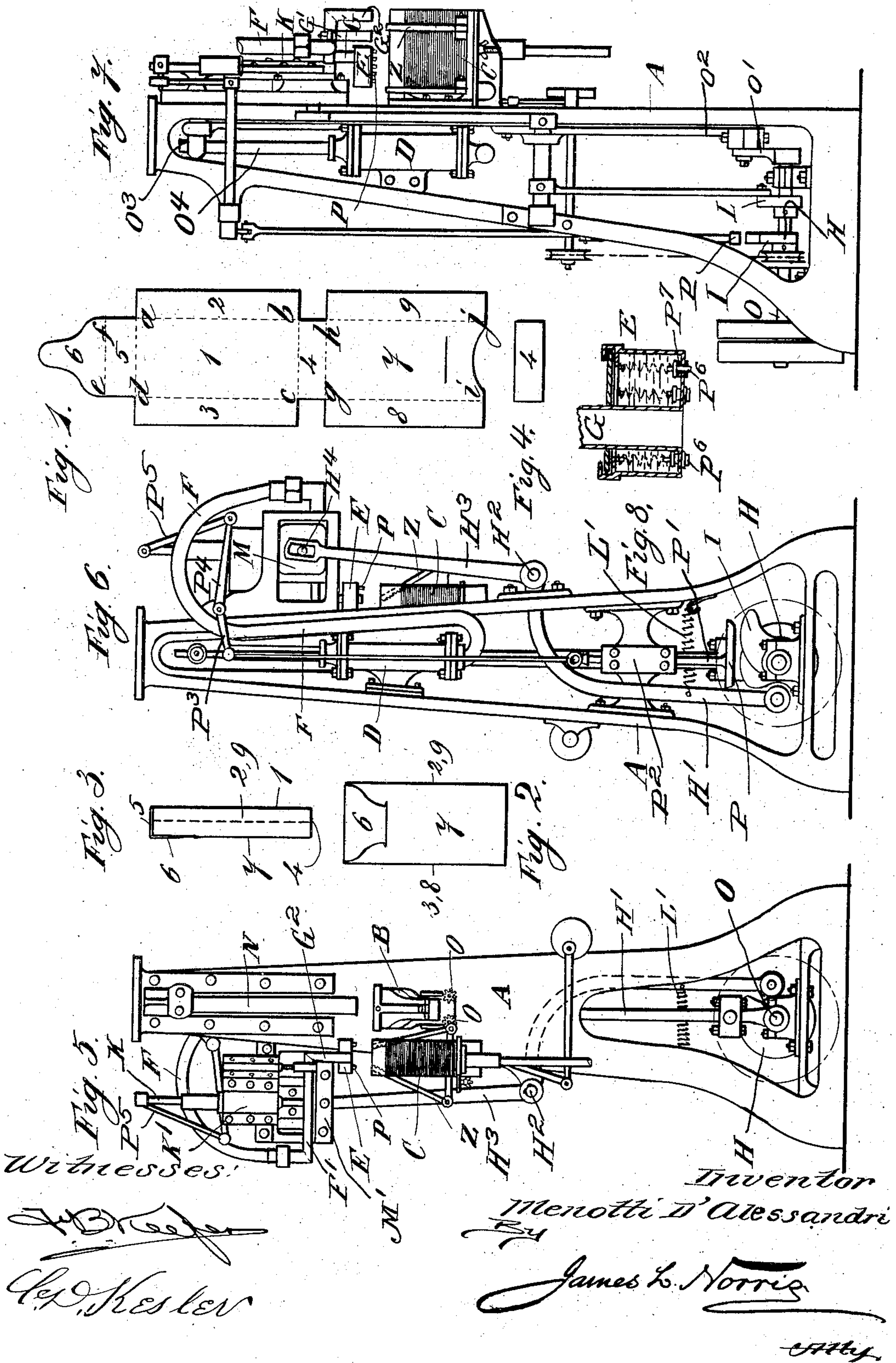


No. 896,693.

PATENTED AUG. 18, 1908.

M. D'ALESSANDRI.
MACHINE FOR MAKING ENVELOP LIKE CASES FOR CIGARETTES.

APPLICATION FILED FEB. 16, 1907.



UNITED STATES PATENT OFFICE.

MENOTTI D'ALESSANDRI, OF LECCE, ITALY.

MACHINE FOR MAKING ENVELOP-LIKE CASES FOR CIGARETTES.

No. 896,693.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed February 16, 1907. Serial No. 357,746.

To all whom it may concern:

Be it known that I, MENOTTI D'ALESSANDRI, subject of the King of Italy, residing at Lecce, in the Kingdom of Italy, have invented new and useful Improvements in Machines for Making Envelop-Like Cases for Cigarettes, of which the following is a specification.

The object of the present invention is a machine for making envelop-like cases for cigarettes. By its use all manual labor is dispensed with and liquid slowly taking glues may be employed instead of the ordinary joiner's glue.

The work performed by the machine is as follows:

1.) A single sheet, previously cut out in the shape shown Figure 1, is taken from the top of a heap, whereupon a thin layer of glue is spread upon the faces —8—, —9— (Fig. 1).

2.) Said sheet is folded by turning the faces —2—, —3—, —4—, —5— (Fig. 1) round the edges of the bottom face —1— (—a— —b—, —b— —c—, —c— —d—, —d— —a— respectively) as well as by turning face —6— round the edge —e— —f— of face —5—, face —7— round the edge —g— —h— of face —4—, faces —8— and —9— round the edges —g— —i—, —h— —j— of face —7—.

3.) The case thus obtained and shown in plan from above Fig. 4, in side elevation Fig. 3 and in front elevation Fig. 2 is prevented from opening by clasp devices which cause the faces coated with glue to strictly adhere to the adjacent ones, namely face —8— to face —3— and face —9— to face —2—.

In the annexed drawings Figs. 1 to 4 show a single sheet or blank, and also the case obtained therewith therefrom as already set forth, while Fig. 5 is a front elevation, Fig. 6 a rear elevation and Fig. 7 a side view of the machine performing said operations and Fig. 8 represents a vertical section of the glue box.

The machine shown in the present embodiment of my invention comprises generally a frame A having a suitable box folding mechanism B which may be of a known construction and a holder C adapted to contain a stack of blanks or sheets cut in the proper outline. The machine also embodies a suitable vacuum pump D and a glue box or container E. The suction end of the cylinder of the vacuum pump D is provided with a rubber pipe or other flexible hose F, the latter be-

ing connected at its opposite end to a tube F', and this tube carries in the present instance three separate branch pipes or nozzles G, G' and G², the lower ends of which all lie in the same plane so as to engage the surface of the uppermost blank of the stack.

The branch tube or nozzle G passes through and carries the glue box E. This glue box is shown in detail in Fig. 8, it comprising a suitable receptacle through which the tube G passes and opens at the bottom of the glue box. In the bottom of the glue box is mounted a set of valves P⁶ which seat at the upper inner side of orifices P⁷ formed in the bottom of the glue box in such arrangement as to permit a flow of glue from the box onto the flaps 8 and 9 of the blank. These valves are normally held in seated position by means of compression springs or other suitable devices P⁸, and the valves are also provided with stems which project below the bottom of the glue box so that as the latter descends, these stems engage the surface of the uppermost blank and thereby cause the valves to open.

The vacuum pump D is operated from a main shaft O by means of a crank O', the latter being provided with a connecting rod O² which in turn coöperates with a cross-head O³. The cross-head serves to reciprocate a piston rod O⁴ which enters the top of the vacuum pump cylinder D. While the piston O⁴ is operating on its suction stroke, the branch tubes or nozzles G, G' and G² which are connected to the suction side of the pump by the pipe F are lowered by means of a cam H, thereby permitting the orifices of these branches or suction nozzles to rest upon the center of the uppermost sheet or blank in the holder C. This cam H is mounted upon the main shaft O and operates upon a plate P, the latter being carried at the lower end of an actuating rod P', and this rod extends through a guide P² mounted on the machine frame and is connected to a lever P³ fulcrumed on the upper portion of the machine, one arm P⁴ of this lever being pivotally attached to a link P⁵, the latter in turn being pivotally connected to the upper end of a vertically movable slide K. This slide K is guided to move vertically between suitable guides K', these guides being carried on a horizontally movable slide M, and the horizontally movable slide M is supported on horizontal guides M' arranged on the machine frame.

The lower end of the slide K is attached to the horizontally extending tube F', and a lowering movement of this vertically movable slide serves to carry the branches or suction nozzles into engagement with the uppermost blank, as previously described. As the tube or nozzle G reaches the surface of the uppermost blank, the stems of the valves P⁶ fitted in the bottom of the glue-box will be pressed upwardly thereby unseating these valves and permitting a small quantity of glue or adhesive material to escape from the glue box and spread itself upon the appropriate portions of the blank.

As the shaft O rotates, it carries the raised portion I clear of the plate P, thus allowing the actuating rod P' to fall by gravity and causing a corresponding upward movement of the slide K, and in this manner, the branch tubes together with the uppermost blank adhering thereto are elevated. A second cam L is also mounted on the operating shaft O, this latter cam cooperating with the lower arm H' of a bell-crank lever, the latter being pivoted at H² to the machine frame and is provided with an upper arm H³ which is pivotally attached by means of a pin and slot connection H⁴ to the horizontally movable slide M. The cam L serves to move this slide M in one direction, and a tension spring L' serves to move it in a reverse direction. After the cam H has passed the plate P and allowed the slide K to rise, the cam L operates upon the bell-crank lever just described which in turn moves the slide M horizontally into a position so that the sheet adhering to the branch tubes or suction nozzles rests in alinement above the folding or shaping device B, and after the slide M has been shifted in this manner, a plunger N which is secured to the main pump cross-head O³ and which at this moment is beginning its downward stroke, engages the bottom section 4 of the blank, forcing the same into the folding or shaping device, wherein a suitable arrangement of folding devices causes the blank to assume the parallelepiped form of the plunger N which serves as a mandrel. As the blank is disengaged from the branch tubes or suction nozzles by the plunger N, the valves P⁶ in the bottom of the glue box re-gain their seats and thereby interrupt the further flow of glue.

After the cigarette box or case has been shaped by the folding mechanism, a continued movement of the plunger N forces the case or box between a pair of oppositely journaled crimping wheels or rollers o which are provided with sharpened points on their peripheries, these points acting to pierce the paper and crimp or indent it sufficiently to cause the surfaces coated with glue to firmly stick to the adjacent surfaces of the box.

In order to prevent more than one blank or sheet from rising from the stack at each op-

eration, a pair of pivoted bars Z may be employed, these bars being arranged in inclined arrangement and provided at their inner faces with indentations or teeth which act as holding devices, these bars resting against the blanks in the stack by the action of gravity and thereby prevent more than one sheet from being raised at each operation by the sucking action of the nozzles.

Having now described my invention and how the same is to be performed what I claim is:

1. A machine of the class described comprising a holder to contain a stack of blanks, a folding device arranged at one side of said holder and having a reciprocable plunger mounted in alinement therewith, a transfer slide reciprocable transversely of the said holder and folding device, a glue box mounted on said slide having outlet valves in the bottom thereof for permitting a flow of glue from the box to the uppermost blank on said stack, a suction nozzle also mounted on said slide adapted to raise a blank from the stack and hold it in position to receive glue from the said glue box, means for operating said slide to position the said suction nozzle and glue box over the uppermost blank in said holder and for shifting said slide to transfer the blank to a position opposite to the folding device, and means for operating said plunger to carry the blank from the slide into the folding device.

2. A machine of the class described comprising a holder to contain a stack of blanks, a vertically movable slide carrying a tube adapted to communicate with a vacuum pump, and a box to contain glue or other adhesive material, said box being carried on and surrounding said tube and provided with valves in its under side, said valves having portions adapted to engage the uppermost blank of the stack to open said valves and permit a quantity of glue to flow thereon, and means for reciprocating said slide to lift the blank.

3. A machine of the class described comprising a holder to contain a stack of blanks, a folding device arranged at one side of said holder and having a vertically movable plunger mounted in alinement therewith, a slide movable horizontally and carrying a vertically movable slide, a glue box mounted on the vertically movable slide and having valved outlets in its bottom for distributing glue upon the uppermost blank of the stack, a suction tube extending through said glue box and opening at the bottom thereof to retain the blank in engagement with the glue box, means for reciprocating the vertically movable slide to engage and remove the uppermost blank from the stack, means for shifting the horizontally movable slide to transfer the blank to a position in alinement with the folding device, and means for oper-

ating said plunger to remove the blank from the glue box and carry it into the folding device.

4. A machine of the class described comprising a holder to contain a stack of blanks, a folding device offset laterally of said holder and provided with a reciprocable plunger mounted in alinement therewith, a transfer slide reciprocable transversely of the said holder and folding device, a glue box and suction nozzles carried by the said slide and provided with means for connecting them to a vacuum pump, means for operating said glue box and suction nozzles to remove the uppermost blank from the stack and apply glue thereto, means for operating the transfer

slide to carry the glued blank to a position to enter the folding device, means for operating the said plunger to remove the blank from said glue box and suction nozzles and carry it through said folding device, and a pair of corrugated rollers mounted at the discharge end of the folding device and arranged to cooperate with the glued portions of the blank.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MENOTTI D'ALESSANDRI.

Witnesses:

FRANCEPOLY ALLEN,
LUIGI D'ELIA.