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PATENTED MAY 30, 1905.

W. E. ROCKWOOD.

SLIP OVER BOX FOR SAND MOLDS.

APPLICATION FILED APR. 22, 1903. RENEWED FEB. 27, 1905.

Fig 1

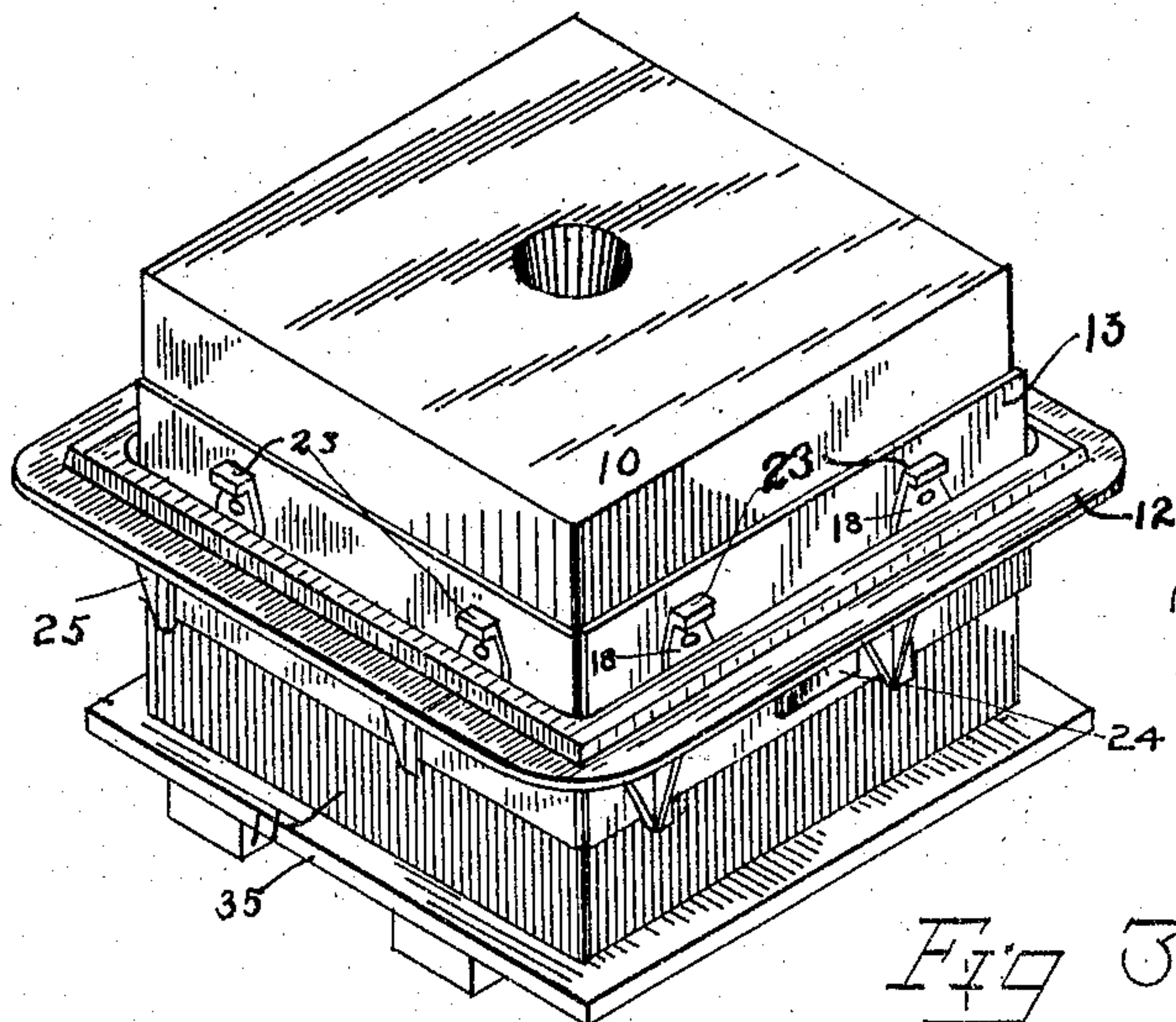


Fig 2.

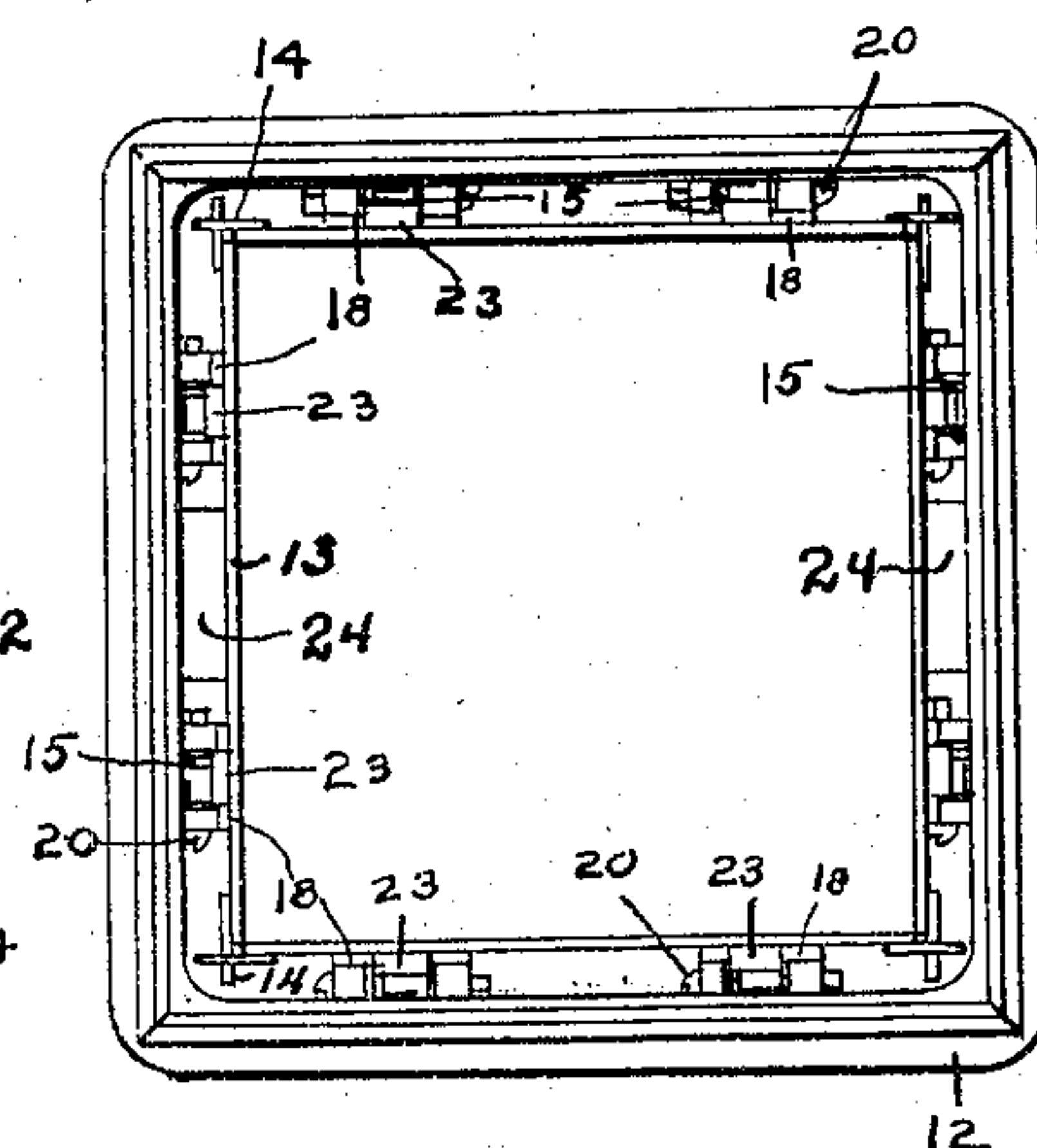


Fig 3

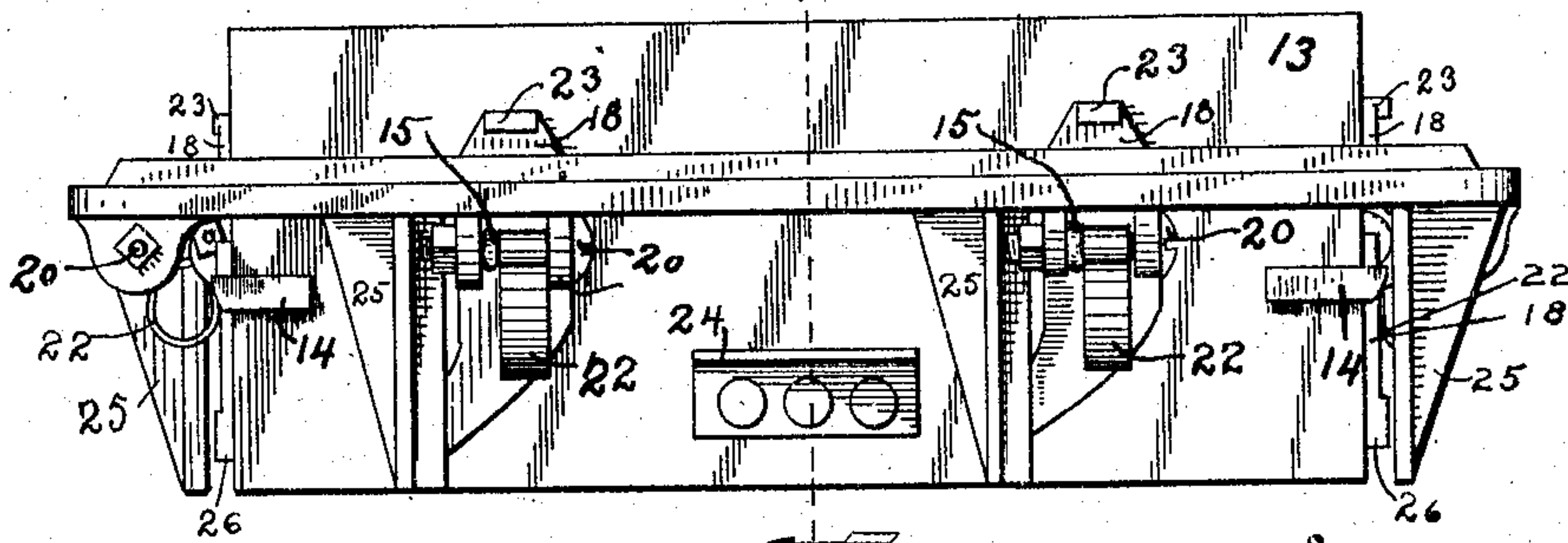


Fig 4

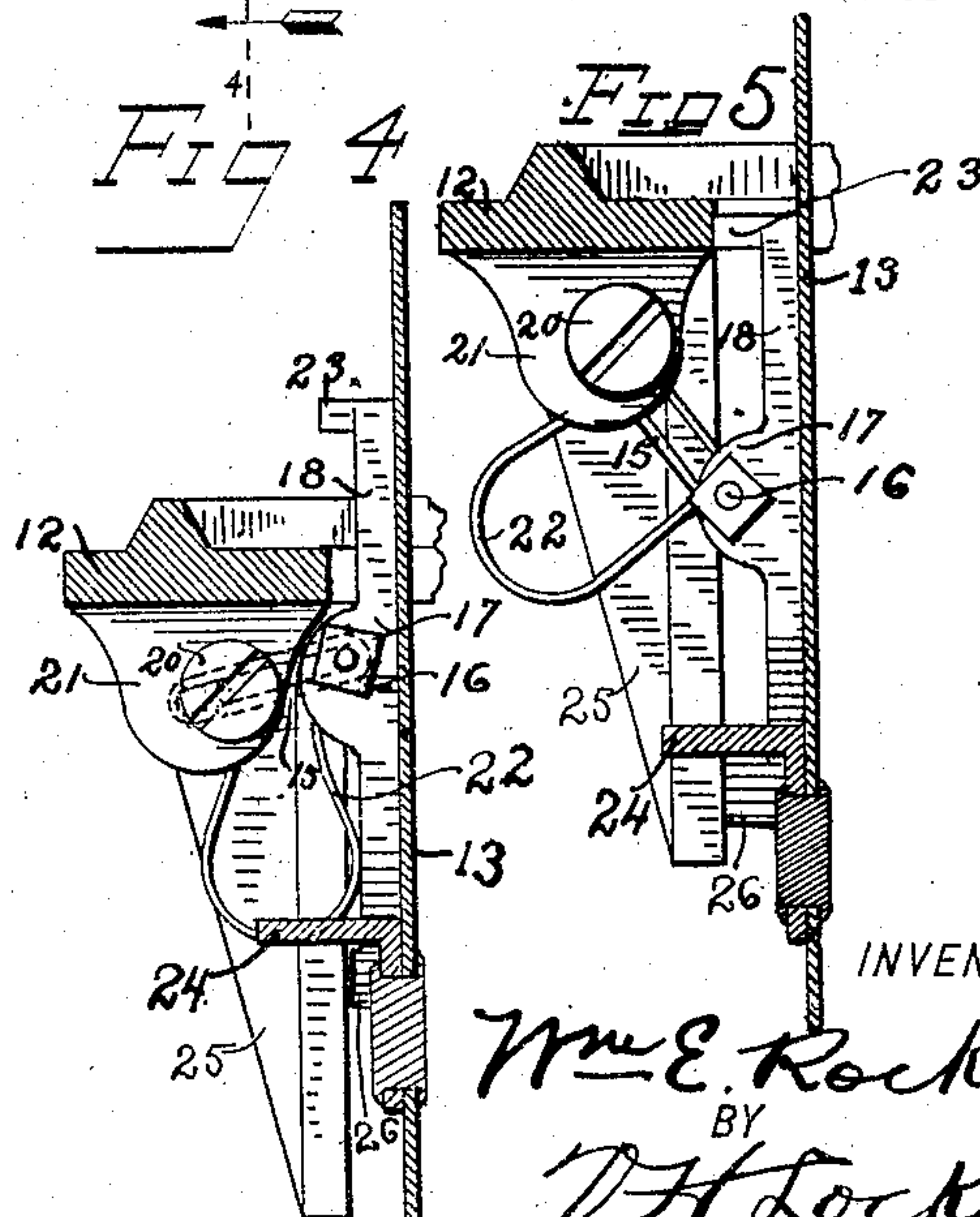


Fig 5

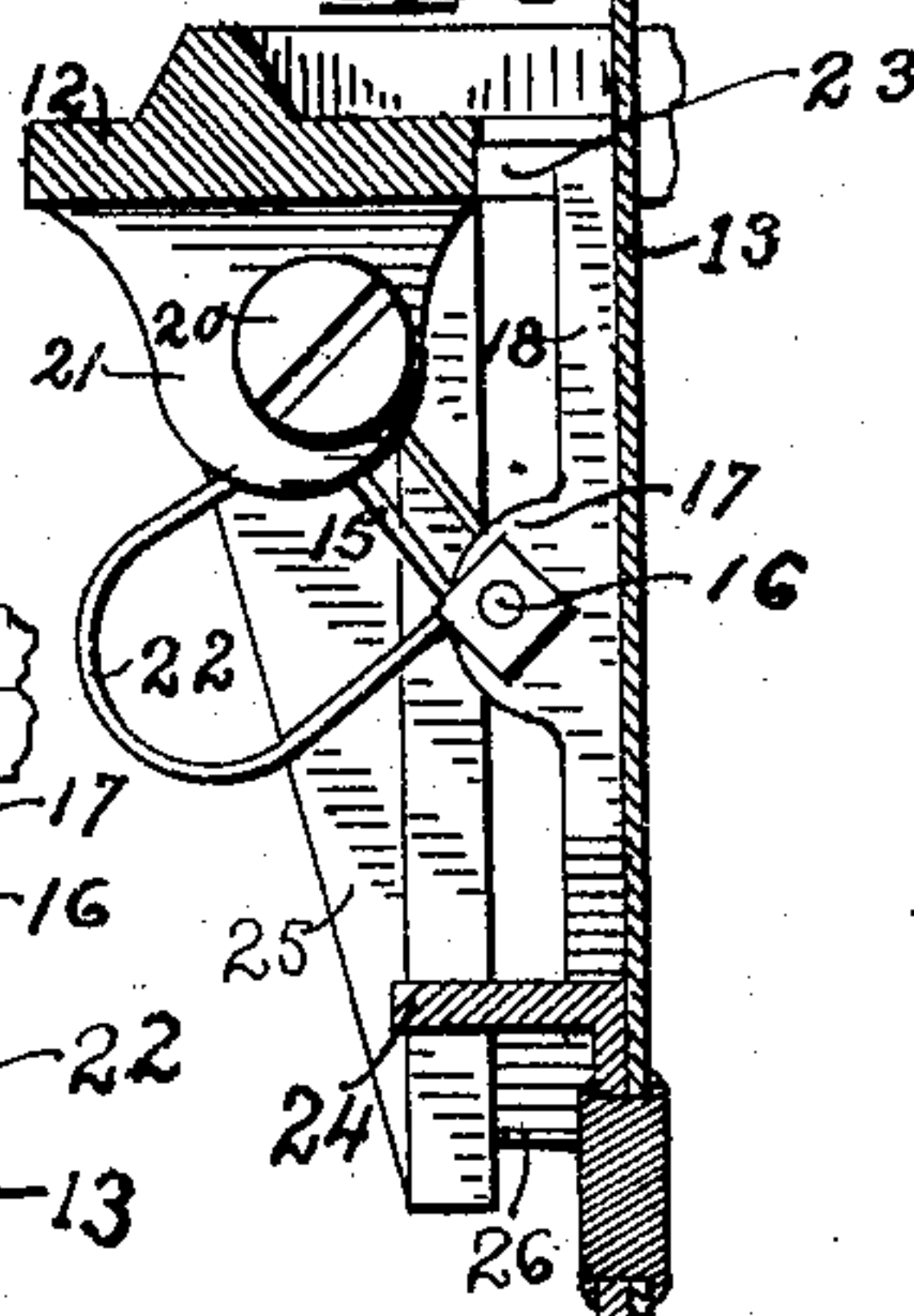
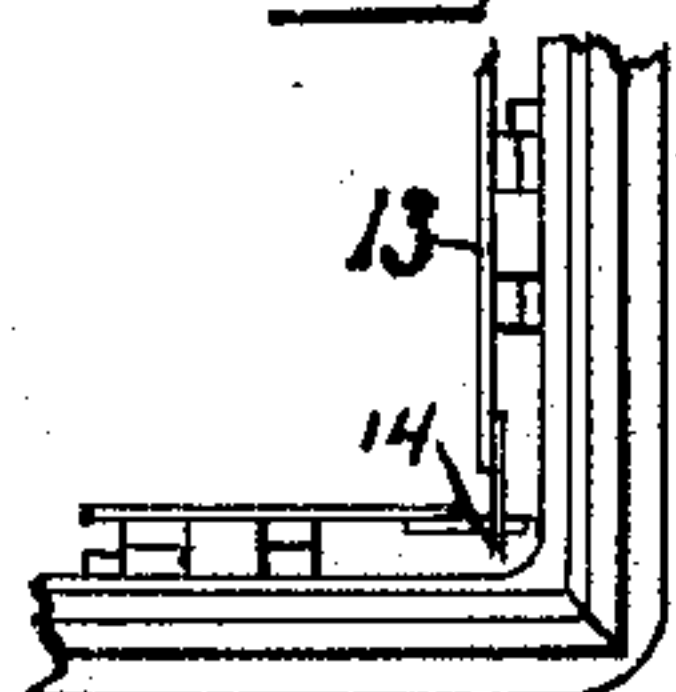


Fig 6



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM E. ROCKWOOD, OF INDIANAPOLIS, INDIANA.

## SLIP-OVER BOX FOR SAND MOLDS.

SPECIFICATION forming part of Letters Patent No. 791,214, dated May 30, 1905.

Application filed April 22, 1903. Renewed February 27, 1905. Serial No. 247,496.

*To all whom it may concern:*

Be it known that I, WILLIAM E. ROCKWOOD, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Slip-Over Box for Sand Molds; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to provide a convenient and effective slip-over box for sand molds used in making castings in foundry-work.

After the usual two-part sand mold has been made and the flask removed a slip-over box is slipped over the sand mold for binding the two parts of the mold at their meeting-point and surrounding and pressing the mold at the point where it is liable to be affected by the metal as it is poured into the mold and prevent any spreading of the mold. This slip-over box is so constructed as to adapt itself to moderate variations in the form and surface of the sand mold and to press against the sides of the mold and tend to resist the expansion that might result from the metal being poured into the mold.

The nature of this invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a perspective view of a sand mold with my slip-over box in place ready for the metal to be poured into the mold. Fig. 2 is a plan view of the slip-over box by itself. Fig. 3 is a side elevation of the same with the sides of the box pressed inward, as shown in Fig. 1. Fig. 4 is a vertical section on the line 4 4 of Fig. 3. Fig. 5 is the same as Fig. 4 with the parts in their relaxed position. Fig. 6 shows one corner of what is shown in Fig. 2 with the parts in the relaxed position.

Referring now to the details of the drawings herein shown to explain this invention, 10 is the upper part of a sand mold, and 11 the lower part thereof, said parts being made in the usual way and being united about midway, the line of union not being here shown, as the idea is familiar to all acquainted with the art. The mold rests on a bottom board

35. These halves 10 and 11 of the mold are made with a snap-flask, and after the parts of the mold are placed one upon the other, as shown, the flask is removed. Then the slip-over box is slipped over the mold and surrounds the same at the joint, said slip-over box extending above and below the joint about an equal distance. It may be of any desired width and is often made nearly as wide as the mold, so as to hold nearly the entire surface of the mold.

This slip-over box is formed of a solid frame 12, made here as an angular casting; but it can be made out of tubing or any other rigid material. It is somewhat larger than the mold, so that within said frame 12 the wide plates 13 may be mounted so as to bear flatly against the sides of the mold. There is one of these plates for each side of the mold, and they are independent of each other, although at each end there is a finger 14, so that the fingers of the plates lap and engage with each other, as shown. Said plates 13 are connected with the frame 12 by slotted links 15, extending over a pin 16 in the ears 17 from the bracket 18, secured on the outer side of the plate 13. Said link also extends over the pin 20, passing through the downwardly-extending ears 21 on the under side of the frame 12. A flat bent spring 22 acts between the two pins 16 and 20, so as to press the plate 13 inward and away from the frame 12. Said spring at each end is bent around the pins 16 and 20. There are two of these links and spring constructions on each side of the frame 12 and on each plate 13; but the number may be increased as desired. The links limit the inward movement of each plate 13, and the gravity of said plates 13 tends to draw them downward, and in such downward movement the links will tend to draw the plates 13 outward. The springs 22 tend to force said plates inward. Fig. 4 shows the frame in its down position with the springs 22 pressing against the plates, while Fig. 5 shows the frame in its upper position with the springs relaxed. Fig. 4 shows the position of the plates when pressed tightly about the mold, and Fig. 5 when not in use.

When the frame is in its upper position and springs relaxed, the lugs 23, secured on the



upper end of the brackets 18, engage the inner edge of the frame 12, as shown in Fig. 5, and the lugs 26 on the lower end of said brackets engage the arms 25, that extend down from frame 12. These lugs are for the purpose of holding the plates vertical when the slip-over box is being placed around the mold.

After the slip-over box is initially placed around the sand, so as to have the plates 13 in proper position vertically, the subsequent manipulation to produce the clamping effect results in the downward movement of the frame 12. If the plates 13 are made to extend downward, so as to rest upon the bottom board 35, the operation is very simple, consisting merely in pushing down with both hands on the frame 12 until the bolts 20 pass below a line through the bolts 16, and then the plates are clamped. If, on the other hand, the plates 13 are narrow compared with the mold, as in the one shown herein, it is necessary to have on the sides of the plates the finger-pieces 24, at least on two opposite plates, so that by placing the hand on the frame 12 with the fingers engaging the finger-pieces 24 the frame 12 can be forced down without any downward movement of the plates, and such downward movement of the frame will clamp the plates inward. By having the fingers 14 on the ends of the plate 13 arranged as shown, with the finger on the plate that has the finger-piece 24 being under the fingers 14 on the plates that have no such finger-piece 24, all four plates will be held in place relative to the mold by merely one pair of finger-pieces 24.

In either of the above methods of clamping the plates 13 around the sand the frame 12 is forced downward with relation to the plates 13 until stopped by the bow or lower portion of the springs 22 engaging the brackets 18 on the plates or by the lower surface of the frame 12 coming into engagement with the upper sides of the links 15. If the springs 22 have a large bow, as shown in the drawings, the frame 12 will hardly engage the links 15; but if the spring is not made so wide the frame 12 will engage the links 15. In this downward movement of the frame 12 the pins 20 pass below the level of the pins 16, so that the inward pressure of the springs against the plates 13 prevents the upward movement of the frame 12 or releasing of the box until said frame 12 is elevated by hand, and while the frame 12 is in this lower position the springs 22 are free to press the plates 13 inward. The links 15 are long enough to permit a reasonable inward movement of the plates 13 and are loosely placed on the bolts 16 and 20, so that said frame 12 may be pressed downward without any resistance excepting what comes from the springs 22.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A slip-over box for sand molds having plates to bear against the sides of the mold, a

vertically-movable frame extending about the plates, and means connecting said plates with said frame so that the vertical movement of the latter will clamp the plates about the mold.

2. A slip-over box for sand molds consisting of a frame extending around the mold, plates to bear against the mold, and spring-controlled connections between the frame and plates.

3. A slip-over box for sand molds consisting of a frame extending around the mold, a plate to bear against each side of the mold, said plates being independent of each other, and spring-controlled connections between the frame and plates.

4. A slip-over box for sand molds consisting of a frame extending around the mold, plates within said frame to bear against the sides of the mold, and spring-controlled pivotal connections between the frame and plates whereby the frame may be forced down relative to the plates so that the pivotal connections on the frame may be lower than the pivotal connections on the plates.

5. A slip-over box for sand molds consisting of a frame, a plate to bear against each side of the mold with a finger extending from each end so that the fingers from the adjacent ends of the plates will overlap, and spring-controlled connections between the frame and plates.

6. A slip-over box for sand molds consisting of a frame extending about the mold, a plate to bear against each side of the mold, links pivotally connecting the plates with the frame, and springs tending to force the plates inward away from the frame.

7. A slip-over box for sand molds consisting of a frame extending about the mold, a plate within the frame to bear against each side of the mold, pairs of ears secured to said plates and pairs of ears also secured to said frame, bolts through said ears on the plates and frame respectively, links extending from each bolt on the frame to the corresponding bolt on the plate, and a spring placed between each pair of bolts and tending to press the plate inward from the frame.

8. A slip-over box for sand molds consisting of a frame extending about the mold, a plate within the frame to bear against each side of the mold, links pivotally connecting the plates to the frame, springs tending to force the plates from the frame, and means for holding the plates by hand while the frame is being forced downward.

9. A slip-over box for sand molds consisting of a frame extending about the mold, a plate within the frame to bear against each side of the mold, links pivotally connecting the plates with the frame, springs tending to force the plates from the frame, means upon a pair of oppositely-placed plates for holding said plates by hand while the frame is being forced downward, and fingers extending from the adja-



cent ends of the plates and overlapping each other so that all the plates will be held stationary while the frame is being forced down.

10. A slip-over box for sand molds consisting of a frame extending about the mold, a plate within the frame to bear against each side of the mold, links pivotally connecting the plates with the frame, springs tending to force the plates from the frame, and means for limiting the downward movement of the frame.

11. A slip-over box for sand molds consisting of a frame extending about the mold, a plate within the frame to bear against each side of the mold, spring-controlled connections between the frame and plates, and means for holding said plates in a vertical position when relaxed.

12. A slip-over box for sand molds consisting of a frame extending about the mold and having downwardly-extending arms and also downwardly-extending ears, bolts in said ears,

a plate within the frame to bear against each side of the mold, brackets secured to the outer surface of the plates and having ears on them and an outwardly-extending lug on the upper 25 and lower ends thereof, bolts in the ears on said brackets, links connecting the bolts attached to the frame and plates, and springs bearing between said bolts so as to press the plates inward, the construction being such 30 that when the plates are in their relaxed position the lugs at each end of the brackets secured thereto will engage the body of the frame and the arms depending therefrom respectively. 35

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

WILLIAM E. ROCKWOOD.

Witnesses:

V. H. LOCKWOOD,  
NELLIE ALLEMONG.