No. 837,957. PATENTED DEC. 11, 1906.

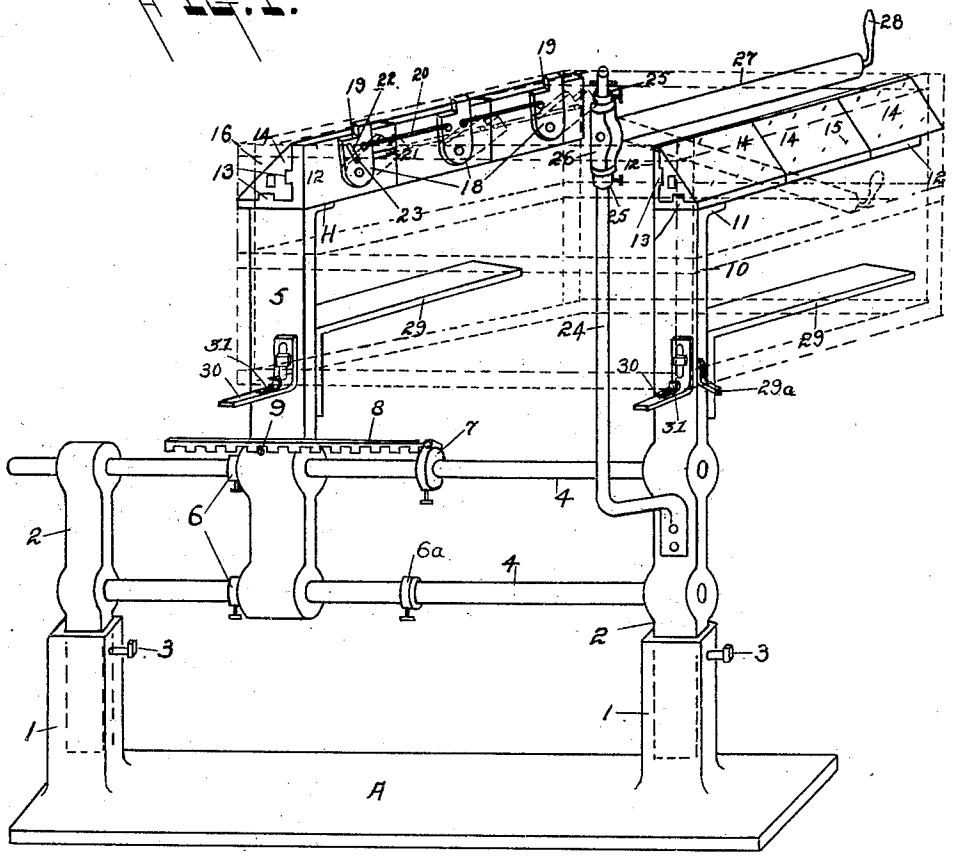
C. PERRY.

FORMER.

APPLICATION FILED FEB. 26, 1906.

2 SHEETS—SHEET 1.

FIG. 1.



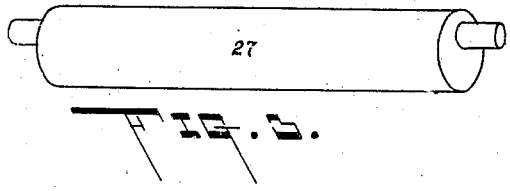


FIG. 2.

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2 SHEETS—SHEET 2.

Fig. 6.

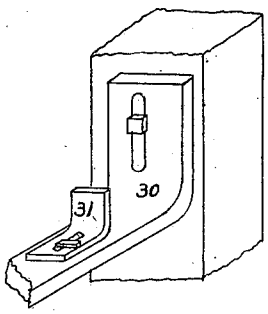


Fig. 2.

Fig. 5.

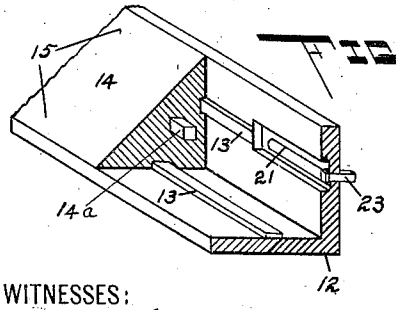
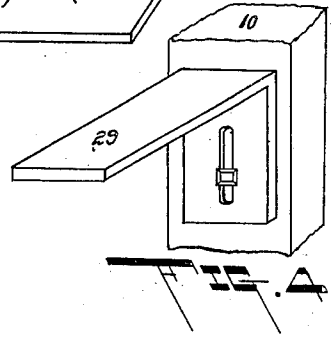


Fig. 4.



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FORMER.

No. 837,957. Specification of Letters Patent. Patented Dec. 11, 1906.

Application filed February 26, 1906. Serial No. 303,037.

To all whom it may concern:

Be it known that I, CID PERRY, a citizen of the United States, residing at Vassar, in the county of Tuscola and State of Michigan, have invented certain new and useful Improvements in Formers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a former for boxes or crates, and particularly to that class of formers wherein the corner-pieces are first laid down and the slats are nailed thereto, the crate being moved or shifted upon the former as the slats are nailed thereon to bring the unfinished portion to a point where it is accessible to the operator.

One of the objects of my invention is the provision of a novel means for adjusting a former relative to the size of the crate or box which is to be produced.

Another object is the provision of novel means for adjusting the former to a convenient height relative to the operator.

Another object is the provision of novel means for supporting the corner-pieces while the slats are being nailed thereto.

A further object is the provision of a novel means for holding the slats or boards to the corner-pieces during the nailing operation.

A still further object is the provision of means for guiding and determining the positions of the slats or boards relative to the corner-pieces.

To these ends my invention consists in the various features and combinations of parts or their equivalents, such as will be more fully described hereinafter and particularly pointed out in the claims.

In the drawings, wherein I have illustrated one embodiment which my invention is capable of assuming, Figure 1 is a perspective view showing a crate-former, a crate being shown in dotted lines thereon. Fig. 2 is a similar view showing a crate mounted on the machine. Fig. 3 is a detail view of the eccentric roll. Fig. 4 is a detail view of the bracket. Fig. 5 is a detail view of the recessed gage adjustment, and Fig. 6 is a detail perspective view of a bracket 30 and lip 31.

In the present embodiment of my invention, A indicates a suitable base provided with the sockets 1 1, designed to receive the posts 2 2, set-screws 3 3, or other clamping means, being supported by the sockets and adapted to engage the posts to permit a vertical adjustment thereof to suit the height or convenience of the operator.

The sockets and posts are spaced apart from each other, guide-rods 4 4 extending between and connecting the posts, the rods being preferably parallel. A standard 5 is slidingly mounted on the guide-rods, set-collars 6 6 being located on the rods to limit the outward movement of the standard for any given size of crate being formed, and in order to prevent any accidental inward movement of the standard during the nailing operation and to retain it in its adjusted position I provide a set-collar 7, mounted on one of the rods, to which set-collar is pivotally secured one end of a rack-bar 8, the teeth of which are adapted to take over a pin 9, carried by the movable standard. When it is desired to move the standard, as in removing or shifting the crate, the free end of the rack-bar is raised, whereupon the standard can be slid along the guide-rods. One of the rods 4 may be also provided with an adjustable set-collar 6^a, so that the movement of the sliding standard in either direction may be limited.

One of the posts 2 is extended, as at 10, and constitutes a duplicate of the sliding standard, except that it is not laterally adjustable, the upper ends of the standard and extension each having a seat 11 formed thereon, to which one end of an L-shaped bar 12 is fastened, the bars extending laterally from the standard and extension and being parallel with each other. These bars are provided with longitudinally-extending ribs 13 13, designed to be received in grooves formed in a series of approximately triangular blocks 14 14. Each bar is adapted to receive one or more blocks, which are slid endwise thereon, the number of blocks varying with the size of crate to be constructed and the hypotenuse faces of which are provided with teeth or spurs 15 15, adapted to take into and hold in place the triangular corner-pieces 16 16 of the crate during its construction.

As shown, the angle-bars 12 are composed of sections, so that boxes or crates of various sizes can be constructed on one machine. Thus when small boxes or crates are to be constructed the outer sections are removed. These sections are held in place by means of a

metallic stiffening or binding rod 14ª, which is received in holes formed longitudinally of the sectional triangular blocks 14 14, as shown in Fig. 5. The sections are strung on these stiffening-rods and are held in alinement by reason of the fact that the ends of the stiffening-rods are removably received in the end blocks 14, which are slidably mounted or secured on the fixed end sections of the angle-bars. Of course rods of different lengths for different sizes of crates are provided.

In constructing a crate, for instance, the set-collars 6 6 are placed at the proper points on the rods, depending upon the size of crate to be formed, and the movable standard slid into contact therewith, the rack-bar 8 engaging the pin to lock the standard in its adjusted position. The slats 17 17 are next laid across the bars, as shown in Fig. 2, the distance of the standard from the extension being of course limited by the length of the slats, and in order to determine the positions of the slats I provide the following convenient means:

A series of gage-plates 18 18 are each pivotally secured at one end to one or both of the bars 12, the opposite ends of the plates being recessed, as at 19 19, and extending above the upper edge of the bar, the plates being pivotally connected by links 20 20. The edges of the slats are adapted to take against the protruding ends of the plates, whereby the slats are properly spaced apart relative to the corner-pieces, and whereas I have shown but three plates it is obvious that more or less might be employed without departing from the spirit and scope of my invention. As a means for limiting the travel of these plates I form a straight slot 21 in the bar 12 and an intersecting straight slot 22 in one of the plates 18, a pin 23 loosely mounted in the bar projecting through the slots to permit the plates to be rocked to their dotted-line position, where they are out of the way, or to be moved to their erected position, as shown in full lines, one object of which is to adapt the machine to the manufacture of boxes.

When the slats or boards have been laid across the bars, as shown in Fig. 2, it is desirable that they be held in place while being nailed to the corner-pieces, to which end I provide a support 24, secured at one end to one of the posts 2, preferably the support extending upwardly above the horizontal plane of the upper edges of the bars 12 12, and having set-collars 25 25 adjustably secured thereto, between which collars is located a sleeve 26, adapted to swing on the support and having an eccentric roll 27 journaled at one end thereto, the opposite free end of the roll having a handle 28 to admit of its operation. This roll extends laterally from the support and parallel with but preferably longer than the bars 12 12, the support being offset, so that the vertical plane of the roll lies in alinement with or just inside the upper edge of the bar.

While I have shown the machine as being provided with but one roll, it is obvious that another might be provided for the remaining bar. Thus after the slats are laid across the bars and adjusted to position the roll and sleeve are swung around on the support, and when in position the roll is partially rotated to bring it into contact with and hold the slats in place during the nailing operation, the roll and sleeve being adjustable on the support to any size of box, the upper set-collar preventing an upward movement of the sleeve and roll when the latter is partially rotated to press upon the slats.

The standard and the extension are each provided with a slotted guide-bracket 29, projecting parallel with the bars 12 12, the end slats 17 designed to contact with the outer edges of the brackets, so that the slats composing each wall of the crate will be always in alinement with each other, the brackets being adjustable by reason of the slots, whereby to permit slats of varying lengths to be alined thereagainst. Furthermore, I preferably provide a gage-bracket 29ª, which may be adjustably secured to the extension 10 and to the standard 5 in the same manner as is bracket 30, (shown in detail in Fig. 6,) said gage-bracket adapted to be engaged by the edge of the end slat, as shown, whereby to keep the crate or box squared at its ends, so that when the crate or box is set on a level surface the edges of the lower slats will lie in the same plane. The gage-brackets thus operate to preserve the base planes of the work.

From the foregoing a full understanding of the operation of the device may be had. The operator first applies corner-pieces 16 16 to the laterally-extending work-supporting arms, after which he places slats or boards across from arm to arm, swings the eccentric roll into place, and nails the slats to the corner-pieces. The depending slats (shown in Fig. 2) may then be secured to the corner-pieces. The movable standard may then be moved toward the extension after the rack has been raised, thereby decreasing the distance between the bars and permitting the partially-formed crate or box to be raised off of the pins or spurs and shifted so that the depending slats on the right of Fig. 2, for instance, become the top slats. The standard is then moved back to its original position against the set-collar and locked there. An additional corner-piece is placed on the blocks on the right-hand side of the frame and held by the teeth, while the free ends of the slats, which now lie across the top of the frame, are being nailed thereto, after which the operation is repeated to secure to a corner-piece the abutting ends of the slats forming the fourth corner. The partially-formed

crate is then entirely removed from the machine and turned over, so that the slats lie in the dotted-line positions shown in Fig. 1, in which position it is replaced upon the machine, the lowermost slats being received upon rests 30 30, adjustably secured to the standard and to the extension. The corner-pieces do not prevent the box or crate from assuming this position. The rests are of course vertically adjusted, so that the upper edge of the partially-formed crate is approximately flush with the upper edge of the angle-bar 12, and in order to prevent a tilting of the unfinished crate I provide the brackets with the adjustable lips 31 for engaging the outer surface of the lower slat and holding it firmly against the vertical leg of the bracket. Additional corner-pieces are placed on the blocks 14 and the bottom slats placed across between the angle-bars and nailed to the corner-pieces and slats. Thus it will be seen that the entire box or crate is completed on the machine. The cover is nailed on by hand after the crate or box is filled.

It is convenient to move the standard toward the extension when shifting the crate or box in order to permit the crate to clear the teeth.

From the foregoing it is evident that I have devised a neat, simple, and inexpensive crate or box former which can be easily set up or taken down and adjusted for a variety of sizes of crates or boxes. It has few parts and is not liable to get out of order, besides being strong and easily operated.

Many changes and alterations might be made in the forms and arrangements of the several parts described without departing from the spirit and scope of my invention, and hence I do not limit myself to the exact construction herein set forth.

Having thus fully disclosed my invention, what I claim as new is—

1. A former comprising a vertically-adjustable frame, one portion of which is movable toward and from the other, laterally-extending work-supporting arms carried by the frame for supporting the work laterally of the frame, and an eccentric-roll for releasably retaining the work in position.

2. A former comprising work-holding members, means for adjusting one of the members toward and from the other, means for adjusting the members relative to the height of the operator, a suitably-supported bracket, a sleeve adjustably mounted thereon and an eccentric roll journaled in the sleeve and adapted to removably retain the work in position.

3. A former comprising a pair of adjustable posts, rods extending between the posts, a standard slidingly mounted on the rods, a projection carried by the standard, a set-collar slidingly mounted on one of the rods, a rack pivotally secured at one end to the collar and adapted to engage the projection and work-supporting members carried by the standard and one of the posts.

4. A former for crates or boxes comprising a suitably-adjustable frame, work-supporting arms extending laterally from the frame, recessed gages pivotally secured to the side of one of the arms, the recessed ends of the gages adapted to project above the plane of the arm to receive the work extending across and supported upon the arms, and mechanism positively secured to the gages to raise or lower the gages independently of the work.

5. In a box or crate former, the combination with an adjustable frame, of a pair of laterally-extending work-supporting members, a series of recessed gages pivotally secured to one of the members, the recessed ends of the gages adapted to extend above the plane of the member, links connecting the gages for raising or lowering the same, the member and one of the gages each provided with a slot, which slots are arranged to intersect each other, and a pin received in the slots and adapted to limit the movement of the gages in either direction.

6. The combination with a crate or box former adapted to receive work, of a rod located adjacent to the work, a sleeve journaled on the rod, the sleeve capable of adjustment longitudinally of the rod, and an eccentric pressing-roll rotatably supported at one end only in the sleeve and swinging therewith.

7. The combination with a crate or box former, provided with work-supporting members, of a suitably-supported rotatable sleeve and an eccentric holding-down roll journaled at one end in the sleeve and capable of swinging therewith toward and from the work.

8. A crate or box former comprising a suitable frame, laterally-extending work-supporting members carried thereby, the work adapted to depend from the work-supporting members and a bracket adjustably secured to the frame beneath one of the members and extending approximately parallel therewith, against which bracket the face of the depending work is alined.

9. In a former, the combination with suitably-adjusted vertical supports, of laterally-extending parallel angle-bars carried thereby, a series of blocks slidingly mounted on each bar, a rib-and-groove connection between the bars and blocks and teeth carried by the blocks to retain the work in place.

10. In a former, the combination with suitable supports, of laterally-extending angle-bars carried by the supports, a series of blocks removably received on each of the bars, and conforming to the angle thereof, and spurs on the blocks for holding the work in position.

11. A former comprising work-holding

members, one at least of which is adjustable, of an adjustable collar, a rack pivotally secured thereto and a projection on the adjustable work-holder adapted to be releasably engaged by the rack.

12. In a box or crate former, the combination with a plurality of upright members, of work-supporting arms projecting laterally therefrom, and rests adjustably secured to the upright members and projecting in a direction opposite to the arms, the rests adapted to support the work when the bottom is applied thereto.

13. In a box or crate former, the combination with a plurality of upright members, of work-supporting arms extending laterally from the member, the work adapted to depend beneath the arms, and a gage-bracket adjustably secured to an upright member on a plane beneath the work-supporting arms and extending in a direction transversely thereto, the edge of the depending work adapted to be alined by the bracket.

14. The combination, in a crate-former, with a suitable frame, of laterally-extending work-supporting arms, the arms each consisting of a plurality of independent sections, similar in conformation and suitably-sustained means for retaining two or more sections in position laterally of the frame to constitute a work-supporting arm.

15. In a crate or box former, the combination with a suitable support of an apertured fixed section mounted thereon, a rod, one end of which is removably received in the aperture in the fixed section, and additional sections removably mounted on the rod, the fixed and removable sections constituting work-supporting arms.

16. In a crate or box former, the combination with a plurality of upright members, of an apertured block slidingly connected with each member, a series of similar sections, spurs located on one face of each of the sections and means for arranging one or more of the sections removably in alinement with the block to form work-supporting arms.

17. A crate or box former comprising a plurality of upright members, work-supporting arms projecting therefrom, rests adjustably secured to the upright members at points beneath the horizontal plane of the arms, the rests projecting outward from the members, and lips adjustably mounted on the outwardly-projecting portions of the rests, the work adapted to be received and clamped between the lips and upright members.

18. A former comprising a sectional work-holder, the holder consisting of a suitably-fixed angle-bar, a block carried thereby, block and angle-bar sections, and a binding member on which the sections are removably mounted, the binding member removably carried by the fixed block.

In testimony whereof I affix my signature in presence of two witnesses.

CID PERRY.

Witnesses:
H. E. HARRISON,
C. J. STEPHEN.