

(No Model.)

4 Sheets—Sheet 1.

J. W. MABIN & D. C. MUNGER.

GLUING MACHINE.

No. 541,103.

Patented June 18, 1895.

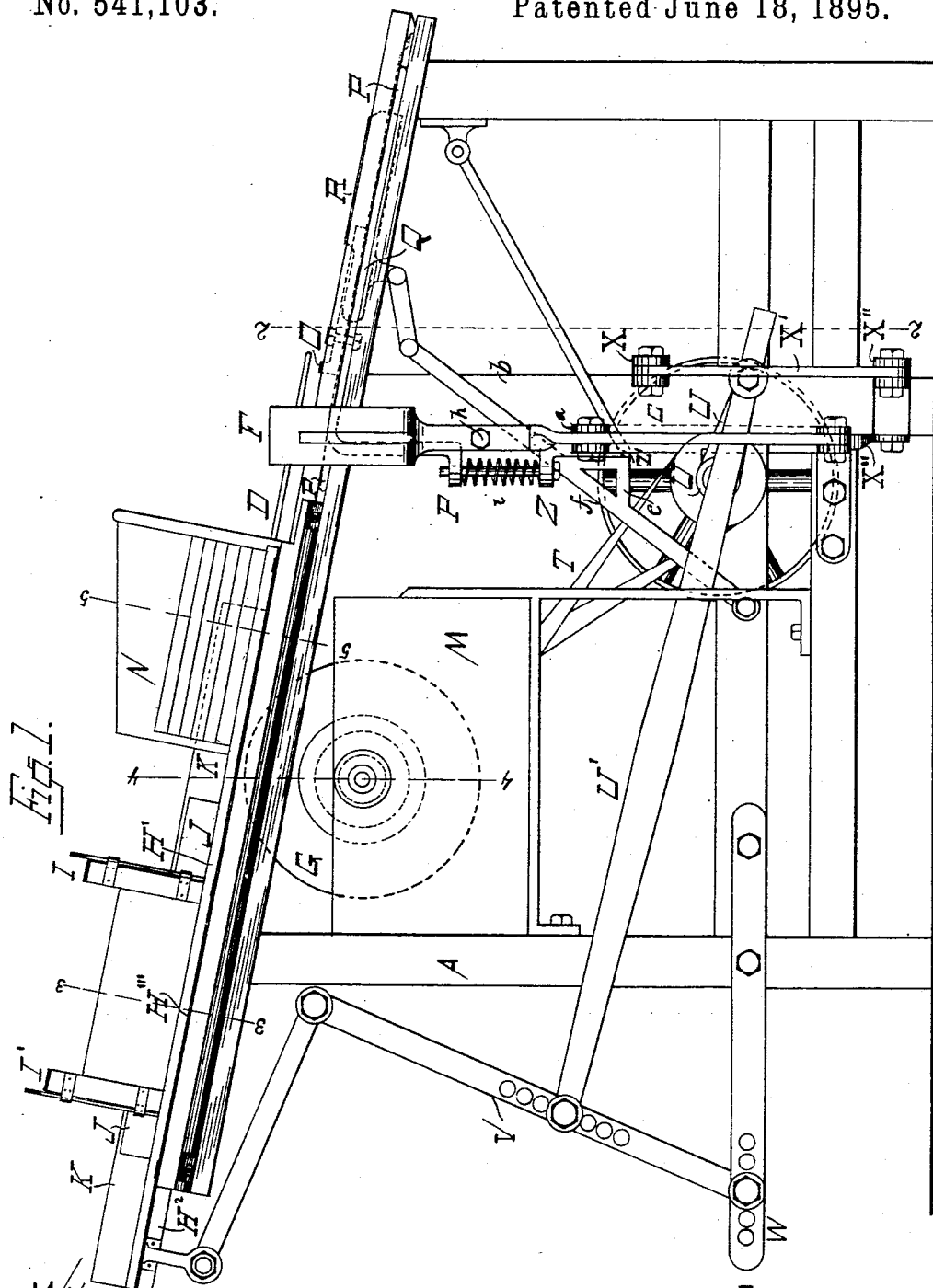


Fig. 1.

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Ella Toke

Inventors

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By Erwin Mabin & Munger
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(No Model.)

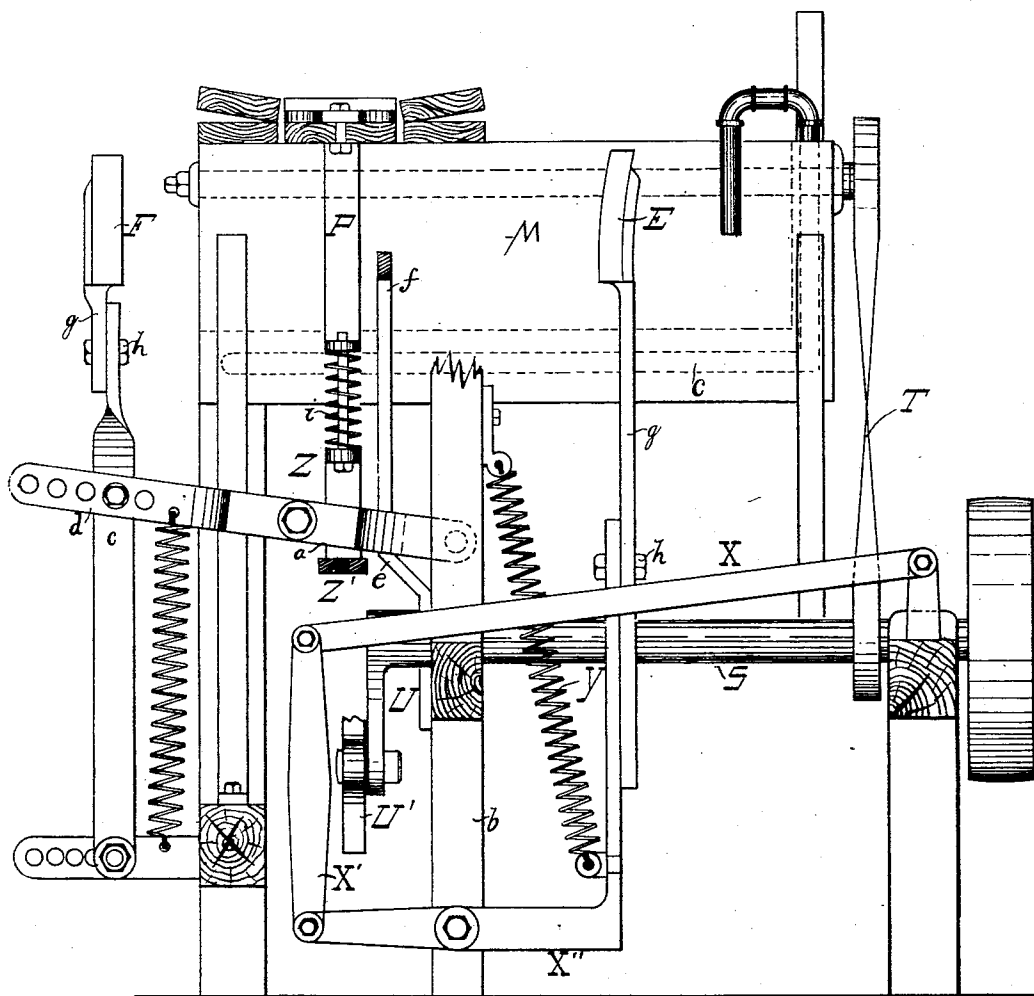
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Fig. 2.



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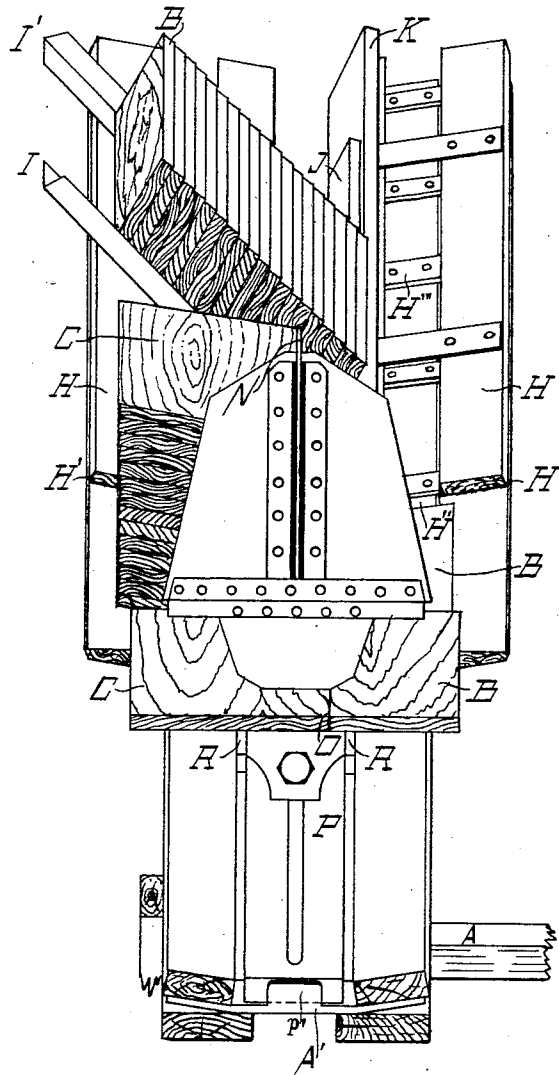
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Fig. 3



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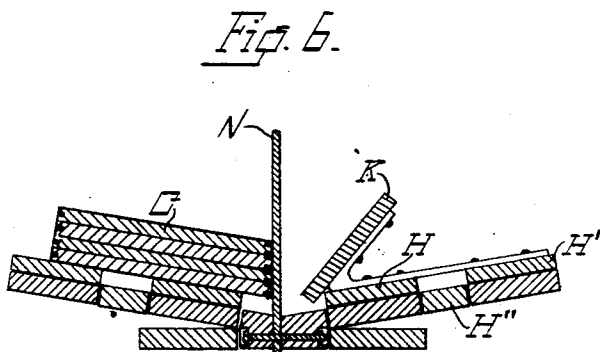
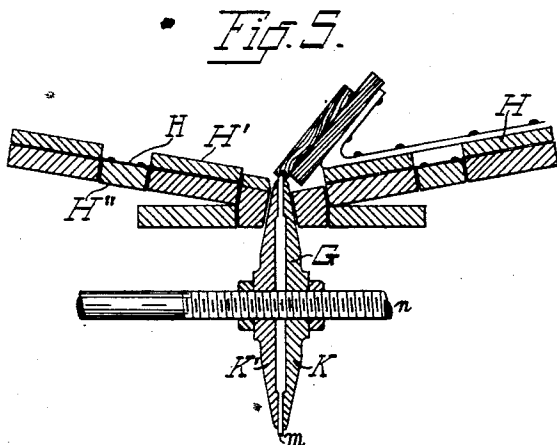
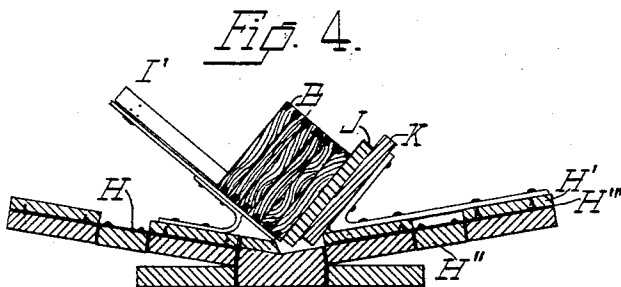
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UNITED STATES PATENT OFFICE.

JOHN W. MABIN AND DEO C. MUNGER, OF MAIDEN ROCK, WISCONSIN.

GLUING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 541,103, dated June 18, 1895.

Application filed July 28, 1894. Serial No. 518,861. (No model.)

To all whom it may concern:

Be it known that we, JOHN W. MABIN and DEO C. MUNGER, citizens of the United States, residing at Maiden Rock, in the county of Pierce and State of Wisconsin, have invented new and useful Improvements in Gluing-Machines, of which the following is a specification.

Our invention relates to improvements in gluing machines and pertains especially, first, to devices for applying melted glue to the match edge of boards; second, to mechanism for feeding the boards to the gluing device; third, to mechanism for feeding the glued boards together with boards that are not glued, into an appropriate position to be driven together; fourth, to means for driving or pressing the boards into union, all as hereinafter described and set forth.

Our invention is designed for use principally, in the manufacture of boxes and similar work, where the material used for any given period is of uniform length.

The object of our invention is to automatically apply the glue and unite the pieces to produce a material of sufficient width for the purposes of this class of manufacture.

In the drawings, Figure I is a side elevation of our invention viewed from the side opposite that of the drive-wheel and the connecting-belt of the glue-wheel. Fig. II is a view of the actuating-levers in elevation with the lower or front end of the frame removed on the section line 2 2 of Fig. I. Fig. III is a perspective of the frame top, viewed from the lower end, showing the grooved and tongued material as it is piled upon the frame preparatory to being acted upon by the machine. This view also shows two of the pieces united under the head as they are immediately after striking of the hammer. Fig. IV is a cross-section of the frame-top, drawn on the line 3 3 of Fig. I. Fig. V is a vertical section drawn on the line 4 4 of Fig. I, showing the construction of the glue-wheel. Fig. VI is a cross-section of the top, drawn on the line 5 5 of Fig. I, showing one of the grooved pieces after it has been passed over the glue-wheel and as it is delivered at the side of the head-supporting partition opposite the tongued pieces preparatory to being fed underneath the head.

Like parts are referred to throughout by the same reference-letters.

A refers to our gluing machine frame, the top of which forms a very open or spreading trough inclined toward the front or discharge end.

B and C refer respectively to pieces of so-called matching, being boards of even length, provided with matched edges as commonly used in the manufacture of boxes.

D refers to a head so-called, which consists of a right-angled plate, having a vertical portion extending transversely of the frame, and a narrower horizontal portion extending forward from the bottom of the vertical portion, as shown clearly in Fig. III. The head is supported by a raised partition N sufficiently above the frame A to allow the pieces of matching to pass singly beneath it, on each side of the partition.

G is a revolving glue-wheel located in a glue tank M, with its upper edge projecting through a slot in the rear of, and slightly to one side of the partition N.

H is a sliding feed frame, located in the rear of the head and adapted to reciprocate longitudinally on the upper surface of the frame A. This feed frame is composed of the side pieces H', H', the guide bars H'', and the connecting cross strips H''', the connecting mechanism of the actuating parts being attached at the projecting rear end of the guide bars H'', as hereinafter described.

The grooved pieces B are piled with the match edge down upon the supporting bar K, which is attached longitudinally to the frame H, with the outer edge raised, as shown in Fig. IV. Retaining brackets I, I' projecting upward from the frame A are adapted to support the pile of matched pieces upon the bar, the bracket I being adapted to release the bottom piece, which is pushed out from under the pile by the follower J, during the forward movement of the feed frame. The released piece, resting in an inclined position on the bar K, is carried down toward the head over the projecting edge of the glue wheel G, and the revolutions of the wheel carry the glue from the tank into the groove, the piece then passing to one side of the partition N. The reverse movement of the feed frame draws the

bar K out from under the glued piece, while the momentum of the piece carries it forward till it strikes against the head and drops in the rear thereof, with the match edge toward the partition. The pieces C are piled upon the opposite side of the partition N, with the match edge toward the partition and the side pieces H' H' of the feed frame H, are adapted, with its forward movement, to push the glued piece B simultaneously with the bottom piece C, past the partition N, and underneath the head, where their ends are trued up by striking against the raised transverse flange O on the pressure bar P, hereinafter described.

It will be observed, that when the machine is in continuous operation, one of the pieces B is always being fed down over the glue wheel, simultaneously with the pushing of the preceding piece B, together with the bottom piece C, under the head, so that each reverse movement of the frame leaves a freshly glued piece in the rear of the head, ready to be fed underneath it with the next forward movement. It will be also observed, that after the pieces have passed under the head, their matched edges are in close proximity, and by adjusting the movement of the feed frame, the distance between the ends of the side pieces H' H', and the flange O, can be made exactly equal to the length of the matching, thus insuring the longitudinal adjustment of both pieces in position to be driven together.

The pressure bar P consists of a flat strip or bar, loosely occupying the central portion of the top of the frame A below the head and is prevented from slipping forward by the flange P', attached to the connecting metallic crossstrip A' of the frame top. The rear end of this pressure bar is adapted to be elevated by the action of the machinery to press the material into a true horizontal position against the under surface of the head, as shown in Fig. III. The block F is simultaneously brought to bear against the piece C, and the hammer strikes the piece B, thus driving them together.

To assist in discharging the united pieces, we have provided a traveler Q, which consists of a flat plate resting in guides underneath the pressure bar, and provided with raised flanges R, R, projecting above the pressure bar on each side thereof. While the pressure bar is elevated as above described, this traveler, with the flanges R, R is drawn rearward by the machinery partially underneath the united pieces, and when the pressure bar drops to its normal position, they rest upon the flanges and are held by them above the flange O. The pieces next fed under the head, strike against the rear of the united pieces and push them over the flange O, thus discharging them from the machine. The pieces last fed, also strike the ends of the flanges R, R and push them to the rear of the flange O, the movement of the pieces being

checked by the latter flange, thus leaving them in position to be driven together, as heretofore described.

The parts above described are actuated by means of the driving shaft S, connected with the source of power. The revolutions of the shaft S are communicated to the glue wheel by means of the belt T and the reciprocal motion of the feed frame H is obtained by means of the crank U, crank-arm U' and lever V, the latter being pivotally connected to the feed frame at its upper end, and to the adjusting bar W at its lower end.

The hammer E is actuated by means of a system of levers X, X' and X'' being attached to the end of the lower lever X'. The crank-arm U' is extended somewhat beyond the point of attachment to the crank and is adapted to strike underneath the lever X, thereby lifting the connected end of the lever, and throwing the hammer back in a position for striking. At the same time the actuating spring Y is distended by the downward movement of that end of the lever X'' to which the hammer is attached, and causes the hammer to strike with a quick independent movement as soon as the crank-arm is withdrawn from beneath the lever X. The movement of the crank and the crank-arm also causes it to strike underneath the downward projecting angle of the lever Z, which actuates the pressure bar P and elevates the bar simultaneously with the backward movement of the hammer E. The bar a, pivoted to the supporting post b of the frame and projecting through the angle of the lever Z, is connected to the post c of the block F by means of the strap d, which is pivoted at its respective ends to the post c and the bar a. The post c being pivotally attached to its lower end to the frame, the elevation of the lever Z is thus adapted to also elevate the bar a and to draw the block F in toward and against the piece adjacent to it, simultaneously with the upward movement of the pressure bar and preparatory to the striking of the hammer. The crank U, after passing the levers X and Z, strikes against the projection e of the lever f which actuates the traveler Q to draw the flanges R R underneath the pieces, as heretofore explained, while the latter are elevated by the pressure bar P.

The hammer E and block F are both capable of adjustment to adapt them to pieces of different lengths, by means of their respective posts being constructed in sections, the upper section g of which can be moved from side to side by loosening the bolt h. By this means the hammer and block can be made to strike the pieces in the center and drive them together with certainty throughout their length. The bracket I' is also capable of adjustment, to vary the distance between it and the bracket I, and the movement of the feed frame is regulated by varying the point of

attachment of the crank-arm U to the lever V, thus adapting the machine to pieces of any given length.

By means of the intervening spring *z* in the lever Z, the pressure bar P is elevated elastically, thus obviating the danger of breaking the parts by means of too great pressure.

The glue wheel G may be composed of the two disks *k k*, between the edges of which a piece of felt or similar material *m* is inserted, the disks being then rigidly bound together on the shaft *n*. The felt projects slightly, forming a rim which easily adjusts itself to the groove in the pieces passed over it and glues it thoroughly. The glue may be kept hot by means of a coil of steam pipes *o*, arranged in or about the glue tank.

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

1. A gluing machine consisting of the combination of a supporting frame provided with a platform or top, a reciprocating feed frame adapted to slide upon said platform and to automatically feed pieces of matching into an appropriate position upon said platform to be driven together and united, means for gluing the match edge of one or both of said pieces, a block adapted to automatically form contact with, and hold the outer edge of one of the pieces, and a hammer adapted to automatically strike or press against the outer edge of the other piece and to drive the pieces into union, substantially as described.

2. A gluing machine consisting of the combination of a slide-way, a head mounted thereon with space between it and the way adapted for the passage of pieces of matching, a feed slide mounted on said way and adapted to push pieces of matching underneath said head, means for gluing the match edge of said pieces, and a pressure bar adapted to elevate said pieces and press them against the under surface of said head, together with means for driving or pressing the pieces into union, substantially as described.

3. A gluing machine, consisting of the combination of a glue receiver or tank, a slide-way over said tank, a revoluble glue wheel adapted to project through the slide-way and to penetrate the surface of the glue in said tank, a head supported above said slide-way, a reciprocating slide adapted to feed pieces

of matching successively over said glue wheel and to deliver them in the rear of the head, side bars attached to the feed slide adapted to push the glued pieces with their unglued counterparts underneath the head, a stop adapted to check the movement of the pieces, and means for forcing the pieces into union, together with mechanism for connecting the movable parts with the driving shaft, substantially as described.

4. A gluing machine consisting of the combination of the supporting frame, the glue tank supported thereby and the reciprocating feed frame mounted thereon, provided with the feed bar J and follower K, and having connecting mechanism with the main shaft, the brackets I, I' attached to said frame and adapted to support the pieces of matching upon said feed bar, the revoluble glue wheel supported by said tank and projecting in the path of the released pieces, the head attached to said frame, and the pressure bar provided with the flange O, adapted to align the counterpart pieces as they are pushed against it by the feed frame, and means for forcing the aligned pieces into union, substantially as described.

5. A gluing machine consisting of the combination of the supporting frame, the glue tank supported thereby the revoluble glue wheel supported by said tank, the head attached to said frame, and the reciprocating feed slide mounted upon said frame and adapted to feed pieces of matching over said glue wheel and underneath said head, the pressure bar provided with the flange or stop against which said pieces are adapted to be pushed, means for forcing the fed pieces into union, and a traveler provided with flanges projecting above the pressure bar and stop O and adapted to be drawn underneath the end of the united pieces to facilitate their discharge, together with mechanism connecting the driving shaft thereto, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOHN W. MABIN.
DEO C. MUNGER.

Witnesses:

JOHN A. KLOPF,
MORTON D. CASSIDY.