No. 740,000. PATENTED SEPT. 29, 1903.

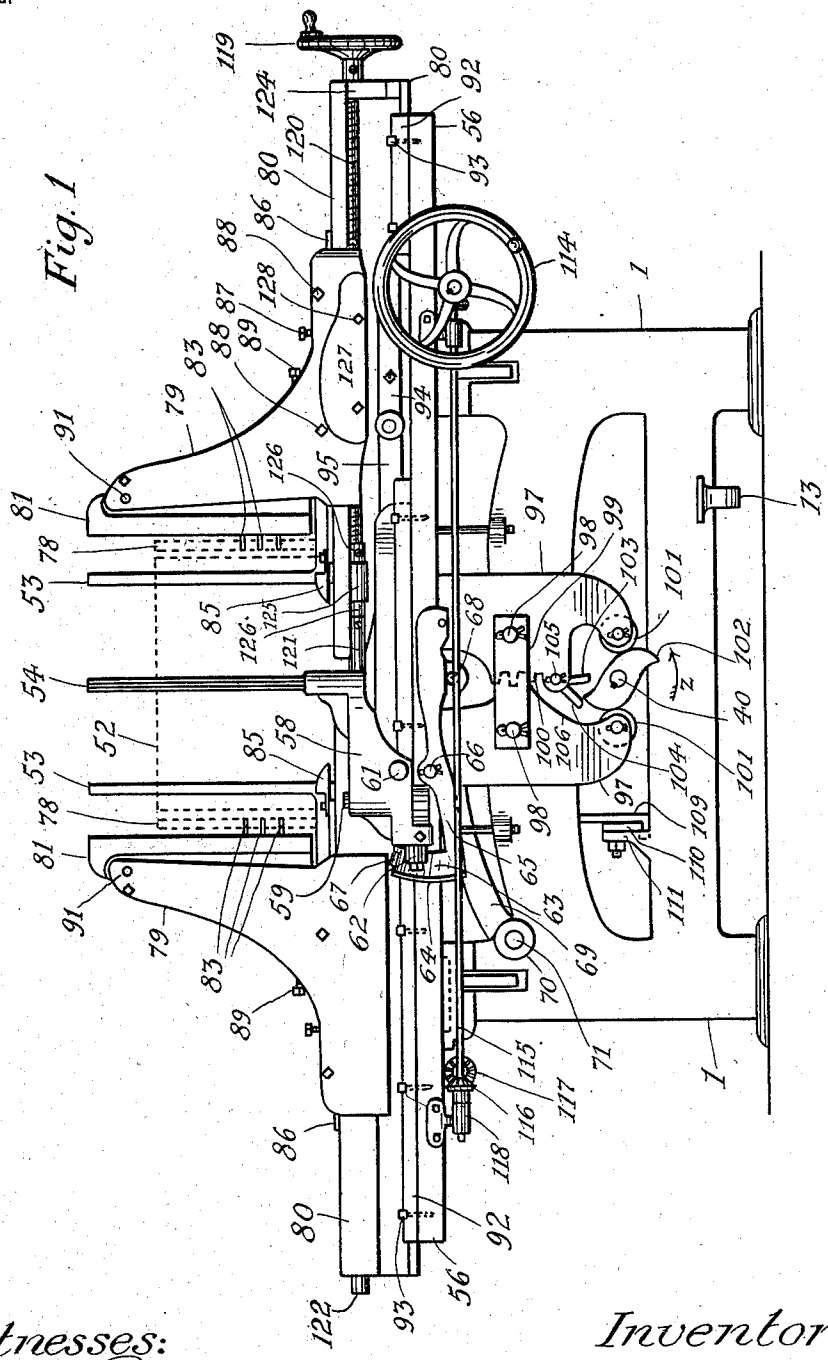
J. E. ERICKSON.

DOVETAIL BOX SETTING-UP MACHINE.

APPLICATION FILED OCT. 13, 1902.

NO MODEL. 5 SHEETS—SHEET 1.

Fig. 1



Witnesses:
Theo. Legaard
H. A. Bowman.

Inventor:
John E. Erickson
By P. H. Gunckel
his Attorney.

THE NORRIS PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

No. 740,000. PATENTED SEPT. 29, 1903.

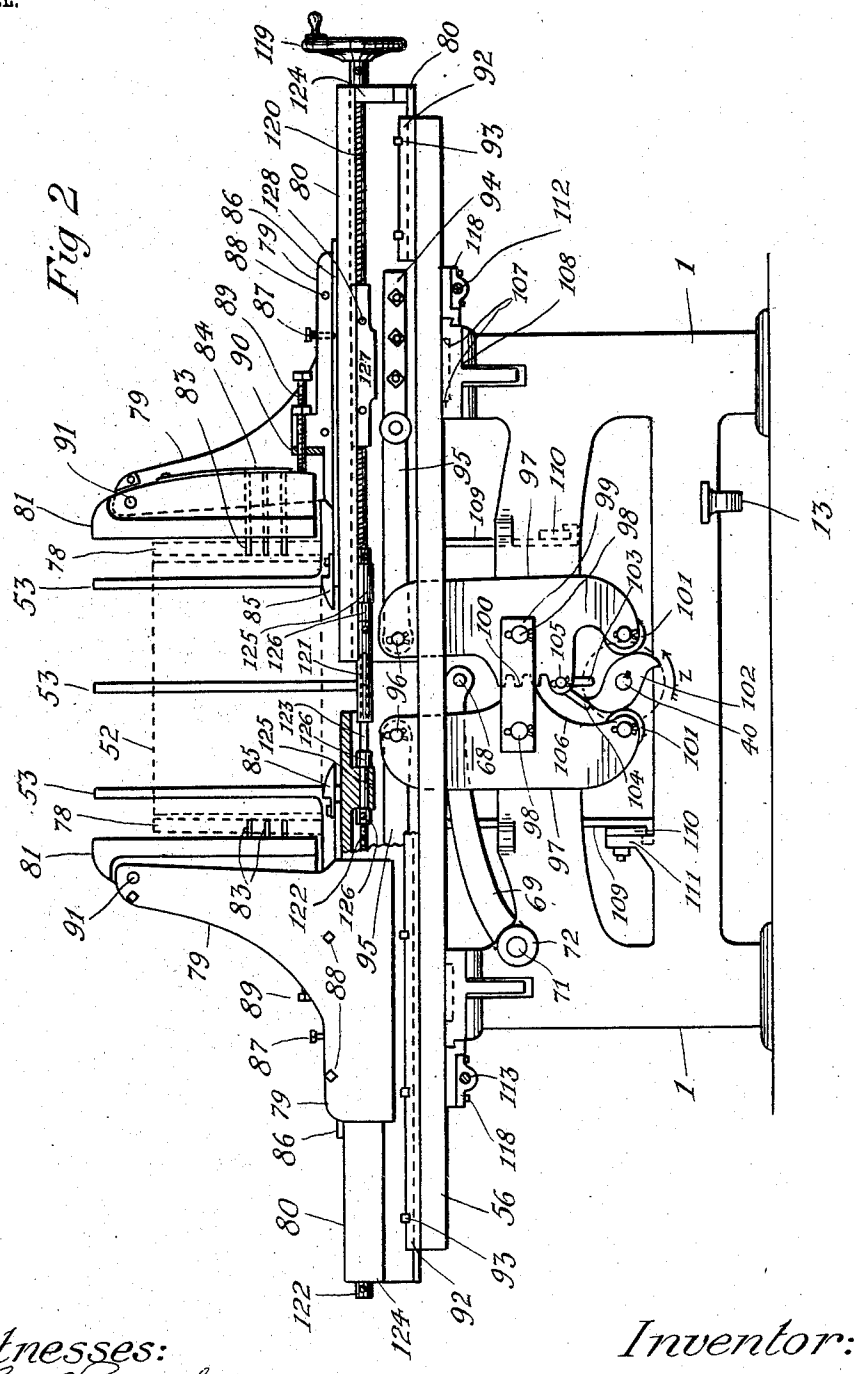
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NO MODEL. 5 SHEETS—SHEET 2.

Fig 2



Witnesses:
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H. A. Bowman.

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NO MODEL. 5 SHEETS—SHEET 3.

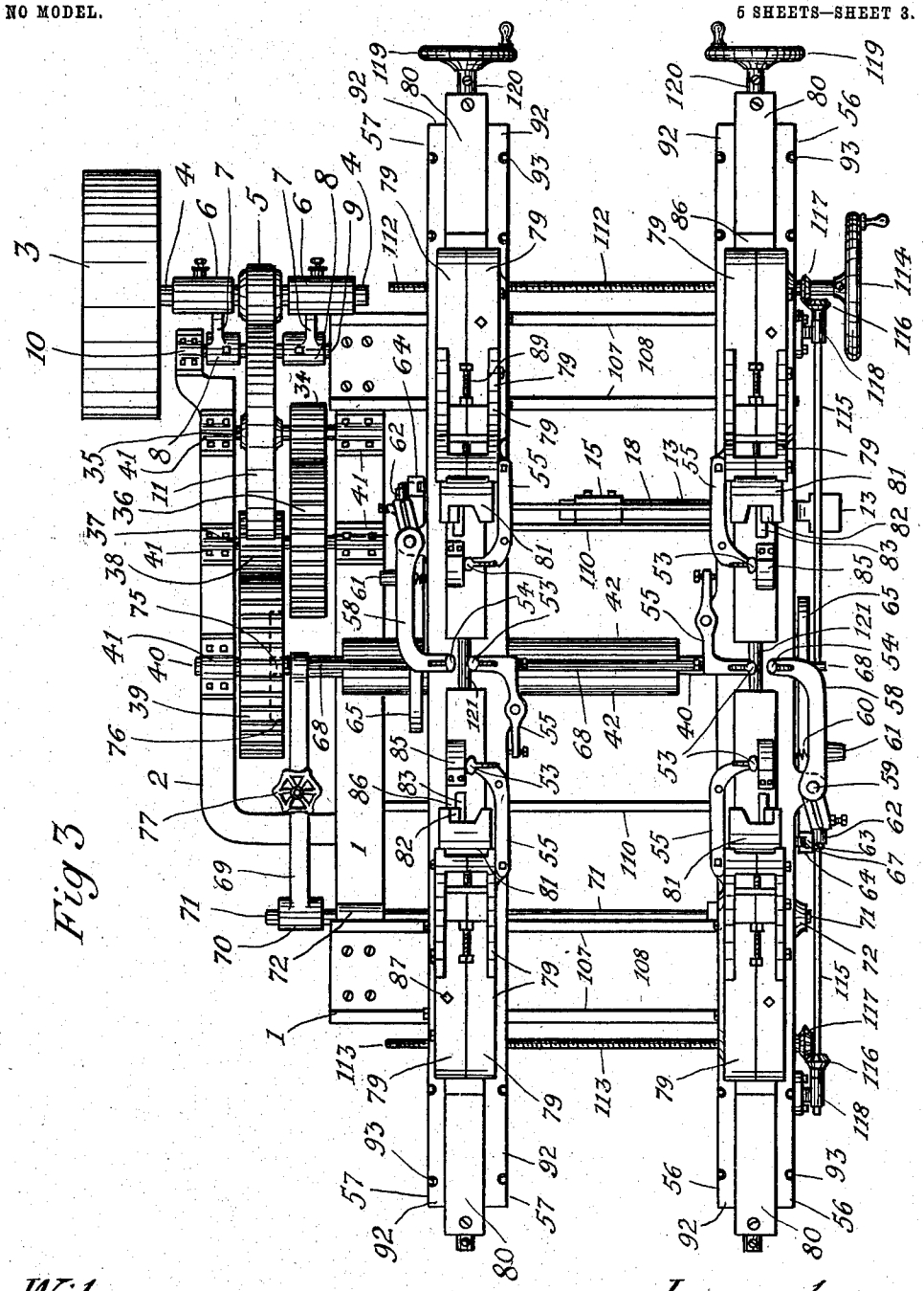


Fig 3

Witnesses
Thos. Lagard
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Inventor
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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APPLICATION FILED OCT. 13, 1902.

NO MODEL 5 SHEETS—SHEET 4.

Fig.4

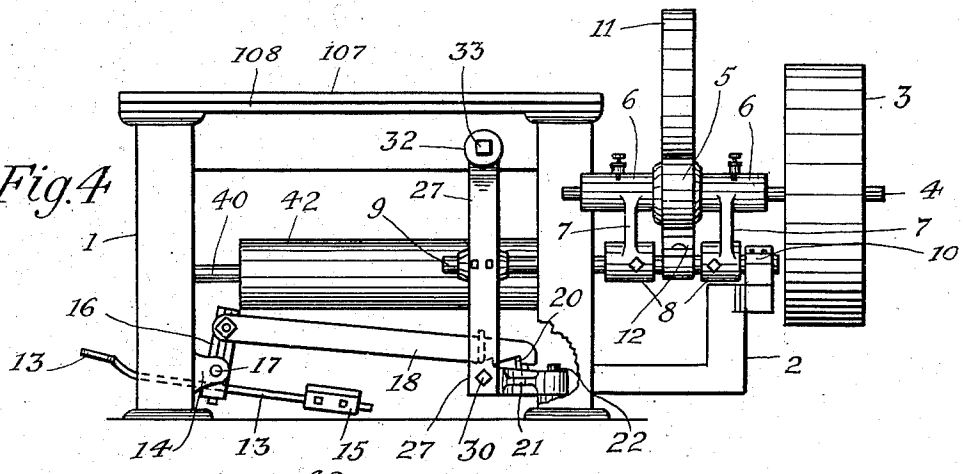


Fig.5

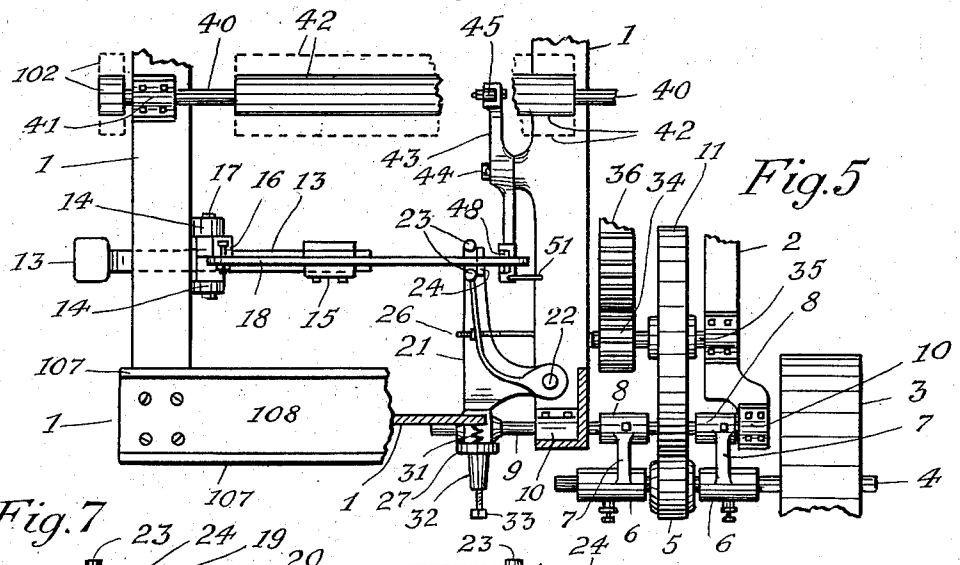


Fig.7

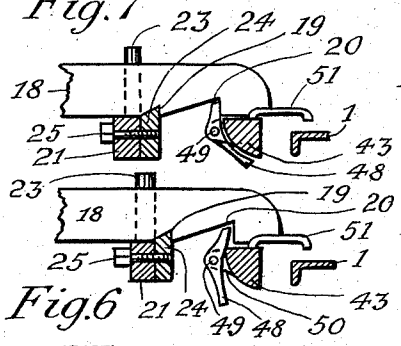


Fig.9

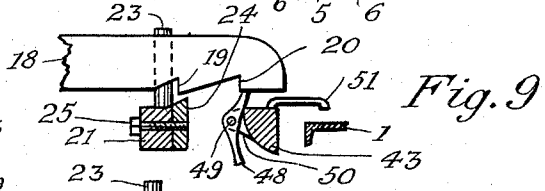
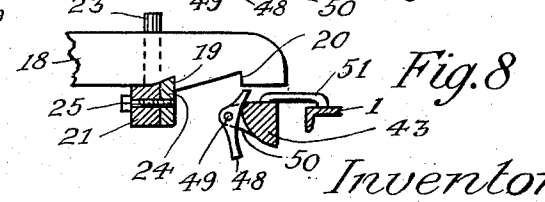


Fig.8



Witnesses

Thos. Lagaard

H. A. Bowman.

Inventor

John E. Erickson

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his Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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DOVETAIL BOX SETTING-UP MACHINE.

APPLICATION FILED OCT. 13, 1902.

NO MODEL. 5 SHEETS—SHEET 5.

Fig. 13

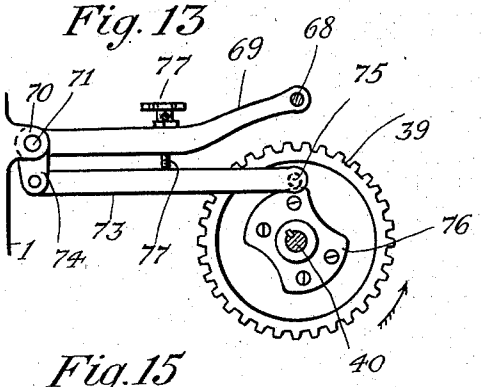


Fig. 10

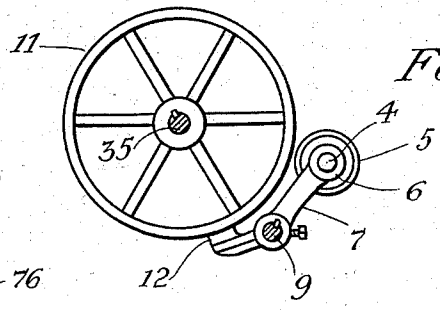
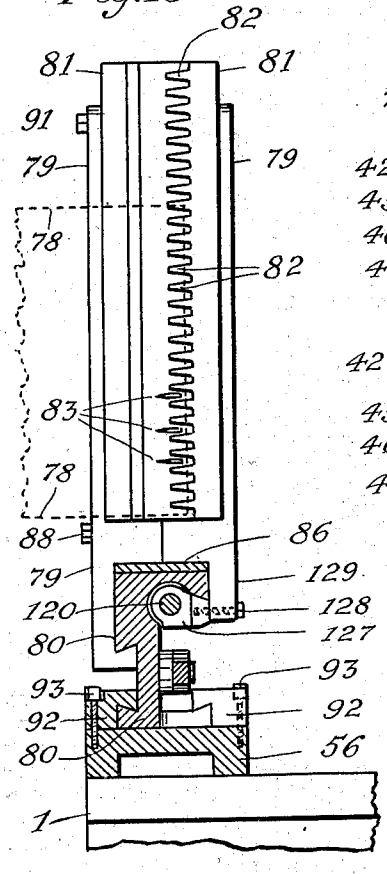


Fig. 15



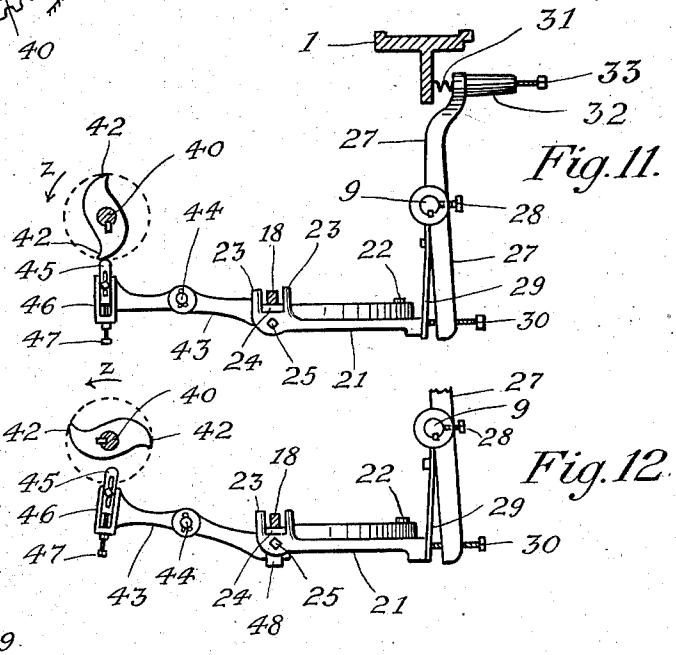
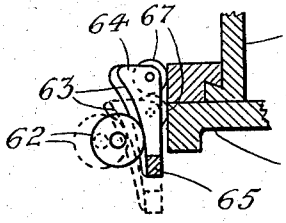


Fig. 11.

Fig. 12.

Fig. 14



Witnesses:
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H. A. Bowman.

Inventor:
John E. Erickson
By P. H. Gunckel
his Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 740,000. Patented September 29, 1903.

UNITED STATES PATENT OFFICE.

JOHN E. ERICKSON, OF ST. PAUL, MINNESOTA, ASSIGNOR OF THREE-EIGHTHS TO HARALD J. LOHRBAUAR, WALTER B. KELLY, AND JOHANNES LOHRBAUAR, OF ST. PAUL, MINNESOTA.

DOVETAIL-BOX-SETTING-UP MACHINE.

SPECIFICATION forming part of Letters Patent No. 740,000, dated September 29, 1903.

Application filed October 13, 1902. Serial No. 127,077. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. ERICKSON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Dovetail-Box-Setting-Up Machines, of which the following is a specification.

My invention relates to machines for uniting the sides and ends of boxes having dovetail joints.

The object of the invention is to provide a machine adapted to hold the box sides and ends in planes at right angles to each other and facilitate the operation of uniting them to form the box.

My improved machine includes means for rigidly supporting the box sides in parallel vertical planes; means for supporting the box ends in vertical planes at right angles to the sides; means for simultaneously pressing both end boards against the ends of the side boards to press the dovetail tenons into the corresponding grooves to unite the box sides and ends; means for automatically releasing the pressure devices when the box members have been thus joined, and means for adjusting appropriate parts of the machine to adapt it for boxes of different widths and lengths. Such machine is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the machine. Fig. 2 is also a front elevation, portions of the machine being broken away to disclose interior features. Fig. 3 is a plan view. Fig. 4 is an end elevation from the right of Figs. 1 to 3, showing in detached view the means for starting and stopping the operation of the machine. Fig. 5 is a plan view of the devices shown in Fig. 4. Figs. 6 to 9 are details of the devices shown in Figs. 4 and 5 for starting and stopping the machine. Fig. 10 is a detail view of the friction and brake devices shown in Figs. 4 and 5. Figs. 11 and 12 are detail views of other of the devices for controlling the operation of the machine shown in Figs. 4 and 5. Fig. 13 is a detail view of the eccentric device which sets in motion the mechanism for exerting lateral pressure on the box sides. Fig. 14 is also a detail of one of the devices for actuating the clamps for the box sides, and Fig. 15 is a detached view of one of the box-end holders and its support and carriage.

In the drawings, 1 designates the main frame of the machine, of rectangular shape, and 2 a rearward extension for the support, in part, of the driving-gear. The driving-pulley 3 is on a shaft 4, that carries also a small friction-wheel 5. This shaft is journaled in boxes 6 at both sides of the friction-wheel, and the boxes are formed on arms 7, that extend laterally from sleeves 8, that are keyed to a rock-shaft 9, and the latter shaft is journaled in boxes 10 on the frames 1 and 2. The pulley 3, shaft 4, and friction-wheel 5 run continuously when the machine is in use, and the operative mechanisms are set in motion by means of the wheel 5, the position of which is controlled by the rocking of the shaft 9, and the wheel transmits motion to the machine by periodical contact with a larger friction-wheel 11. The shaft 9 also carries a brake 12, set at a suitable inclination to the arms 7 on the opposite side of the shaft to alternate with the wheel 5 in contacting with the wheel 11.

The rocking of the shaft 9 to bring the friction-wheels in contact is effected by the operation of a foot-lever 13 at the front of the machine. This lever is indirectly fulcrumed to a bracket 14 on a lower cross-bar of the main frame, and on its inner end is provided an adjustable counterweight 15 to serve as an aid in returning the lever and connecting parts to initial position. On the body of the lever and at right angles to it is an upward arm 16, which is fulcrumed by the pins 17 between the bifurcations of the bracket 14.

To the upper portion of the arm 16 is pivotally connected a bar 18, that extends in nearly horizontal direction toward the rear of the machine. Near the inner end the bar has at its under side two notches 19 and 20, and beneath and at right angles to the bar and in position to be engaged by the notch 19 is a plate 21, that is pivoted at 22 to a cross-piece of the main frame. The bar 18 seats loosely between a pair of studs 23, projecting upward from the plate 21, and a beveled catch 24, attached by bolts 25 to or formed on the plate, is arranged to engage in the notch 19, so that when the bar is drawn toward the front by the operation of the foot-lever 13

the engagement of the catch 24 will serve to swing the plate 21 on its pivot 22. The extent of the swinging return movement of the plate 21 is regulated by an adjustable stop 26, carried on the plate and arranged to strike the frame-piece, to which the plate is pivoted.

The opposite end of the swinging plate 21 is made to contact with the lower end of a vertical lever 27, placed at right angles to the axis of the plate and the fulcrum of which is the rock-shaft 9, to which it is made fast by a set-screw 28, key, or other means. For the purposes of adjustment of the contact end of the lever 27 with reference to the part 21 it is provided with a plate 29 and a screw 30 for adjusting it. The movement of the lever by the throw of the plate 21 serves to turn the shaft 9 sufficiently to move the friction-wheel 5 to operative contact with the wheel 11.

For the purpose of separating the friction-gear and applying the brake 12 to the wheel 11 the upper end of the lever 27 carries a spring 31, that bears against a part of the main frame and is seated in a socket-piece 32 against the end of a screw 33, by means of which the spring-pressure can be regulated. When the bar 18 is lifted sufficiently to free the catch 24 from the notch 19, the plate 21 and the lever 27 are free to be moved, and the force of the spring 31 serves to swing the latter and thereby rock the shaft 9 to free the friction-gears and apply the brake.

The gearing by which the box holding and pressing devices are actuated consists of a pinion 34 on the shaft 35 of the friction-wheel 11, a gear-wheel 36 on a shaft 37 in mesh with the pinion 34, and a pinion 38 on the shaft 37 in mesh with the gear-wheel 39 on a shaft 40, all of the shafts named being mounted in boxes 41 on the frame parts 1 and 2. The shaft 40 is that which communicates motion directly to the clamping and pressing devices and also constitutes a cam-shaft, by means of which the bar 18 is automatically freed from the catch 24, when the clamping and pressing operations are completed, to permit the friction-gears to be separated and the brake applied.

The devices are as follows: On the shaft 40 is a longitudinally-extended cam-surface, providing diametrically opposite cams or wipers 42, and beneath them is a lever 43, pivoted at 44 to a cross-piece of the main frame and having one end in position to be engaged by the wipers and the other in position to engage the foot-lever-connecting bar 18. The end of the lever 43 that is acted upon by the wipers carries a sliding contact-head 45, that can be adjusted in a socket-piece 46, by means of a screw 47, to regulate the throw of the lever. The other end of the lever carries a gravitating dog 48, that is connected by a pivot 49 to a lug 50 at the side of the lever. The lower inner portion of the lever is cut away to permit the weighted portion of the dog to swing beneath it. The tooth of the dog is so placed as to engage in the notch 20 in the bar 18. The end of the lever 43 is provided with a projection 51, which engages a portion of the frame 1 to serve as a stop and limit the descent of that end of the lever. When the machine is at rest, the positions of these parts are as shown in Fig. 6. Pressure then upon the foot-lever will draw the bar 18 forward, and its contact with the dog 48 will turn it from the position shown in Fig. 6 to that shown in Fig. 7, and when the machinery has been started by such movement of the bar 18 and the lever 43 is free from the action of one of the wipers 42, as shown in Fig. 12, the lever will tilt by gravity and free the tooth of the dog from the notch 20 and allow it to swing to the position shown in Fig. 8, and when the other wiper then contacts with the lever, as in Fig. 11, the latter will again be operated, and the dog will engage the under surface of the bar 18 and lift it to free it from contact with the plate 21, as indicated in Fig. 9, thereby permitting the spring 31 to operate to disconnect the friction-gear and set the brake. When the pressure upon the foot-lever ceases, the counterweight 15 will cause the bar 18 to return from the position shown in Fig. 9 to that shown in Fig. 6. It will be understood from the foregoing that while pressure upon the foot-lever is required to start the machine its operation will cease automatically at the proper time regardless of a continuation of such pressure.

The box sides 52 (shown by broken lines) are supported in opposite parallel vertical planes between fixed standards 53 and movable clamping-standards 54. The fixed standards are formed on plates or pieces 55, that are adjustably secured the one set to the horizontal stationary top part 56 of the main frame and the other set to the laterally-slidable top portion 57 of the frame.

The movable standards 54 are formed or secured on the inner ends of bent carrier-plates 58, outer portions of which plates are pivoted to lugs on the frame parts 56 and 57, as shown at 59. Springs 60, seated in sockets 61, formed on the carriers 58, bear, respectively, against the frame parts 56 and 57 and tend to move the carriers outward. On the outer ends of the carrier-plates are rollers 62, which bear against upwardly-inclined surfaces 63, formed on the upright ends 64 of horizontally-arranged levers 65. These levers are pivoted at 66 to the frame parts 56 and 57, and their upright portions 64 are provided with anti-friction-rollers 67, which bear on the surfaces of the parts 56 and 57. When the lever ends 64 are moved downward, their inclined surfaces 63 engage the rollers 62, and thereby swing the standard-carriers 58 on their pivots and move the standards 54 toward the standards 53 and clamp the interposed box side boards 52. To accomplish such movement of the levers 65, a lifting-rod 68 is provided, which is carried by arms 69, extending laterally from sleeves 70, that are keyed to a transverse shaft 71, that turns in journal-

boxes 72 on the main frame. The arm 69 at the rear of the machine overhangs a bar 73, that is pivoted to a bracket 74 beneath the sleeve 70, and on the inner end of the bar is provided a pin or roller 75, which rides on the surface of the cam-disk 76, formed around the hub of the gear-wheel 39. An adjusting-screw 77 on the arm 69 seats on the surface of the bar 73 and serves to lift the arm when the bar rises, and the former drops by gravity when the latter is lowered. The movement of the arm 69 at the rear is transmitted to the arm at the front of the machine by the action of the shaft 71, to which both arms are fast.

The arrangement of the surfaces of the cam 76 is such that when the machine is at rest the pin 75 will be in one of the cam-depressions, which will permit the rod 68 to descend and allow the spring 60 to retract the standards 54, thus providing ample space for inserting the box sides between the standards. Upon starting the gear-wheel 39 the pin 75 will rise to the periphery of the disk 76 and cause the movable standards to clamp the boards against the fixed standards and hold them in place to receive the box ends.

The end boards 78 of the box (shown by broken lines) are held in upright position at right angles to the side boards between knees 79, adjustably secured on the sliding carriages 80. On the faces of the knees are secured upright blocks 81, which are provided with a series of teeth or projections 82, against which the tenons of the box end abut to reinforce them and prevent them from breaking when they are forced in place in the mortises of the sides. For holding the end pieces in proper position relative to the sides sliding tongues 83, adapted to enter the mortises of the end pieces, are made to project at intervals between the projections 82, and they are backed by springs 84, provided on the blocks 81, which permit them to yield and be thrust out of the way by contact with the tenons of the sides. The lower edges of the box sides rest on supports 85, which may yield slightly downward when required and which are carried on the inner ends of plates 86, which are adjustably connected to the knee-bases by screws 87. For convenience of construction the knees 79 are made of two corresponding vertical parts bolted together by bolts 88. Screws 89, operating through vertical projections 90 on the knees, provide an adjustable backing for the blocks 81, which are connected by pivots 91 to top portions of the knee sides, in order that the blocks can be adjusted to inclined positions for service in setting up boxes of tapering shapes.

The carriages 80, by means of which the knees 79 are reciprocated, are arranged to slide in ways provided by guide-pieces 92, secured on the frame members 56 and 57 by bolts 93, and the mechanism for reciprocating the carriages is as follows: To the sides of the carriages are bolted plates 94, to the inner ends of which are pivoted bars 95, which in turn are pivotally connected at 96 to the upper portions of pivoted coöperating plates or levers 97. The front pair of these levers is supported on a cross-piece of the main frame and the rear pair on a depending bracket provided on the adjustable frame member 57. The levers are connected to their respective supports by pivots 98, which pass through exterior shield-plates 99 to the supports. The adjoining portions of the pairs of levers between their pivots have intermeshing cogs 100, which aid in producing simultaneous and equal lever movements. The lower lever portions carry rollers 101, that face each other and are engaged by cams for moving those portions of the levers apart to cause the upper portions to approach each other, and thereby draw the carriages 80 inward. The cam-body 42 on the shaft 40 is that which engages the inner pair of levers 97, and a cam or wiper 102 of like shape in cross-section is provided on the front end of the same shaft for operating the forward pair of levers.

When the shaft 40 is rotated by the gear-wheel 39, it turns the cams 42 and 102 in the direction of the arrows *x*, and thereby thrusts apart the lower arms of the levers 97 and correspondingly moves the upper arms toward each other, which movement in turn draws the carriages 80 toward the middle to cause the knee-blocks to press the ends to contact with the sides of the box.

The retraction of the carriages 80 is effected by the further rotation of the cams 42 and 102 (as from the horizontal position indicated in Fig. 12 to the vertical position in Fig. 11) to cause their engagement with bifurcated lifting devices having rigidly-connected legs 103 and 104, which are attached by pivots 105 to one of the lower arms of the levers 97. As the cams revolve they contact with the legs 103 of the lifter and move them upward in ares of which the pivots 98 and 105 are the centers, and the legs 104 are made to bear against the concaved walls 106 of the opposite lever 97. The cogs 100 coöperate with the lifter-legs in turning the two levers 97 oppositely on their fulcrums. Such movements obviously will serve to correspondingly slide the carriages 80. The movement of the cams 42 and 102 is controlled by the mechanism for starting and stopping the pressure devices heretofore described.

To adjust the machine for boxes of different widths, the frame part 57 is made slidable toward or away from the part 56, between guide-ribs 107, formed on transverse top frame-pieces 108. Upward displacement of the sliding member 57 is prevented by hangers 109, attached thereto and arranged to engage and slide along the under edges of transverse bars 110, that are bolted to lugs 111 on the frame 1. Adjustment of the part 57 with respect to the part 56 is effected by the screws 112 and 113, the former being turned directly by the hand-wheel 114 and the latter by means of a connecting-rod 115, the ends of

which carry bevel-gears 116, that mesh with like gears 117 on the shanks of the screws 112 and 113, and the rod turns in bearing-boxes 118, secured to the main frame. The turning of the hand-wheel will obviously serve to move both ends of the part 57 equally at the same time. It will be noted that the cam device 42 is made relatively long in order that it may perform its functions in whatever position of adjustment the mechanisms carried on the part 57 may be placed.

Adjustment of the knees 79 on the carriages 80 is effected by turning the hand-wheels 119. These hand-wheels are on the shanks of screws 120, that extend centrally into the carriages and have secured to their inner ends socket-pieces 121, having square or other angular sockets. In the other pair of carriages are reversely-threaded screws 122, having their inner ends 123 of angular shape and arranged to slide but not to turn within the socket-pieces 121. Both sets of screws are loosely supported in the outer heads 124 of the carriages and in depending sleeves 125, near their inner ends. At opposite sides of the sleeves 125 collars 126 are secured to the screws to prevent endwise movement of the screws in their supports. The screws 120 and 122 turn operatively in elongated nuts 127, that are secured by bolts 128 to pendent flanges 129 on the knees. The knees slide on the surface and the nuts slide within the hollow bodies of the carriages, as illustrated in Fig. 15. The screws 120 directly operate the nuts 127, which they engage to advance or retract the adjacent knees, while the nuts for the other pair of knees are actuated by the second and reversely-threaded pair of screws 122 by reason of the contact of their angular ends in the socket-pieces 121. By these means the coöperating knees can be simultaneously adjusted in opposite directions by turning the hand-wheel 119 to arrange them for service in setting up boxes of different lengths.

In use, the box sides and ends having been placed in their respective positions in the machine, the operator presses upon the foot-lever, and thereby draws the bar 18 toward the front of the machine, which swings the lever connections 21 and 27 and causes the friction-gear to contact and starts the mechanisms of the machine. The first operative effect is that caused by the action of the cam 76, which serves to tilt the levers 65, and thereby operate the standard-carriers 58 to clamp the box sides between the movable and fixed standards. The same rotation of the shaft 40 starts the revolution of the cams 42 and 102, and their action upon the lever devices 97 causes the carriages 80 and the knees 79, they carry, to gradually approach each other to bring the end boards to contact with the clamped and stationary side boards. The tenons of the one board are pressed steadily into the corresponding mortises of the other, and the tenons of the end boards are protected from breaking by the reinforcing-block projections 32.

The mechanisms are so adjusted that immediately upon completion of the joining of the boards the action of the cams 42 and 102 upon the levers 97 will cease and be followed quickly by their operation of the lifting devices 103 and 104 to effect a retraction of the carriages. Concurrently with the latter operation the cam 76 will complete its action upon the clamping devices and allow the springs 60 to release the clamps from the box sides. When the carriages have been moved back to initial positions, the friction-gears will have been separated and the brake applied to stop the machine in the manner heretofore explained.

It will be apparent that many of the details of structure may be modified or varied without changing the mode of operation of the machine. Therefore I do not wish to confine myself to the specific forms of devices shown and described.

What I claim is—

1. In a machine for setting up dovetail boxes, means for supporting and for automatically clamping the side boards in parallel vertical planes, means for supporting the end boards and for thrusting them simultaneously against the side boards to press the tenons of the one into the mortises of the other, and means for causing the automatic release of the clamps from the box sides, substantially as set forth.

2. In a machine for setting up dovetail boxes, means for supporting and for automatically clamping the side boards in parallel vertical planes, means for supporting the end boards and for thrusting them simultaneously against the side boards to press the tenons of the one into the mortises of the other, and means for causing the automatic release of the clamps from the united box members, substantially as set forth.

3. In a machine for setting up dovetail boxes, means for supporting and for automatically clamping the side boards in parallel vertical planes, means for supporting the end boards in vertical planes at right angles to the planes of the sides, means operating automatically for thrusting them simultaneously against the side boards to press the tenons of the one into the mortises of the other, and means for causing the simultaneous automatic retraction of the end-board-thrusting devices and side-board clamps, substantially as set forth.

4. In a machine for setting up dovetail boxes, means for supporting the box sides and ends in vertical planes at right angles to each other, means under control of an operator for starting the machine, and automatic means actuated by the machine for clamping, uniting, and releasing the box members and for stopping the machine, substantially as set forth.

5. In a machine for setting up dovetail

boxes, means for supporting and for automatically clamping the side boards in parallel vertical planes, means for supporting the end boards in planes at right angles to the side boards and for thrusting them to contact with the latter to force the tenons into the mortises, controllable means for starting the machine, and automatic means actuated by the machine for clamping and uniting the box members and for releasing the box, and for stopping the machine, substantially as set forth.

6. In a machine for setting up dovetail boxes, means for supporting the box sides and ends in vertical planes at right angles to each other, means under control of an operator for starting the machine, and automatically-operating means for clamping the box sides in place, for moving the ends to contact with the sides to unite them, for releasing the united box, and for stopping the operation of the machine, substantially as set forth.

7. In a machine for setting up dovetail boxes, means for supporting the box sides and ends in vertical planes at right angles to each other, means under control of an operator for starting the machine, automatically-operating clamps for the box sides, automatic reciprocating carriages for the box ends, and automatically-operated means for releasing the box and stopping the machine, substantially as set forth.

8. In a machine for setting up dovetail boxes, in combination, means for supporting and for automatically clamping the side boards in parallel vertical planes, means for supporting the end boards in vertical planes at right angles to the side boards and for thrusting them simultaneously against the side boards to press the tenons of the one into the mortises of the other, means for causing the automatic release of the box sides, and means for causing the simultaneous release of the end-board-thrusting devices from the box ends, substantially as set forth.

9. In a machine for setting up dovetail boxes, in combination, means for supporting the side boards in parallel vertical planes, means for supporting the end boards in vertical planes at right angles to the side boards and for thrusting them simultaneously against the side boards to press the tenons of the one into the mortises of the other, means for causing the automatic release of the box sides, and means for causing the simultaneous release of the end-board-thrusting devices from the box ends, substantially as set forth.

10. In a machine for setting up dovetail boxes, means for supporting the box sides and ends in vertical planes at right angles to each other, reciprocating carriages for thrusting the box ends to contact with the box sides, pivoted levers connected to the carriages, cams intermediate the levers for operating them, controllable means for starting the machine to operate the cams, and automatically-operating means for stopping the machine, substantially as set forth.

11. In a machine for setting up dovetail boxes, means for supporting the box sides and ends in vertical planes at right angles to each other, automatically-operating clamps for holding the box sides in place while the machine is operating, reciprocating carriages for thrusting the box ends to contact with the box sides, pivoted levers connected to the carriages, cams intermediate the levers for operating them, controllable means for starting the machine to operate the cams, and automatically-operating means for stopping the machine, substantially as set forth.

12. In a machine for setting up dovetail boxes, means for supporting the box sides in upright parallel positions, carriages for supporting the box ends at right angles to the sides, pivoted levers connected to the carriages for reciprocating them, cams intermediate the levers for operating them to move the carriages inward, and devices engaged by the cams in their further movement for retracting the carriages, substantially as set forth.

13. In a machine for setting up dovetail boxes, means for supporting the box sides in upright parallel positions, carriages for thrusting the box ends to contact with the box sides, knees on the carriages for supporting the box ends, yielding tongues provided thereon for entering the mortises of the box ends to hold the latter in place, and means for reciprocating the carriages to unite the box ends and sides, substantially as set forth.

14. In a machine for setting up dovetail boxes, means for supporting the box sides in upright parallel positions, carriages for thrusting the box ends to contact with the box sides, knees on the carriages for supporting the box ends, projections provided thereon abutting the tenons of the box ends, yielding tongues intervening said projections for entering the mortises of the box ends to hold the latter in place, and means for reciprocating the carriages to unite the box ends and sides, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 10th day of October, 1902.

JOHN E. ERICKSON.

Witnesses:
F. LOHRBAUER,
J. LOHRBAUER.

Corrections in Letters Patent No. 740,000.

It is hereby certified that in Letters Patent No. 740,000, granted September 29, 1903, upon the application of John E. Erickson, of St. Paul, Minnesota, for an improvement in "Dovetail-Box-Setting-up Machines," errors appear requiring the following corrections, viz: In the grant and in the printed head of the specification, it is stated that said Erickson assigned three-eighths to Harald J. Lohrbauar, Walter B. Kelly, and Johannes Lohrbauar, of St. Paul, Minnesota, whereas it should have been stated that he assigned *eleven-sixteenths* to said parties, and that the name of the assignees, "Lohrbauar," should have been spelled *Lohrbauer;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 10th day of November, A. D., 1903.

[SEAL.]

F. I. ALLEN,

Commissioner of Patents.