UNITED STATES PATENT OFFICE.

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CASE AND BOX MACHINE.

Application filed May 17, 1901. Serial No. 60,770. (No model.)

To all whom it may concern:

Be it known that I, JAMES K. ASHLEY, a citizen of the United States, residing at Rushville, in the county of Schuyler and State of Illinois, have invented a new and useful Case and Box Machine, of which the following is a specification.

This invention relates to case and box machines; and the objects of the same are to provide simple and effective means for holding the ends of boxes, cases, crates, and the like in the desired relative positions during the securing to the edges thereof of the sides and bottom, to provide easily-operated holding means for the said portions of the boxes, cases, crates, or the like, and devices for elevating the direct support for the same, so that the latter can be more readily turned or shifted for fastening various parts, and to provide an attachment for expeditiously assisting in cleaning the ends of egg-cases and making lids.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed and which constitute an improvement of the machine shown in Patent No. 564,240, granted to me July 21, 1896.

In the drawings, Figure 1 is a perspective view of the improved machine. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a transverse vertical section on the line 3 3, Fig. 2. Fig. 4 is a detail perspective view of a cleaning and lid-making attachment for the machine.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a table provided with end supports 2, in which are mounted the extremities of a rock-shaft 3, forming a member of a foot-treadle 4. In transverse lower bars 5 and the opposite ends of the table 1 are mounted vertical slides 6, and in the upper extremities of the latter are loosely fulcrumed the reversible clamp-frame 7. This clamp-frame is provided with end brackets 8, having central longitudinal trunnions 9, fitted in grooved rollers 10, adapted to have vertical sliding movement in slots 11, formed in the upper extremities of the slides 6, the said slots having the opposite side walls provided with central ribs 12 to easily enter the grooves of the rollers to hold the latter in true vertical position, but at the same time allow them to have free movement. The slides 6 are connected to the foot-treadle 4 by means of links 13 and to the brackets 8 by fulcrum-links 13', whereby the motion of the links 13 is communicated to the slides to elevate the clamp-frame sufficiently to allow it to be reversed or turned to expose different sides of the box, case, or crate in securing the sides and bottom of the latter to the heads.

The links 13 are pivoted at their opposite ends, respectively, to the brackets 8 and the slides 6 and have the function of holding the reversible clamp-frame 7 in horizontal position until the slides 6 are elevated sufficiently above the table 1 to permit clamp-frame 7 to be revolved or manually turned, and thereby the said clamp-frame will be prevented from loosely swinging while said elevating operation is being pursued and the necessity for holding the said frame during this operation is avoided. When the frame has been elevated sufficiently to turn the same either forwardly or backwardly, the operator grasps the same and moves it in the direction desired, and during said movement the rollers 10 will slide downwardly in the slots 11 of the slides 6 and the links 13 will move on their end pivots either forwardly or backwardly, the said fulcrum-links serving as the pivotal means for the clamp-frame, and the trunnion devices carried by the brackets 8 and including the rollers 10 act as movable retainers to keep the said clamp-frame in positive position or in proper position in relation to the table 1 irrespective of the direction of movement of the clamp-frame.

On the clamp-frame backing-frames 14, 15, and 16 are secured by angular braces 17, one of the end backing-frames 16 being formed with a lower transverse slot 18 entirely through to receive a cleat projection that may be carried by one of the box or crate heads. In the center of the bottom of the clamp-frame is a longitudinally-disposed slide 19, having opposite side tongues 20 to loosely fit in corresponding grooves in the opposite adjacent portions of the said bottom of the clamp-frame, the said slide being flush with the top and bottom surfaces of the clamp-frame bottom and also movable closely under
the central portions of the said backing-frames. The slides carry a series of clamps 21, one clamp for each backing-frame, and all of the clamps are arranged on corresponding sides of said latter frames. Each clamp comprises a standard 20, secured to the slide and provided with upper terminal longitudinally-aligned eyes 23 and a longitudinal guide-bar 24 below the plane of said eyes. In the eyes 20 a stem or shank 25 is movably mounted and has a clamping-head 26 secured to one end, the stem being long enough to normally hold the head thereof in advance of the adjacent end of the standard, so that the flat bearing-surface of the heads of the series of clamps will be in operative alignment with one side of each backing-frame. Secured to each stem or shank 25 is a slotted keeper 27 to engage the guide-bar below the stem, the keeper 20 being slidable on said bar and operating to prevent the stem from turning in the eyes, to thereby hold the head 26 in the position desired and which may be either horizontal or vertical. Between the keeper and the one upper terminal of the standard a cushion-spring 28 is located and surrounds the stem.

The slide is not as long as the table, so that said slide may be adjusted or moved longitudinally to bring the clamping-heads 26 closer to the backing-frames to clamp the work against the latter, and one end of the said slide is formed with a central longitudinal slot 29, having a link 30, pivotally mounted therein and extended beyond the end of the slide and secured to a crank 31 of a transverse crank-shaft 32, movably mounted on the bottom of the clamp-frame near one end and has one terminal bent at an angle and supplied with a grip or handle 33. By pushing the said grip or handle upwardly and over inwardly toward the adjacent backing-frame the slide will be drawn toward the shaft 32, and all the heads 26 will be simultaneously moved toward the backing-frames with which they cooperate. The grip or handle 33 will be located within convenient reaching distance of the operator so that it may be engaged by the right hand when standing on the side of the machine from which the treadle is operated. The grip or handle is also so positioned that it will not interfere with the rotation of the clamping-frame.

In Fig. 4 a cleating and lid-making attachment is shown and is applied to the clamping-frame, as indicated by dotted lines in Fig. 1, so that the open side of the said attachment will be toward the operator. The attachment comprises a flat bed-board 34 of suitable length having transverse holding-creats 35 on the under side thereof, as shown by Fig. 4 in dotted lines. Along the rear edge of the said board a backing-strip 36 is secured and projects above the plane of the upper surface of the board and at a suitable point has a front gage-slot 37, coincident with the rear end of a metallic wear-strip 38, let into the board and extending transversely across the latter. Adjacent to the said wear-strip is a holding-bar 39, which stands above the top surface of the board a suitable distance and is provided with a pair of longitudinally-projecting rigid tongues 40, which are transversely spaced apart and project over the portion of the board beneath. Near opposite ends of the board 34, on the upper side, holding-creats 41 are secured and extend in a transverse direction, one at each end. Adjacent to the outer side edge of each holding-creat a metal wear-creat 42 is secured on the board, and movable therewith and attached to the board is a spring-finger 43, which normally has its terminal bearing against or in contact with the adjacent side edge of the holding-creat. The gage-slot 37, bar 39, and tongues 40 are devised for use in cleating the ends or heads of boxes, cases, or crates, and said ends or heads are individually moved across the board 34 under the said tongues with their edges adjacent to which the cleats are applied bearing closely against the said bar. The cleat is then applied in each instance and has its one side edge brought to bear against the projecting ends of the tongues 40, the projection of the tongues being in accordance with a desired gage or location of the cleats, and when the cleat is applied to each end or head its one end projects into the slot 37, to thereby permit the ends of the cleat to project the required distance beyond the opposite side edges of the head or end board. By this means the cleats can be very rapidly applied to the head or end boards of a box or crate, and it is obvious that changes in the gage may be had by lengthening the tongues and correspondingly locating the slot 37. The holding-creats 41 and the spring-fingers co-operating therewith are utilized in making lids or covers, and in carrying out this operation the flange-creats for a lid or cover are inserted between the outer side edges of the holding-creats 41 and spring-fingers 43, and the edges are disposed vertically. The distance between the outer edges of the strips 41 will be in accordance with a certain size or length of lid, and after the flange-creats 115 are arranged as set forth the lid or cover-board is laid on said flange-creats and fastened, and subsequently the completed lid is drawn out from the board 34 in a sidewise direction. This provision for expediting the formation of lids will be found exceptionally useful, and the complete attachment will form a very important part of the equipment of a box or case machine.

The general operation of holding the parts of a box or case in the machine is well understood in the art, and it is obvious that changes in the form, size, proportions, and minor details may be resorted to without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new is—

1. In a machine of the class set forth, the combination with a supporting-table, of a rev-
oluble clamping-frame provided with a plurality of backing-frames, a slide longitudinally movable in the clamping-frame and carrying a series of clamps to coact with the backing-frames, and a rock-shaft at one end of the clamping-frame having a crank connected to the one end of the slide and also provided with a grip device at one terminal.

2. In a machine of the class set forth, the combination with a supporting-table, of a clamping-frame provided with a plurality of backing-frames and having end trunnion devices, vertical slides movable through the opposite end portions of the table and having upper slotted ends in which said trunnion devices are slidably mounted, and a treadle having links connected to the said vertical slides.

3. In a machine of the class set forth, the combination with a supporting-table, of a clamping-frame provided with a plurality of backing-frames and having brackets with end trunnion devices, vertical slides movable through the opposite end portions of the table and having upper slotted ends with rollers vertically slidably therein and in which said trunnion devices are movably mounted, fulcrum-links pivotally connected to said brackets and to the slides, and an operating means connected to the lower portions of said vertical slides.

4. In a machine of the class set forth, a plurality of backing-frames, and a cleating and lid-making attachment adapted to be removably supported thereon.

5. A cleating and lid-making attachment for a box-machine having a holding-bar with projecting tongues, and a back strip having a front slot.

6. A cleating and lid-making attachment for a box-machine having holding-strips near the opposite ends thereof, a back strip, and resilient fingers normally bearing against said holding-strips.

7. A cleating and lid-making attachment for a box-machine having holding devices near opposite ends thereof for retaining lid-flanges in place while the lid-board is being secured thereto, and a backing-strip.

8. A cleating and lid-making attachment for a box-machine having holding devices near opposite ends thereof for retaining lid-flanges in place while the lid-board is being secured thereto, an intermediate holding-bar with longitudinally-projecting tongues, and a backing-strip.

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

JAMES K. ASHLEY.

Witnesses:
JOSEPH H. SMITH,
GEORGE JOHNSON.