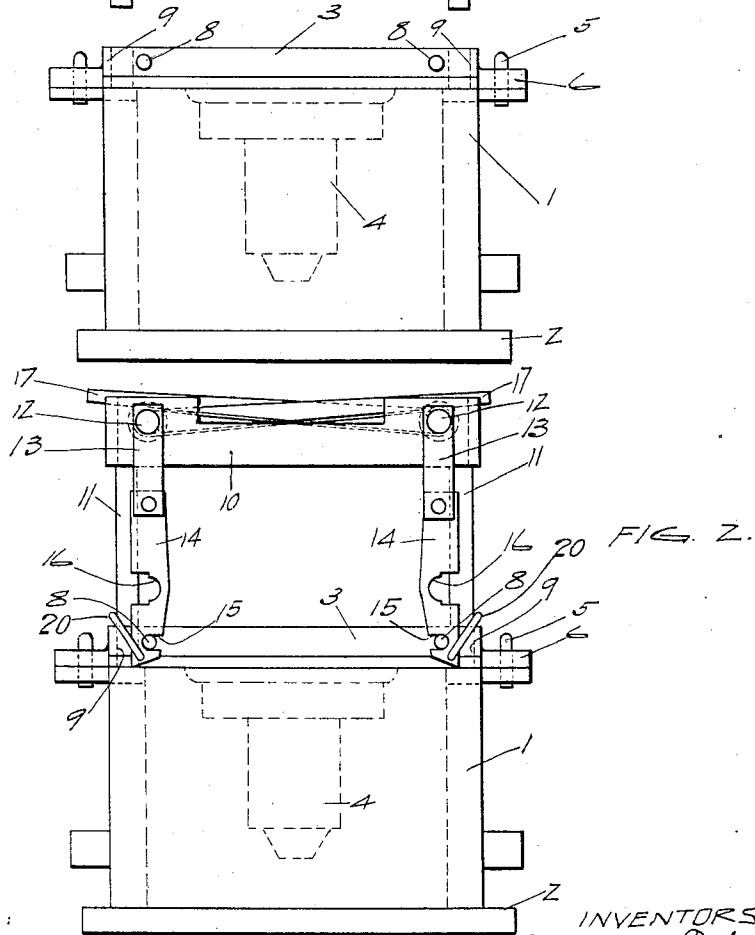
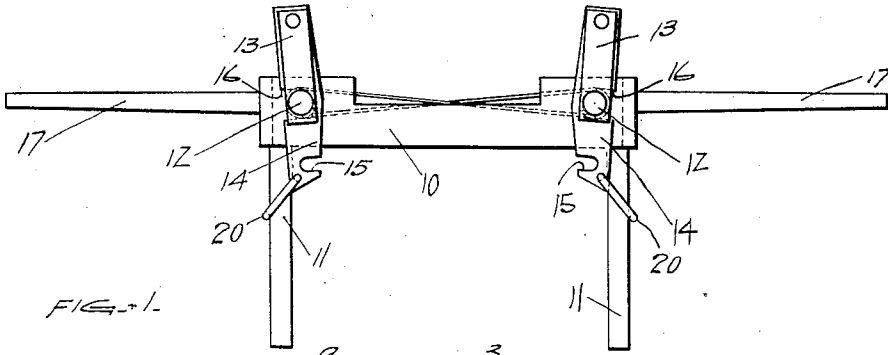


B. D. FULLER & J. R. & T. A. REILLY.
 MECHANISM FOR DRAWING PATTERNS FROM MOLDS.
 APPLICATION FILED JAN. 27, 1911.

1,042,780.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.



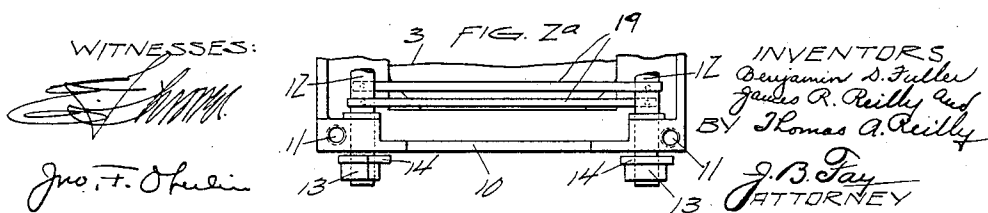
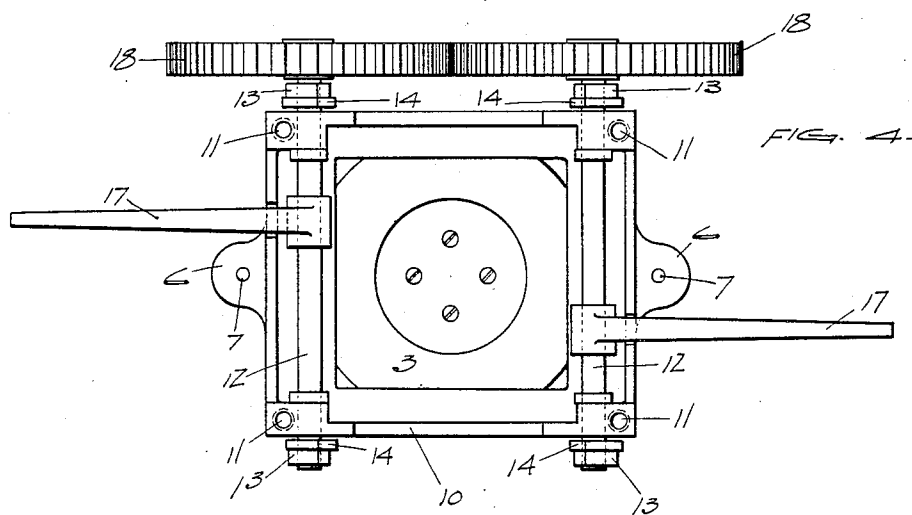
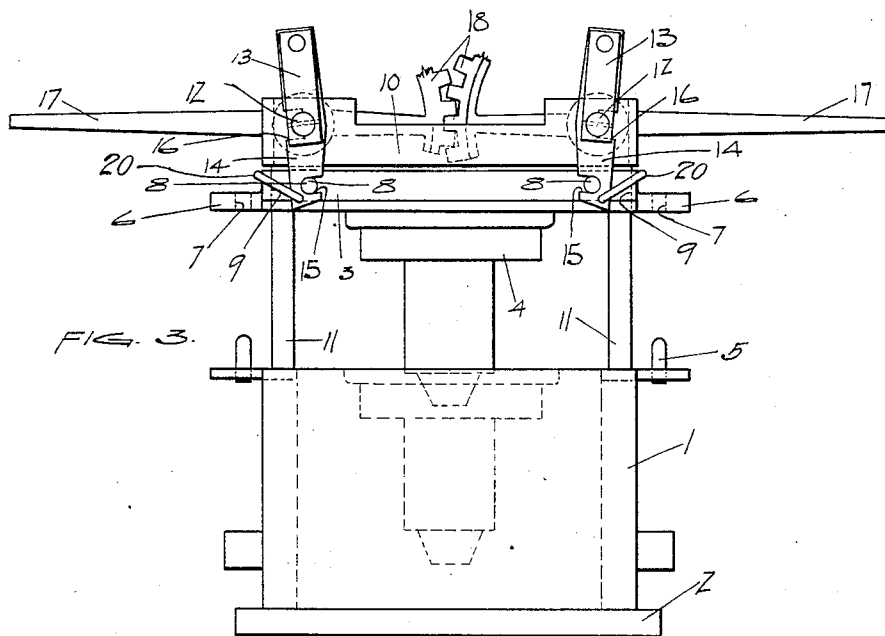
WITNESSES:

[Signature]
 Jno. T. Oberlin

INVENTORS
 Benjamin S. Fuller
 James R. Reilly and
 T. A. Reilly
 BY Thomas A. Reilly
[Signature]
 J. B. Fay
 ATTORNEY

1,042,780.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

BENJAMIN D. FULLER, JAMES R. REILLY, AND THOMAS A. REILLY, OF CLEVELAND, OHIO, ASSIGNORS TO THE OSBORN MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

MECHANISM FOR DRAWING PATTERNS FROM MOLDS.

1,042,780.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed January 27, 1911. Serial No. 605,023.

To all whom it may concern:

Be it known that we, BENJAMIN D. FULLER, JAMES R. REILLY, and THOMAS A. REILLY, citizens of the United States, and residents of Cleveland, county of Cuyahoga, State of Ohio, have jointly invented a new and useful Improvement in Mechanism for Drawing Patterns from Molds, of which the following is a specification, the principle of the invention being herein explained and the best mode in which we have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates in general to mechanisms for drawing patterns from molds, and its particular object is the provision of a mechanism which may be used for drawing the pattern from a mold after it has been manually turned over; that is from a mold which has been turned over by some means in contradistinction to a roll-over or rock-over molding machine, some kind of drawing mechanism being ordinarily directly incorporated in machines of this type. To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but several of the various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:—Figure 1 is a side elevation of a flask and our improved mechanism in disassembled relation; Fig. 2 is a broken side elevation of the parts assembled ready to begin the draw; Fig. 2^a is a broken plan view of the mechanism; Fig. 3 is a broken side elevation after the pattern has been drawn and shows at the same time a modification in certain details; and Fig. 4 is a plan view of the form of mechanism illustrated in Fig. 3.

Any convenient type of flask 1 may be used, and in the drawings the flask is shown after it has been turned over on the bottom board 2. In this position, of course, the drawing or pattern plate 3 is on top of the flask, and secured to said pattern plate is the pattern 4 still in the mold. In order to center the plate and flask, any suitable means

may be used such as pins 5 borne by the flask which register with holes 7 in projections 6 on the pattern plate 3. The improved pattern plate in the present instance is furthermore provided with two laterally extending projections or pins 8 on each of two opposite sides, the two pins on each side being near the two ends of such side. The plate 3 is also provided, preferably at its four corners, with vertically extending holes 9.

Supported above the plate in the assembled condition of parts is a member or frame 10 which bears on its under side, preferably one at each corner, vertical guide rods 11 which are designed to register with the openings 9 in the drawing plate 3. The means for supporting the member 10 above the plate, and the guide rods borne by the member, may be distinct, but the simplest and most efficient way to construct the mechanism is to utilize the guide rods 11 as the supporting members for the member or frame 10, these guide rods being extended through the openings 9 in the drawing plate and being designed to rest directly upon the flask 1.

Two rotatable shafts 12 are mounted horizontally at opposite sides of the frame or member 10, and secured at opposite ends of each shaft 12 are two cranks 13 while to each crank 13 is pivoted a link 14. Each link 14 is provided at its free end with an inwardly opening notch 15, and intermediate its ends with an outwardly opening notch 16. The notches 15 are designed to engage the pins 8 on the pattern plate, and are guided into such engagement by rings 20 that encircle the adjacent rods 11, and so slidably connect said links therewith. The ends of the links are, moreover, properly beveled off in order to throw the same to the outside of the pins as they descend (see Fig. 2). Suitable means is secured to each shaft 12 for rotating it, such as a lever 17; it is also desirable to provide mechanism by which the rotation of the shafts 12 will be correlated. For this latter purpose either paired, flexible bands 19, arranged in criss-cross fashion with their opposite ends attached to the respective shafts 12, may be used (see Fig. 2^a); or two meshing segmental gears 18, secured to the respective shafts, will accomplish the same result.

The operation of the mechanism is as follows:—The frame with its guides and its drawing mechanism is placed over the pattern plate which is resting on the flask and the guide rods are extended downwardly through the holes or openings in the pattern plate until they rest on the top of the flask. The shafts are then rotated to lower the links, and the notches at the free ends of the links are guided into engagement with the pins at the sides of the plate by the means designed for this purpose. The shafts are then rotated, and by means of the cranks and links the plate is drawn up along the guide rods until the pattern is drawn entirely free from the mold. When the pattern plate is drawn into its completely raised position, the pivots connecting the links with the cranks are slightly beyond the center of the shafts 12 and the notches between the ends of the links engage the respective shafts so that the drawing plate will be securely held in raised position without effort of the operator. After the plate is in raised position, the frame or member with its guides and drawing mechanism, together with the plate, may be easily lifted from the flask as it is loosely resting on the flask, and the plate may subsequently be removed by lowering the links and the operation is complete.

It is obvious that various immaterial changes may be made in the design of the mechanism without departing from our invention. As has been pointed out, the supporting means for the frame or member may be distinct from the guide rods. Furthermore, the guide rods instead of extending through holes in the pattern plate might be engaged in various ways with the drawing plate, and, of course, any mechanical means for correlating rotation of the two shafts is comprehended within the invention.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention:—

1. In a device of the character described, the combination with a pattern plate; a member adapted to be supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite sides of said member; and means operable by said shafts for drawing said plate along said guides.

2. In a device of the character described, the combination of a pattern plate; a member supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite

sides of said member; cranks secured to the respective shafts; and links secured to the respective cranks and adapted to detachably engage said plate.

3. In a device of the character described, the combination of a pattern plate provided with horizontal projections; a member supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite sides of said member; cranks secured to the respective shafts; and links pivoted to the respective cranks and adapted to detachably engage said projections.

4. In a device of the character described, the combination of a pattern plate provided with laterally extending projections; a member supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite sides of said member; cranks secured to the respective shafts; and links pivoted to the respective cranks and adapted to detachably engage said projections, said links being provided with notches adapted to engage said shafts when the links are in raised position.

5. In a device of the character described, the combination with a pattern plate; a member adapted to be supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite sides of said member; means operable by said shafts for drawing said plate along said guides; and means for correlating rotation of said shafts.

6. In a device of the character described, the combination of a pattern plate; a member supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite sides of said member; cranks secured to the respective shafts; links secured to the respective cranks and adapted to detachably engage said plate; means for rotating said shafts; and means for correlating rotation of said shafts.

7. In a device of the character described, the combination of a pattern plate; a member supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite sides of said member; cranks secured to the respective shafts; links pivoted to the respective cranks and adapted to detachably engage said plate; means for rotating said shafts; and segmental gears secured to the respective shafts and meshing with each other.

8. In a device of the character described, the combination of a pattern plate; a member supported above said plate and provided with guides adapted to slidably hold said plate; rotatable shafts mounted at opposite sides of said member; cranks secured to the

respective shafts; links secured to the respective cranks and adapted to detachably engage said plate; and means for guiding said links into such engagement.

5 9. In a device of the character described, the combination of a pattern plate provided with laterally extending projections; a member provided on its under side with vertical rods adapted to slidably hold said plate; 10 rotatable shafts mounted at opposite sides of said member; cranks secured to the respective shafts; links pivotally depending from the respective cranks and adapted to engage the projections on said plate; and 15 means for guiding said links into such engagement.

10 10. In a device of the character described, the combination of a pattern plate provided with laterally extending projections; a member provided on its under side with vertical rods adapted to slidably hold said plate; 20 rotatable shafts mounted at opposite sides of said member; cranks secured to the respective shafts; links pivotally depending from the respective cranks and formed with 25

notches adapted to engage the projections on said plate; and rings slidably connecting said links with said rods whereby said links are guided into such engagement.

11. In a device of the character described, 30 the combination with a flask and a pattern-plate cooperating therewith; of a member provided on its under side with vertical rods designed to rest on said flask and when so resting to slidably hold said plate; rotatable 35 shafts mounted at opposite sides of said member; cranks secured to the respective shafts; links pivoted to the respective cranks adapted to detachably engage said plate; and means for correlating rotation of said 40 shafts.

Signed by us this 24th day of January, 1911.

BENJAMIN D. FULLER.
JAMES R. REILLY.
THOMAS A. REILLY.

Attest by—

ANNA L. GILL,
JNO. F. OBERLIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."