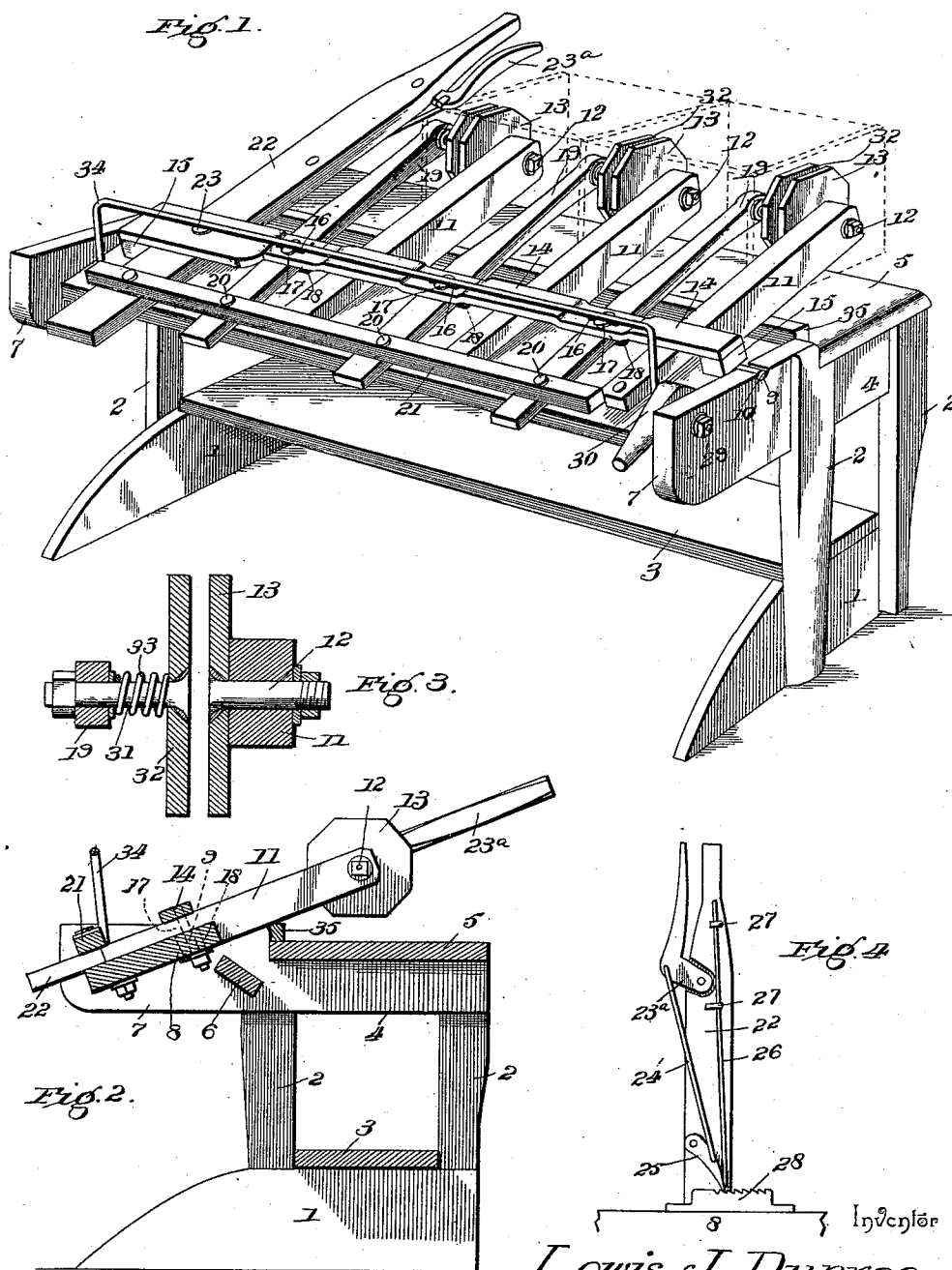


(No Model.)

L. J. DUPREE.
BOX OR CRATE MACHINE.

No. 534,251.

Patented Feb. 19, 1895.



Witnesses

J. Johnson

J. B. Owens

By *hds* Attorneys.

Lewis J. Dupree

Chas. H. Co.

UNITED STATES PATENT OFFICE.

LEWIS J. DUPREE, OF UMATILLA, FLORIDA, ASSIGNOR TO G. V. DE VAULT
AND J. R. TOMLINSON, OF SAME PLACE.

BOX OR CRATE MACHINE.

SPECIFICATION forming part of Letters Patent No. 534,251, dated February 19, 1895.

Application filed December 6, 1894. Serial No. 531,028. (No model.)

To all whom it may concern:

Be it known that I, LEWIS J. DUPREE, a citizen of the United States, residing at Umatilla, in the county of Lake and State of Florida, have invented a new and useful Box or Crate Machine, of which the following is a specification.

This invention relates to an improved device for facilitating the assemblage of the several parts of boxes and crates, for holding the heads or ends and the partitions thereof while the sides and bottoms are being nailed in place. Machines of this kind have been devised heretofore, and the principle thereof is embodied in two or more clamps or securing devices which are mounted so as to be capable of rotating, to the end that the several sides of the ends of the box may be successively presented to the manipulator in the operation of nailing the side portions in place. Now, my invention is distinguished from these prior devices in the construction of the end-clamping devices, and in the means for actuating the same and for permitting the said devices to be rotated for the purpose explained above.

The invention has other distinguishing features residing in its general arrangement, and in means for shifting the end-clamping devices so that the ends will be cleared of the frame and the clamping devices permitted to revolve.

To these ends the invention consists in a bench or table provided with rearwardly-projecting arms forming bearings for a longitudinally-extending beam, which is mounted therein so as to be capable of oscillating, and which has the end-clamping devices rotatably mounted thereon.

It further consists in certain lever and rod mechanism mounted on the beam and operating with the end-clamping devices, whereby they may be made to clamp said ends, and whereby they are made capable of compensating for the varying thicknesses thereof.

Still further, the invention consists in various details of construction and subordinate combinations running through the entire machine, all of which will be fully described hereinafter and finally embodied in the claims.

In the drawings: Figure 1 represents a per-

spective view of a machine embodying the essential features of my invention, the view being taken from the rear side thereof, so as to more fully show the invention; Fig. 2, a cross-section of the machine; Fig. 3, a detail section taken longitudinally through one of the end-clamping devices; Fig. 4, a detail view, showing the pawl and ratchet mechanism of the lever for manipulating the end-clamping devices.

The frame of my invention comprises the feet or bottom beams 1, which are two in number and arranged at each end of the machine and extended transversely, to which beams the upwardly-projecting standards 2 are rigidly secured.

3 indicates a longitudinal brace, which is secured to the upper edges of the feet 1 and which extend longitudinally from one to the other.

Mortised into the upper ends of the standards 2, and extending horizontally thereon, are the beams 4, which are one for each end of the machine, and which proceed transversely for a distance beyond the rear standard 2 equal to the distance between the standards of each pair. This will be explained hereinafter.

5 indicates a surface or top board, which forms the bench or table necessary to my invention, and which is rigidly secured to the upper ends of the standards 2 and to the beams 4 at points adjacent thereto.

6 indicates a second brace, which is extended longitudinally from the beam 4 of one side to the remaining beam 4, and which operates to lend strength and rigidity to the frame of my machine. The rearwardly-extended portions of the beams 4 are broadened vertically and are designated by the numeral 7, such devices being functionally arms, and will be referred to as such hereinafter.

8 indicates the main beam, which carries the end-clamping devices and their attendant mechanism, and which is formed flattened and provided at its ends and eccentric from the center thereof, with the trunnions or journals 9, which are two in number, one for each end, and which are respectively seated in the boxes 10 of the arms 7, so that the beam 8 will be capable of oscillating in its bearings.

11 indicates three arms, which have their lower ends rigidly secured to the rear side of the beam 8 by mortising them in place, and which project upwardly therefrom and are provided at their upper extremities with the transversely-extending rods 12, having at their left-hand ends heads projected beyond the arms 11. These heads are provided to hold the disks 13 rotatably upon the spindles or rods 12. The disks 13 are preferably octagonal in form, though this is not an essential prerequisite; and they may be made in any shape desired. An angular shape is preferred, owing to the fact that the sides will help the manipulator in placing the parts of the box in their proper position.

14 indicates a guide-board, which is provided at its ends with the blocks 15, and which extends longitudinally with the beam 8 and parallel with the rear side thereof. Formed in the beam 14, and extending longitudinally therewith, are the slots 16, which are three in number and which have the spindles 17 passed through them. The spindles 17 also pass through the slots 18 of the beam 8, and are clamped rigidly in place by nuts operating on their screw-threaded ends. By this arrangement the spindles 17 may be rigidly secured within their respective slots and may be adjusted to any position throughout the length thereof.

19 indicates three levers, which are extended transversely on the beam 8, and which are respectively mounted upon the spindles 17 thereof. The lower ends of the levers 19 are each provided with a spindle 20, which are rotatably mounted therein, and which project through transverse openings in the rod 21. The rod 21 extends parallel with the beam 8 and longitudinally therewith, and has its left-hand end pivotally connected to the lower extremity of the manipulating lever 22. This lever is provided with a spindle 23, which extends through the guide-beam 14 and through the beam 8, and which is rigidly secured in each. Thus it will be seen that upon the oscillation of the lever 22 the rod 21 will be moved to reciprocate longitudinally, which will result in a unitary oscillation of the levers 19.

Mounted in a recess in the rear side of the lever 22, and near the upper end thereof, is the bent lever 23^a, which extends parallel with the upper end of the lever 22, and which has the rod 24 pivotally connected to it at its bend. The rod 24 extends downwardly and approximately parallel with the lever 22, and has its lower end pivotally connected to the pawl 25, mounted, in turn, upon the lever 22, so as to be capable of swinging thereon.

26 indicates a spring rod, which is secured to the lever 22 by means of the clips 27, and which has its lower end free and in engagement with the pawl 25, whereby the pawl is given a normal tendency. Rigidly secured to the upper edge of the beam 8, and directly adjacent to the lever 22, is the ratchet-plate

28, which is adapted to co-operate with the pawl 25, in the operation of securing the lever 22 at any desired position.

29 indicates a spindle, which is passed through the right-hand arm 7, and which has its inner end extended beyond said arm and provided with a cam lever 30, which is capable of engaging the beam 8, and of bearing against the same so as to oscillate it to a slight degree. This operation is possible, owing to the fact that the beam 8 is eccentrically mounted by reason of the corresponding location of the trunnions 9. The use of the cam lever 30 is to tilt the beam 8 so that the upper ends of the arms 11 and levers 19 may be correspondingly moved, thus raising the ends of the arms 11 and adjusting them to the size of the box being formed.

31 indicates three spindles or rods, which are respectively mounted upon the upper ends of the levers 19, and which extend transversely thereon and which have their right-hand portions projected beyond the levers and provided with heads by which the disks 32 are held in place upon the spindles or rods. These disks 32 are one for each of the levers 19 and are made to respectively co-operate with the disks 13, which are fixed to the arms 11.

33 indicates three expansive springs, which respectively embrace the rods or spindles 31, and which operate to push the disks 32 to the right. The disks 32 are fixed to the right-hand extremities of the rods or spindles 31, while said spindles are mounted in their respective levers so as to be capable of longitudinal movement therein.

It will be seen that as the levers 19 are operated so as to move their upper ends toward the disks 13, that the disks 32 will be correspondingly moved, and that these latter disks will be caused to engage with the respective disks 13 and to bind therewith. As the movements of the levers 19 continue, the springs 33 will be compressed and the rods or spindles 31 made to move through their openings in the levers 19, which will result in a forcible engagement of the disks 32 with their companion disks 13. It will be observed, however, that this engagement, while forcible, is yielding, which attribute permits the several disks 32 to lie at varying distances from their companion disks, to the end that box-ends of various thicknesses may be held by the same.

34 indicates a stout wire, which has its ends secured to the respective ends of the beam 8, and which projects rearwardly and thence transversely and parallel with the beam 8, the purpose of which rod is to form a support for hoops of the boxes or crates being operated on, as illustrated by dotted lines in Fig. 1. Thus, in some classes of boxes, such as those employed for fruit, it is desirable or necessary to provide hoops for strengthening them; and it is the office of the wire 34 to support the free ends of the hoops before they have been placed in position, and to prevent the same from becoming entangled in

and confused with the moving parts of the machine.

35 indicates a gage-cleat, which is extended longitudinally with the top 5 of the table or bench, and which is secured to the rear edge thereof. The purpose of this gage-cleat is to provide the means for regulating the distance to which the ends of the boxes are inserted in place, and to assist in holding them steadily during the operation of assembling the parts of the box, all of which will be better described hereinafter.

The use of my invention may be understood by reference to Fig. 1 of the drawings, in connection with the other views, and there it will be seen that the ends of the box to be formed are respectively placed between the disks 13 and 32, at each end of the beam 8. The lever 22 should now be moved so as to swing the levers 19 toward the respective arms 11, and so as to cause the disks 32 to engage with the ends of the box and press them securely against the companion disks 13. In the operation of inserting the ends of the box in place, the said ends should be placed with one side against the top 5 of the table or bench and moved rearwardly until the rear side of the ends engage with the cleat 35, whereupon the rearward movement of the ends will be stopped. The said ends should now be clamped in position as explained above. When the parts have been so arranged, it will be possible to nail the sides of the box upon them with great ease and facility, and when one side has been nailed in place, the arms 11 should be moved upwardly from the table, which will raise the end clamping devices sufficiently to disengage the ends from the bench and permit the ends of the box and the attached side to be revolved, so as to place the contiguous side upwardly and in position to receive the operations of the attendant. The arms 11 should now be moved back to their normal position, so as to place the ends of the box in engagement with the bench whereby the said ends are given a support having strength sufficient to withstand the blows of the nailing device. So the operation of my machine is prosecuted until three sides of the box have been nailed in position, whereupon the lever 22 may be retracted and the completed box removed and set aside. In the case of hoops being used, the operation is the same, and the hoops may be nailed to the sides as they are placed and secured in position. When this condition of affairs prevails, the wire 34 will be used to support the hoops and to prevent them from contact and entanglement with the moving parts of the machine, as has been explained.

It will be observed that the number of clamping devices may be increased or decreased at will, so as to suit the conditions of the use. It will also be explained that when more than two clamping devices are provided the increased number are used either for holding partitions for boxes, or for permit-

ting the structure of boxes of various sizes. Thus, three clamping devices are shown in the drawings, and the middle clamping device may be used as a means for holding a partition to the box; or it may be used for holding one end of the box, to the exclusion, in the operation, of one of the terminal clamping devices.

It will be understood that the cam lever 30 is provided to adjust the outer ends of the arms 11, or the clamping devices, according to the size of the ends of the box, at which adjustment the parts remain during the operation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described the invention, I claim—

1. The combination with a table or bench having a rearwardly-projecting arm at each end, of a beam mounted therein so as to be capable of oscillating, two end-clamping devices rotatably mounted on the beam and capable of being projected over the bench or table, and means for oscillating the beam so as to raise and lower the end-clamping devices, substantially as described.

2. The combination with a bench or table having rearwardly-projecting arms thereon, of a beam mounted on the arms and capable of oscillating thereon, two clamp members rigid on the beam, a movable clamp member co-operating with each rigid clamp member and also mounted on the beam, a lever fulcrumed on the beam and connected to the movable clamp members whereby they may be operated, and means for oscillating the beam so as to raise and lower the clamps, substantially as described.

3. The combination with a bench or table having two rearwardly-projecting arms, of a beam flattened or extended transversely and eccentrically mounted on the arms, clamping devices carried by said beam and projecting over the bench or table, and a cam lever mounted on one of the arms of the bench or table and engaging the beam so as to be capable of oscillating the same, substantially as described.

4. The combination with a bench or table having rearwardly-projecting arms, of a beam mounted in the arms so as to be capable of oscillating thereon, clamps carried by the beam and projecting over the bench or table, a gage-cleat secured to the rear edge of the bench or table and rearward of the clamps when projected over the same, and means for oscillating the beam so as to raise and lower the same, substantially as described.

5. The combination with a bench or table having rearwardly-projecting arms, of a beam mounted thereon so as to be capable of oscillating, two arms rigidly secured to the beam and projecting over the bench or table, two levers fulcrumed on the beam and adjustable

longitudinally thereon, said levers being one for each arm and co-operating therewith, a clamping disk secured to each arm and one to each lever, a rod pivotally connected to the lower ends of the levers, a manipulating lever connected to the rod, said lever being provided with pawl and ratchet mechanism, and means for oscillating the beam so as to move the upper ends of the beams and levers toward and from the bench or table, substantially as described.

6. The combination with a bench or table, of a beam mounted at one side thereof and capable of oscillating, a clamping disk rigid on said beam and projected over the bench or table, a lever fulcrumed on the beam and capable of being oscillated so that one end will move toward and from the clamping disk, a clamping disk mounted on the lever and ca-

pable of yieldingly engaging the rigid clamping disk, and means for oscillating the beam whereby the clamping disks are raised and lowered, substantially as described.

7. The combination with a bench or table, of a beam mounted adjacent to one side thereof, box-end clamping devices thereon and projected over the bench or table, and a hoop-supporting wire having its ends affixed to the terminals of the beam and having its middle portion extending parallel with the beam, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LEWIS J. DUPREE.

Witnesses:

JNO. M. GRAYSON,
T. A. SMITH.