(No Model.) 2 Sheets—Sheet 1.

G. LUPPERT.

MACHINE FOR PREPARING RAIL PIECES OF BUREAUS, &c.

No. 265,523. Patented Oct. 3, 1882.

Fig. 1.

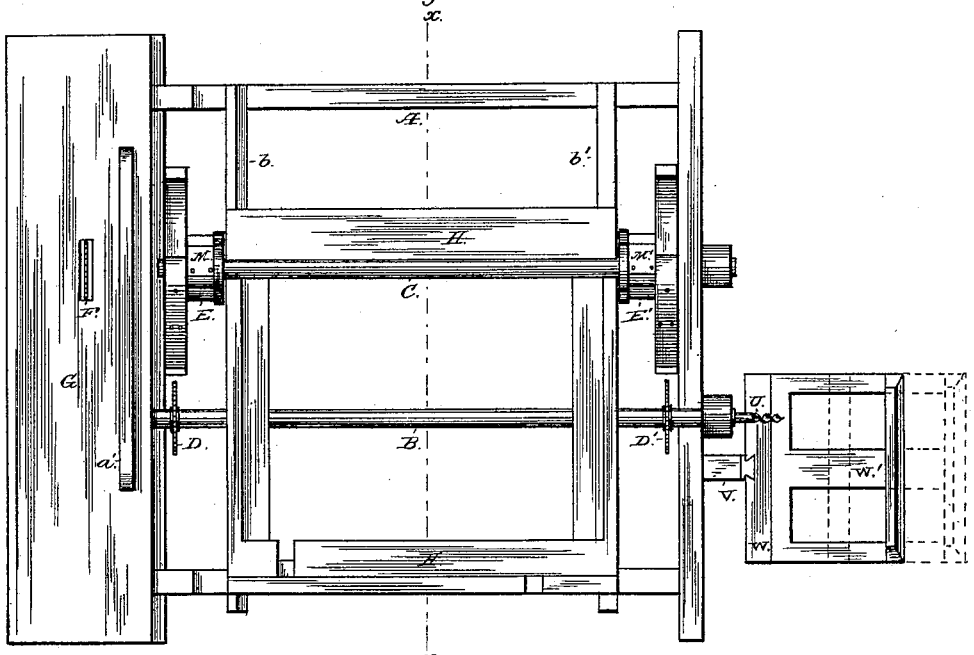


Fig. 6.

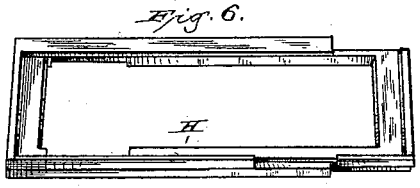
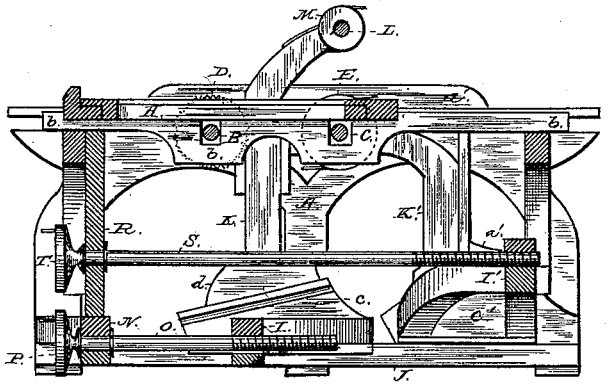


Fig. 2.



WITNESSES

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John C. Schroeder.

INVENTOR

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

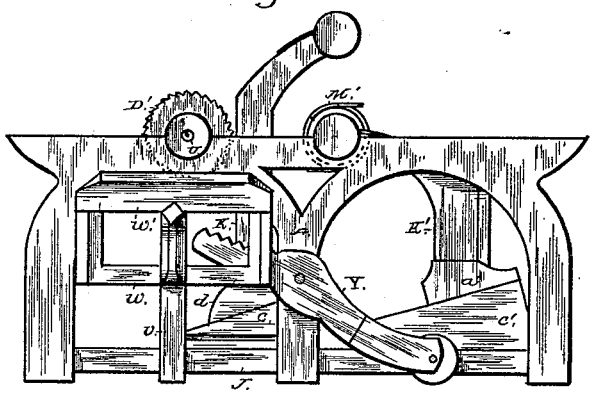


Fig. 4.

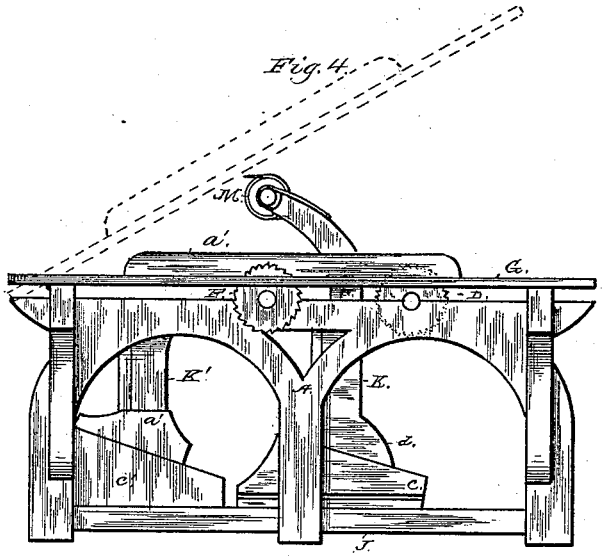
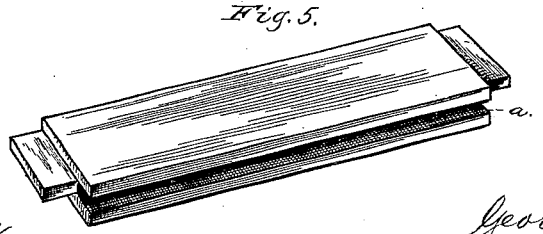


Fig. 5.



WITNESSES

J. C. Clark.

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UNITED STATES PATENT OFFICE.

GEORGE LUPPERT, OF WILLIAMSPORT, PENNSYLVANIA.

MACHINE FOR PREPARING RAIL-PIECES OF BUREAUS, &c.

SPECIFICATION forming part of Letters Patent No. 265,523, dated October 3, 1882.

Application filed May 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LUPPERT, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Machine for Preparing Rail-Pieces of Bureaus, Wash-Stands, &c.; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The invention involved in the subject-matter of this specification relates to that class of machines employed in the preparation of rail-pieces used in forming the frames of bureaus, wash-stands, and other similar articles of manufacture; and the object is essentially to produce a machine which will effect simultaneously the formation of a complete tenon on both ends of the rail-piece in addition to the combined work of cutting, grooving, and boring.

To accomplish these results the invention consists in the peculiar construction and arrangement of the essential and operative parts of the machine, and in the various combinations of such parts, as will be more fully hereinafter set forth, and designated by the claims.

In order that the invention may be thoroughly understood, and to enable those skilled in its relative art to know how to construct and use the same, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a top plan view of the machine complete; Fig. 2, a vertical central section on the line *x x* of Fig. 1, showing clearly the mechanism for vertically adjusting the cutter-heads to regulate the thickness of the tenon; Fig. 3, an elevation of the end where the driving-power is applied; Fig. 4, an elevation of the end opposite to that shown in Fig. 3; Fig. 5, a view complete of the rail-piece as produced by this machine, and Fig. 6 is a view in detail of the extensible carriage H.

Like letters denote corresponding parts in each figure of the drawings.

A represents the frame of the machine, of any suitable construction capable of accommodating and supporting the various operative parts thereof.

B and C represent mandrels, having suitable bearings in frame A at their ends, and arranged in the same horizontal plane and parallel to one another, as shown. Upon mandrel B are mounted two circular saws, D and D′, arranged upon the inner side of its bearings, the former stationary and the latter provided with any suitable means whereby it may be properly adjusted thereon to cut any desired length of rail. Upon mandrel C are mounted two cutter-heads, E and E′, of ordinary construction, designed to cut and form the under side of the tenon, and which are arranged on their mandrel in a manner similar to that of the saws upon mandrel B—that is, the former being stationary and the latter adjustable. Upon the end of mandrel C opposite to where the driving-power is applied is arbored the circular saw F, whereby the rail is provided with the elongated groove *a*. (Shown in Fig. 5.) A leaf or table, G, for supporting the rail while it is being grooved, is hinged to the rear portion of the frame of this machine, and is provided with a strip, *a′*, as shown, for guiding the rail, and also a slot, through which projects saw F a suitable distance to give the desired depth of groove made in the rail. Upon the top of the frame, and at right angles to the mandrels B and C, are placed two rails or tracks, *b* and *b′*, through which, by means of notches cut in them, pass the mandrels, and upon which rails or tracks rests and slides the carriage H, whereby the rails to be prepared are fed or presented to the action of the saws and cutters. The rail or track *b* is rigidly secured to the top of the frame next to the inner faces of saw D and cutter-head E, and is the shape of an inverted V, to adapt itself to fit within a correspondingly-shaped groove made in the bottom of one side of the carriage H. The rail or track *b′* rests loosely on the top of the frame near the adjustable saw and cutter-head, and can thereby readily be moved to any point on said frame to permit of the saw D′ and cutter-head E′ being adjusted at any desired point on their respective mandrels. The carriage H, which rests and travels upon these rails or tracks *b b′*, and which feeds or presents the material to the action of the saws and cutter-heads, is composed of two frames, adapted by any suitable construction to fit and slide within one another, and thereby form an extensible carriage capable of accommodating any length of material to be prepared and presenting the same to the action of the saws and cutters in the best possible manner.

Crossing at about midway of the bottom of frame A, and on a line parallel with the mandrels on the top thereof, is a beam, I, provided on each end with a block or key proper, *c*, which have bearing on the beams J, running at right angles to the beam I and connecting the two lower end corners of the frame at each end thereof. Each of these blocks or keys is beveled, as shown, on its upper surface, and is in conjunction or locks with a similarly-shaped block or key, *d*, secured on the lower end of each of the two upright arms K, for a purpose hereinafter explained. Each of the arms K just referred to is pivoted at about its center to each end of the frame, at the upper portion thereof, and between the saws and cutter-heads, and extends upward and projects out at its end over the cutter-head, occupying a position under it. Upon these overhanging ends, by any suitable means, is mounted a mandrel, L, parallel with the mandrels B and C, and on a line vertical with the axis of the latter. Upon this mandrel are mounted the two cutter-heads M and M′, arranged thereon in a manner similar to those on the mandrel C and the saws on mandrel B, and are designed to cut and form the upper side of the tenon.

Passing through the center of beam I and a beam, N, connecting the lower front corners of the frame, is a screw-threaded shaft, O, provided on its front end with a hand-wheel, P, whereby the cutter-heads M M′ may be vertically adjusted to cut any desired depth on the upper side of the rail, as will be hereinafter explained.

At the bottom and rear portion of the frame is a beam, I′, crossing on a line parallel with the beam I, and having its central portion raised. This beam is provided on each end with a block or key, *c*′, of similar construction to that on each end of beam I, and locks with a block or key, *a*′, of similar construction, secured to the lower end of an upright arm, K′, located on each end of the frame. Each of these arms K′ is pivoted, as shown, to the upper portion of the frame, and holds a position similar to the arms K; but, instead of each end terminating as does each end of the latter-named arms, it projects forward and forms a bearing for mandrel C, as shown, in addition to the end bearings of said mandrel on the top of the frame.

From the center or raised portion of the beam I′ to and through an upright beam, R, secured, as shown, to the front portion of the frame, extends a screw-threaded shaft, S, provided on its front end with a hand-wheel, T, occupying a position directly above the wheel P. It will thus readily be seen that when the wheel P is operated the beam I, with its blocks or keys *c*, will be drawn forward, causing the latter, by their contact with the blocks or keys *d*, to draw the same forward with the lower end of each arm K, and by such movement depress the upper end of the same, on which the mandrel L, with its cutter-heads, has bearings. Thus by operating the wheel P the cutter-heads M M′ are enabled to be adjusted to cut any desired depth to form the upper side of the tenon. The cutter-heads E E′ must necessarily be adjusted to cut a corresponding depth to form the under side of the tenon; and in order to accomplish this the wheel T is operated and a movement similar to that caused by operating the wheel P is communicated to the beam I′ and transmitted to the parts connecting it with the mandrel C, and thus the cutter-heads on the same are enabled to be adjusted to a height equal to the distance the cutter-heads on the mandrel L are lowered.

On the end of mandrel B to which the driving-power is applied is arranged a boring-tool, *u*, for the purpose of drilling holes in the tenon to admit the screws or spikes by which the rail-pieces are secured together to form the frame of the article.

A guide, V, secured to the side of the frame A under the boring-tool, is adapted by any suitable construction to the vertical adjustment thereon of a frame and table, W W′, respectively, in order to accommodate any thickness of rail which is supported by the said table.

Motion is imparted to the machine by means of a single belt passing over pulleys provided at the ends of mandrels B, C, and L, as shown.

To the center of the frame A, at the end where the driving-power is applied, a belt-tightener, Y, is pivoted, which may be made to take up any slack in the belting. After the saws and cutter-heads have all been properly adjusted to cut the desired length of rail and the desired depth of the tenon upon the ends thereof, the rail-pieces to any number the carriage is capable of accommodating are placed thereon. The carriage is then pushed forward between the saws D D′, which cut the rails off at both ends, leaving them the necessary length required for the purpose. As soon as the cut rails pass the saws they meet the cutter-heads E E′ and M M′, and on being passed between them both the upper and under side of the rail are cut, and a complete tenon is thus formed on the ends thereof simultaneously. This operation is repeated until all the rails of one length desired are tenoned. The machine can then be adjusted to accommodate other desired lengths of rail-pieces and thicknesses of tenon and the work of preparing them effected in the same manner as before described. After the rail-pieces have thus been prepared they are placed on the table G, and the work of grooving is effected by the saw F, and are finally completed by being placed on the table W′ and bored in the proper manner.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for the purposes specified, the mandrels B, C, and L, provided respectively with the stationary saw and cutter-heads D, E, and M and the longitudinally-adjustable saw and cutter-heads D′, E′, and M′, arranged substantially as described, shown, and for the purposes set forth.

2. In the machine described, and in combination with the stationary and longitudinally-adjustable saws and cutter-heads, arranged substantially as described and shown, the extensible carriage H, mounted and traveling upon the stationary and movable rails or tracks *b b'*, arranged substantially as described, shown, and for the purpose set forth.

3. In the machine described, and in combination with the cutter-heads, arranged upon their mandrels substantially as described and shown, and capable of independent vertical adjustment, the mechanism consisting of the blocks or keys and intermediate connections, together with means for operating the same, whereby said cutter-heads may be vertically adjusted relatively to each other, or simultaneously vertically adjusted, for the purpose of regulating the same to cut the desired depth on both the upper and under sides of each end of the rail simultaneously, as set forth.

This specification signed and witnessed this 14th day of April, 1882.

GEORGE LUPPERT.

Witnesses:
T. J. TRAPP,
JOHN J. KOHN.