

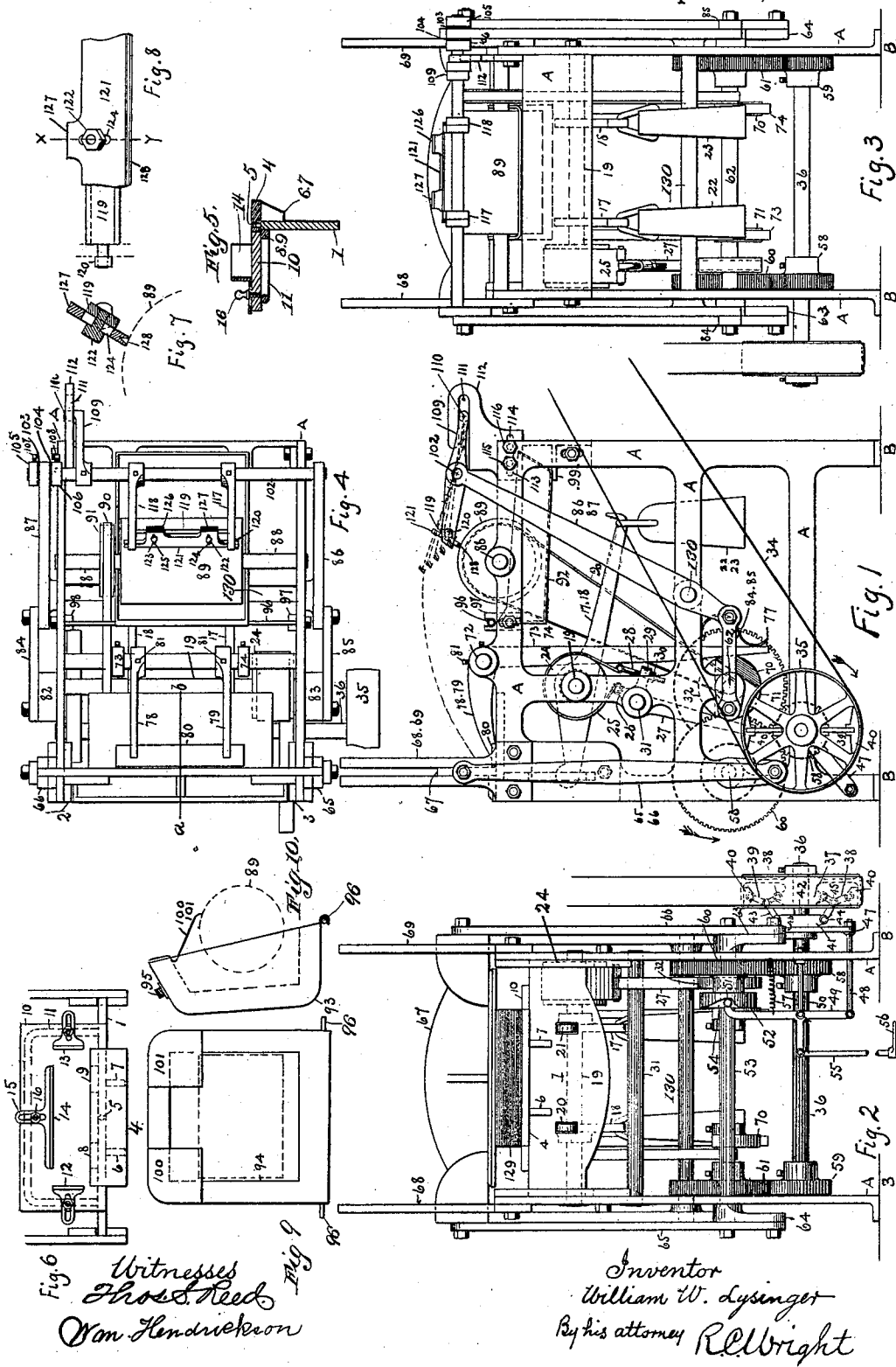
(No Model.)

W. W. LYSINGER.

MACHINE FOR ATTACHING FLY COVERS TO BOXES.

No. 581,513.

Patented Apr. 27, 1897.



# UNITED STATES PATENT OFFICE.

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## MACHINE FOR ATTACHING FLY-COVERS TO BOXES.

SPECIFICATION forming part of Letters Patent No. 581,513, dated April 27, 1897.

Application filed May 15, 1896. Serial No. 591,626. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. LYSINGER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Attaching Fly-Covers to Boxes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in box machinery in which the boxes have paper flies or interior covers attached to more attractively inclose the contents of the boxes, in many instances the flies being of fanciful designs which require much care and delicate manipulation to properly attach them and without the possibility of smearing them with the attaching-adhesive or mutilating them in the act of attaching.

The general method of attachment has heretofore been by hand, the fly-sheets being stacked and arranged to have each sheet slid back to expose a narrow strip of the next sheet under it, so a number could at one time be brushed with the adhesive mixture, a slow, tedious, and expensive process. With my machine a package of sheets are grasped and firmly held while the adhesive is applied to each sheet separately. It is then pressed firmly in place without the liability of its being damaged or soiled, and much more rapidly and truly than by the most experienced hand manipulation. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a front elevation. Fig. 3 is a rear elevation. Fig. 4 is a top view. Fig. 5 is a vertical section on line *a b*, Fig. 4. Fig. 6 is a detached plan of the table. Fig. 7 is a section of the wiper on line *xx*, Fig. 8; and Fig. 8 is a front fragment of the wiper and wiper-holder. Fig. 9 is a plan of the double pan, and Fig. 10 is an end elevation of the double pan.

My machine has a framework A, and at the front of the machine is a slide 1, guided at

each end 2 3 for vertical movement, and attached thereto and lying upon it is a table 4. A pin 5 in the slide 1 is inserted into it, the contact being a free fit to enable the table to be lifted easily. Brackets 6 7 upon the front and lugs 8 9 upon the back of table 4 securely support it in place upon the slide 1. A removable construction is essential, as tables of different lengths are required for different-sized boxes, as the table is inserted within the box and an easy removal of one length to permit its replacement by another length of table is desirable. An extension 10 of table 4 extends inward, it being notched at its front to embrace the table 4 at one side and at each end, and it is supported by a bracket 11, secured at each end to the slide 1 and extended inward under 10. Guides 12 13 at the ends and 14 at the center limit the insertion of the fly-paper upon the table, the guides being adjustable, having slots 15 in each, and inserted therethrough and into extension 10 are clamping-screws 16 to secure the guides after adjustment.

The slide is supported by levers 17 18, fulcrumed upon a slide-shaft 19. The outer ends of the levers 17 18 are circular and are inserted into slots 20 21 in slide 1, and wherein they roll. The inner ends of the levers 17 18 carry counterweights 22 23, hung thereon to be easily removed, if desired. At one end of the shaft 19 is fixed a pulley 24, upon which lies a flexible band 25, one end of which is jointly attached to a lug 26 of a lever 27, and the other end of the band is jointly attached to an adjusting-screw 28, inserted through a lug 29 of the lever 27 and having an adjusting-nut 30, which enables the band to be tightened or loosened. The lever 27 is fulcrumed upon a brake-shaft 31, and its lower end rests against a cam 32, secured to shaft 62.

The power is applied to my machine by means of a belt 34, running on a pulley 35 on a driving-shaft 36. The pulley runs loose on the shaft and has a hub 37, on which are lugs 38, carrying knuckle-joint arms 39 to friction-plates 40 inside of the pulley-rim. A sleeve 41 runs on the shaft 36, a feather 42 being let half into the shaft and half into the sleeve. This enables the sleeve to move the shaft with it in its revolutions, while the sleeve can slide

freely along the shaft. Arms 43 are pivoted to the sleeve at 44 and to the knuckle-arms 39 at 45. A groove 46 is made around the sleeve, and within it rides a forked arm 47, attached to a rod 48, the other end of which is pivotally attached to a lever 49, fulcrumed upon a rod-stand 50. The lever 49 has a roller 51 attached to its upper end, which runs against an edge cam 52, secured on the presser-shaft 53. The cam has a continuous surface where the roller runs, except at 54, where it is depressed, and into which the roller 51 moves. The lever 49 extends at a right angle at its fulcrum 50 and extends inward and has attached to its end a rod 55, which extends downward near the floor, on which the stand B, on which my machine rests, is secured. At the lower end of 55 is a treadle 56, which the operator presses down when he desires the machine to run continuously; otherwise it will automatically stop when the roller 51 drops into the depression 54, which the spring 57 forces it to enter, thereby releasing the clutch. If the foot-treadle be not pressed down, the machine will automatically stop after one revolution of shaft 53 or two revolutions of shaft 36, they being geared two to one.

On the shaft 36 are pinions 58 59, firmly secured thereto, 58 engaging gear 60 on presser-shaft 53, and 59 engaging 61 on cam-shaft 62. Shaft 53 extends outside of the framework A, and at each outer end are attached cranks 63 64. To the cranks are secured rods 65 66, which reach upward and are journaled at each end of the pressure-bar 67, guided in the extensions 68 69, which are slotted to admit the bar 67. Directly back of the shaft 53 is the shaft 62, already mentioned, on which are secured cams 70 71. At the upper part of the framing A is secured a holder-shaft 72, having thereto secured arms 73 74, which reach down and abut the cams 70 71, and springs 77, attached to the framing and bearing against the arms, cause them to remain in contact with the cams 70 71. From the shaft two arms 78 79 reach forward and are secured to a holder-plate 80, the arms being attached to the shaft in such a manner as to be movable around the shaft and held so as to permit of this adjustment, as shown in the drawings, set-screws 81 being used.

The holder-plate presses down the fly-sheet while the adhesive is applied and raises up to allow the sheet's removal after the pressure-bar 67 has done its work. There are also upon the shaft 62, at its outer ends and beyond the framing, two cranks 82 83, to which are coupled rods 84 85, which reach back and attach to wiper-arms 86 87, fulcrumed on shaft 130. At the top of the frame and reaching across it is a shaft 88, carrying a roller 89, which is made to revolve by a belt 90, running over the shaft 62, or a pulley thereon, and over a pulley 91 on shaft 88.

Under the roller 89 is a pan or receptacle 92 for holding the adhesive mixture, in which the roller 89 is partially submerged, as shown

in Figs. 1, 2, 3, and 4. This pan is single, for mixtures such as paste, which may be used cold, but in Figs. 11 and 12 I show a double pan, suitable for such adhesive as glue, which must be kept hot. It has an outer case 93 and an inner case 94, and between these casings I introduce steam at 95 or other more convenient place. The pans are supported upon the framing by a bar 96, passing through their front edge and resting on adjustable bearings 97 98, attached to frames A, and by adjustable supports 99 under their back edge, the support being held to the framing in a manner to permit of its adjustment perpendicularly, as by a bolt in a slotted hole, as shown. Upon the pan, as seen in Figs. 9 and 10, rest scrapers 100 101. These also rest upon the roller 89 and scrape off the adhesive to any required length, different widths of scrapers being used, as required. Attached to the arms 86 87 at their upper end is a wiper-shaft 102. At the end where arm 87 is attached compressible washers 103 104 adjoin the arm 87, one on each side, and outside of the washers are collars 105 106, one being outside of each washer. Set-screws 107 108 are inserted in the washers, and this enables the washers to be compressed and produce friction against the arm 87, enough to hold shaft 102 firmly after arm 109 leaves slot 111 and before it commences to wipe. Farther in on the shaft than the parts just described is an arm 109, rigidly secured to the shaft and projecting backward, and at its outer end a projection 110 is turned outward. This projection passes back and forth in an open-ended slot 111, formed in an adjustable bracket 112, having slots 113 114, through which adjusting-screws 115 116 are passed and secured in the framing. This permits the bracket 112 to be adjusted to control the movement of the arm 109, which will herein-after be described. Either side of the center of the machine-arms 117 118 are secured to shaft 102, reaching forward therefrom, and in the ends of the arms 117 118 farthest removed from the shaft 102 is journaled a wiper-holder 119, the holder reaching from one arm 117 to the other arm 118. The journal through arm 117 is extended through and beyond the arm and has a thread cut thereon, on which runs a tapped clamping-nut 120, which presses against the arm 117. This permits the adjustment of the wiper-holder within the arms. Upon the front of the wiper-holder is the wiper 121, it being attached to the holder 119 for vertical adjustment by adjusting-screws 122 123, inserted through slotted openings 124 125 in ears 126 127.

The wiper is narrowed at each end where it passes under the arms 117 118 and extends outward to the outer ends of the roller 89. The lower edge of the wiper has a groove throughout its length to serve as a receptacle to hold the adhesive mixture which it gathers from the roller 89.

Having described the mechanism which I

now deem best to employ to accomplish the results I desire, and without limiting myself to the precise construction I have set forth, I will describe the operation of my machine.

5 A pack of flies 129 are laid upon the table 4, as seen in Fig. 2, which rests upon the slide 1, the guides 12 13 14 regulating the position of the flies, the holder-plate 80 coming upon the top of the pack at about its center. By  
10 means of the slide 1, its levers 17 18, and counterweights 22 23 the pack is held firmly in place. The number of sheets in the pack of flies can be more or less up to the limit of the depression of slide 1. Now, the power being  
15 applied to the machine by means of the pulley 35 and the clutch, which may be of any suitable construction, will turn pinions 58 59 in the same direction as the pulley 35, and the engaged gears 60 61 will be turned  
20 the opposite way, as shown by the arrow, and through the medium of shaft 53 the cranks 63 64 will revolve, moving rods 65 66 and pressure-bar 67 upward. It will be noticed that the cams 70 71 now force arms 73 74 outward,  
25 and through the medium of the shaft 72 arms 78 79. The holder-plate 80 is pressing firmly upon the pack of flies 129 at the same time the slide 1 and table 4 are locked or held from moving by means of the cam 32, pressing  
30 against the lever 27, which tightens the band 25 and so holds the slide until the fly has been pressed to the box. While the movement I have described was taking place the pinion 59 has moved the gear 61, its shaft 62, and the  
35 cranks 82 83 have through their rods 84 85 and arms 86 87 carried the arm 109 into the open slot 111 and by this movement partially revolved shaft 102 and depressed the wiper 121 down to the roller 89, which has been re-  
40 volved by means of the belt 90, and adhesive mixture has been gathered in the groove 128. The adjustable bracket 112 is provided with a horizontal slot 111, within which runs the projection 110 of arm 109, secured to shaft  
45 102, to which shaft 102 are also secured arms 117 118, which carry wiper 121, all being moved by wiper-arms 86 87. The arms 86 87 move at their upper ends through the arc of a circle whose center is at shaft 130. The arms 109  
50 117 118 are immovably secured to shaft 102, which is yieldingly held to arm 87 by collars 105 106 and washers 107 108, so that as the arms 86 87 move forward the projection 110 moves horizontally until it has left slot 111,  
55 partially revolving shaft 102, thereby carrying the wiper upward and away from the roller 89, as indicated by dotted lines in Fig. 1.

As the wiper starts forward the pressure-bar 67 commences to move upward and out  
60 of the way, and just before the wiper the cam 32 forces the lever 27 and through its attached mechanism presses down on the pack of flies. As the wiper moves back the pressure-bar 67 commences to descend. The attendant now  
65 places the box over the fly-sheet, the pressure-bar 67 descends and forces the box to the fly, and as the cranks 63 64 pass their lower dead-

centers the pressure-bar 67 releases the box, the cam 32 releases the lever 27, and the holder-plate 80 releases the fly-sheet and per-  
70 mits it to be withdrawn with its box. As before stated, the shaft 36 makes two revolutions to one of the shafts 53 62, and this slowing down permits time for the attendant to  
75 insert and remove the box and at the same time does not run the belt too slow for best practice. The arms 109 117 118 of shafts 102 are wholly alined by means of the adjustable slot 111 and are held as alined by the  
80 compressible washers 103 104 and collars 105 106 until the table 4 is reached, when the act of wiping changes the alinement, which will be again made by arm 109 and its projection 110 in slot 111.

Having described the mechanism which I  
85 now consider the best for my purpose, but which mechanism may be somewhat varied in details which would accomplish the same purpose, and reserving the right to use such modifications as come within my invention,  
90 I claim—

1. In a machine for attaching flies to paper boxes, a framework therefor carrying a driving-shaft, a presser-shaft, a cam-shaft, a holder-shaft carrying a holder-plate and guid-  
95 ing a moving slide and a pressure-bar, means upon the driving-shaft to supply power to the machine, means to drive the presser-shaft and the cam-shaft, means actuated by the cam-shaft for locking the slide, holder-shaft  
100 and the holder-plate, means upon the presser-shaft to move the presser-bar, and means to automatically disengage the power from the driving-shaft and stop the machine after a  
105 single revolution, and means whereby the operator may disengage the automatic stopping mechanism and cause the machine to run continuously during such disengagement, substantially as described.

2. In a machine for attaching flies to paper  
110 boxes, a framework therefor carrying a driving-shaft, a presser-shaft, a cam-shaft, a holder-shaft carrying a holder-plate and guiding a moving slide and a presser-bar, means  
115 upon the driving-shaft to supply power to the machine, means to drive the presser-shaft and the cam-shaft at decreased speed, means actuated by the cam-shaft for locking the slide, the holder-shaft and the holder-plate inter-  
120 mittently, means upon the presser-shaft for reciprocal movement of the presser-bar, means to automatically disengage the power from the driving-shaft after the slide is locked and the presser-bar is forced to its position after  
125 a single revolution of the presser and cam shafts, and means within control of the operator to render the automatic stopping mechanism inoperative at will, substantially as described.

3. In a machine for attaching flies to boxes,  
130 a framework therefor guiding a slide for vertical movement, a cam-shaft driven by the driving-shaft, but at less speed, a slide-shaft having means thereon to connect with and

- permit the slide to move downward and to force the slide upward, a brake-shaft supported by the frame, means from the brake-shaft to engage mechanism on the cam-shaft, and means to engage the slide-shaft to secure it from movement when the slide is under pressure, and to permit the slide-shaft to move when the pressure upon the slide is moved, substantially as described.
4. In a machine for securing flies to boxes, a framework therefor, a slide guided for reciprocal movement, means to balance the slide and its load, means to lock the slide and its load to maintain rigidity under pressure, means to secure removable tables of different lengths upon the slide, the tables having an extension secured to the slide, and means upon the table extension to guide the pack of flies resting and held thereon, substantially as set forth.
5. In a machine for attaching fly-covers to boxes, a framework therefor carrying a driving-shaft, a presser-shaft, a cam-shaft, a slide-shaft, a brake-shaft, and guiding a slide and a presser-bar means upon the driving-shaft to drive the presser-shaft and the cam-shaft at decreased speed, means upon the presser-shaft to automatically stop the driving-shaft after each revolution, means upon the slide-shaft to force the slide to its position and balance it and its load in its operative position, means upon the cam-shaft to intermittently move the brake-shaft, means on the brake-shaft to lock the slide-shaft and the slide, a removable table upon the slide carrying and guiding fly-papers, means to apply an adhesive mixture to the upper fly-sheet, and means from the presser-bar to force a box upon the fly-sheet, and means to remove the pressure upon the presser-bar and the slide and permit the withdrawal of the box and its attached fly-cover after such pressure, substantially as described.
6. In a machine for attaching paper flies to boxes, a framework therefor, a cam-shaft driven by the driving-shaft and having means thereon and thereto attached for moving wiper-arms, wiper-arms pivotally attached to the framework for oscillating movement, means to connect the upper ends of the wiper-arms and carry an adjustable wiper, means within the wiper for gathering the adhesive, a receptacle for the adhesive mixture, a support for the receptacle, means inserted within the receptacle to withdraw the adhesive and present it to the wiper, means from the cam-shaft to operate the withdrawal of the adhesive from the receptacle, means upon the wiper-arms and the framing to remove the wiper when charged, means upon the wiper-arms and framing to adjust the position of

contact of the wiper with the fly-papers, to regulate the width of the adhesive laid upon the sheet, and means to hold the sheet while the adhesive is applied, substantially as described.

7. In a machine for attaching fly-covers to boxes, a frame therefor, wiper-arms thereto pivotally attached, pivotally-yielding means to connect the arms at their upper ends, pivotally-adjustable means for supporting and carrying a wiper, a receptacle for adhesive mixture adjustably and removably attached to the framing, means inserted in the receptacle to withdraw the adhesive, means from the machine to actuate the withdrawing mechanism, an adjustable wiper-controlling mechanism, an adjustable connection thereto from the wiper-arms connection whereby the amount of adhesive taken up by the wiper and the distance the adhesive is applied to the fly-paper is regulated, substantially as described.

8. In a machine for fastening flies to boxes, wiper-arms pivotally attached thereto, means to move the arms back and forth in the arc of a circle from their pivotal support on the frame, connections for the upper ends of the arms revolvingly yielding, means to control the yielding, supports for a wiper from the yielding connection, a wiper-carrier pivotally adjustable in these supports, and means to vertically adjust the wiper upon its carrier, substantially as described.

9. In a machine for fastening fly-covers to boxes, wiper-arms pivotally supported for oscillating movement, means to move the arms, a pivotally-adjustable wiper attached to the arms, means to present adhesive mixture to the wiper, adjustable means to depress the wiper for short or long contact with the adhesive mixture, and to elevate the wiper from the adhesive mixture at a predetermined distance to regulate the length of contact of the wiper with the fly-paper, and a receptacle within the wiper for receiving the adhesive mixture, substantially as described.

10. In a box-machine for attaching fly-covers, a receptacle for adhesive mixture, means to withdraw the adhesive, a wiper having a receptacle therein for the adhesive, means to attach the wiper to oscillating arms, means to move the arms from the adhesive mixture to the fly-paper, and means to regulate the time of contact of the wiper with the fly-paper, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM W. LYSINGER.

Witnesses:

GEO. W. REED,  
R. C. WRIGHT.