

DANIEL M. CUMMINGS.

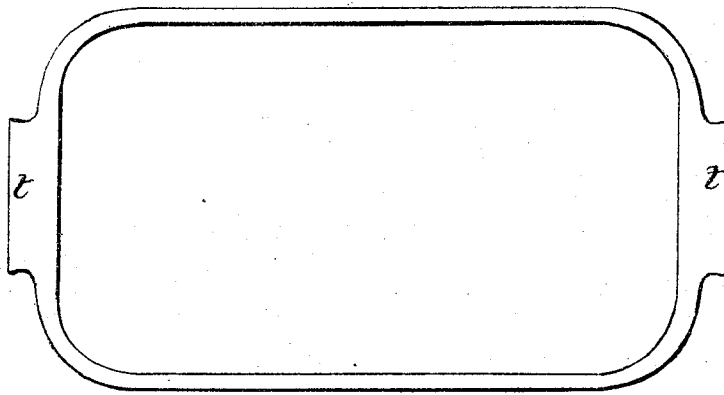
2 Sheets.  
Sheet 1.

Improvement in Machinery for Making Wooden Trays.

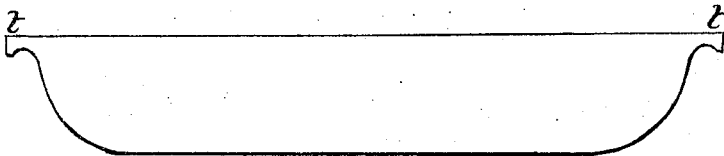
No. 119,828.

Patented Oct. 10, 1871.

*Fig. 1*



*Fig. 2*



Witnesses.

*W. Morris Smith*  
*James E. Smith.*

Inventor.

*Daniel M. Cummings.*  
*By his Attorney J. C. Robbins*

DANIEL M. CUMMINGS.

2 Sheets - Sheet 2.

Improvement in Machinery for Making Wooden Trays.

No. 119,828.

Patented Oct. 10, 1871.

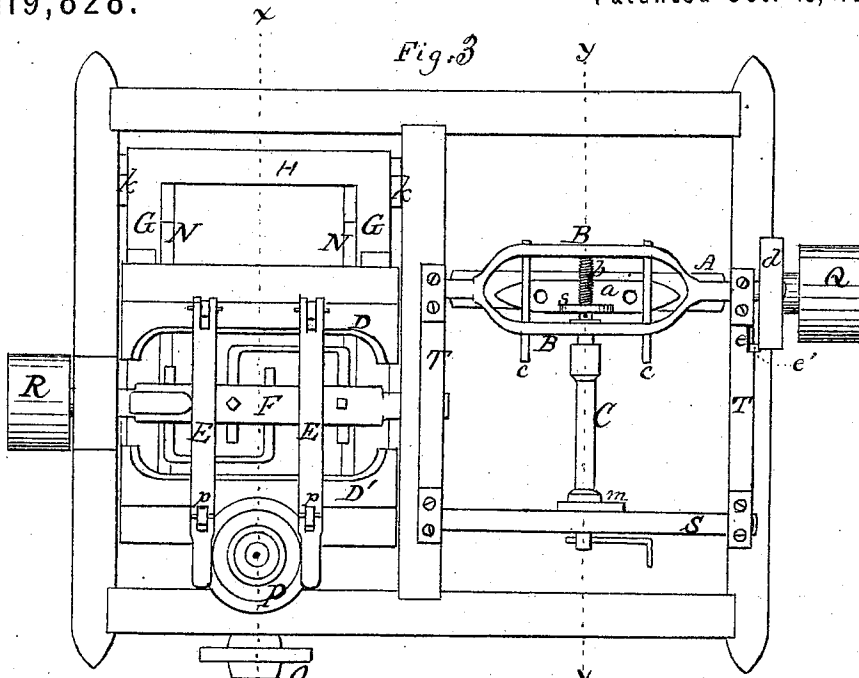
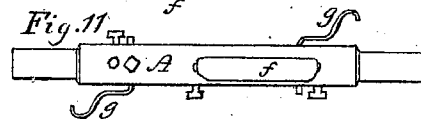
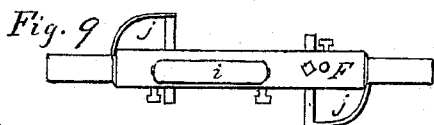
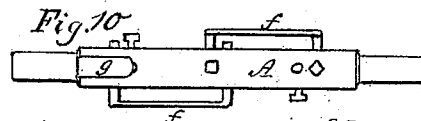
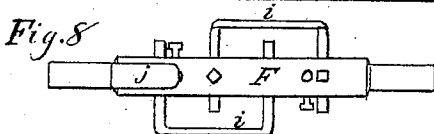
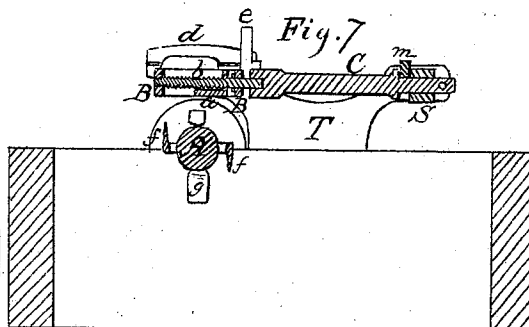
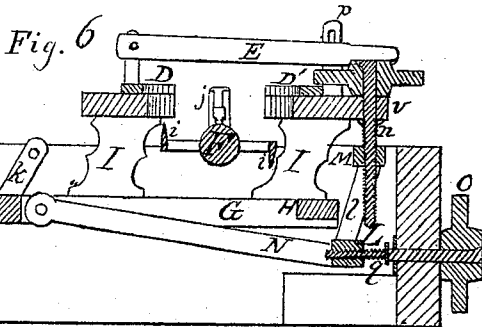
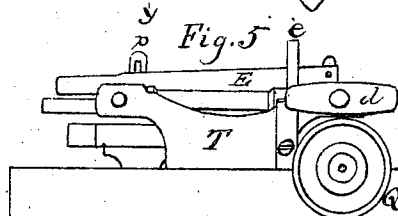
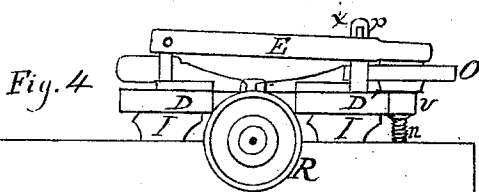


Fig. 12



Witnesses.

M. Morris Smith  
Rudney C. Smith,

Daniel M. Cummings Inventor  
By his attorney J. C. Robbins

# UNITED STATES PATENT OFFICE.

DANIEL M. CUMMINGS, OF ENFIELD, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF  
AND LEWIS KIMBALL, JR.

## IMPROVEMENT IN MACHINERY FOR MAKING WOODEN TRAYS.

Specification forming part of Letters Patent No. 119,828, dated October 10, 1871.

*To all whom it may concern:*

Be it known that I, DANIEL M. CUMMINGS, of Enfield, in the county of Grafton and State of New Hampshire, have invented an Improvement in Machinery for Making Wooden Trays; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing which forms a portion of this specification, of which—

Figure 1 is a top view, and Fig. 2 a side view of my improved wooden tray; Fig. 3, a top view of the improved machine employed in producing said tray; Figs. 4 and 5, end views of said machine; Fig. 6, a transverse section in the line *x x* of Fig. 3; Fig. 7, a transverse section in the line *y y* of Fig. 3; and Figs. 8, 9, 10, 11, and 12 represent in detail detached portions of the machine.

The same letters of reference indicate the same parts in the drawing.

A rectangular frame constructed in any suitable manner supports the improved combination of mechanism employed in the production of the aforementioned improved wooden tray. The flat surface of the segment-shaped block of wood which is to be brought to the shape of the tray is first secured to the laterally-movable plate *a*, Fig. 3, which is combined with the pivoted open frame *B* by means of the transverse rods *c c* which slide freely in apertures in the side bars of said frame. The screw *b*, whose journals work in lateral apertures in the side bars of the frame *B*, works in a screw-aperture in the ear *s* which rises from the plate *a*; and, consequently, by turning said screw first in one direction and then in an opposite direction the requisite number of times, the plate *a* can be alternately moved from one side of the frame *B* to the other, for the purpose hereinafter set forth. The frame *B* is supported in journal-boxes secured in the after ends of the supports *T T*, which are secured to and rise from the frame of the machine, as shown in Figs. 3 and 7. The frame *B* is retained in a horizontal position at the time that the requisite lateral movements are imparted to its plate *a* by means of the outwardly-projecting tooth *e'* on the vertical spring-plate *e*, Figs. 3 and 5, being sprung into a groove or notch in the inner face of the handle-block *d*, which is secured to the projecting end of the outer journal of said frame.

Motion is imparted to the screw *b* of the frame

*B* by means of the wrench *C*, whose outer end terminates in the form of an elongated journal and is received into an aperture in the central portion of the pivoted shaft *S*, while the cavity in the inner end of said wrench receives the angular head of the screw *b*, as shown in Figs. 3 and 7. To retain the wrench *C* in close connection with the screw *b* for the desired length of time the block *m*, which is pivoted to the inner side of the shaft *S*, is shut into the space between the journal-shoulder of said wrench and the inner side of the shaft *S*, as shown in Figs. 3 and 7; and the said wrench can be detached from the head of the screw *b* by simply throwing upward the hinged block *m* and moving the wrench outward. The shaft *S* works in journal-boxes, or their equivalents, that are secured to the outer ends of the supports *T T*, and consequently when the wrench *C* is withdrawn from the head of the screw *b* it will fall to a vertical position, and be out of the way of the succeeding movements of the frame *B* in the process of giving the desired shape to the outer surface of the block of wood secured to the plate *a* of said frame. Vertically beneath the journals of the frame *B* are located the journals of the cutter-shaft *A*, which is furnished with the cutters *f f* and *g g*, Figs. 10 and 11, which are of such a shape that they will give the desired form to the exterior surface of the tray when the appropriate movements are given to the frame *B* and its plate *a*, at the same time that a rapid rotary movement is imparted to the cutter-shaft *A*. After a block of wood has been firmly secured to the plate *a* of the frame *B* and a rapid rotary movement has been imparted to the cutter-shaft *A*, the operator takes hold of the handle-block *d* on the projecting end of the outer journal of the frame *B*, and turns the said frame to such inclined positions as will enable the cutters *f f* and *g g* on the cutter-shaft to reduce one side and portions of both ends of the exterior surface of said block of wood to the desired exterior shape of a tray. Then the operator secures the frame *B* in a horizontal position by letting the tooth *e'* of the spring-plate *e* into the notch in the inner face of the handle-block *d*, and at the same time he couples the wrench *C* with the head of the screw *b*; then, by turning said screw, he imparts a lateral movement to the tray-block on the plate *a*, and for a sufficient distance to enable the cut-

ters *ff* and *gg* to form the required flat bottom on said block, and also to shape the ends thereof, which curve outwardly from said bottom; then the operator detaches the wrench C from the screw *b*, and again takes hold of the handle-block *d* and turns the frame B into such oblique positions as will enable the cutters *ff* and *gg* to give the desired curved exterior shape to the opposite side and also to the unfinished portions of the ends of the tray-block, and also at the same time to complete the formation of the handles *t* upon the ends of the block, which handles are the distinguishing features of the within-described tray, and are produced by giving the reversed curve and the proper length to the terminating portions of the cutters *gg*, and the concerted action of said cutters with the requisite lateral and turning movements imparted to the tray-block. After the desired shape has been thus given to the exterior surface of the tray-block the said block is then placed upon the indented inner edges of the adjustable supports D D', Figs. 3 and 6, and is there firmly secured by means of the hinged clamping-bars E E, aided by any required number of clamping-wedges. Vertically below the longitudinal center of the space between the supports D D' the cutter-shaft F is located, and is there supported in suitable journal-boxes. The cutters *ii* and *jj*, which are adjustably secured to the shaft F, are of such a shape that when a rapid rotary motion is imparted to said shaft, at the same time that the requisite lateral and downward movements are imparted to the tray-block, they will cut out from the under surface thereof such an amount of wood as may be necessary to give the desired concave shape to the interior surface of the tray. The ends of the supports D D' rest upon uprights I I, Fig. 6, which rise from the sides G G of the rectangular frame G G H H. The rear end of said rectangular frame is suspended by hinged bridle-pieces *kk* to the transverse portions of the frame-work of the machine, as shown in Figs. 3 and 6. The front end of said rectangular frame is supported in the following manner, to wit: The set-screw *n*, Fig. 6, which descends from its annularly-grooved connection with an offset, *v*, from the front side of the support D', passes through a screw-aperture in the bar M, whose ends rest upon the pivoted uprights *ll* which rise from their pivoted connection with the bar L; and this bar L is connected with the rear ends of the frame-pieces G G by means of jointed bridle-pieces N N, Figs. 3 and 6, and consequently the said bar can be freely moved back and forth in a horizontal direction without imparting any horizontal motion to the bar M, which is located above the same. The horizontal set-screw *q*—the smooth portion of whose shank works in an aperture in the front side of the frame of the machine, and whose screw portion works in a screw-aperture in the bar L—serves the purpose of supporting the front side of the rectangular frame G G H H, and also, by the rotation of the same in one direction or the

other, it can be made to impart a rearward or a forward movement to said frame and to the parts resting thereupon. When a rearward movement is imparted to the rectangular frame G G H H, by turning the set-screw *q*, the movement that will thereby be imparted to the bridle-pieces N N and *kk* will produce a corresponding upward movement to the rear side of said frame, and vice versa; while the front side of said frame can be elevated or depressed by turning the vertical set-screw *n* toward the right or left, as circumstances may require. And thus it will be perceived that all the movements of the supports D D' that may be required to bring the tray-block which may be clamped thereto into such contact with the cutters on the rotating shaft F as will enable them to cut out and properly shape the concave interior surface of said block, and thus complete the tray, can be accomplished.

Other combinations of mechanism may be devised for supporting the tray-block and of imparting the requisite movements thereto during the operation of scooping out and bringing the same to the desired concave shape.

I claim as my invention—

1. The combination of the laterally-movable plate *a* and the set-screw *b* with each other and with the pivoted frame B, substantially as and for the purpose herein set forth.

2. The combination of the laterally-movable plate *a*, the set-screw *b*, and the wrench C with each other and with the pivoted frame B and the pivoted shaft S, substantially as and for the purpose herein set forth.

3. The combination of the laterally-movable plate *a*, the set-screw *b*, the wrench C, and the pivoted frame B with the peculiarly-shaped cutters *ff* and *gg* on the rotary shaft A, substantially as and for the purpose herein set forth.

4. The combination of the doubly-curved cutters *gg* with the shaft A, the laterally-movable plate *a*, the set-screw *b*, and the pivoted frame B, substantially as and for the purpose herein set forth.

5. The combination of the supports D D' and the clamping-bars E E with each other and with the rectangular frame G G H H, the bars L M, the bridle-pieces N N *kk*, and the set-screws *n* and *q*, substantially as and for the purpose herein set forth.

6. The combination of the cutter-shaft F with the supports D D', the clamping-bars E E, the rectangular frame G G H H, the bars L M, the bridle-pieces N N *kk*, and the set-screws *n* and *q*, substantially as and for the purpose herein set forth.

In testimony that the foregoing is a full and exact description of my improved machine for producing an improved wooden tray, I hereunto subscribe my name this 16th day of August, 1871.

DANIEL M. CUMMINGS.

Witnesses:

G. W. CONANT,  
W. C. CLOUGH.

(175)