

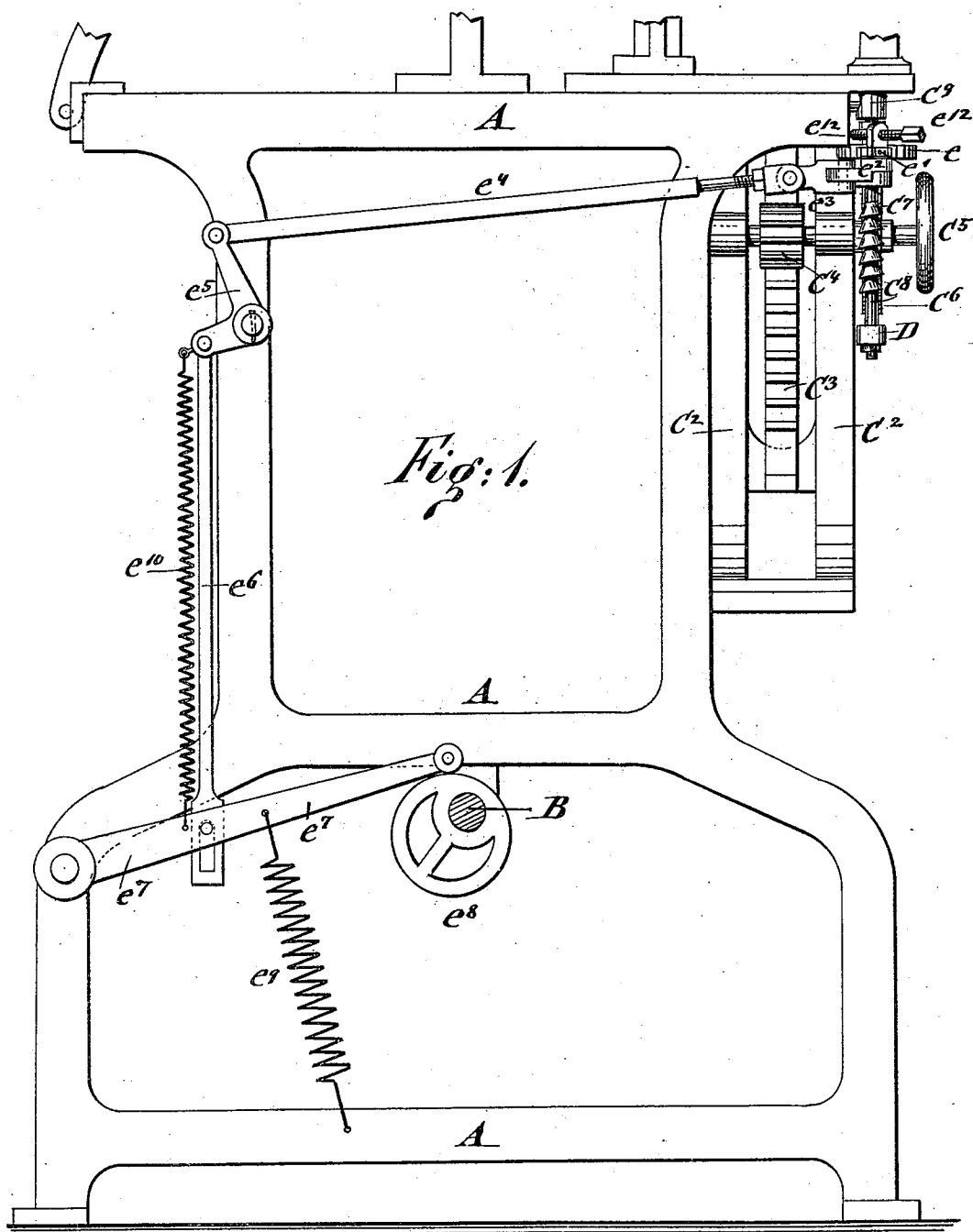
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3 Sheets—Sheet 1.

E. ERMOLD & W. HOLLIS.
ENVELOPE MACHINE.

No. 510,415.

Patented Dec. 12, 1893.



WITNESSES :

Charles Schroeder.
Marion Hall

INVENTORS

Edward Ermold
and *William Hollis*
BY

Joseph H. Baughman
ATTORNEYS.

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No. 510,415.

Patented Dec. 12, 1893.



WITNESSES :

Charles Schroeder.
Marine Hall.

INVENTORS
Edward Arnold
and William Hollis.
BY
Gipe & Regener
ATTORNEYS.

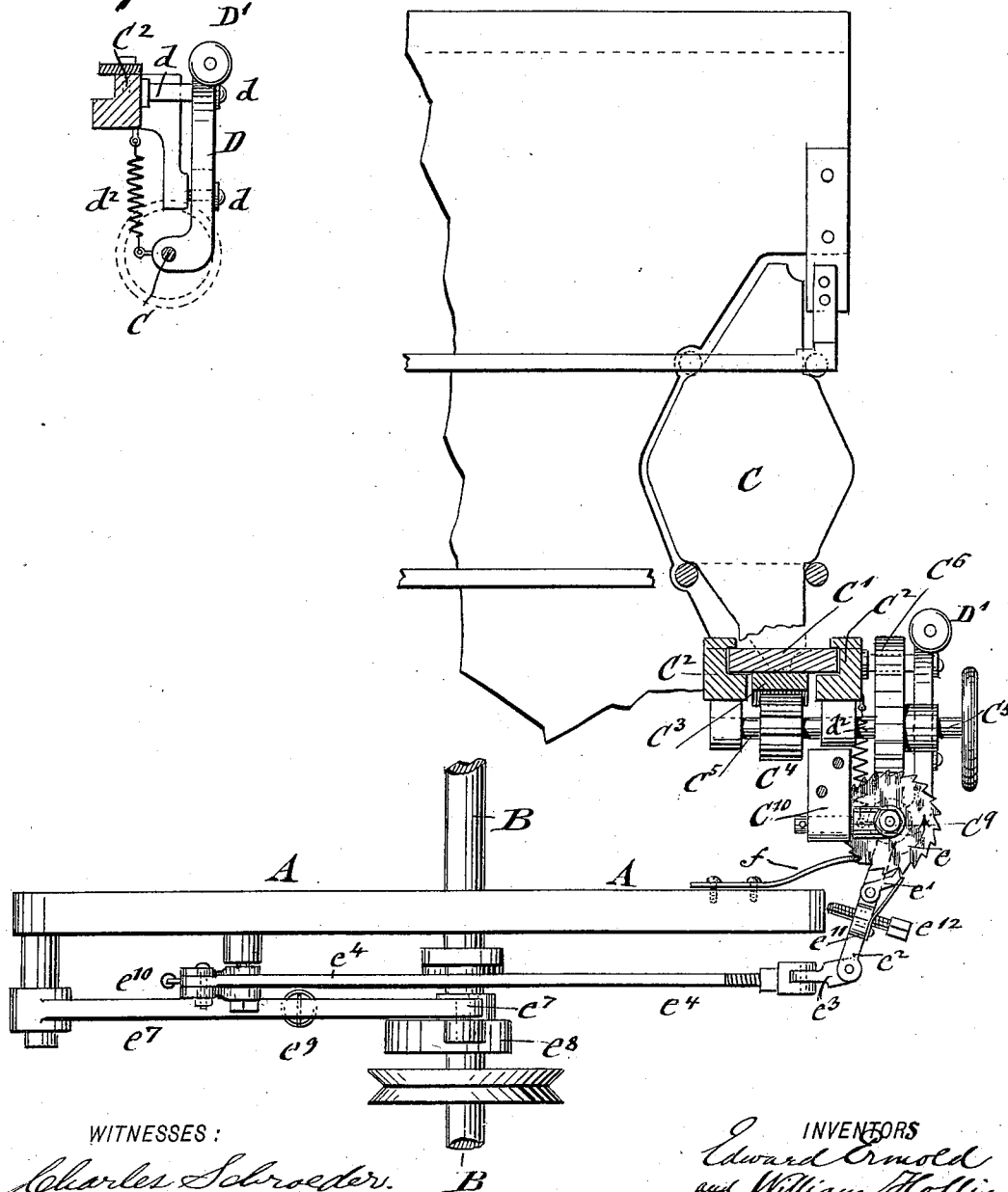
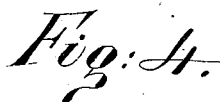
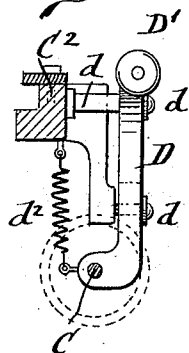
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WITNESSES :

Charles Schroeder.
Marion Hall

INVENTORS

Edward Ermoold
and William Hollis
BY

BY *Loebel & Regener*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWARD ERMOLD, OF NEW YORK, AND WILLIAM HOLLIS, OF BROOKLYN,
NEW YORK; SAID HOLLIS ASSIGNOR TO SAID ERMOLD.

ENVELOPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 510,415, dated December 12, 1893.

Application filed April 21, 1892. Serial No. 430,031. (No model.)

To all whom it may concern:

Be it known that we, EDWARD ERMOLD, residing in the city, county, and State of New York, and WILLIAM HOLLIS, residing in Brooklyn, in the county of Kings and State of New York, citizens of the United States, have invented certain new and useful Improvements in Envelope-Machines, of which the following is a specification.

Our invention relates to improvements in envelope machines, and more especially to improvements in that portion of the same, which is known as the "elevator" by which the blanks are successively fed from the table to the so-called pickers or pads by which the mucilage is applied to the blanks; and the invention consists of an elevator for envelope machines, the table of which is raised gradually by a step-by-step motion, said motion being accomplished by a cam on the cam shaft, an intermediate lever mechanism and a pawl and ratchet mechanism which impart intermittent rotary motion to a ratchet worm which meshes with a ratchet worm-wheel, to the shaft of which a pinion is applied that is placed in gear with a rack on the vertical armor shank of the blank-supporting table, so that the required intermittent motion is imparted to the latter. The shaft of the ratchet worm is pivoted at its upper end and connected at its lower end with an unshipping lever that is guided by slots along fixed studs or suitable bracket-plate, the upper end of the lever being provided with a knob by which the lever can be moved in downward direction so as to oscillate the ratchet worm-shaft and move the ratchet worm out of mesh with the ratchet worm-wheel, whenever it is desired to return the table into its lowermost position, ready to receive a new pile of blanks.

The invention consists, further, of certain combinations of parts and details of construction, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side-elevation of an envelope-machine with our improved elevator for feeding blanks to the pickers, said figure showing for the sake of simplicity only the parts relating to the elevating mechanism. Fig. 2

is a front elevation of a portion of the envelope-machine showing the elevating mechanism. Fig. 3 is a detail-portion, showing the vertical guide-arm and rack of the blank supporting table. Fig. 4 is a plan-view of Fig. 2, partly in horizontal section through the guide-arm and rack of the table; and Fig. 5 is a detail top-view of the unshipping lever by which the ratchet worm can be moved out of mesh with the ratchet worm-wheel so as to permit the return of the blank-supporting table into its lowermost position for receiving a new pile of blanks.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the supporting frame of an envelope machine of the well known approved construction and B the driving-shaft of the same, on which the cams are arranged by which the power is transmitted to the different actuating-mechanisms of the machine.

C is a horizontal blank-supporting table which is attached to a vertical arm C' that is guided in fixed ways C² which are attached to the supporting frame A. The vertical guide-arm C' of the table C is provided with a rack C³ which meshes with a pinion C⁴ that is applied to a horizontal shaft C⁵ which turns in bearings applied to the fixed ways C², said shaft being provided with a hand wheel at its front end and with a ratchet worm-wheel C⁶ that meshes with a ratchet worm C⁷ applied to a vertical shaft C⁸. The shaft C⁸ is hung at its upper end by a collar to a sleeve or socket C⁹, which is pivoted to a supporting bearing C¹⁰ that is attached to the supporting-frame A, while the lower end of the shaft C⁸ is connected to an unshipping lever D, which is guided by means of inclined slots d' on fixed studs d. The unshipping lever D is bent in upward direction and provided with a button or knob D' at its upper end so that in depressing the lever by the finger the shaft C⁸ is oscillated and the ratchet worm C⁷ moved out of mesh with the ratchet worm-wheel C⁶. To the oscillating shaft C⁸ is keyed a ratchet-wheel e, which is engaged by a spring-pawl e' that is pivoted to an arm e², which is applied loosely to the shaft C⁸ be-

low the ratchet-wheel. The outer end of the arm e^2 is connected by a pivot-link e^3 with a connecting rod e^4 that is pivoted to the upper arm of the bell crank-lever e^5 which is fulcrumed to the supporting-frame A. The lower arm of the bell crank-lever e^5 is connected by a pivot-rod e^6 having a slotted lower end, with an oscillating arm e^7 that is pivoted at one end to the supporting-frame and provided at its opposite end with an anti-friction-roller which is held in contact with the circumference of an eccentric cam e^8 on the driving-shaft B by a helical spring e^9 as shown in Figs. 1 and 2. The lower arm of the bell crank-lever e^5 is also connected with the lever arm e^7 by a spiral spring e^{10} , by which the required tension is exerted on the loose oscillating arm e^2 . The oscillating arm e^2 is provided with an upwardly-extending lug e^{11} which carries a set-screw e^{12} that abuts against a fixed point of contact of the supporting-frame A, said set-screw e^{12} permitting the exact adjustment of the oscillations of the arm e^2 , as required for feeding one blank after the other to the pickers. The tension of the spring e^{10} keeps the set-screw e^{12} in contact with the supporting-frame A, while the transmitting lever-mechanism interposed between the cam e^8 and the oscillating arm e^2 , imparts the required length of oscillating motion to the arm e^2 . The ratchet-wheel e is further engaged by a check-pawl f which is attached to the supporting-frame A, so that the ratchet-wheel can only be turned in one direction for one or more teeth by the oscillating motion imparted to the arm e^2 and the pawl f on the same. At each revolution of the driving-shaft B the intermediate motion-transmitting lever-mechanism imparts an oscillating motion to the arm e^2 and by the pawl on the same an axial motion to the ratchet-wheel e and the worm-shaft C^3 . This motion is transmitted by the ratchet-worm C^7 and the worm-wheel C^6 to the pinion C^4 and by the same to the rack C^3 on the vertical arm of the blank-supporting table, so that a vertical step-by-step motion is imparted to the latter by which the blanks supported on the same are successively fed to the pickers in the manner well known in envelope machines. When all the blanks on the table C are fed to the pickers, and a new pile has to be placed on the table, it is necessary that the same be returned quickly into its lowermost position, so as to receive a new pile of blanks. This is accomplished quickly and without interrupting the motion of the machine by depressing the unshipping-lever D so that the same is shifted laterally by its inclined slots on the fixed guide-pins d , whereby the worm-shaft C^7 is moved sidewise, owing to the swivel-connection of its upper end and the ratchet-worm C^7 moved out of mesh with the worm-wheel C^6 . This permits the turning of the pinion C^4 and ratchet worm-wheel C^6 by the hand-wheel at the end of the shaft C^5 independently of the ratchet-worm C^7 and in

opposite direction to the motion imparted by it to the ratchet worm-wheel C^6 , so that the table is quickly returned into its lowermost position in its guide-ways, in which position it receives the new pile of blanks which is necessary for the supply of the machine. As soon as the table is lowered the unshipping lever D is released and returned by its spring d^2 into its normal position, while the ratchet-worm C^7 is returned into mesh with the ratchet worm-wheel C^6 . After the pile is placed on the table C, the same is raised again to such an extent that the uppermost blank is brought in the proper relative position toward the pickers, so as to be taken up by the same, which is accomplished by turning the hand-wheel of the shaft C^5 in the same direction in which the shaft is turned by the ratchet-worm C^7 , the latter giving sufficiently by the action of the spring d^2 shown in Fig. 5 on the end of the unshipping lever D. As soon as the pile of blanks is in the proper position toward the picker, the regular supply of blanks to the pickers is continued.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of a movable blank supporting table provided with a vertical rack, vertical guide ways for said table, a shaft having a pinion meshing with said rack, a worm-wheel on said pinion shaft, a movable worm-shaft provided with a worm meshing with said worm-wheel, means for rotating said worm-shaft, and an unshipping lever connected to the worm-shaft, whereby the blank supporting table may be adjusted independently of the transmitting mechanism, substantially as set forth.

2. The combination of a movable blank supporting table provided with a vertical rack, vertical guide ways for said table, a shaft having a pinion meshing with said rack, a worm-wheel on said pinion shaft, a movable worm-shaft provided with a worm meshing with said worm-wheel, means for rotating said worm-shaft, a spring-actuated unshipping lever connected to the worm-shaft, and means for guiding the unshipping lever, substantially as set forth.

3. In an envelope machine the combination of a vertically guided blank supporting table provided with a vertical arm having a rack thereon, a pinion meshing with said rack, a worm-wheel on the shaft of said pinion, a worm meshing with said worm-wheel, a shaft for said worm, means for operating said shaft, said shaft being swiveled at its upper end, a spring-actuated unshipping lever attached to the lower end of said worm-shaft, said lever being guided by inclined slots along fixed studs, thereby causing the worm shaft to be shifted laterally and permitting the blank supporting table to be adjusted independently of the transmitting mechanism, substantially as set forth.

4. In an envelope machine the combination

of a vertically guided blank supporting table provided with a vertical arm having a rack thereon, a pinion meshing with said rack, a worm-wheel on the shaft of said pinion, a worm meshing with said worm-wheel, a shaft for said worm, as means for operating said shaft, a ratchet wheel on said worm-shaft, an oscillating arm applied loosely to the worm-shaft, a spring pawl attached to said arm engaging the teeth of the ratchet wheel, a connecting rod connected to the outer end of said arm, a bell crank lever connected to the outer end of said connecting rod, a pivot rod connected to said bell crank lever and provided with a slot at its lower end, an oscillating arm

pivoted to the supporting frame and provided with a pin engaging the slot of said rod, a cam engaging said oscillating arm, a spring connecting said arm with said bell crank lever, and means for holding said arm in contact with said cam, substantially as described.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

EDWARD ERMOLD.
WM. HOLLIS.

Witnesses:

PAUL GOEPEL,
CHARLES SCHROEDER.