal. the combination of support members, slides 30 mounted thereon adapted to receive the ar- WILLIAM E. MILLER. [L.S.]

nections for said slides so that the flap fold- having lost motion connection to said slides, pushers operatively connected with said ac-12. In a structure of the class described, tuating members, flap folders pivotally

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