

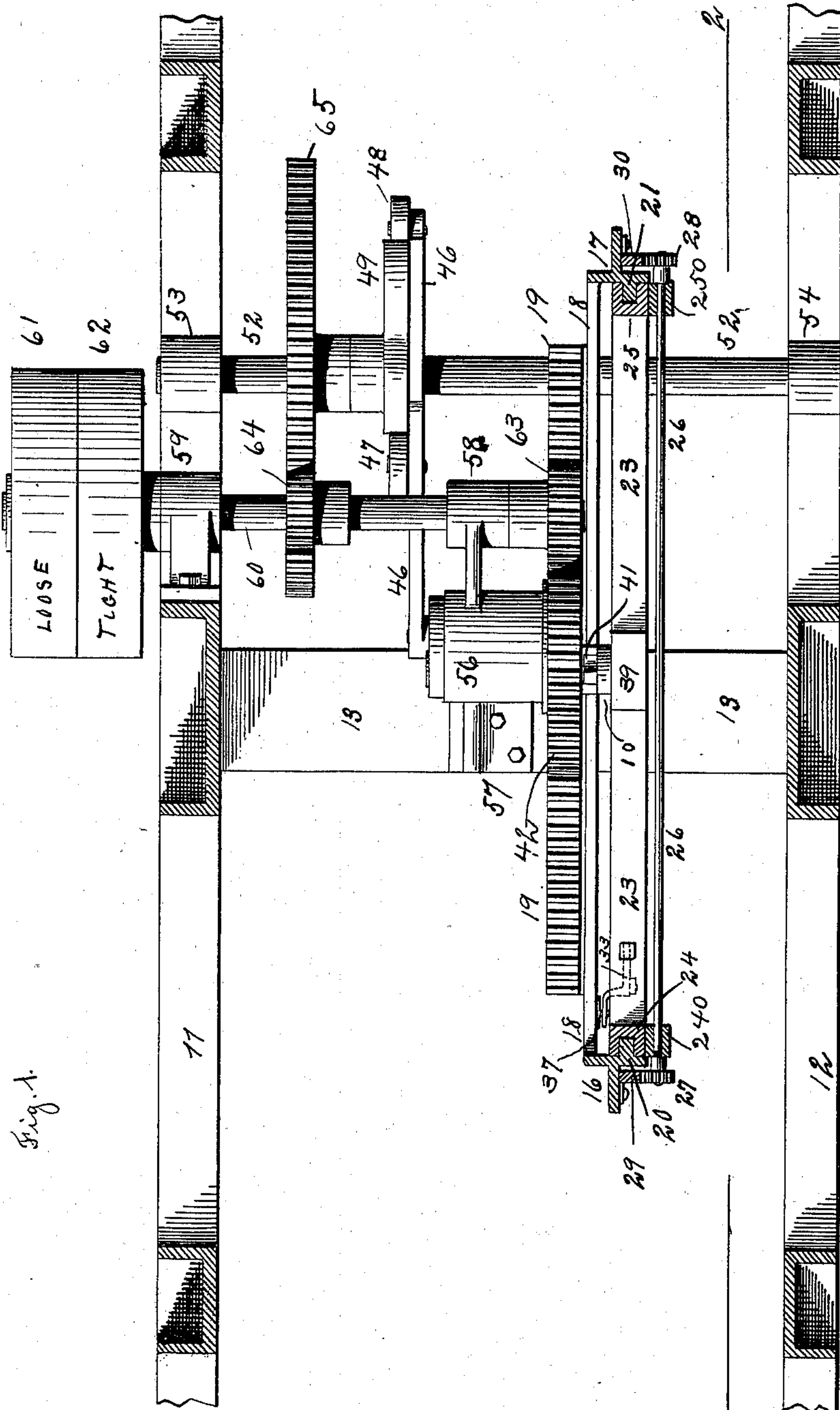
(No Model.)

2 Sheets—Sheet 1.

H. A. W. WOOD.
MECHANICAL MOVEMENT.

No. 559,016.

Patented Apr. 28, 1896.



Witnesses
Chas. F. Schunely
E. M. Hooley

Inventor
H. A. Wise Wood,
By his Attorney
Louis W. Southgate

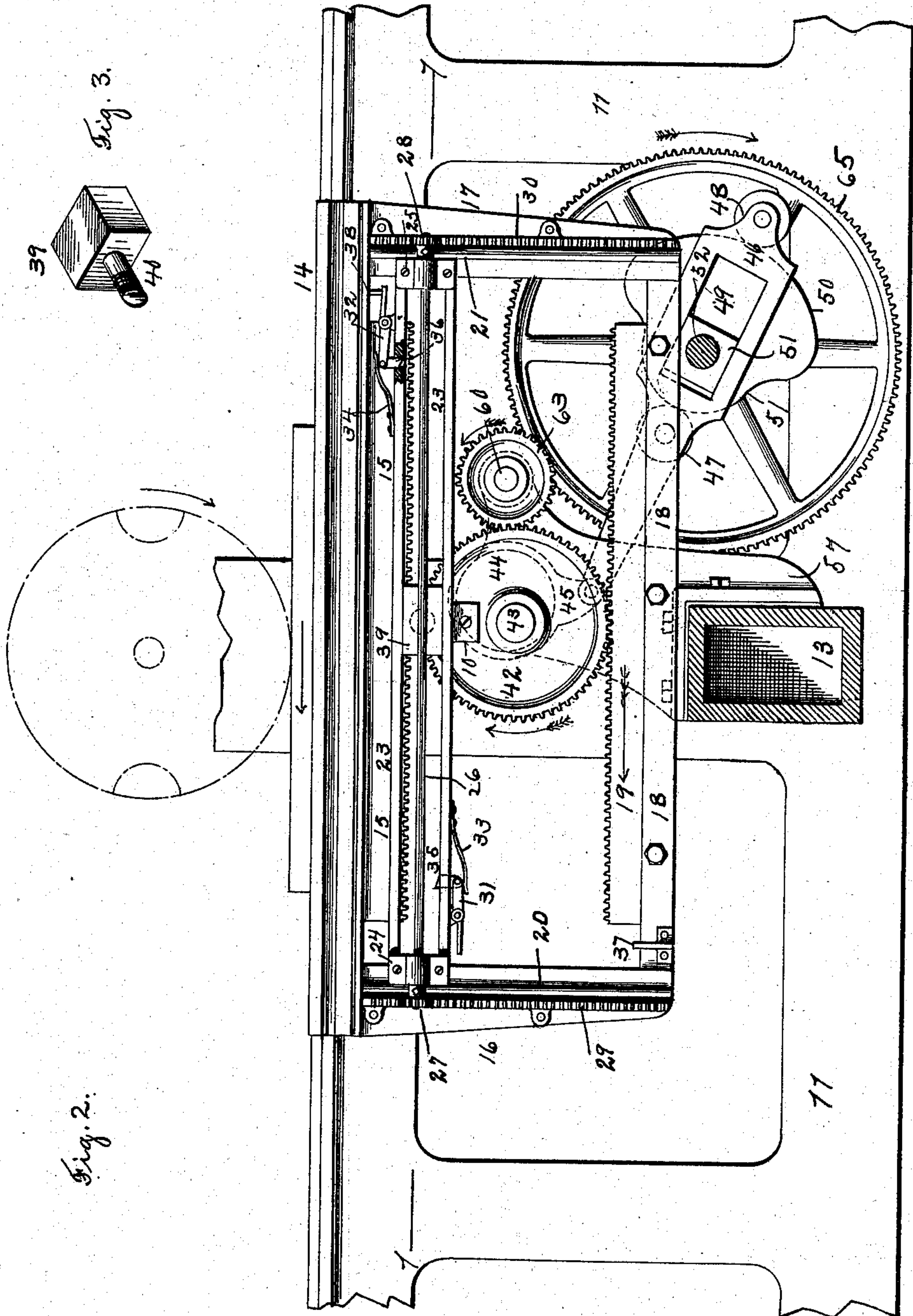
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UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR TO THE CAMPBELL PRINTING PRESS AND MANUFACTURING COMPANY, OF NEW YORK.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 559,016, dated April 28, 1896.

Application filed July 20, 1892. Serial No. 440,668. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Mechanical Movements, of which the following is a specification.

The aim of this invention is to produce a new and improved mechanical movement especially adapted for use as the bed-movement of printing-presses, and the same covers a modification or further carrying out of the invention shown, described, and claimed in my application filed on the 11th day of July, 1892, Serial No. 439,677, Patent No. 481,128, granted August 16, 1892.

The invention consists of the device described and claimed in this specification and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional plan taken on line 1 1 of Fig. 2. Fig. 2 is a sectional elevation taken on line 2 2 of Fig. 1, and Fig. 3 is a detailed perspective view of the crank pin or block.

Referring to the drawings and in detail, 11 and 12 represent the usual side frames of a printing or other machine, and these side frames may be connected by the box-girder or tie-beam 13, and on the frames is mounted to reciprocate in the usual manner the reciprocating member or bed 14. Attached to the under side of the bed 14 is a rack 15 and a framing consisting of brackets 16 and 17 and the connecting piece or bar 18, to which piece 18 is secured or fastened the rack 19. The racks 15 and 19 are oppositely disposed or placed, as shown. The brackets 16 and 17 have extending ledges or projections 20 and 21, and fitting on these ledges is the frame or guide 23, which consists of a frame, as shown, and two bearing-blocks 24 and 25, which fit on the ledges 20 and 21, as shown, so that the frame 23 will be capable of a vertical rising and falling movement on said ledges 20 and 21. Also secured to said blocks 24 and 25 are brackets 240 and 250, in which is journaled a shaft 26, which has on the ends thereof pinions or gears 27 and 28, which mesh with fixed vertical racks 29 and 30, secured to the

brackets 16 and 17. Thus as the frame 23 is raised or lowered the same will be kept square by means of this gearing, which constitutes a squaring mechanism.

Pivoted on opposite sides of the guide or frame 23 are the levers 31 and 32, which are normally held in one position by springs 33 and 34, as shown. To these levers are pivoted latches 35 and 36, which extend within the frame 23, and the latches 35 and 36 are inclined, as shown, so that the crank-block hereinafter referred to may slip in behind the same and be caught thereby.

Attached to the framing or bed, as shown, are projections 37 and 38, against which levers 31 and 32 are adapted to strike, so that as the frame 23 reaches its lowest position the latch 35 will release the crank-block, and so that when the frame 23 reaches its highest position the latch 36 will release the crank-block.

The crank-block 39 is swiveled by means of the extending shank 40 in a bracket 10, secured on the side of the driving-pinion 42, as shown, the crank-block being thereby substantially mounted in a crank-arm, which, as shown, is part of the gear 42. The crank-block fits into the guideway or framing 23, as shown, whereby as the crank-block revolves the frame 23 will be raised and lowered vertically, and whereby the frame 23 will keep the block 39 from turning on its axis, although the same will turn in its crank-arm.

If desired, a nut 41 may be used on the shank 40 to keep the crank-block in place in the bracket 10.

The driving-pinion 42 is mounted between the racks 15 and 19 and is arranged to alternately engage the same, whereby the bed will be given its main or major reciprocation.

The gear 42 is secured on the shaft 43, which shaft 43 is journaled in an eccentric bushing 44, which has an extending arm 45, to which is attached the yoke 46, and the yoke 46 has two rollers 47 and 48, which bear on opposite sides of cam 49. The cam 49, as shown, has two surfaces 50 and 51, which are connected by easy inclines, whereby as the cam revolves, through the mechanism described, the gear 42 will be raised and lowered to properly and alternately engage the

racks 15 and 19. The cam 49 is mounted on the shaft 52, which shaft 52 is mounted in bearings 53 and 54, secured to the side frames 11 and 12.

5 The eccentric bushing before referred to is mounted in a bearing 56, formed in a bracket 57, which is bolted on the tie-beam 13, as shown, and also extending from the bearing 56 is a bearing 58. In this bearing 58 and
10 in a bearing 59, secured to the side frame, is journaled the driving-shaft 60, on which may be mounted in the usual manner the usual loose and tight pulleys, by which, if desired, power may be transmitted to the mechanism.

15 Secured on the end of the shaft 60 is a pinion 63, which meshes with and drives the gear 42, and also secured on this shaft 60 is a pinion 64, which meshes with and drives gear 65, fast on the shaft 52.

20 Thus it will be seen that my invention consists in the combination with a main driving mechanism of a peculiar reversing mechanism, and I wish here to state that any driving mechanism may be used which will give
25 the bed its major or main reciprocation.

The operation of my device is apparent and is as follows: The gear or pinion 42 engages with the rack 15 or 19, as the case may be, to give the bed its main reciprocation. As
30 the gear revolves, the crank-block 39 will raise and lower the guide or frame 23. This will have no effect upon the horizontal reciprocation of the bed until the gear 42 becomes inoperative as the driver, when the block 39
35 will abut against one of the bearings 24 or 25, as the case may be, and will gradually retard the bed to a state of rest, and then gradually start the same in the opposite direction, and deliver the bed back to the main driving
40 mechanism at the proper speed. The latches will hold the block 39 positively against the blocks 24 and 25 during this action, and the block will be positively and absolutely released by the mechanism before described.
45 The gear 42 is raised and lowered at the proper time by the cam mechanism before described. The stroke of the bed will be the length of rack 15 plus two pitch radii of gear 42, which is the radius at which the crank-
50 block 39 is set, or the stroke of the bed will be the pitch circumference of gear 42 plus a pitch diameter.

I am aware that the details and arrangements of parts herein shown and described
55 may be greatly varied by a skilled mechanic without departing from the scope of my invention as expressed in the claims.

Having thus fully described my invention, what I claim, and desire to secure by Letters
60 Patent, is—

1. The combination of the reciprocating member or bed with mechanism for reciprocating the same, and a reversing mechanism comprising a crank pin or block, a moving
65 frame which said block engages, and a squaring mechanism carried by said frame, substantially as described.

2. The combination of the reciprocating member or bed with a mechanism for reciprocating the same, a reversing mechanism comprising a crank pin or block, a frame 23
70 mounted on the bed so as to be vertically movable thereon, said frame 23 carrying a squaring mechanism consisting of shaft 26 and pinions 27 and 28, and fixed racks 29
75 and 30 which said pinions engage, substantially as described.

3. The combination of the reciprocating member or bed, with a mechanism for reciprocating the same, a reversing mechanism comprising a crank pin or block, the frame 23
80 which said crank-block engages, said frame 23 being mounted on said bed so as to be vertically movable thereon, and latches carried by said frame 23 adapted to lock the crank-
85 block to the ends of said frame for the purpose described.

4. The combination with the reciprocating member or bed and a mechanism for reciprocating the same, of a reversing mechanism
90 comprising a crank pin or block, a frame which said block engages, said frame having bearings at the end thereof, which bearings are fitted on brackets formed or attached to the bed, so as to be capable of vertical mo-
95 tion, substantially as described.

5. The combination of the reciprocating member or bed, with mechanism for reciprocating the same, and a reversing mechanism comprising a revolving crank-pin and a frame
100 which said crank-pin engages, said frame being mounted on the bed so as to have a vertical movement thereon, substantially as described.

6. The combination of the reciprocating member or bed with mechanism for reciprocating the same, comprising a revolving pinion, gearing whereby this pinion will give the
105 bed its major reciprocation, a crank-pin carried by said pinion, and a frame which said
110 crank-pin engages, said frame being mounted on the bed so as to have a vertical movement thereon, substantially as described.

7. The combination of the reciprocating member or bed with a mechanism for reciprocating the same, a reversing mechanism comprising brackets as 16 and 17 carried by the
115 bed, said brackets having vertical guideways, a frame mounted on said vertical guideways and having a vertical movement thereon, and
120 a crank pin or block in constant engagement with said frame, substantially as described.

8. The combination of the reciprocating member or bed with a mechanism for reciprocating the same, a reversing mechanism comprising a crank pin or block, the frame
125 mounted so as to be vertically movable on the bed which said crank-pin constantly engages, latches 35 and 36 carried by said frame, levers 31 and 32 operating said latches, and
130 pins or projections 37 and 38 for releasing said latches, substantially as described.

9. The combination of the reciprocating member or bed with a mechanism for reciprocating the same, a reversing mechanism comprising a crank pin or block, a frame 23
135 mounted on the bed so as to be vertically movable thereon, said frame 23 carrying a squaring mechanism consisting of shaft 26 and pinions 27 and 28, and fixed racks 29 and 30 which said pinions engage, substantially as described.

eating the same, a reversing mechanism consisting of a crank-arm, a crank pin or block mounted so as to revolve in said crank-arm, the frame which said crank-block engages, 5 said frame having at the end thereof bearings which are fitted to vertical guideways on the bed, substantially as described.

10. The combination with the reciprocating bed 14 having brackets 16 and 17 and racks 10 15 and 19, of the pinion 42 disposed between said racks, and means for changing the position of said pinion to alternately engage said racks, a crank-block 39 mounted on said pinion, so that its center will be on the pitch- 15 line of said pinion, the frame 23 which said block engages mounted so as to be vertically movable on the brackets 16 and 17, substantially as described.

11. The combination of the reciprocating 20 bed or member 14 having dependent brackets 16 and 17 connected by the beam 18, the rack

15 mounted upon the bed, and the rack 19 mounted upon the beam 18, the pinion 42 disposed between said racks, and means for raising and lowering said pinion, whereby the 25 same will alternately engage the racks to give the reciprocating member its major movement, the frame 23 which said crank pin or block engages, said frame being mounted so as to be vertically movable on said brackets 30 16 and 17, a squaring mechanism carried by said frame having pinions engaging racks on said brackets 16 and 17, and locking mechanisms also carried by said frame 23, substantially as described. 35

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

H. A. WISE WOOD.

Witnesses:

W. F. WOOD,

JOHN J. MURRAY.