

No. 757,416.

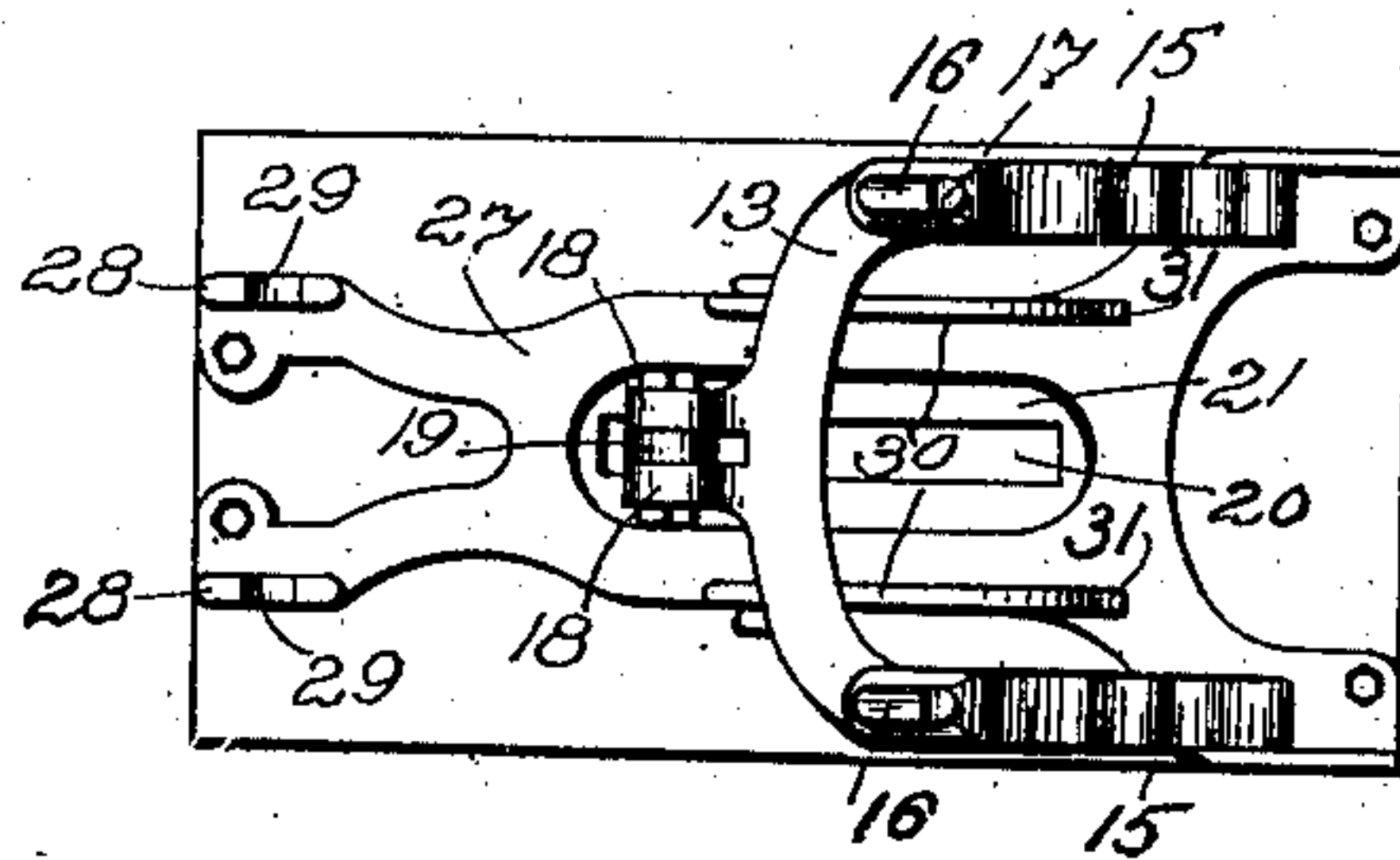
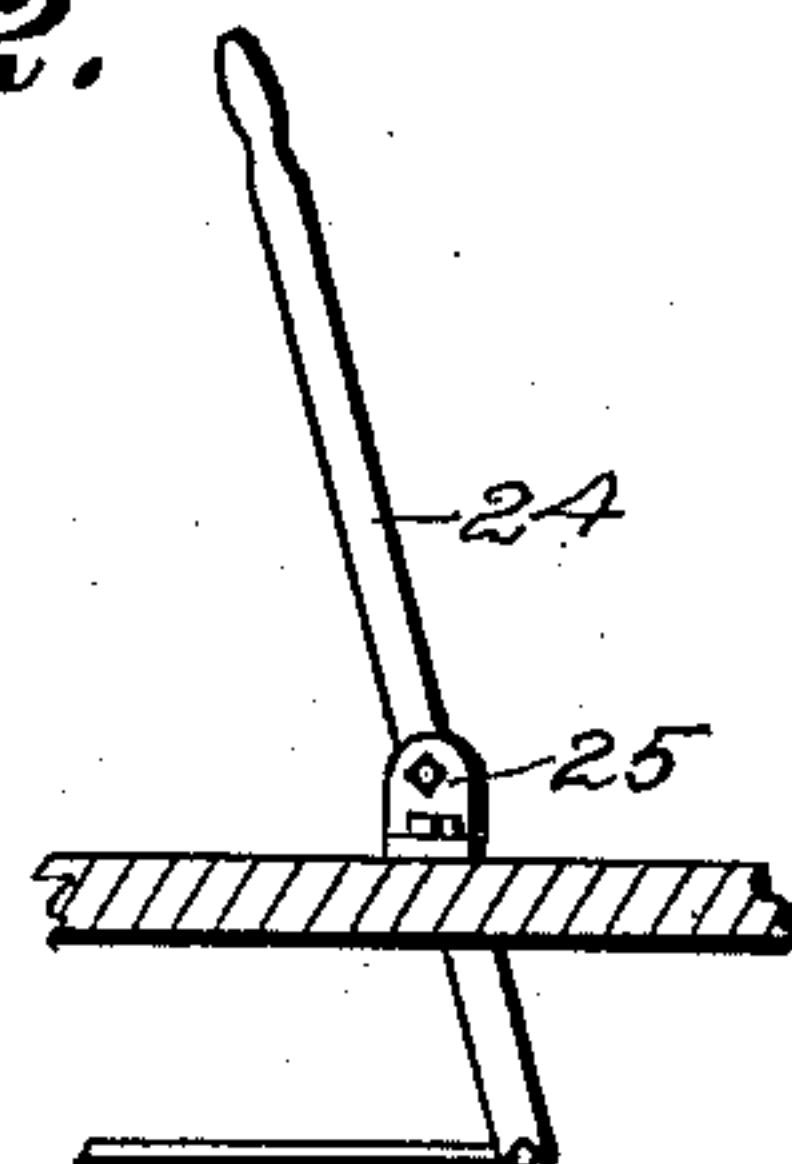
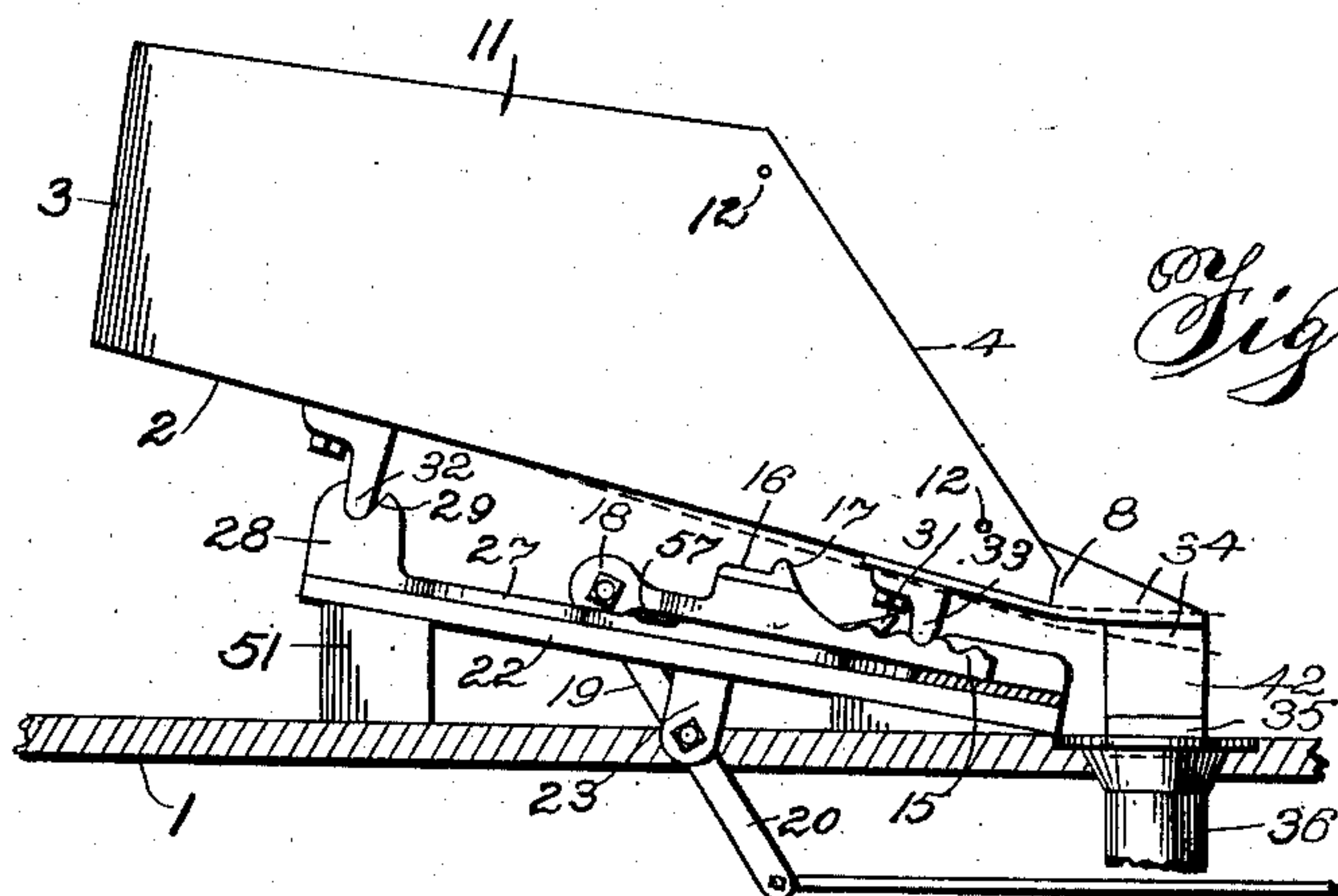
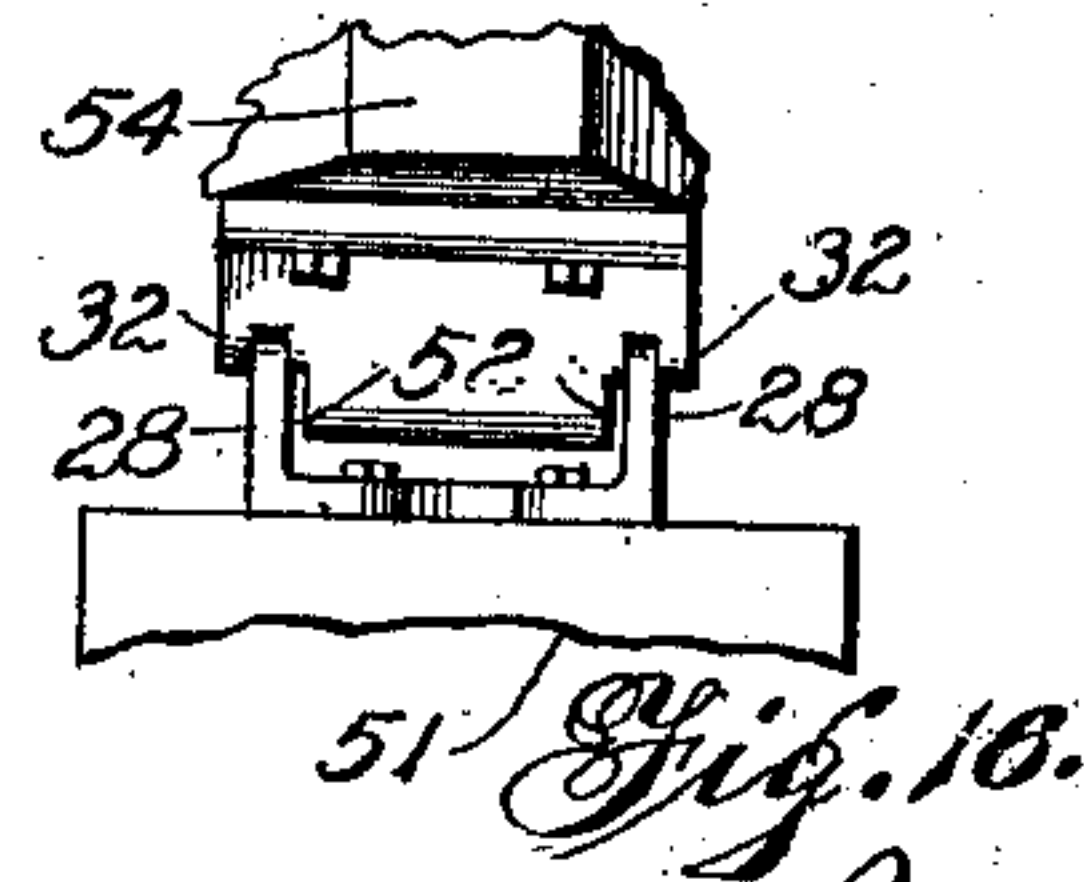
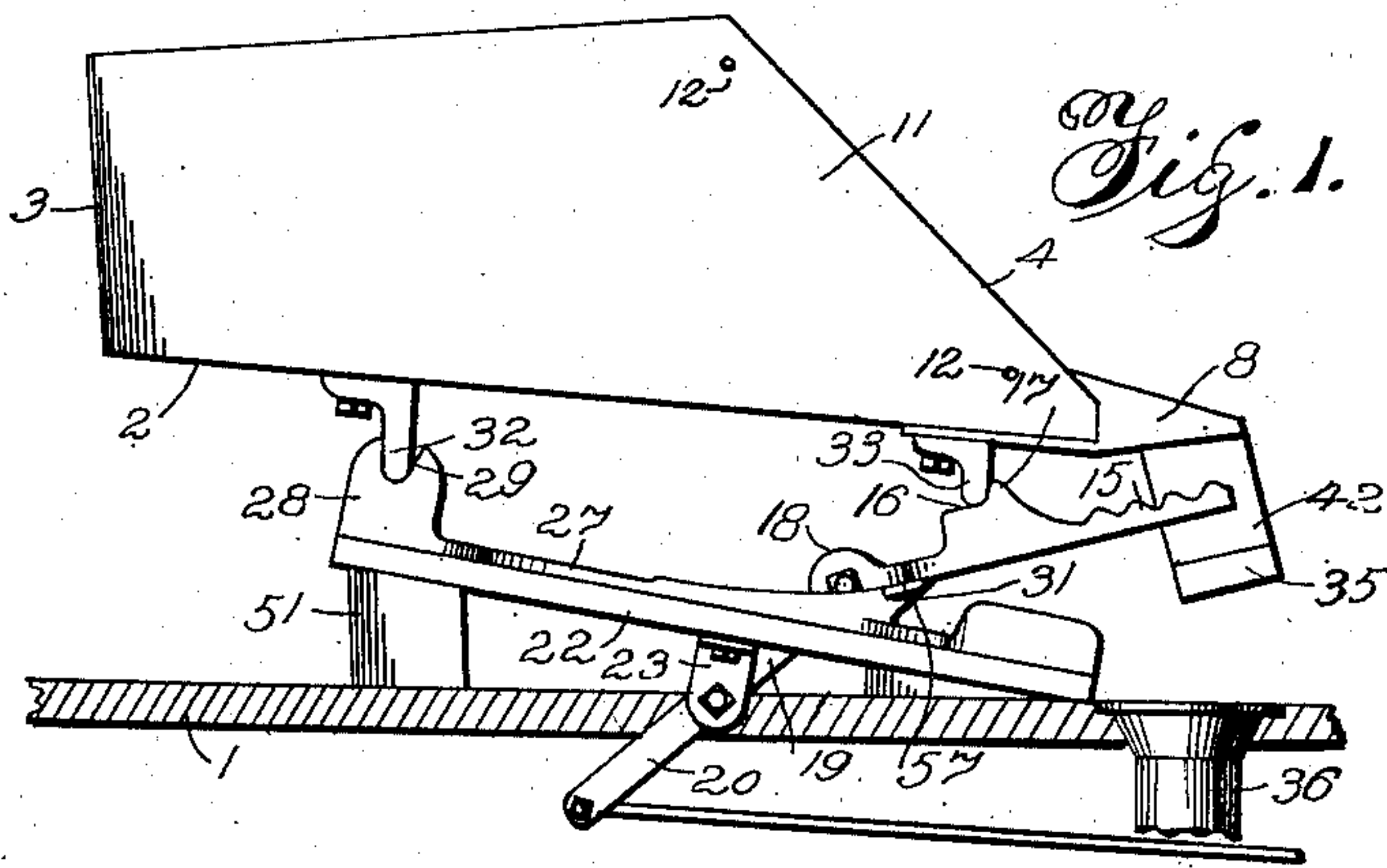
PATENTED APR. 12, 1904.

C. V. ROTE.
TRACK SANDER.

APPLICATION FILED FEB. 4, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

Chas. H. Bensel,
L. G. Bassler.

Fig. 3.

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3 SHEETS—SHEET 2.

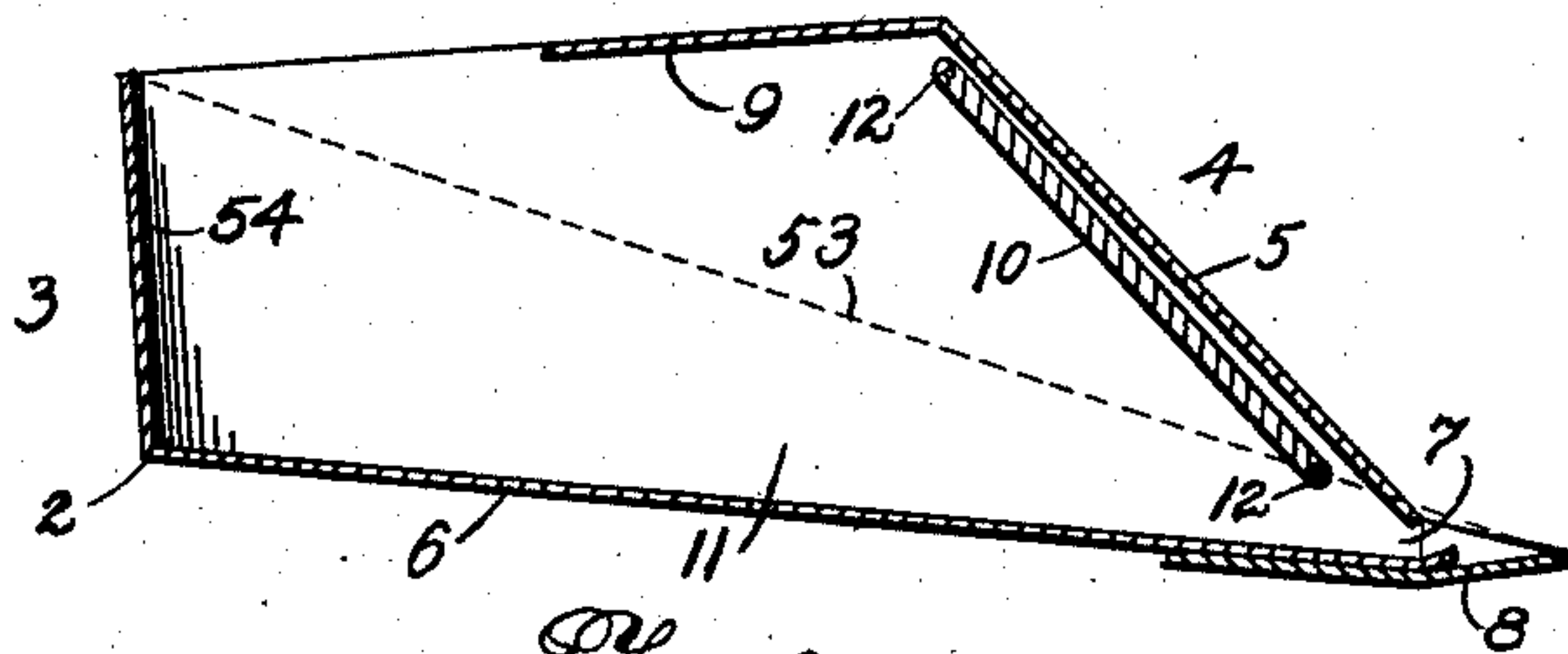


Fig. 5.

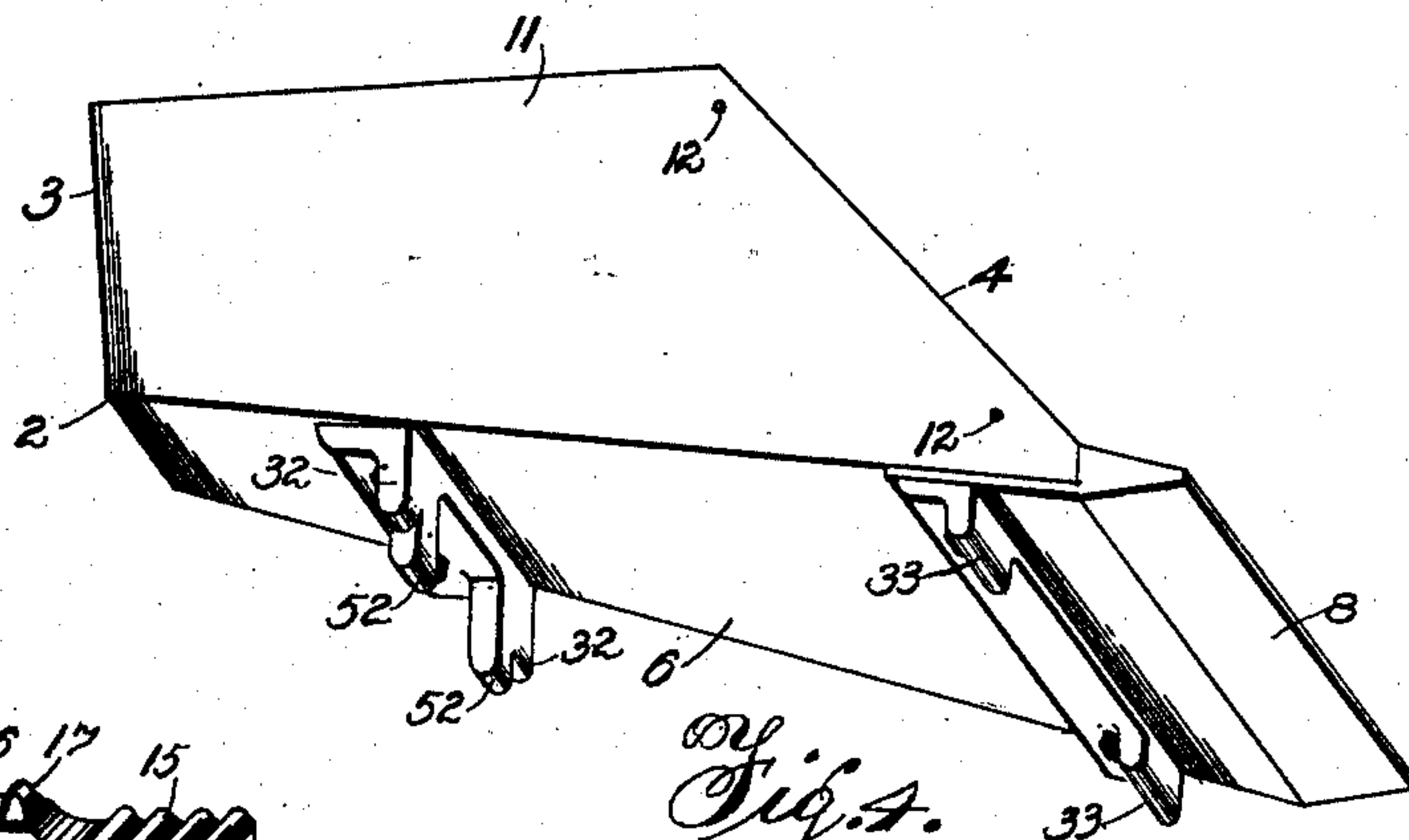


Fig. 4.

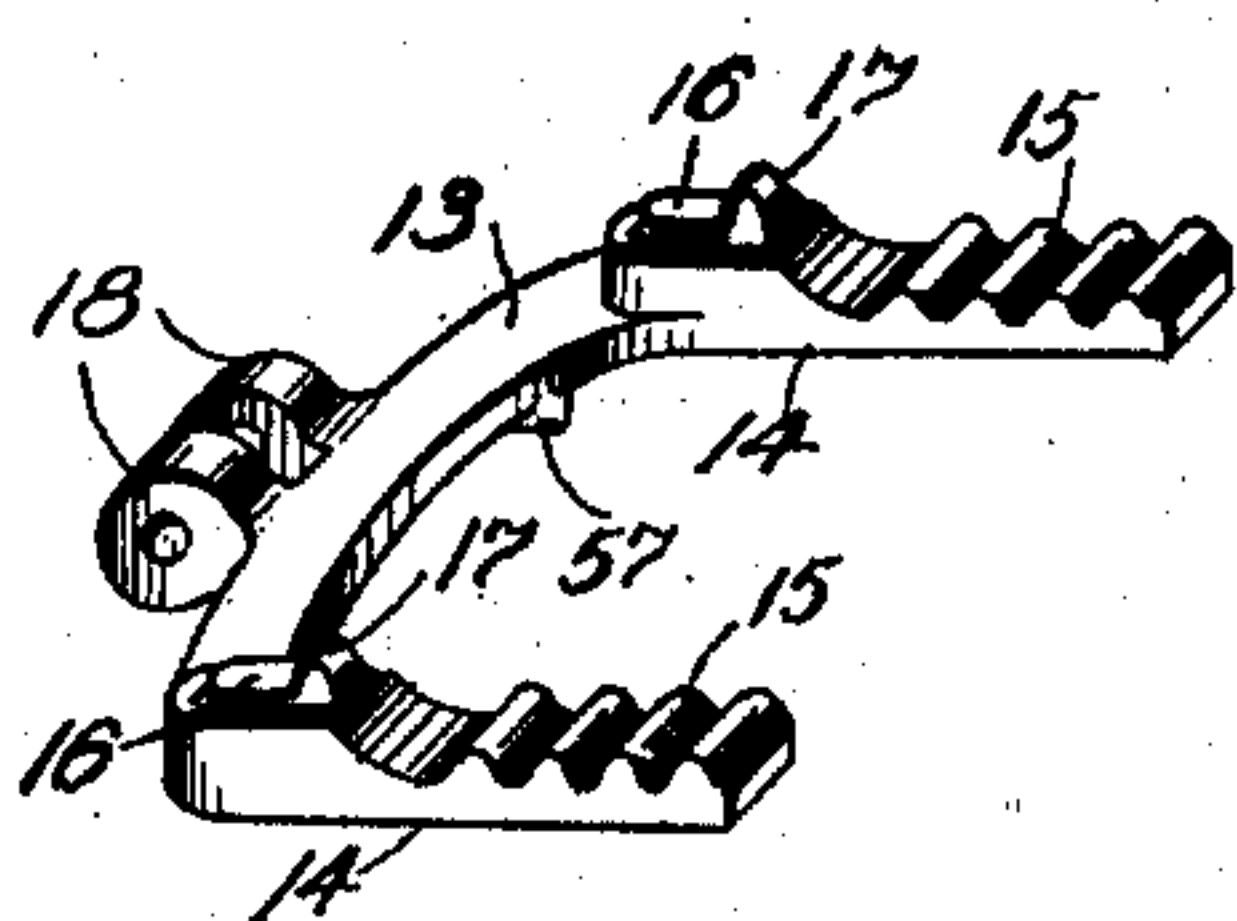


Fig. 6.

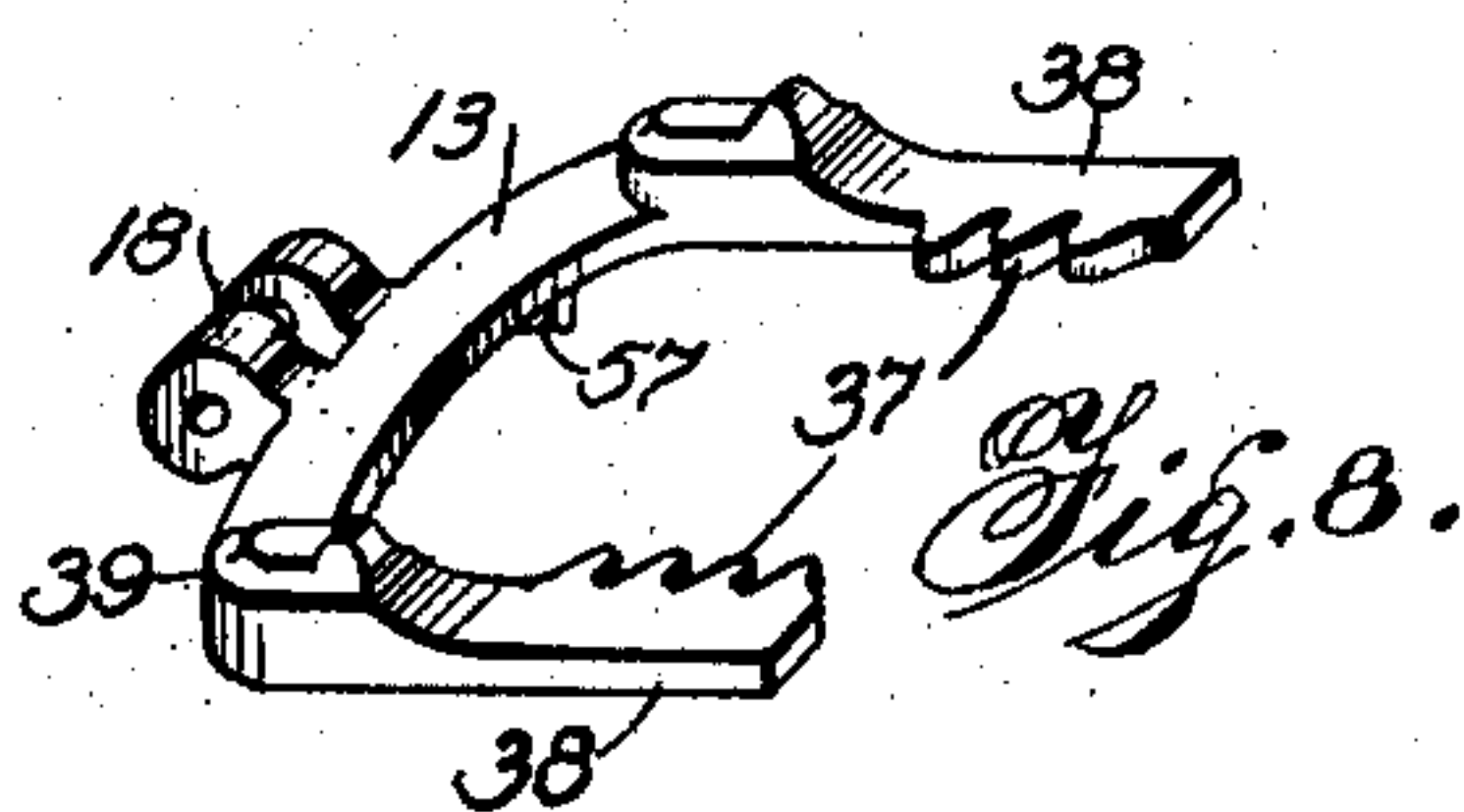


Fig. 8.

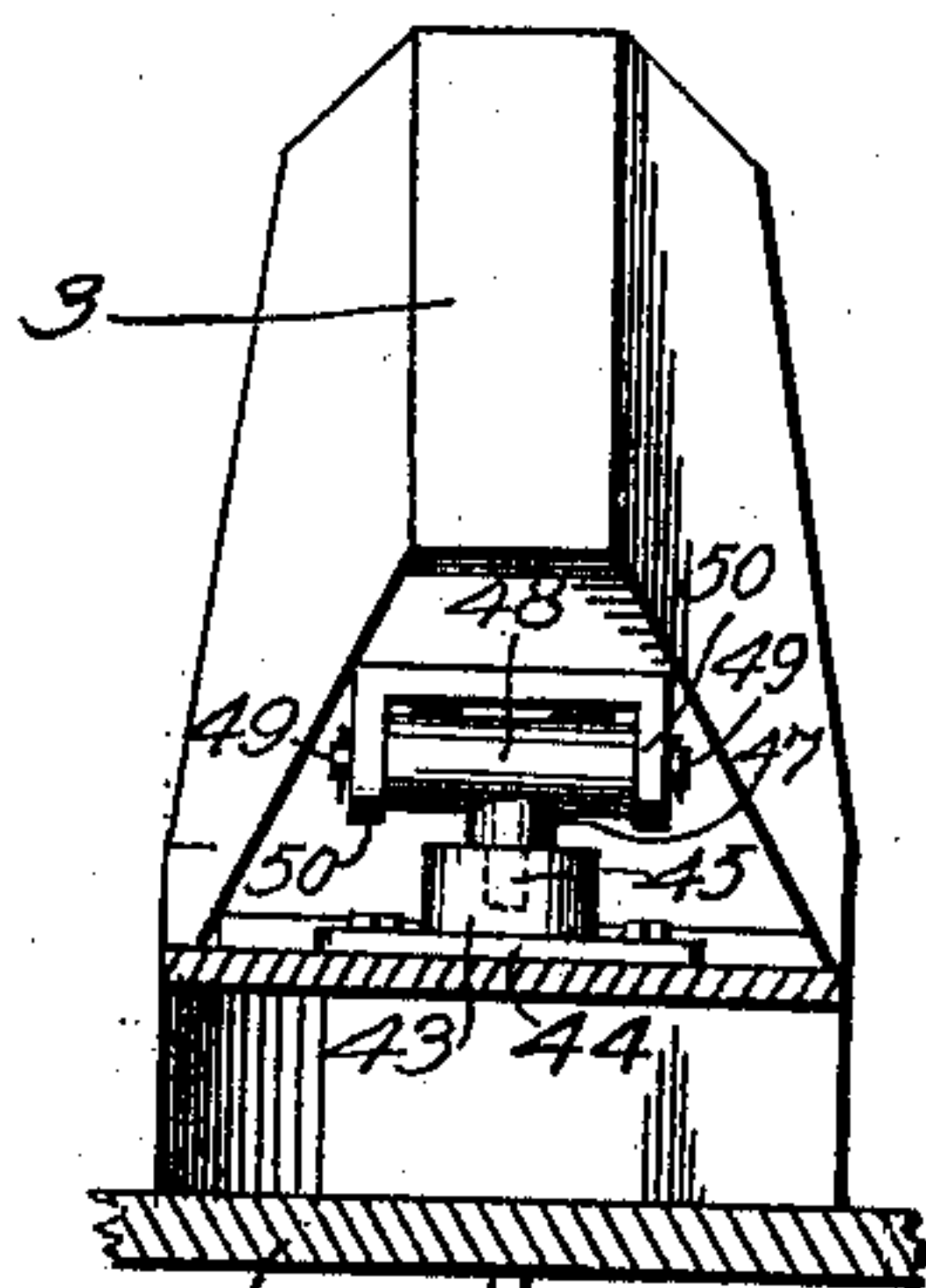


Fig. 14.

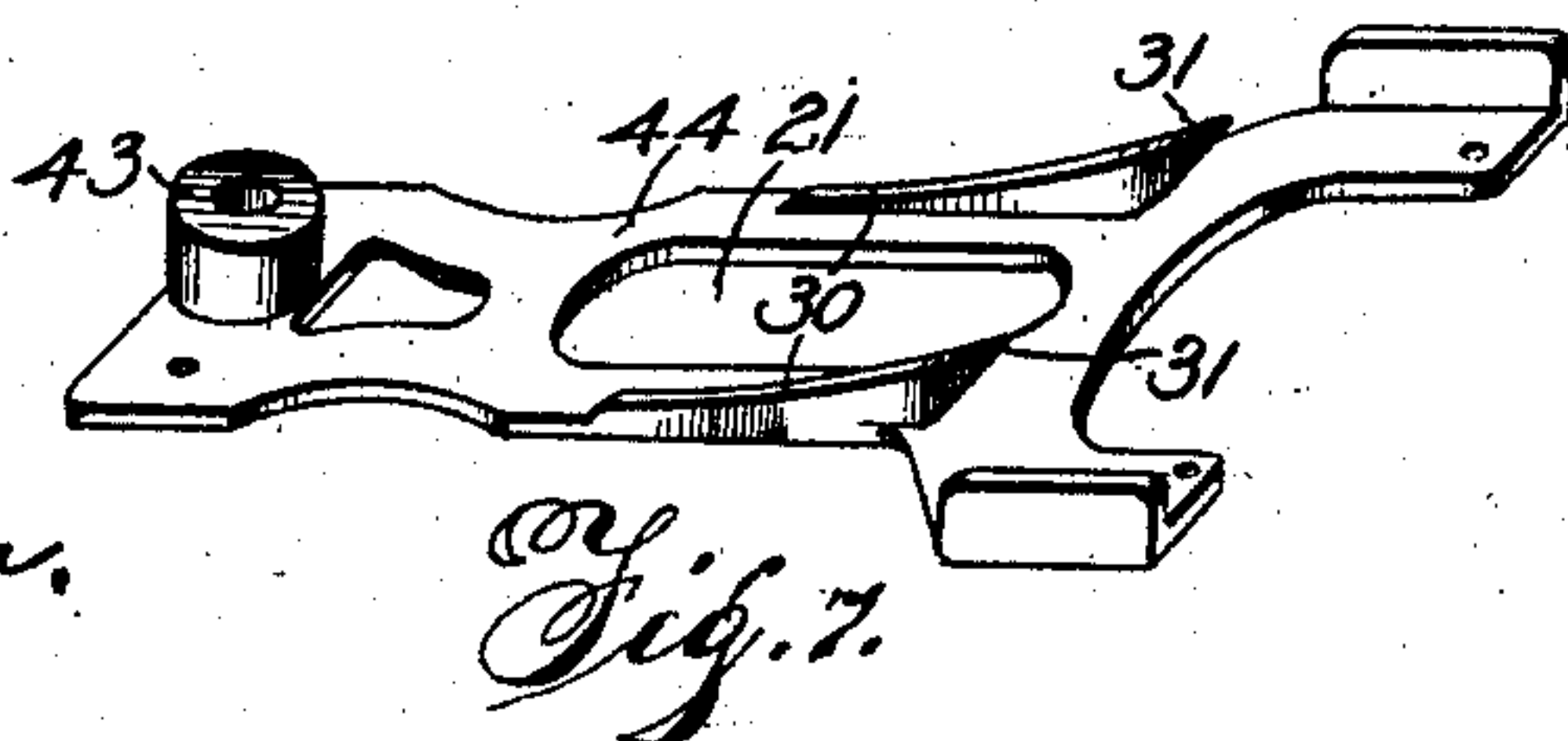


Fig. 7.

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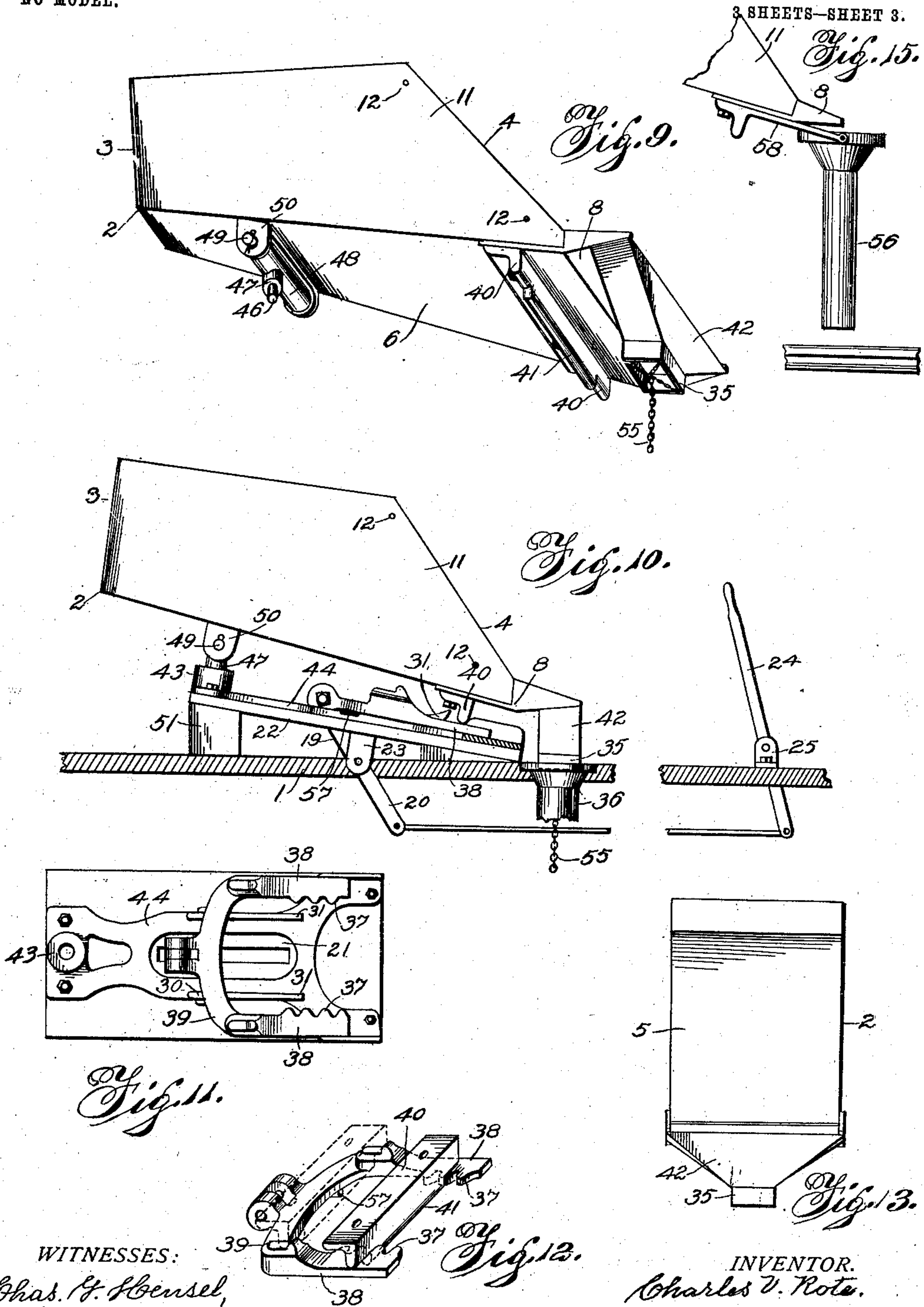
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UNITED STATES PATENT OFFICE.

CHARLES V. ROTE, OF LANCASTER, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO PARKE E. SHEE, OF LANCASTER, PENNSYLVANIA, AND CHARLES FORNEY, OF HARRISBURG, PENNSYLVANIA.

TRACK-SANDER.

SPECIFICATION forming part of Letters Patent No. 757,416, dated April 12, 1904.

Application filed February 4, 1903. Serial No. 141,820. (No model.)

To all whom it may concern:

Be it known that I, CHARLES V. ROTE, a citizen of the United States, and a resident of Lancaster, in the county of Lancaster, State of Pennsylvania, have invented certain Improvements in Track-Sanders, of which the following is a specification.

This invention relates to improvements in that class of devices designed for sanding the tracks of railways, and they are more particularly applicable to electric and other motor cars; and the objects of these improvements are, first, to regulate the amount of sand fed to the rails; second, to provide a uniform discharge of sand; third, to cause a positive discharge, and, fourth, to obtain these results whether the sand be wet or dry. I attain these results by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a sander embodying my invention, the sand-box being shown in an elevated position; and Fig. 2, a similar view, but illustrating the sand-box in an operative position. Fig. 3 is a top plan view of the shaker-frame and of the operative parts connected therewith; Fig. 4, a bottom perspective view of the sand-box, and Fig. 5 a longitudinal vertical section of the sand-box. Fig. 6 is a top perspective view of the shaker-frame, and Fig. 7 a top perspective view of the bearing-plate of the shaker-frame. Fig. 8 is a top perspective view of a modified construction of the shaker-frame; Fig. 9, a bottom perspective view of a modified construction of the sand-box, and Fig. 10 a side elevation thereof shown in an operative position. Fig. 11 is a top plan view of the modified construction of the shaker-frame and of the operative parts connected therewith; Fig. 12, a top perspective view of the modified construction of the shaker-frame and of the brush-bar engaged therewith; Fig. 13, a front view of the modified construction of the sand-box, and Fig. 14 a rear elevation thereof and of its pivoted connection. Fig. 15 is a view of a swinging or hinged discharge-pipe attached to the vibrating platform, and Fig. 16 a partial rear view of the sander shown in Fig. 1.

Similar numerals indicate like parts throughout the several views.

For the purposes of this specification the discharge end of the sand-box will be called the "front" and the other end the "rear."

In the accompanying drawings, referring to Figs. 1 to 7, inclusive, 1 indicates the floor of a car, partially cut away, as shown. 2 designates a sand-box, widening from its closed or pivoted end 3 to its delivery end 4. The front wall 5 of the sand-box slopes backward from its lower to its upper edge, and between said lower edge and the bottom 6 of the sand-box is a discharge-opening 7, where-through the sand is delivered to the vibrating platform 8, to be more fully described. The upper end of front wall 5 bears against top plate 9, extending about half-way back over the sand-box and leaving an opening through which sand is fed to said box. Inside of front wall 5 of the sand-box is a deflector-plate 10, having the ends secured to side walls 11 of the sand-box by removable pins 12. It will be noted that the deflector-plate 10 is located a short distance from the front wall 5 of the sand-box and that said deflector-plate terminates at its lower edge a short distance above the bottom edge of the front wall 5. The deflector-plate thus keeps the sand from coming in direct contact with the main portion of the front wall 5 and only a small portion of the sand touches the said front wall. Therefore the sand is prevented from choking or congesting in the discharge-opening 7. This has the effect of lengthening the discharge space or opening in a horizontal direction and prevents the sand from packing adjacent to the point of discharge. Therefore the agitation or shaking of the sand-box as a whole insures the loosening of the sand and the proper discharge thereof upon the platform into the funnel and pipe.

The shaker-frame comprises a curved cross-piece 13, having on the ends thereof parallel and horizontally-disposed arms 14, provided with rack bars or teeth 15 on their outer ends, and on said arms back of the rack-bars are elevated bearings 16, having on their front

edges ribs or flanges 17, all for a purpose to be described. On the back of cross-piece 13 are two lugs 18, between which is hinged an end 19 of lever 20, that passes through a slot 21 in the bearing-plate, to be described, and in the base-plate 22, to which said bearing-plate is secured, and on the under side of cross-piece 13 are lips 57, that engage ribs on the bearing-plate and serve to guide the movement of the shaker-frame. Lever 20 is fulcrumed between two hangers 23, attached to base-plate 22, and has its lower end connected by a rod 26 with hand-lever 24, fulcrumed in a standard 25 on the car-floor.

27 indicates the bearing-plate of the shaker-frame, shaped substantially as shown and provided on its rear end with standards 28, having transverse grooves 29, and on the sides of the bearing-plate parallel with the front of slot 21 are ribs 30, the bodies of which incline slightly upward from the inner toward the outer ends, where they abruptly rise with curves to elevated points 31. Near the rear end of the sand-box and on the bottom thereof are hinge-lugs 32, that loosely engage grooves 29 of the standards 28, whereby the discharge end of the sand-box is adapted to be reciprocated about the pivots formed by the engagement of the hinge-lugs with said grooves. Secured to and beneath the front end of the sand-box are brushes 33, that when said sand-box is in an operative position normally engage rack-bars 15 of the shaker-frame, as seen in Fig. 2.

In operating to sand a track hand-lever 24 is moved back and forth just enough to keep brushes 33 in engagement with rack-bars 15, whereby a reciprocating motion is given the sand-box about its pivots or hinges. As the sand used for the purpose contains much loam and other impurities and as it is generally more or less damp, it clogs the discharge-openings of the majority of sanders and the delivery is apt to be irregular and spasmodic, amounting to little or none at times and then again shooting out in lumps and masses. This difficulty is overcome by my construction just described, as each upward movement of the front end of the sand-box is with a sudden jerk, loosening up the sand, and each downward movement of said sand-box is arrested with another jerk, throwing the sand out upon platform 8. The discharge of the sand is still further promoted by the shape of the sand-box, which spreads from the rear to the front or discharge end thereof, and by the construction of said platform 8, which is composed of some resilient material, and so has a vibrating motion of its own about the line of its connection with the sand-box, as shown somewhat exaggeratedly by broken lines 34, Fig. 2. The sand may pass over the outer edge of platform 8 when said platform is connected as shown in Figs. 4 and 5; but preferably said platform has a funnel 42 attached to

it, and the sand passes from it through a nozzle 35, attached to said funnel and vibrating with said platform, and is thence discharged into a stationary pipe 36, fixed in the car-floor, through which it passes and is delivered onto the rails of the track. When sand is not needed, hand-lever 24 is thrown into the position illustrated in Fig. 1. By this movement the shaker-frame is thrown so far forward that the cross-bar thereof climbs the outer elevated ends 31 of ribs 30, and the rack-bars are at the same time thrust so far forward that brushes 33 are compelled to travel up the fronts of bearings 16 and to and over ribs 17 thereof, behind which they rest on said bearings, and the sand-box is in a position to prevent the automatic discharge of sand.

In Figs. 6 and 8 to 12, inclusive, is shown a modification in the application of the principle illustrated in the mechanism just described. Here the sand-box is vibrated horizontally, and for that purpose the teeth of the rack-bars 37 are placed on the inside and facing edges of arms 38 of the shaker-frame 39, and a brush-bar 40 is secured to the bottom of the sand-box and has a brush 41 extending down between and engaging at the same time the teeth of both said rack-bars 37, as shown in Fig. 12. Motion is communicated to shaker-frame 39 precisely as is set forth for the first-described construction, and the front end of the sand-box is also thrown up into its inoperative position in the same way as in said first-described construction; but by reason of the sand-box having both a vertical and a horizontal movement the construction of the hinge thereof is modified. A standard 43 is located on the rear end of bearing-plate 44 and has therein a vertically-disposed socket, as shown by broken lines 45 in Fig. 14. This socket is engaged by a pivot-pin 46 on a stud 47, formed with a cross-bar 48, having journals 49, that loosely engage hangers 50 on opposite sides of the bottom of the sand-box.

To facilitate the movement of sand from the rear to the front of the sand-box, the rear end of base-plate 22 is elevated and rests on a block 51, and sidewise movement on standards 28 is prevented by lips 52 on hinge-lugs 32, which lap the inner faces of said standards 28, as seen in Fig. 16. The mass of sand in the sand-box is broken or disintegrated by the lower end of deflector-plate 10, which descends somewhat below a line (shown by broken line 53) drawn from the top of the rear wall 54 to the outer end of vibrating platform 8, which is somewhat uptilted to prevent a continuous flow of sand therefrom. To prevent the accumulation of sand on the walls of pipe 36, a cleaning-chain 55 may be attached to nozzle 35 and extended down into said pipe 36, or stationary pipe 36 may be dispensed with and a hinged or vibrating pipe 56 be directly attached to nozzle 35, as shown in Fig. 15, or

said pipe 56 may be directly attached to the outer edge of vibrating platform 8.

I do not confine myself to the details of construction herein shown and described, as it is obvious that many alterations may be made therein without departing from the principle and scope of my invention.

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

1. The combination, in a sander, of a sand-box hinged to a support, a rack-bar, a brush on the sand-box and meshing with the rack-bar, and means for successively engaging the brush with the teeth of the rack-bar, for the purpose specified.

2. The combination, in a sander, of a sand-box hinged to a support, a movable rack-bar, and a brush on the sand-box and engaging the rack-bar for the purpose specified.

3. The combination, in a sander, of a sand-box hinged to a support, a horizontally-movable rack-bar, and a brush on the sand-box and engaging the rack-bar, for the purpose specified.

4. The combination, in a sander, of a sand-box hinged to a support, a reciprocating rack-bar, and a brush on the sand-box and engaging the rack-bar, for the purpose specified.

5. The combination, in a sander, of a sand-box hinged to a support, a rack-bar movable in a plain approximately parallel with that of the axis through which power is applied thereto, and a brush on the sand-box and engaging the rack-bar, for the purpose specified.

6. The combination, in a sander, of a sand-box hinged to a support, a reciprocation rack-bar, and a connection between the sand-box and the rack-bar, whereby the reciprocation of the rack-bar imparts motion to the sand-box, for the purpose specified.

7. The combination, in a sander, of a sand-box hinged to a support, parallel rack-bars, a connection between the sand-box and the rack-bars, and means for successively engaging said connection with the teeth of both rack-bars, for the purpose specified.

8. The combination, in a sander, of a sand-box hinged to a support, parallel rack-bars, a brush connection between the sand-box and the rack-bars, and means for successively engaging said brush connection with the teeth of both rack-bars, for the purpose specified.

9. The combination, in a sander, of a sand-box hinged to a support, reciprocating parallel rack-bars, and a brush connection between the sand-box and said rack-bars, for the purpose specified.

10. The combination, in a sander, of a sand-box hinged to a support, a reciprocating shaker-frame comprising parallel rack-bars united at one end by a cross-bar and hinge-lugs on the cross-bar, wherethrough power is applied to the shaker-frame, and a brush con-

nection between the sand-box and said rack-bars, for the purpose specified.

11. The combination, in a sander, of a sand-box hinged to a support, a rack-bar, a brush connection between the sand-box and the rack-bar, means for successively engaging the brush with the teeth of the rack-bar, and means for throwing the sand-box into an inoperative position, for the purpose specified.

12. The combination, in a sander, of a sand-box hinged to a support, a rack-bar, a brush connection between the sand-box and the rack-bar, means for successively engaging the brush with the teeth of the rack-bar, and a device for throwing the sand-box into an inoperative position through a movement of the rack-bar, for the purpose specified.

13. The combination, in a sander, of a sand-box hinged to a support, a reciprocating rack-bar, a bearing on the rack-bar and elevated above the teeth thereof, and a brush on the sand-box and meshing with the teeth of the rack-bar and adapted to engage the top of said bearing, for the purpose specified.

14. The combination, in a sander, of a sand-box hinged to a support, a reciprocating rack-bar, a bearing on the rack-bar and elevated above the teeth thereof, a rib on said bearing, and a brush on the sand-box and normally meshing with the teeth of the rack-bar and adapted to engage the top of said bearing behind the rib thereon, for the purpose specified.

15. The combination, in a sander, of a sand-box hinged to a support, a reciprocating shaker-frame comprising parallel rack-bars united at one end by a cross-bar, ribs supporting the cross-bar and rising from one end toward the other, and a brush connection between the sand-box and the teeth of the rack-bars, for the purpose specified.

16. The combination, in a sander, of a sand-box hinged to a support, a reciprocating shaker-frame comprising parallel rack-bars united at one end by a cross-bar, ribs supporting the cross-bar and terminating at one end in abrupt elevations, and a brush connection between the sand-box and the teeth of the rack-bars, for the purpose specified.

17. The combination, in a sander, of a sand-box hinged to a support, a reciprocating rack-bar, a brush connection between the sand-box and the teeth of the rack-bar, means for raising the brush connection above the teeth of the rack-bar, and means for raising the rack-bar above its normal position, for the purpose specified.

18. The combination, in a sander, of a sand-box hinged to a support, a reciprocating shaker-frame comprising parallel rack-bars united at one end by a cross-bar, and bearings on said rack-bars and elevated above the teeth thereof, a brush connection normally between the sand-box and the teeth of the rack-bars and adapted to engage the tops of said bear-

ings, and ribs supporting said cross-bar and rising from one end toward the other, for the purpose specified.

19. The combination, in a sander, of a sand-box hinged to a support, a reciprocating shaker-frame comprising parallel rack-bars, bearings on the rack-bars and elevated above the teeth thereof, a rib on each of said bearings, a brush connection normally between the sand-box and the teeth of the rack-bars and adapted to engage the tops of said bearings behind the ribs thereon, and ribs supporting the cross-bar of the shaker-frame and each terminating at one end in an abrupt elevation, for the purpose specified.

20. The combination, in a sander, of a sand-box, grooved standards beneath one end of the sand-box, hinge-lugs on the sand-box and engaging the grooves in said standards, reciprocating rack-bars beneath the other end of the sand-box, and a brush connection between the sand-box and the rack-bars, for the purpose specified.

21. The combination, in a sander, of a sand-box inclined downward from its rear toward its front end, grooved standards beneath the rear end of the sand-box, hinge-lugs on the sand-box and engaging the grooves in said standards, reciprocating rack-bars beneath the front end of the sand-box, and a brush connection between the sand-box and the rack-bars, for the purpose specified.

22. The combination, in a sander, of a sand-box inclined downward from its rear toward its front end, grooved standards beneath the rear end of the sand-box, hinge-lugs on the sand-box and engaging the grooves in said standards, lips on the hinge-lugs and engaging the sides of said standards, reciprocating rack-bars beneath the front end of the sand-box, a brush connection between the sand-box and the rack-bars, and means for raising the front end of the sand-box to an inoperative position, for the purpose specified.

23. In a sander, a sand-box provided with a discharge-opening at its front end and expanding from the rear toward said front and having the rear end normally elevated above the front, for the purpose specified.

24. In a sander, a sand-box provided with a discharge-opening in front adjacent to the bottom thereof and having its front wall sloping backward from said discharge-opening, for the purpose specified.

25. In a sander, a sand-box provided with a discharge-opening in front adjacent to the bottom thereof and having its front wall sloping backward from said discharge-opening, said sand-box expanding from the rear toward the front, for the purpose specified.

26. In a sander, a sand-box provided with a discharge-opening in front adjacent to the bottom thereof and having its front wall sloping backward from said discharge-opening, said sand-box having the rear end normally ele-

vated above the front, for the purpose specified.

27. In a sander, a sand-box provided with a discharge-opening in front adjacent to the bottom thereof and having its front wall sloping backward from said discharge-opening, said sand-box expanding from the rear toward the front and having the rear end normally elevated above the front, for the purpose specified.

28. The combination, in a sander, of a sand-box provided with a discharge-opening in front adjacent to the bottom thereof, and a deflector-plate secured contiguous to the front wall of the sand-box, for the purpose specified.

29. The combination, in a sander, of a sand-box provided with a discharge-opening in front adjacent to the bottom thereof and having its front wall sloping backward from said discharge-opening, and a deflector-plate secured contiguous to the front wall of the sand-box, for the purpose specified.

30. The combination, in a sander, of a sand-box provided with a discharge-opening in front adjacent to the bottom thereof and expanding from the rear toward the front, and a deflector-plate secured contiguous to the front wall of the sand-box, for the purpose specified.

31. The combination, in a sander, of a sand-box provided with a discharge-opening in front adjacent to the bottom thereof and expanding from the rear toward the front and having the rear end normally elevated, the front wall of the sand-box sloping backward from said discharge-opening, and a deflector-plate secured contiguous to the front wall of the sand-box and above said discharge-opening, for the purpose specified.

32. The combination, in a sander, of a sand-box, and a vibrating platform in front of the discharge-opening therein, for the purpose specified.

33. The combination, in a sander, of a sand-box, and an uptilted platform in front of the discharge-opening therein, for the purpose specified.

34. The combination, in a sander, of a sand-box, and an uptilted and vibrating platform in front of the discharge-opening therein, for the purpose specified.

35. The combination, in a sander, of a hinged sand-box, a platform in front of the discharge-opening therein, a funnel connected with the platform, and a stationary pipe into which said funnel discharges, and means for agitating the sand-box, for the purpose specified.

36. The combination, in a sander, of a sand-box, a platform in front of the discharge-opening therein, a stationary pipe receiving the discharge from said platform, and a depending cleaner connected with the platform and engaging the stationary pipe, for the purpose specified.

37. The combination, in a sander, of a sand-box, a platform in front of the discharge-opening therein, a funnel connected with the platform, a stationary pipe into which said
5 funnel discharges, and a depending cleaner attached to the funnel and engaging the stationary pipe, for the purpose specified.

38. The combination, in a sander, of a sand-box expanding from the rear toward the front
10 and having its front wall sloping backward from the discharge-opening beneath it, the rear end of the sand-box being normally ele-

vated, an uptilted and vibrating platform in front of said discharge-opening, a funnel connected with the platform, a stationary pipe 15 into which said platform discharges, a depending cleaner attached to the funnel and engaging the stationary pipe, and means for reciprocating the discharge end of the sand-box, for the purpose specified.

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Witnesses:

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