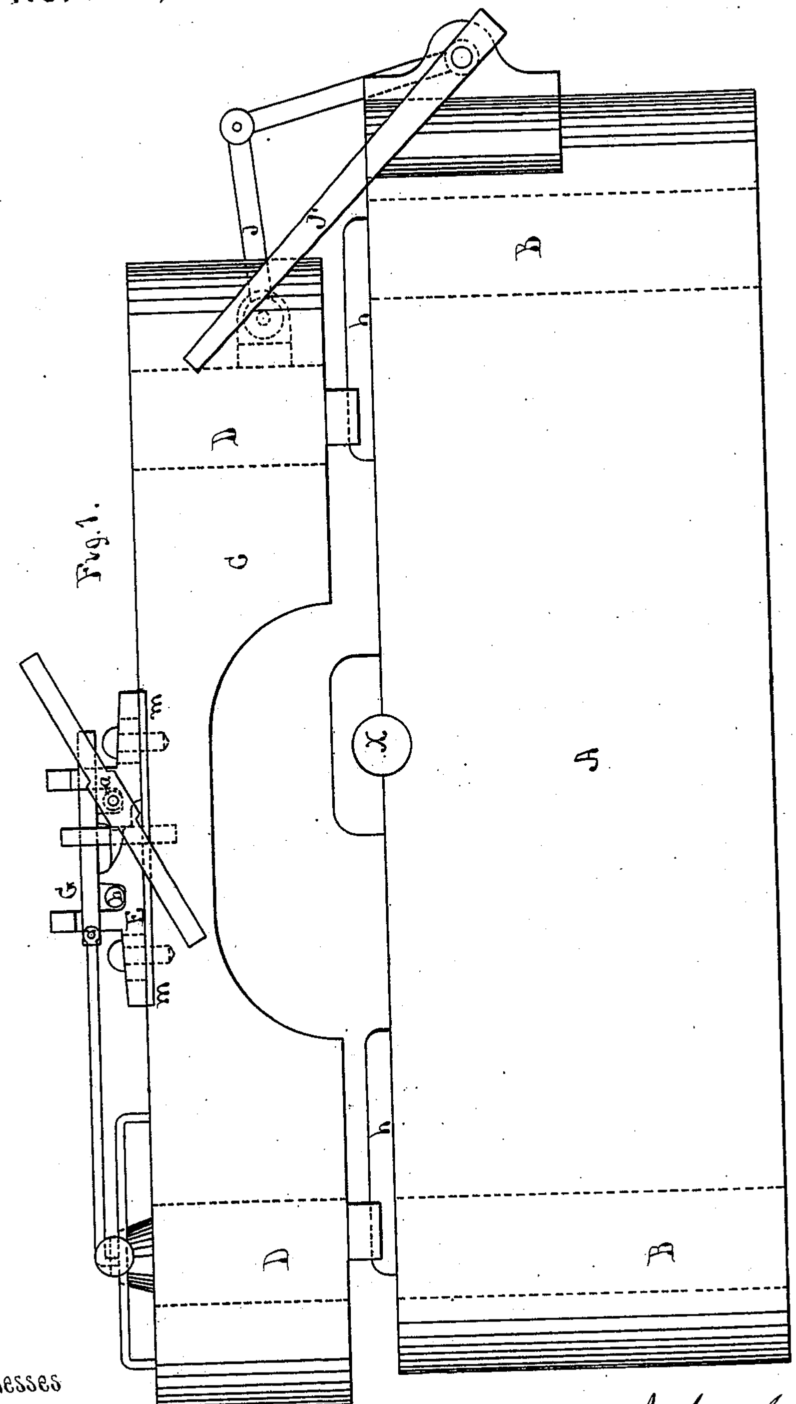
J. S. BROWN & L. KIMBALL, Jr.

Wooden-Tray Machine.

No. 202,146. Patented April 9, 1878.

Fig. 1.



Witnesses

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3 Sheets—Sheet 2.

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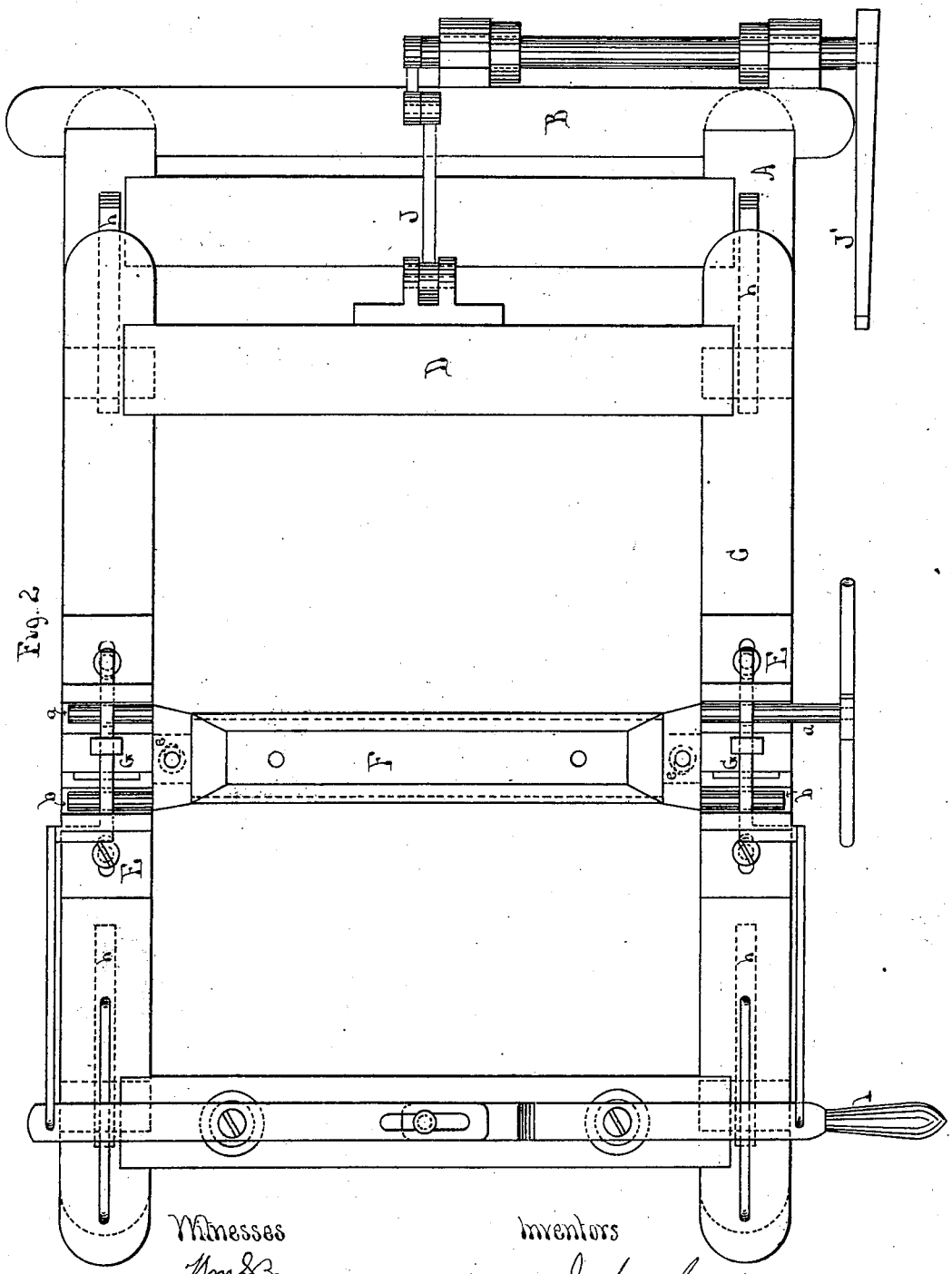

Fig. 2

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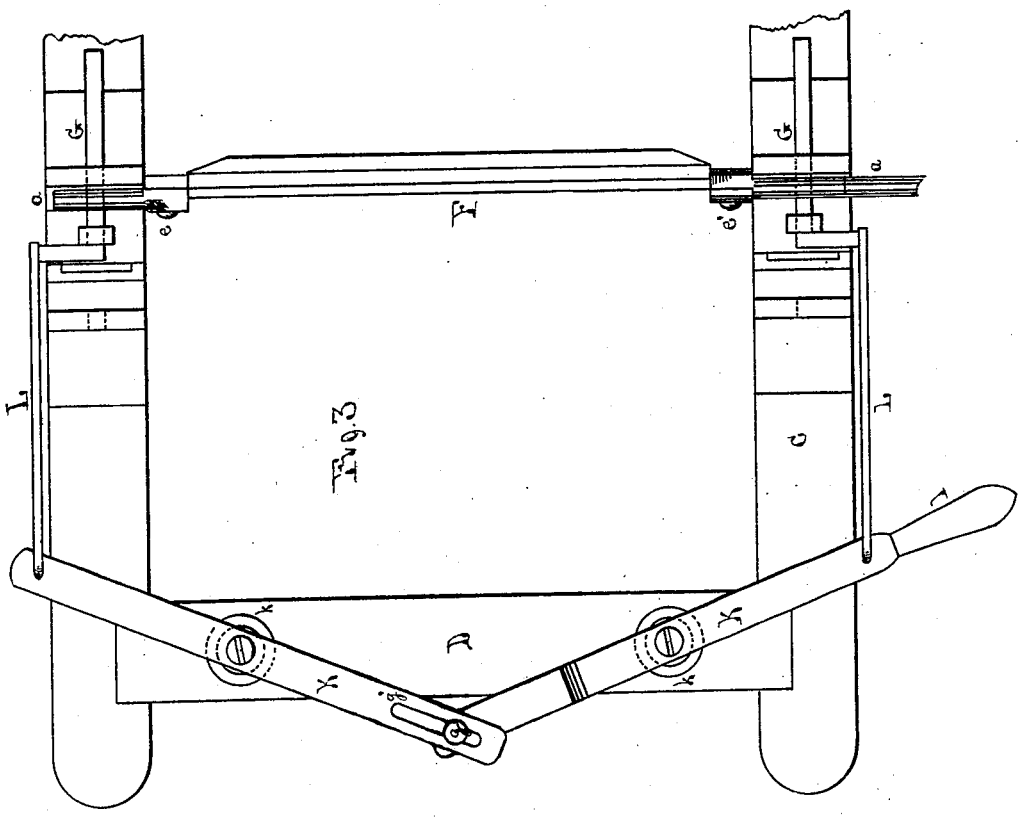

Fig. 3

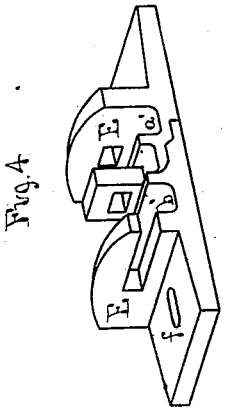

Fig. 4

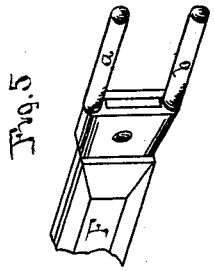

Fig. 5

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UNITED STATES PATENT OFFICE.

JOHN S. BROWN, OF FISHERVILLE, NEW HAMPSHIRE, AND LEWIS KIMBALL, JR., OF EAST RICHFORD, VERMONT.

IMPROVEMENT IN WOODEN-TRAY MACHINES.

Specification forming part of Letters Patent No. **202,146**, dated April 9, 1878; application filed February 13, 1878.

To all whom it may concern:

Be it known that we, JOHN S. BROWN, of Fisherville, in the county of Merrimack and State of New Hampshire, and LEWIS KIMBALL, Jr., of East Richford, in the county of Franklin and State of Vermont, have invented certain new and useful Improvements in Machines for Making Wooden Trays, of which the following is a description:

Our invention consists in combining with the fixed frame to which the cutting-cylinder is attached a movable or sliding carriage, provided with a holder for the tray-block, which holder slides with the carriage, and is adjustable, so that different sizes of trays may be made on the same machine of the proper external shape and form.

In the drawings, Figure 1 represents a side view; Fig. 2, a plan of the machine. Figs. 3, 4, and 5 are details of the same.

A B represent the fixed part or body of the machine, in which the cutting-cylinder is placed, the shaft of the latter being shown at *x*, Fig. 1. C D is a longitudinally-moving frame, which slides back and forth on the fixed frame A B on ways *h h*, or in any other convenient manner. This carriage is moved backward and forward by means of a lever, J, which is connected with the handle J′ in such manner as to be readily managed by the operator.

F is the holder-plate, to which is attached the tray-block, and which is provided with the opposite pivotal arms *a a b b*, and these pivotal arms turn in open sockets in the holder-boxes E E. The pivotal arms *a a b b* and boxes E E are made adjustable, so that they may be properly adjusted relative to the cutting-knives, to preserve the proper form and proportions of the trays of different sizes. The pivotal arms *a a b b* are made of separate pieces, and one of them, at each end, is provided with an elongated slot, as are also the ends of the holder, as shown at *e e*, Fig. 2. A set-screw or bolt, *e′*, Fig. 3, holds these several parts together. The boxes E E are made in two parts, as shown in Fig. 4, and each end is provided with an elongated slot, *f*, and each part is held by a set-screw through this slot, which permits of the spreading of the boxes, so that the open sockets *a′ b′* may be adjusted correspondingly to the pivotal arms.

It is obvious that if the same pivotal points on this machine were used for trays of different widths, their external shape and configuration would be different, even when the carriage is moved so as to bring the holder a distance beyond the cutters corresponding to the increase of width, and this external shape would be such, in some cases, as to lessen the practical and salable quality of the trays. This adjustability of the pivotal points, however, enables us to readily and easily adapt the machine to trays of different widths, and at the same time preserve the best external shape and configuration for the tray; and not only may this best external form be given to trays of different widths, but this method of adjustability enables the machine to be used for trays of different depths as well.

The holder-boxes may be raised by set-screws, or in any other convenient manner, and the best external shape may be given by a corresponding adjustment of the pivotal arms and boxes. This raising of the holder-boxes may also be accomplished by means of thin plates inserted under them, as shown at *m*, Fig. 1.

A sliding gate, G, extends through standard on the boxes E E, which serves to hold down the opposite pivotal arms when the holder is turned to bring the sides of the tray-block to the actions of the knives. One end of each gate G is bent at right angles to the gate, and this end is connected to the arm L, as shown in Fig. 3. The figure of one of the boxes E (shown in Fig. 4) shows a slotted upright at the end opposite the socket *a′* for the pivotal arm *a*, which socket allows the gate G to be drawn back far enough for the release of the arm *a*, as shown in Fig. 3. The arms *a a* are released, the gate being moved far enough forward for that purpose. If, now, the holder-plate is turned horizontal, and the handle *l* moved so as to bring the levers K K in the same straight line, both pivotal arms will be held down, and the angle-piece of the gate will be in, or nearly so, the horizontal slot shown in Fig. 4; but if the handle *l* is moved an equal distance in an opposite direction from that shown in Fig. 3,

the angle-piece will slide through the slot in the box E, Fig. 4, and the end of the gate will be drawn back to the center upright of the box E, and the arms *b b* will be released, so that the plate F may be turned the other end up. These sliding gates, one on each side of the carriage, are operated simultaneously by the handle I by means of the levers K K and connecting-arms L L.

The levers turn on the fulcrums *k k*, and one of them is provided with a stud, *g*, projecting through a slot, *g'*, in the other lever, so that when the handle I and lever K are moved by the operator a corresponding motion is given the other lever, and the gates on each side are thus operated together. These sliding gates or bars are of such a length that when the levers K K are in the same straight line they extend over and hold down both pairs of pivotal arms; but when moved to one end or the other one pair of opposite pivotal arms is held by them, while the other pair is released.

The external form is given to the tray in the following manner: A rectangular block of the proper size is attached to the holder F by set-screws or bolts, so that the longitudinal centers of the block and holder shall be in the same vertical plane, or as nearly so as possible. The carriage being moved to bring the tray-block to one side of the cutting-cylinder, as shown in Fig. 1, the sliding gate is moved so as to hold down the opposite pivotal arms *a a*, and the holder is then turned on these pivotal arms, carrying the block with it, and causing the cutting-knives to give the proper external curved form to one side. The holder is then turned horizontally, and the sliding gate moved to hold down the pivotal arms on both sides, and the carriage is then moved along over the cutters, and the bottom of the tray planed off, and the form given to the ends. The carriage is then moved an equal distance to the other side of the cutting-cylinder, the sliding gate is moved to hold down the other opposite pivotal arms, and the like external form is given to the other side.

The inside of the tray may be formed in the usual manner.

We claim as new and of our invention—

1. In combination with the cutting-cylinder, attached to the body of the machine, the sliding carriage C D and pivotal holder-plate F, substantially as described.

2. The combination of the movable carriage C D, block-holder F, pivotal arms *a a b b*, boxes E E, and sliding gates G G with the cutting-cylinder, attached to the body A B, substantially as described.

3. In combination with the block-holder F, the adjustable pivotal arms *a a b b* and adjustable boxes E E, substantially as described.

4. In combination with the pivotal arms *a a b b* of the block-holder F, the sliding gates G G, substantially as described.

5. The combination of the sliding bars G G, the connecting-arms L L, and levers K K, the latter adapted to move said sliding bars simultaneously, substantially as described.

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