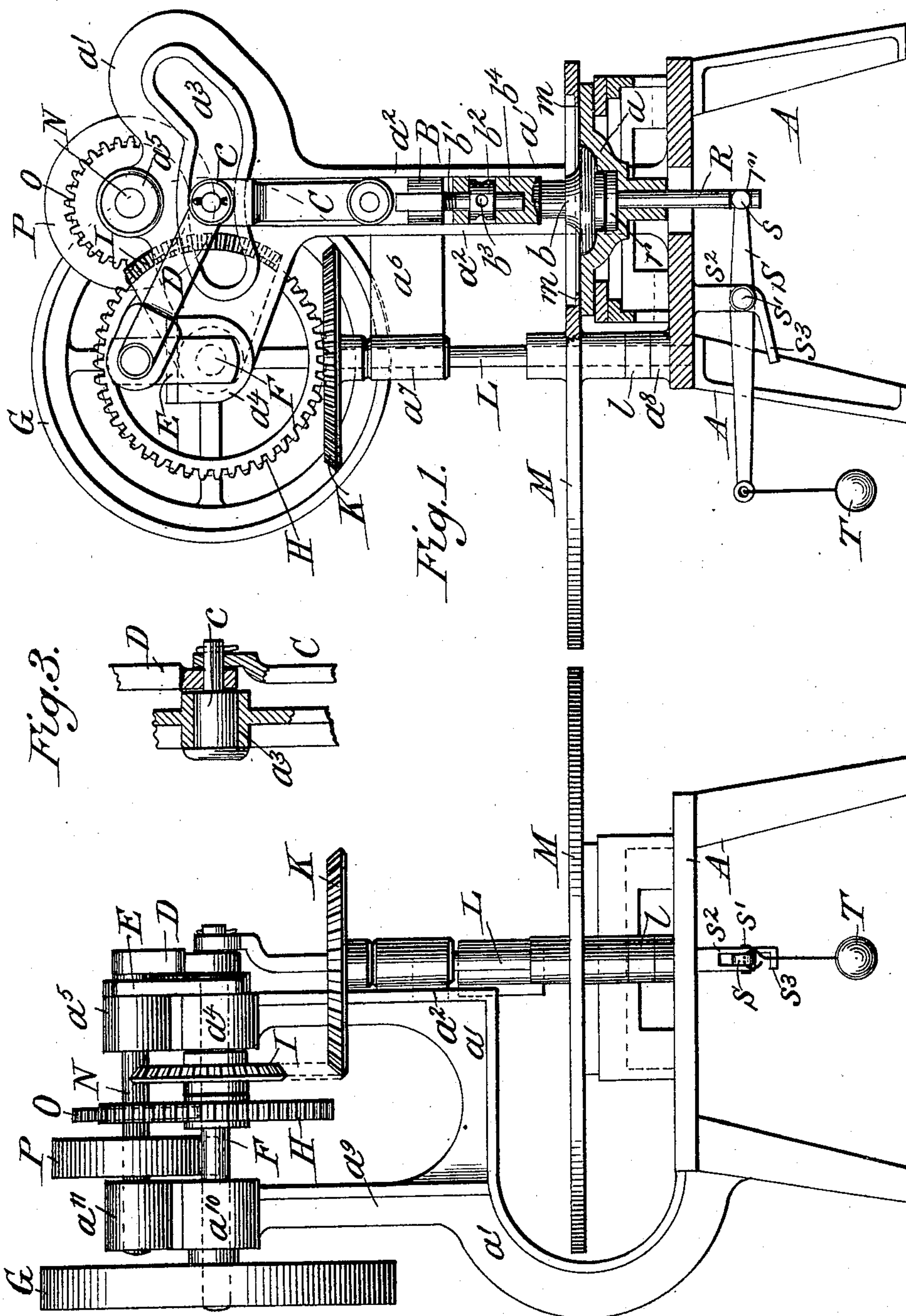


(No Model.)

J. MOHS.
BOX MAKING MACHINE.

No. 582,299.

Patented May 11, 1897.



Attest:
J. H. Schott
M. C. Massie.

Fig. 2.

Inventor:
Julius Mohs
by "Max Fergu"
his attorney.

UNITED STATES PATENT OFFICE.

JULIUS MOHS, OF DRESDEN, GERMANY, ASSIGNOR TO THE BERLINER KUNSTDRUCK UND VERLAGS-ANSTALT, VORMALS A. & C. KAUFMANN, OF BERLIN, GERMANY.

BOX-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 582,293, dated May 11, 1897.

Application filed July 17, 1894. Serial No. 517,822. (No model.) Patented in Germany February 13, 1894, No. 77,341.

To all whom it may concern:

Be it known that I, JULIUS MOHS, a citizen of Prussia, residing at Dresden, Germany, have invented certain new and useful Improvements in Box-Making Machines, (patented in Germany February 13, 1894, No. 77,341;) and I do hereby 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.

My invention relates to improvements in box-making machines.

The object of the invention is to produce a machine specially adapted for use in manufacturing boxes, plates, or similar articles from pasteboard, sheet metal, veneer, or other suitable material.

The invention consists in a novel mechanism for operating the plunger, whereby the latter is reciprocated and at the end of its descent is held down for a short period in order that the male die may be held under pressure against the blank, whereby the latter is given a permanent set to prevent it from expanding by elasticity when removed from the dies.

The invention consists also in such features, details of construction, and combinations of parts as will first be described in connection with the accompanying drawings and then particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a detail view showing the pin which moves in the slot.

Referring to the drawings, A is a framework carrying a female die a , the bottom of which is open for a purpose hereinafter described. To the framework is fixed a standard a' , which carries slideways a^2 and is slotted at a^3 transversely of the standard. The standard also carries a pair of journal-bearings a^4 a^5 and an arm a^6 , provided at its outer end with a vertical journal a^7 , the framework being provided with a step-bearing a^8 , in line with the journal a^7 .

From the top end of the standard a' pro-

jects a bracket a^9 , carrying two journals a^{10} a^{11} , in line with the journals a^4 a^5 , respectively.

In the slideways a^2 is movably mounted a plunger B, to which is adjustably attached a male die b by means of a screw b' , threaded into the lower end of the plunger and provided with a head b^2 , having spanner-holes b^3 , by means of which the screw may be turned to adjust the male die with relation to said plunger, the head b^2 of the screw being located in a slot or recess in the top end b^4 of the male die, which top end also works in the guideways.

To the upper end of the plunger B is pivoted a link C, which has a pin c projecting laterally into the slot a^3 , a pitman D being pivotally attached by one end to the link C. The other end of the pitman D is attached to a crank E, fixed on a shaft F, mounted in the journals a^4 and a^{10} and carrying a fly-wheel G, a gear-wheel H, and a bevel cogged segment I, the latter intermittently meshing with a bevel gear-wheel K, fixed on a vertical shaft L, mounted in the journals a^7 and a^8 , being provided with a collar l , above which is fixed a disk-shaped carrier-plate M, provided with openings, in which is mounted a series of blank-carriers m , each provided with a recess arranged to receive the box-blank.

In the journals a^5 and a^{11} is mounted a driving-shaft N, carrying a gear-pinion O, meshing into the gear-wheel H, and a driving-pulley P, which may be driven by a belt from any suitable source of power.

In the opening at the bottom of the female die a is placed a reciprocatory plunger or spindle R, having a head r within the cavity of the female die a and forming the bottom of the die. The lower end of the spindle R is notched on each side at r' for engagement with the rounded end s of a lever S, fulcrumed at s' in an arm s^2 , projecting downward from the frame A, the outer end of the lever carrying a weight T. The arm s^2 has a nose s^3 , bent so as to project beneath the outer end of the lever S, and thereby limit the downward motion of the outer end of said lever.

The operation of my machine is as follows:

The blanks, previously cut to the proper shape, are fed into the blank-receiving recess in the blank-carriers either by hand or by any suitable blank-feeding mechanism. The apparatus being set in motion the segment I revolves and engages the bevel-wheel K, thereby imparting a partial rotation to the vertical shaft L, which rotates the carrier-plate M and brings the loaded blank-carrier beneath the male die, which at that time is raised. The continued operation of the machine causes the plunger to descend and forces the blank into the female die and against the head *r* of the spindle R, thereby forcing the spindle down against the action of the weight T, at the same time forming the blank into its required shape. As soon as the plunger is raised the weight moves the lever S, so as to raise the spindle R, and thereby forces the completed box upward through the opening in the blank-carrier, the next revolution of the carrier-plate sweeping the completed box from the top of the head *r* and introducing a new blank beneath the die. As the carrier-plate revolves the boxes are removed and new blanks supplied.

The slot *a*³ at the top of the standard may be considered as comprising two parts, one of which is arc-shaped or segmental, the radius of curvature being equal to the length of the link C from its center of oscillation to the center of the pin *c*. The other part of the slot rises at an angle, as shown. When the pin *c* is moving through the first part of the slot, the plunger is down and the male die in contact with the box-blank, while when the pin *c* moves along the second part of the slot the plunger is raised until the pin reaches the top end of said second part of the slot, the plunger then being at its maximum height. The continued movement of the machine causes the pin to travel toward the first part of the slot and thereby force the plunger downward.

While I have particularly described my invention as applied to an apparatus in which the plunger operates vertically, it is plain that it may also be embodied in a machine having a horizontal plunger without departing from the spirit of my invention. Moreover, suitable magazines for supplying the blank-carriers with blanks may be provided; but this construction is not shown, inasmuch as it forms no part of my present invention. Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a box-making machine, the combination, with a pair of dies, a plunger attached

to the male die, and a link pivoted to the plunger, of a pin in the end of the link, and a standard having a slot into which the pin enters, said slot comprising two portions, one of which is arc-shaped and is located so as to receive the pin when the dies are at their limit of nearest approach, substantially as set forth.

2. In a box-making machine, the combination, with a pair of dies, a plunger attached to the male die, and a link pivoted to the plunger, of a pin in the end of the link, a standard having a slot into which the pin enters, said slot comprising an arc-shaped portion and an angular portion, the arc-shaped portion being located so as to receive the pin when the dies are at their limit of nearest approach, and means for oscillating the link, substantially as set forth.

3. In a box-making machine, the combination, with a pair of dies, a plunger attached to the male die, and a link pivoted to the plunger, of a pin in the end of the link, a standard having a slot into which the pin enters, said slot comprising an arc-shaped portion and an angular portion, the arc-shaped portion being located so as to receive the pin when the dies are at their limit of nearest approach, a pitman connected to the end of the link, a crank to which the pitman is attached, and means for operating the crank, substantially as set forth.

4. In a box-making machine, the combination, with a pair of dies, a plunger attached to the male die, and a link pivoted to the plunger, of a standard having a slot comprising an arc-shaped portion and an angular portion, the said arc-shaped portion lying nearer the dies, a pin secured to the link and inserted in the slot, and means for oscillating the link, substantially as set forth.

5. In a box-making machine, the combination, with a pair of dies, a plunger to which the male die is secured, and a link attached to the plunger, of a standard having a slot comprising an arc-shaped portion and an angular portion, the said arc-shaped portion lying nearer the dies, a pin secured to the link and inserted in the slot, a pitman connected to the end of the link, a crank to which the pitman-rod is attached, and means for operating the crank, substantially as set forth.

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

JULIUS MOHS.

Witnesses:

HERNANDO DE SOTO,
FRIEDRICH BIRKENBUSCH.