No. 822,616. PATENTED JUNE 5, 1906.

C. O. LILJEROS.

ENVELOP CLOSING MACHINE.

APPLICATION FILED MAR. 19, 1904.

3 SHEETS—SHEET 1.

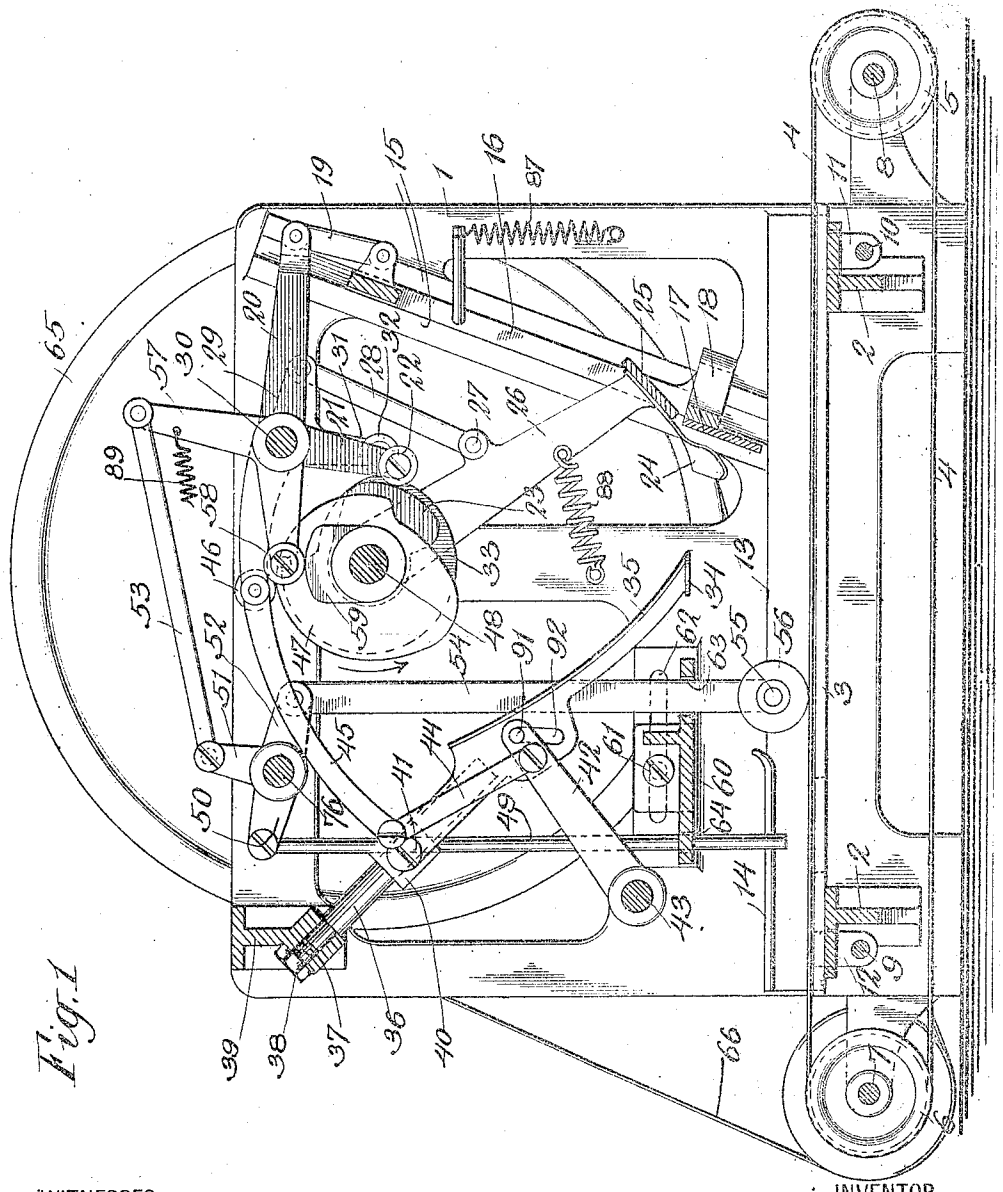


Fig. 1.

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3 SHEETS—SHEET 2.

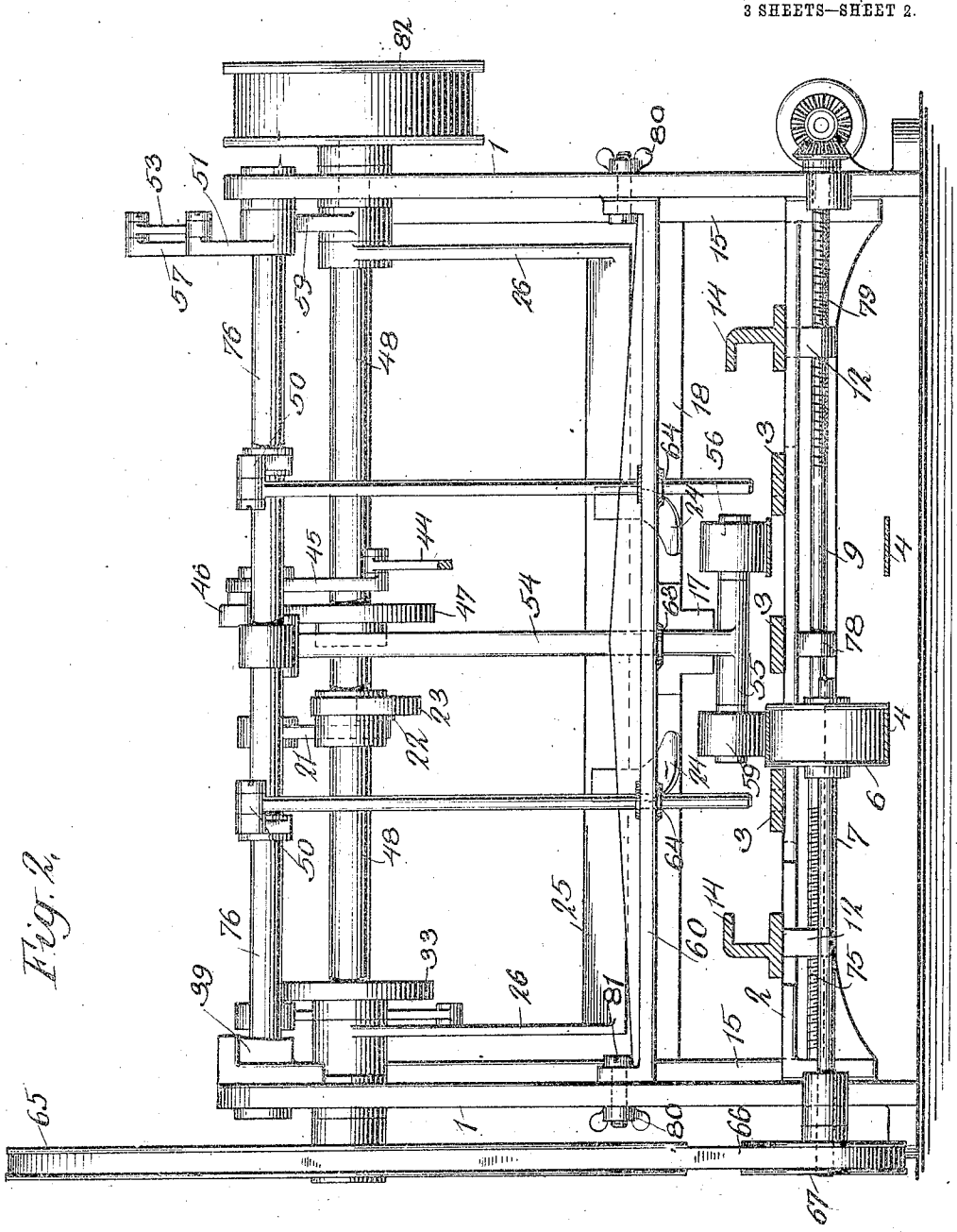


Fig. 2.

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3 SHEETS—SHEET 3.

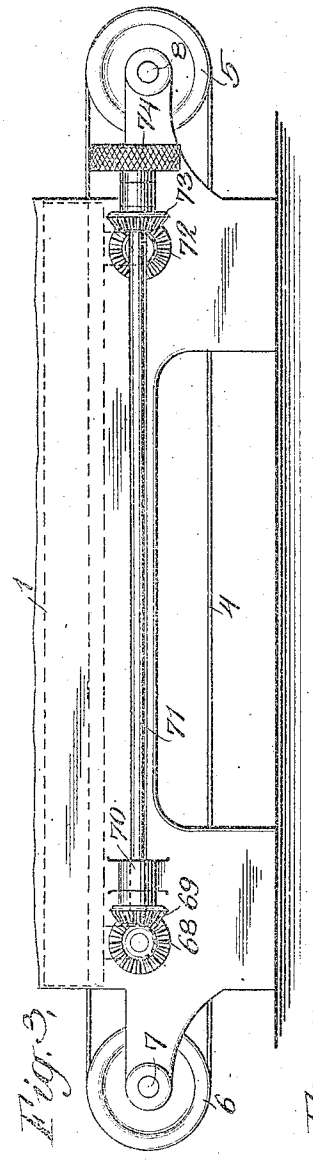


Fig. 3.

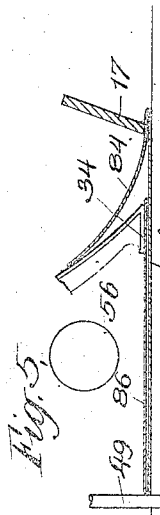


Fig. 5.

Fig. 6.

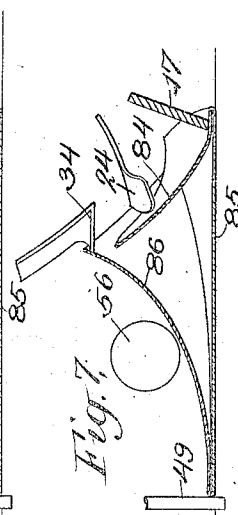


Fig. 7.

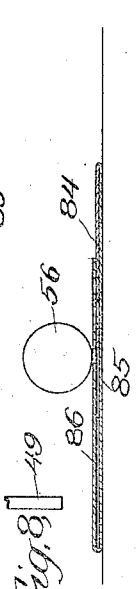


Fig. 8.

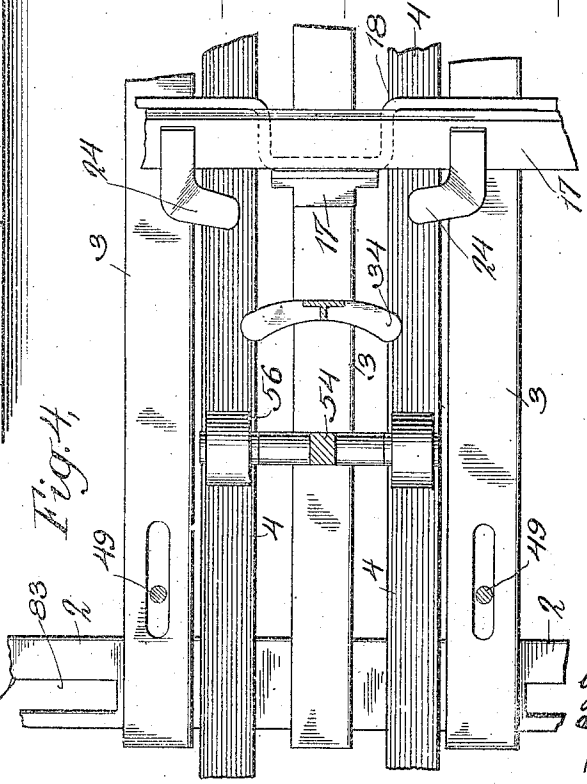


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ENVELOP-CLOSING MACHINE.

No. 822,616. Specification of Letters Patent. Patented June 5, 1906.

Application filed March 19, 1904. Serial No. 198,890.

To all whom it may concern:

Be it known that I, CARL O. LILJEROS, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Envelop-Closing Machines, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to envelop-closing machines, and relates especially to machines which effect the closing of envelops by tucking in the flaps of the envelops, so as to form a secure but unsealed closure for the same.

In the accompanying drawings, in which the same reference-numeral refers to similar parts in the several figures, Figure 1 is a longitudinal section of a machine embodying this invention. Fig. 2 is a transverse section of the same. Fig. 3 is a partial side view. Fig. 4 is a partial horizontal section. Figs. 5, 6, 7, and 8 are diagrammatic sectional views showing the operation of a machine.

In the illustrated embodiment of this invention a rigid frame is formed of the side pieces 1, which are rigidly held together by the transverse braces 2 and 39. A suitable runway extends longitudinally of the machine to guide the envelops therethrough, the body of this runway being formed of slotted construction and comprising a series of longitudinally-arranged strips 3. The two lateral guides 14 are transversely adjustable, so as to adjust the width of runway and accommodate envelops of different size. These guides may be adjusted by any desired means and, as indicated in the drawings, each of the guides is formed with a suitable lug 12, which projects through the elongated slot 83 in the brace 2. This lug is threaded and is engaged by a threaded portion of one of the adjusting-shafts. As is seen in Fig. 2, the adjusting-shaft 9 is mounted in suitable bearings, the central bearing 78 being provided, and this shaft is provided with the right and left handed threads 75 79, so that by rotating the shaft the two guides 14 are simultaneously adjusted toward or from the center of the machine. A similar adjusting-shaft 10 operates in the same way upon the lugs 11 at the front ends of the two guides, and, as indicated in Fig. 3, these two adjusting-shafts are operated in unison by being geared to the longitudinal adjusting-shaft 71, mounted in suitable bearings 70 in the frame and provided with the beveled gears 69 73, which mesh with the beveled gears 68 and 72 on the two transverse adjusting-shafts. The rotation of this longitudinal shaft by means of the knurled wheel 74 simultaneously adjusts the guides, so as to move them toward or from the center of the machine while maintaining their parallel position.

In order to feed the envelops along the runway, feeding-tapes 4 may be used, and, as indicated, these tapes are mounted upon the tape-rolls 5 and 6 at either end of the machine, these rolls being carried by the shafts 7 and 8, which are mounted in suitable bearings. In the operation of the machine each envelop supplied to the front of the machine upon the tapes is rapidly carried forward until its front edge comes into contact with the stop-pins 49, these pins projecting at that time through slots in the strips 3, as is indicated in Figs. 4 and 5. Each of these stop-pins is pivoted to the end of an arm 50, mounted on the rock-shaft 76. This shaft is oscillated by the rock-arm 51, which is connected by the link 53 with the stop-lever 57. This lever, which is loosely mounted on the lever-shaft 30, is normally pulled in one direction by the spring 89, and its lower arm carries the cam-roll 58, which is pressed into engagement with the stop-arm 59, secured to the cam-shaft 48. This cam-shaft, which is rotated by the pulley 82, thus imparts an intermittent vertical movement to the stop-pins and brings them down in front of an envelop at the proper time to secure its alinement.

The arm 52, which is rigidly connected with the rock-shaft 76, is pivoted to the discharge-bar 54, which carries at its lower end the two discharge-rolls 59, mounted upon the pivot 55. These rolls are in such position as to coöperate with the tapes 4, and when they are moved downward by the mechanism described into the position shown in Figs. 1 and 8 the envelop is pressed downward upon the tapes, and thus rapidly carried out of the machine, the stop-pins being lifted out of engagement at this time. A suitable pulley 65

on the cam-shaft is connected by the belt 66 to the pulley 67 on the shaft 7 to drive the tapes 4. The size of these pulleys may be so proportioned as to secure the desired speed of the tapes. The stop-pins pass through suitable holes 64 in the guide 60, and the discharge-bar passes through another hole 63 in this guide, so that by adjusting the guide the stop-pins may be longitudinally adjusted, so as to secure the proper position in the machines of envelops of any desired size. This stop-guide may be adjusted by the bolts 61, each of which engages the guide, and an elongated slot 62 in the side piece of the frame, a wing-nut 80 being provided to clamp these parts together in each case.

When the envelop is brought into alinement against the stop-pins, its upper edge is engaged by the clamp 17, as indicated in Fig. 5. This clamp is mounted on the clamp-bar 18, carried by the clamp-slides 16, these slides operating in suitable guideways 15 on either side of the frame. Suitable springs 37 normally force this clamp downward, and the link 19 connects this slide with the clamp-lever 20, mounted on the lever-shaft 30 and carrying the cam-roll 22 on its lower end 21. This roll is pressed against the clamp-cam 23, and thus raises the clamp into the position indicated in Fig. 1 at the proper time, the spring acting at other times to hold the clamp down in operative position upon an envelop.

A suitable lifter is employed to engage the edge of the envelop-opening adjacent the flap and to open the envelop so that the flap can be readily inserted by a suitable tucker. The lifter may be given the form 34 (indicated in Figs. 1 and 4) and is shown as being mounted on the lifter-arm 35, the upper end of which is connected by the pivot 41 with the cross-head 40. This cross-head is slidingly mounted on the guide-rod 36, being secured in the brace 39 by the nut 38, which engages the reduced threaded end 37 of this guide-rod. The lifter-yoke 42 is mounted upon the shaft 43, so as to rotate, and the outer end of this yoke carries the stud 91, which loosely engages the elongated slot 92 in the lifter-arm. The link 44 is pivoted to this yoke and to the outer end of the lifter-lever 45, this lever being pivoted about the lever-shaft 30 and carrying the cam-roll 46, which engages and is operated by the lifter-cam 47. This cam when rotating in the direction indicated by the arrow allows the lifter to come into contact with the back of the envelop, as seen in Fig. 5. Thereafter as the stud 91 moves down the slot 92 the lifter moves forward into the opening at the back of the envelop and is then raised and moved backward, engaging the edge of the envelop-back 86 and raising it in the manner indicated in Figs. 6 and 7, so that the envelop-flap can be readily tucked in by the tuckers 24. These tuckers may be given the form indicated in the drawings, where they are shown as mounted upon the tucker-bar 25, carried by the tucker-arms 26, pivoted about the cam-shaft and normally forced downward by the spring 88. The pin 27 is shown as connecting one of these arms with the link 28, which is pivoted at its upper end to the tucker-lever 29, mounted upon the lever-shaft. The other end, 31, of this lever carries the cam-roll 32, which is pressed against the tucker-cam 33 to actuate these tuckers at the proper time, so that they engage the envelop-flap 84 and tuck the flap into the opening between the back of the envelop 86 and its face 85.

The operation of this machine can be readily seen by reference to Figs. 5, 6, 7, and 8. The envelop is indicated in Fig. 5 as having been fed forward by the tapes against the stop-pins 49 and as held in position by the clamp 17, which engages its upper edge. The lifter 34 thereupon descends upon the envelop-back 86, moves forward, raising the flap 84, and then moves backward, lifting the upper edge of the envelop-back 86, so as to make a considerable opening, as is indicated in Fig. 7. The tuckers thereupon tuck the flap 84 into this opening, and then as the clamp is released the discharge-rolls descend upon the envelop, which is quickly discharged by the feed-tapes, the stop-pins 49 being raised at this time.

It is of course understood that those familiar with this art may make many variations in the form, proportion, and number of parts of this machine. Parts of the same may be used without employing the whole, and parts may be used in connection with other devices without departing from the spirit of this invention or losing the advantages of the same. I do not, therefore, desire to be limited to the details of the disclosure which has been made in this case; but

What I claim as new, and what I desire to secure by Letters Patent, is set forth in the appended claims:

1. In envelop-closing machines, a runway comprising laterally-adjustable guides, feed-tapes extending along said runway, stop-pins and discharge-rolls mounted adjacent said runway and longitudinally adjustable with respect thereto, a clamp to engage the upper edge of an envelop, a lifter mounted on a lifter-arm, one end of said arm being pivoted to a cross-head and said arm being actuated by a loose slotted connection and a tucker to tuck the envelop-flap into the opening made by said lifter.

2. In envelop-closing machines, a laterally-adjustable runway, stop-pins coöperating with said runway and longitudinally adjustable with respect thereto, means to feed envelops along said runway, a clamp to engage said envelops adjacent the upper edge of the same, a lifter, means to operate said lifter to move under the envelop-flap and to

engage the envelop-back and lift the same and a tucker to tuck said flap into the opening made by the lifter.

3. In envelop-closing machines, a clamp to engage an envelop, a lifter, a lifter-arm upon which said lifter is mounted, a sliding cross-head pivoted to said arm, an oscillating lifter-yoke, said yoke and lifter-arm having a loose slotted connection, means to oscillate said yoke to move said lifter forward under an envelop-flap and rearward and upward to engage and lift the envelop-back away from the front of said envelop and a tucker to tuck the envelop-flap into the opening thus made.

4. In envelop-closing machines, a support, a clamp to hold an envelop upon said support, a lifter having a loose operating connection, a tucker, a cam-shaft and connections to operate said clamp, said lifter and said tucker in unison from said cam-shaft.

5. In envelop-closing machines, a support, means to feed envelops along said support, means to secure the alinement of an envelop upon said support, discharging means to discharge said envelops from said support, a clamp to clamp said envelop in position, a lifter and a tucker, a cam-shaft and connections to operate said alining means, said discharging means, said clamp, said lifter, and said tucker from said cam-shaft.

6. In envelop-closing machines, a runway, stop-pins coöperating with said runway, means to feed envelops along said runway, a clamp to engage the upper edge of an envelop, means to raise the back of said envelop and to tuck the envelop-flap into the opening thus formed.

7. In envelop-closing machines, a clamp to engage an envelop adjacent the upper edge of the same, a lifter to move under the flap of said envelop and to raise the envelop-back and a tucker to tuck the envelop-flap into the opening thus made.

8. In envelop-closing machines, means to hold an envelop in position, a lifter to raise the back of said envelop away from the face of the same and a tucker to tuck the envelop-flap into the opening thus made.

9. In envelop-closing machines, means to hold an envelop in position, means to move the back of the envelop away from the face of the envelop and means to tuck the envelop-flap into the opening thus made.

10. In envelop-closing machines, a support, means to move the back of an envelop away from its face while said envelop engages said support and means to tuck the flap of the envelop into the opening thus made.

11. In envelop-closing machines, means to move the back of an envelop away from the face of the envelop and means to tuck the envelop-flap into the opening thus made.

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