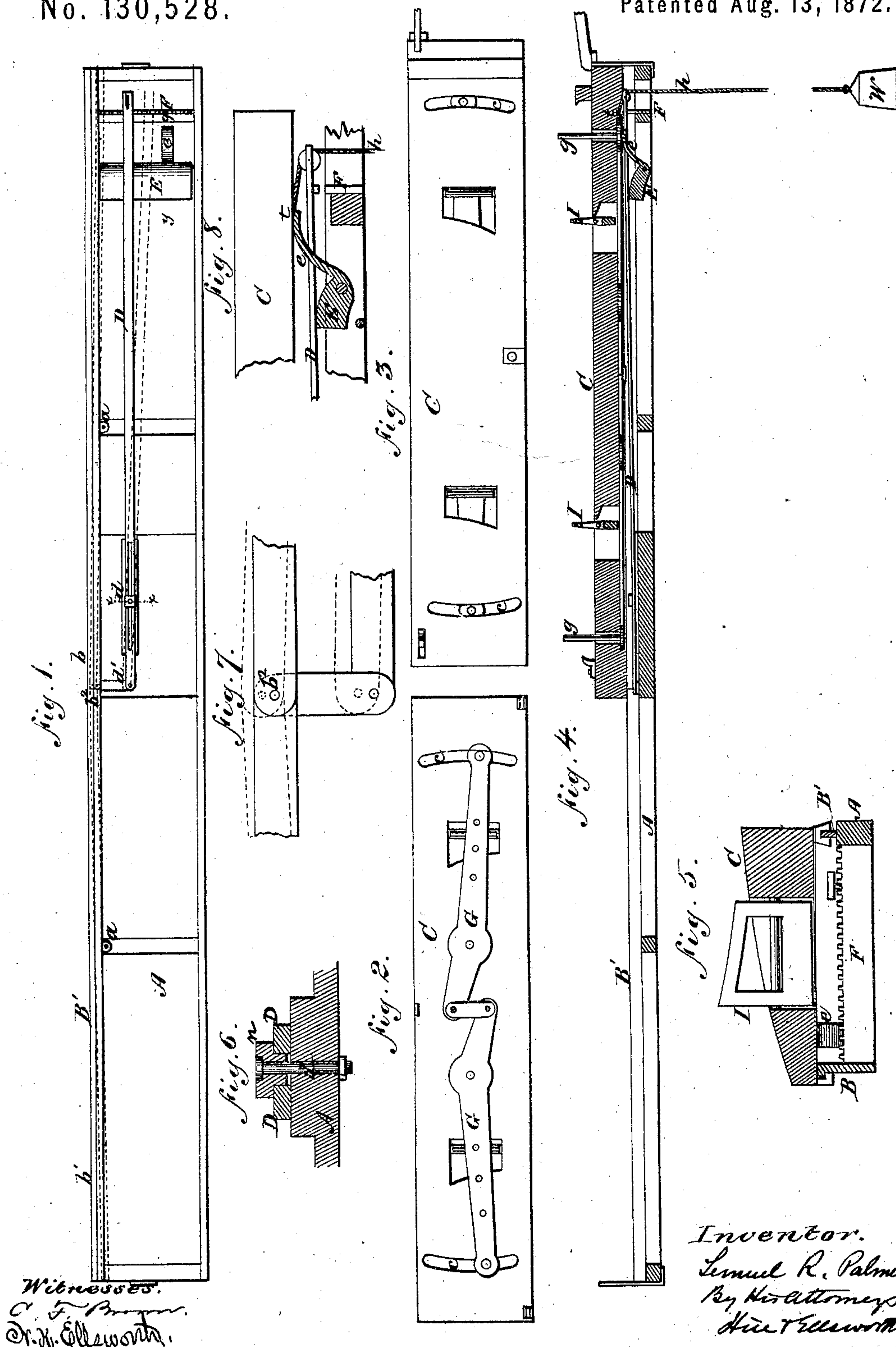


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Improvement in Machines for Jointing Staves.

No. 130,528.

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UNITED STATES PATENT OFFICE.

LEMUEL R. PALMER, OF BELFAST, MAINE.

IMPROVEMENT IN MACHINES FOR JOINTING STAVES.

Specification forming part of Letters Patent No. 130,528, dated August 13, 1872.

To all whom it may concern:

Be it known that I, LEMUEL R. PALMER, of Belfast, in the county of Waldo and State of Maine, have invented a new and useful Improvement in Stave-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a top plan of the track and adjusting devices, the carriage having been removed; Fig. 2, a bottom plan of the carriage; Fig. 3, a top plan of the carriage; Fig. 4, a longitudinal vertical section of the machine or attachment; Fig. 5, a vertical cross-section of the same; Fig. 6, a transverse sectional view, showing the mode of adjusting the lever that operates the track; Fig. 7, a top plan of the end of said lever and the link connection between it and the track; and Fig. 8, a longitudinal sectional view, showing the means by which the carriage releases said lever from the rack.

Similar letters of reference in the accompanying drawing denote the same parts.

The object of this invention is, in the first place, to provide an improved means for adjusting the taper of the stave according to its width; in the second place, to provide a means for adjusting the bevel of the stave to the proper angle on both edges without turning the stave end for end; and in the third place, to provide means for holding the track rigidly in place except when the carriage is at one end of it. To these several ends, respectively, the invention consists, first, in the combination of devices by which the adjustable rails or guides are set in any required position by the stave itself; secondly, in the reversible plates attached to the carriage; and, thirdly, in the combination of the lever that operates the rails with the rack, and with the devices by which it is disengaged from the rack at the end of the movement of the carriage, substantially as I will now proceed to describe.

In the drawing, A represents the frame of the stave-machine, or the body of the jointing attachment to stave-machines, according as the one or the other is employed. B is a straight flat rail with smooth surface, on which the carriage C can slide easily back and forth, this rail taking no part in guiding the move-

ment of the carriage, but serving simply as a support for one side of the same. B' is the guide-rail, constructed in two sections, b b^1 , which are pivoted to the frame at a , and are articulated together at b^2 . D is a lever, pivoted to the frame at d , and connected to the guide-rail preferably at d^1 , for the purpose of adjusting the position of said guide-rail when the carriage is at the end of the track. F is a rack, with which the end of the lever engages for the purpose of preventing the rail B' when once adjusted from being accidentally displaced. E is an eccentric under the lever D, which when turned to one position will raise the lever and disengage it from the rack F, and when turned to another will allow the lever to spring or fall down and engage again with the rack. e is an arm or cam-lever attached to the eccentric, and arranged in such a position that the carriage, as it reaches the end of the track, will strike it, turn the eccentric, and disengage the lever D from the rack, the eccentric returning to its original position, when the carriage again moves forward, either by its own gravity, or by the pressure of the lever D, or by the action of a spring or weight, or by the carriage in its forward movement again striking the same arm e or another and restoring it to its original position. These various methods of construction are all simple and obvious, and any one of them may be resorted to without departing from the principle of my invention. The carriage is constructed with a compound horizontal lever, G, pivoted to its under side, to the two opposite arms of which are attached vertical rods g g that project up through curved slots c c , as shown in Fig. 4. A cord, h , of sufficient length to accommodate the movements of the carriage, is fastened to one end of the compound lever, and after passing through a hole in the extremity of the lever D, where its movement may be eased by a friction-pulley, it extends downward and supports a weight, W. When the carriage is gigged back to the end of the machine, so as to be ready for receiving a new stave, the end of the lever G, where the cord is attached at t , is intended to come in a vertical line above the weight, and not at an angle, as shown in the drawing, so that the lifting-cam or eccentric will have only the weight of the lever to raise. The

weight *W* prevents the too rapid feeding of the stave against the saw. It serves to hold the lever down to the rack, and so secures the track in place; and it helps to recall the carriage after the stave is jointed. *I* is a reversible plate or stave-support, preferably attached to the carriage, as shown in Fig. 5. When turned up the stave resting upon it is inclined in one direction toward the saw, and when turned down out of the way the stave, resting directly upon the carriage, is inclined in the opposite direction toward the saw, so that both edges of the stave can be properly beveled by simply turning it over without changing its end for end.

The construction of the device may be considerably varied. For example, it may be made in the form of a butt-hinge, one leaf attached to the surface of the carriage or sunk into the same, and the other capable of being raised to support the stave. So, too, the inclination of the edge that is raised may, if preferred, be made adjustable to vary the bevel, or to joint the stave without any bevel. These and many other modifications of the construction will readily suggest themselves; but I regard any device attached to the carriage so that it can be raised to support the edge of the stave, or depressed to allow the edge of the stave to drop, for the purpose above set forth, as coming within the limits of my invention, although it may possess patentable features in itself. The placing of a stave upon the carriage against the rods *g g* and bringing its outer edge to the proper position to be operated upon by the saw necessarily adjusts the position of the rods *g g* according to the width of the stave. The movement of the rods, or either of them, swings the compound lever *G* and causes it to carry the end of the cord *h* toward one side or the other of the frame *A*. When the cord is thus moving the lever *D*, if engaged with the rack, will not be moved, but the weight will rise; but if not engaged with the rack, the lever *D* will swing over with the lever *G*, and as it swings will move the guide-rail *B'*, the movements of all the parts being directly proportionate to the width of the stave. Whatever may be the movements of the rods *g g*, it can have no effect upon the guide-rail except while the carriage is at the end of the track holding the lever *D*, disengaged from the rack by means of the eccentric *E*, so that the adjustment of the track, once effected, is perfectly secured during the movement of the carriage. As described, however, the machine would give one invariable taper for staves of

the same width, for all kinds of barrels, whereas the barrels of different bilges require the same staves to taper differently. I therefore provide means for varying the curve which any stave will give the track by making the fulcrum *d* adjustable, so as to vary the proportion between the two arms of the lever. To this end, the bolt that serves as a fulcrum may be set in different holes in the lever and in the frame beneath it, or it may be adjusted in a slot in the lever, or in the frame, or both, as represented in Fig. 6, where the bolt is shown at *d*, *n* being a nut or washer fitted to the slot in the lever. The same adjustment might also be effected by making the pivots of the lever *G* adjustable, or by making the arms *g g* adjustable along said lever. In a word, any adjustment of parts by which the same movements of the arms *g g* could be made to displace the guide-rail more or less would answer the purpose, and would fall within the principle of my invention. Instead of two arms, *g g*, four, six, or more may be used, arranged at different points along the levers, with slots provided in the carriage for their accommodation; the object of such arrangement being to provide for the jointing of staves of different lengths. Instead of rails *B B'*, any kind of equivalent guide may be employed, and the carriage may be held upon the rails or guides and kept in contact therewith by any of the usual means employed for similar purposes in this or other kinds of machines.

Having thus described my invention, what I claim is—

1. The weight *W* and cord *h*, in combination with the levers *G D*, arms *g g*, and guide *B'*, substantially as and for the purposes described.
2. The eccentric *E*, or its equivalent, in combination with the carriage *C*, the lever *D*, and the guide *B'*, substantially as and for the purpose described.
3. The rack *F*, in combination with the lever *D*, eccentric *E*, and carriage *C*, substantially as and for the purpose described.
4. The adjustable rests *I*, applied to the stave-carriage, substantially as and for the purpose described.
5. The adjustable fulcrum *d*, in combination with the lever *D*, the guide *B'*, and the devices connecting the lever *D* to the arms *g g*, substantially as and for the purposes set forth.

LEMUEL R. PALMER.

Witnesses:

JOSEPH WILLIAMSON,
A. B. MATHEWS.