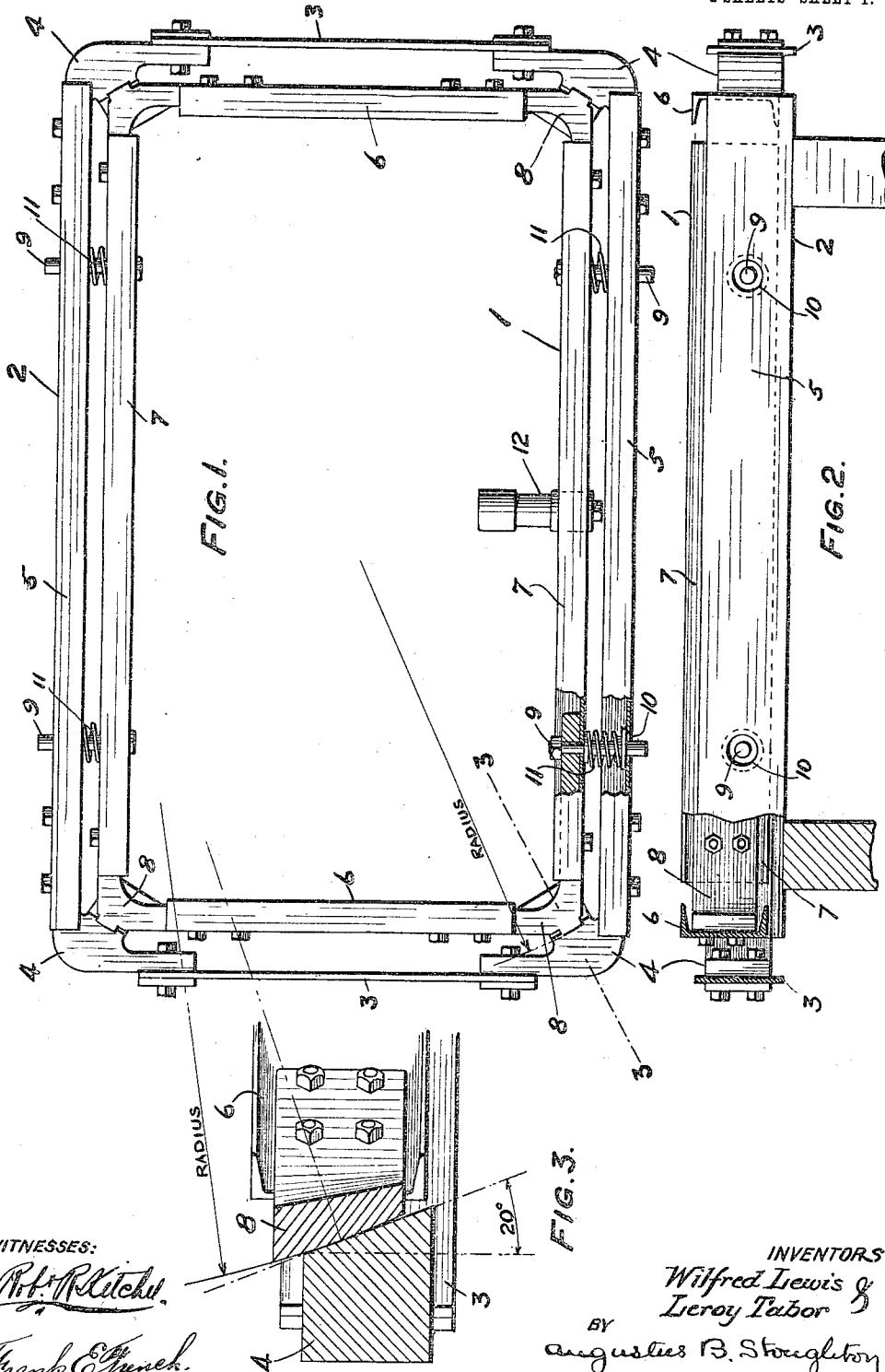


W. LEWIS & L. TABOR.
EQUALIZING SUPPORT FOR MOLDERS' FLASKS.
APPLICATION FILED MAY 12, 1909.

964,440.

Patented July 12, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

Robt. R. Kitchin
Frank E. Hinch

INVENTORS
Wilfred Lewis & Leroy Tabor
BY
Augustus B. Stoughton
ATTORNEY.

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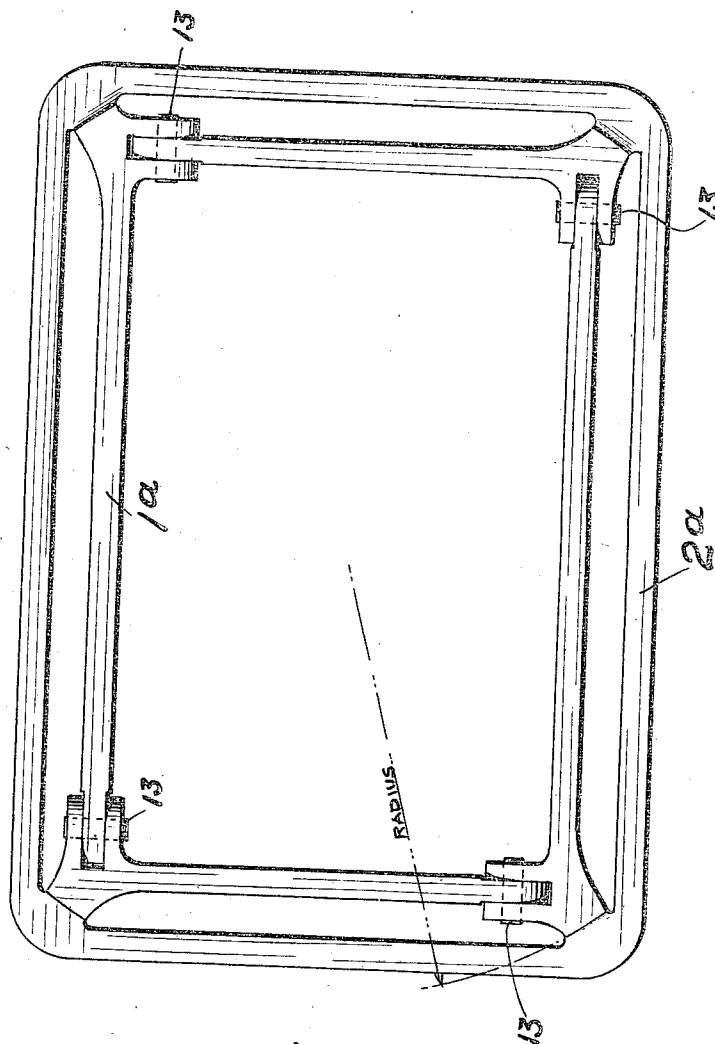


FIG. 4.

WITNESSES:

Robt. R. Mitchell.
Frank C. Trench.

INVENTORS

Wilfred Lewis &
Leroy Tabor
BY *Augustus B. Shouglberg*
ATTORNEY.

UNITED STATES PATENT OFFICE.

WILFRED LEWIS AND LEROY TABOR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS
TO THE TABOR MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA,
A CORPORATION OF NEW JERSEY.

EQUALIZING-SUPPORT FOR MOLDERS' FLASKS.

964,440.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed May 12, 1909. Serial No. 495,452.

To all whom it may concern:

Be it known that we, WILFRED LEWIS and LEROY TABOR, citizens of the United States, and residents of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have jointly invented a new and useful Equalizing-Support for Molders' Flasks, of which the following is a specification.

In practice flasks containing patterns and sand while depending from a suitable carrier are often placed upon a suitable object and then the pattern is drawn from the sand by means of the carrier.

It is important that the support which receives the flask should be capable of accommodating it in such a way that when the pattern is drawn the line of draft shall be vertical.

The object of the present invention is to provide an equalizing cradle especially adapted for large work and which accommodates itself not only to inequalities of the flask, but also to the movement thereof brought about by the correction of any deflection that may have occurred in the part that carried the flask, as the weight of the flask is taken by the cradle.

The invention is capable of various embodiments, one of which has been selected for illustration in the accompanying drawings, in which—

Figure 1, is a top or plan view, with parts broken away, of an equalizing cradle embodying features of the invention. Fig. 2, is an elevational view, with parts broken away, of the same. Fig. 3, is an enlarged sectional view taken on the line 3—3 of Fig. 1, and Fig. 4, is a top or plan view of an equalizing support embodying a modification of the invention.

In the drawings 1 and 2 are rectangular frames which bear upon each other and of which one or both is flexible. In the embodiment of the invention chosen for illustration in Figs. 1 to 3, the outside frame 2 is flexible in the direction of its diagonals and the inside frame has torsional flexibility, and bearings between the frames are shown at the four corners, but this construction while illustrative of the invention, is chosen not with the idea of excluding others, but because it appears to be the best known to us at this time. To make the outside frame 2 flexible, a variety of expedients may be re-

sorted to, but we have illustrated flexible end sections 3. The element 3, is flexible because of the nature of the material from which it is made but it is not intended to exclude the idea of other means such as pivots, joints or the like. As shown the frame 2 consists of these flexible strips 3, which are secured to corner pieces 4 and of side pieces 5, shown as of channel iron. The inner frame 1 is shown to consist of corner pieces 8, bolted to side and end pieces 6 and 7 consisting of channel irons, which have torsional flexibility. There is of course very little flexibility in the corner pieces and the elasticity or flexibility of the frame depends substantially upon the length of the channel irons between the corner pieces. This has reference to the construction shown in Fig. 1. There is very little movement required. In some cases a movement of three-fourths of an inch is more than sufficient to accommodate the usual distortion in the bottom boards of a flask. The frames may be connected by means of bolts 9, the ends of which work freely in enlarged openings 10, and springs 11 with appropriate washers at their ends are shown as interposed between the frames; thus the frames are connected together while at the same time are quite free to move in respect to each other.

There are bearings between the corner pieces and the surfaces of these bearings should be capable of easy relative movement. For this purpose the bearing on the corner pieces 8 may be struck from a common center as on a radius which is indicated on the drawings. The bearings on the corner pieces 4 may be made flat and arranged at an angle of 20° to the vertical as shown in Fig. 3. However, this construction of the bearings is given for the sake of description and not with the idea of confining the invention to it, as the purpose of making the frames move easily in respect to each other can be accomplished where the bearings are properly designed, though perhaps not in the precise manner described.

12, is a vibrator secured to one of the frames, in the present instance the inner frame 1 and so that it may be understood what is meant by a vibrator, it may be said that the device illustrated in Letters Patent No. 573,401, shows one variety of such a device. A vibrator is a self-contained power

device usually comprising a piston, a cylinder and pneumatic connections whereby the piston is reciprocated so rapidly in the cylinder that parts connected with the device are brought into a state of vibration. Its function is to accomplish the same result that is usually accomplished by rapping when drawing patterns. The purpose of this vibrator is to vibrate the parts while the flask is coming to a bearing on the equalizing support and thus reduce the friction at the bearings between the frames so that the relative movement between them shall be easy. The vibrator is not run while the pattern is being drawn and thus the normal friction of the bearings serves to hold the frame against accidental relative movement.

The described construction which involves the flexible strips 3 is strong in tension. The device may be used either side up, but preferably as shown. There is an advantage in having on the inner four side pieces or rails, which are well adapted to have boards placed upon them in either direction, which boards may be comparatively long and adapted to support relatively large flasks.

As a flask is deposited on the inner frame the latter moves and adjusts itself to irregularities of the flask and as the weight of the flask comes onto the inner frame it can continue to move to adjust itself to any movement of the flask that may be brought about by previous deflection of the carrier that was carrying the flask. The action of the vibrator by diminishing friction of the bearings between the frames facilitates the requisite movement of the inner frame.

In Fig. 4, the outside frame 2^a is rigid and the inside frame 1^a is flexible, both in the direction of its diagonals and torsional, the parts thereof being secured together by means of loose pin joints 13, which permit of relative movement of the parts which they connect in all directions. What is meant by torsional and diagonal flexibility can be explained by saying that a sheet of tin cut out like a picture frame would have a great deal of torsional flexure and very little diagonal flexure. It would offer considerable resistance to a force tending to lengthen or shorten the diagonal distance

across the corners and very little resistance to a force tending to twist the frame out of its plane.

It will be obvious to those skilled in the art to which our invention relates that modifications may be made in details without departing from the spirit thereof, hence the invention is not limited further than the prior state of the art may require, but

Having thus described the nature and objects of our invention what we claim as new and desire to secure by Letters Patent is:

1. An equalizing support for molders' flasks comprising a pair of frames having corner bearings and whereof one of the frames is flexible, substantially as described.

2. The combination in an equalizing support for molders' flasks of relatively movable parts with a vibrator for diminishing friction between the parts, substantially as described.

3. An equalizing support for molders' flasks comprising rectangular frames having bearings between them at the corners thereof and whereof one of the frames is flexible diagonally and the other is flexible torsionally, substantially as described.

4. An equalizing support for molders' flasks comprising rectangular frames having corner bearings and whereof one of the frames comprises torsion strips, substantially as described.

5. An equalizing support for molders' flasks comprising a flexible outer frame, a rigid inner frame having corner bearings on the outer frame, connections between said frames which permit of relative movement thereof, and a vibrator attached to one of said frames, substantially as described.

6. An equalizing support for molders' flasks comprising a plurality of frames having bearings between them and whereof one of the frames is flexible, substantially as described.

In testimony whereof we have hereunto signed our names.

WILFRED LEWIS.
LEROY TABOR.

In the presence of—
K. M. GILLIGAN,
FRANK E. FRENCH.