

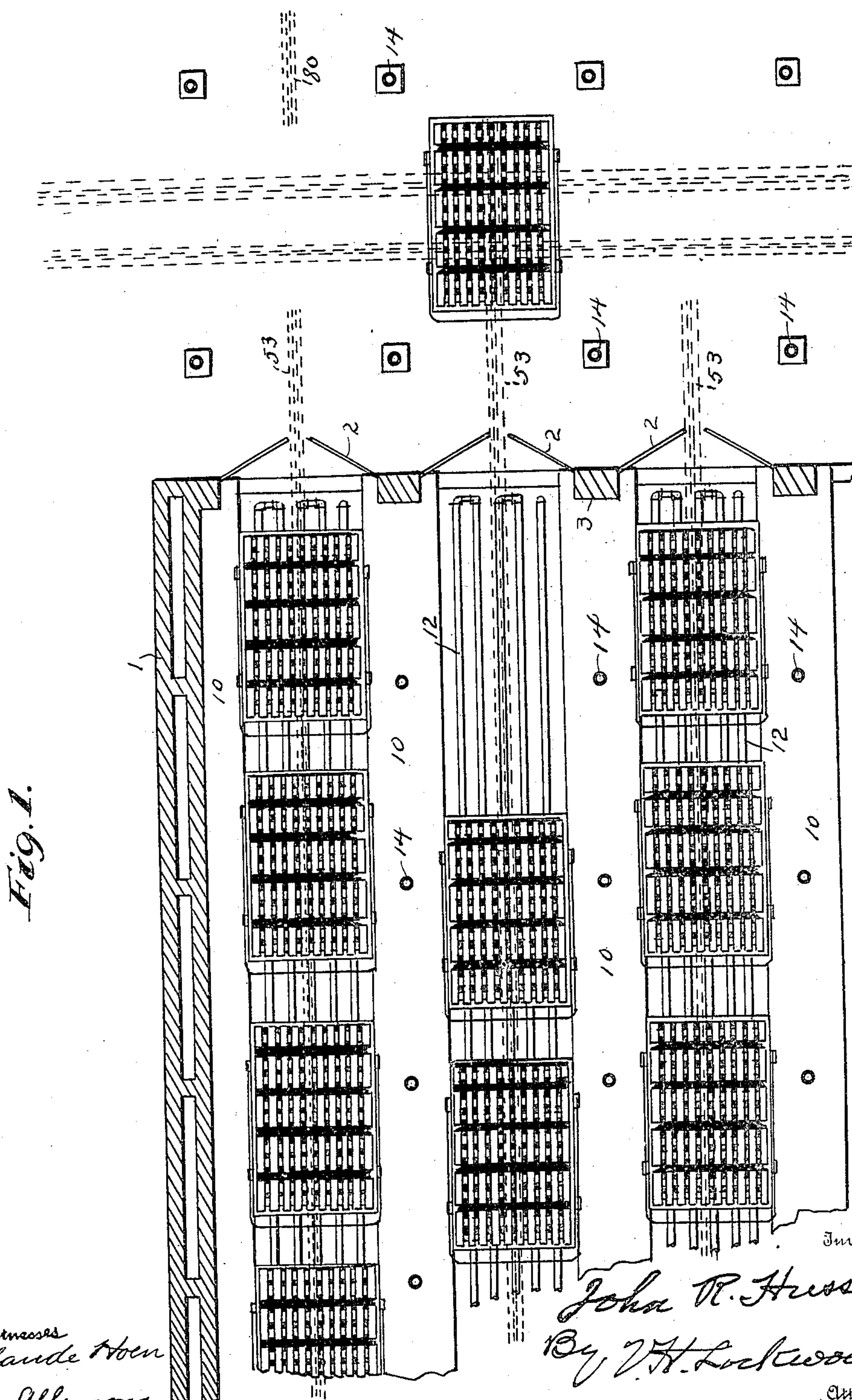
No. 817,643.

PATENTED APR. 10, 1906.

J. R. HUSSEY.
DRIER.

APPLICATION FILED MAY 17, 1905.

5 SHEETS—SHEET 1.



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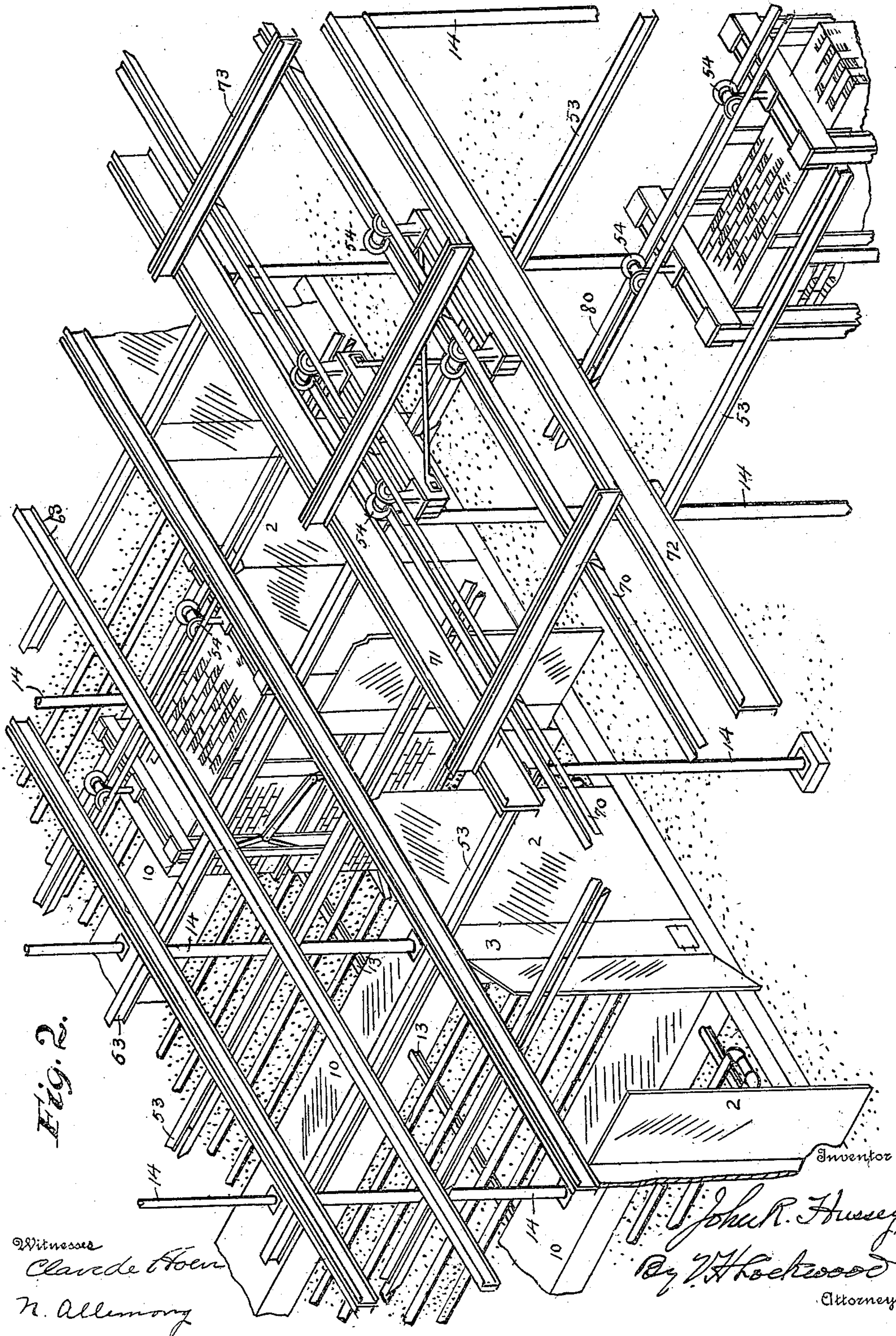
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6 SHEETS—SHEET 2.



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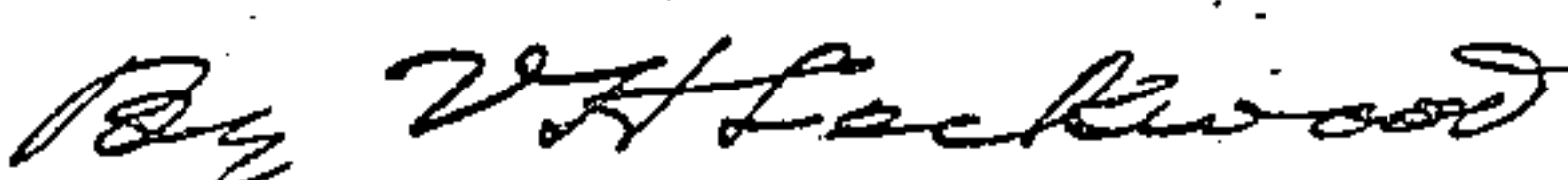
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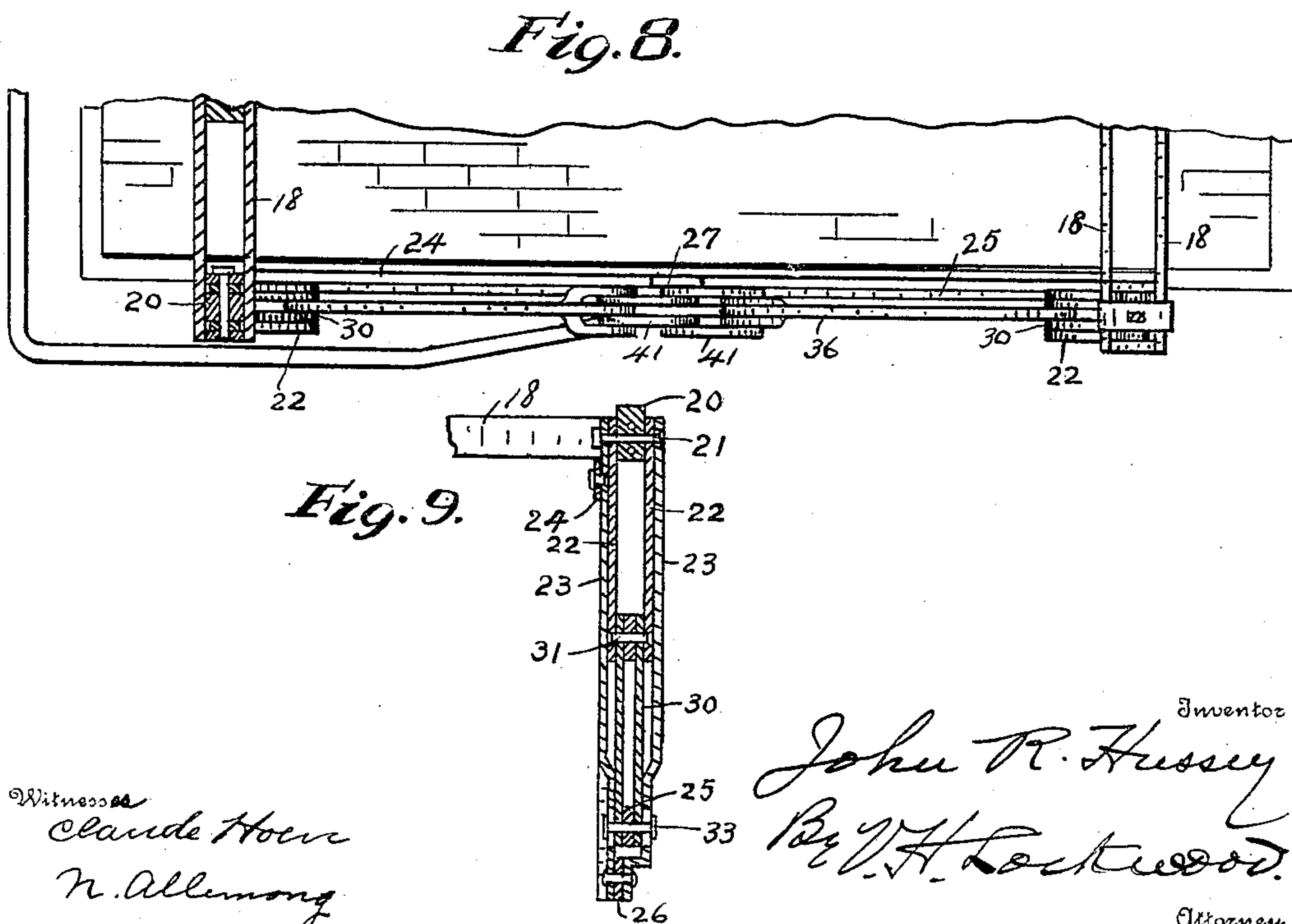
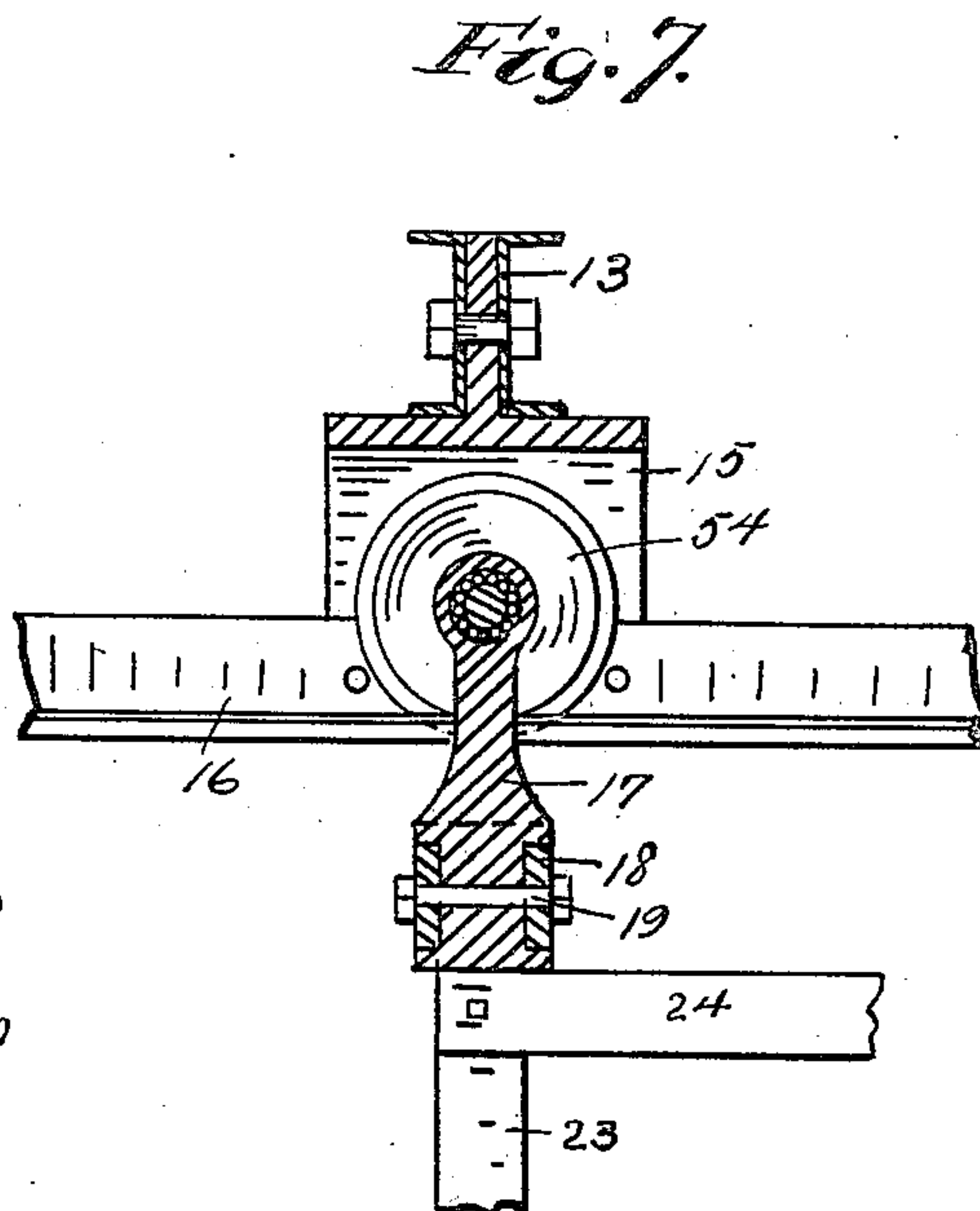
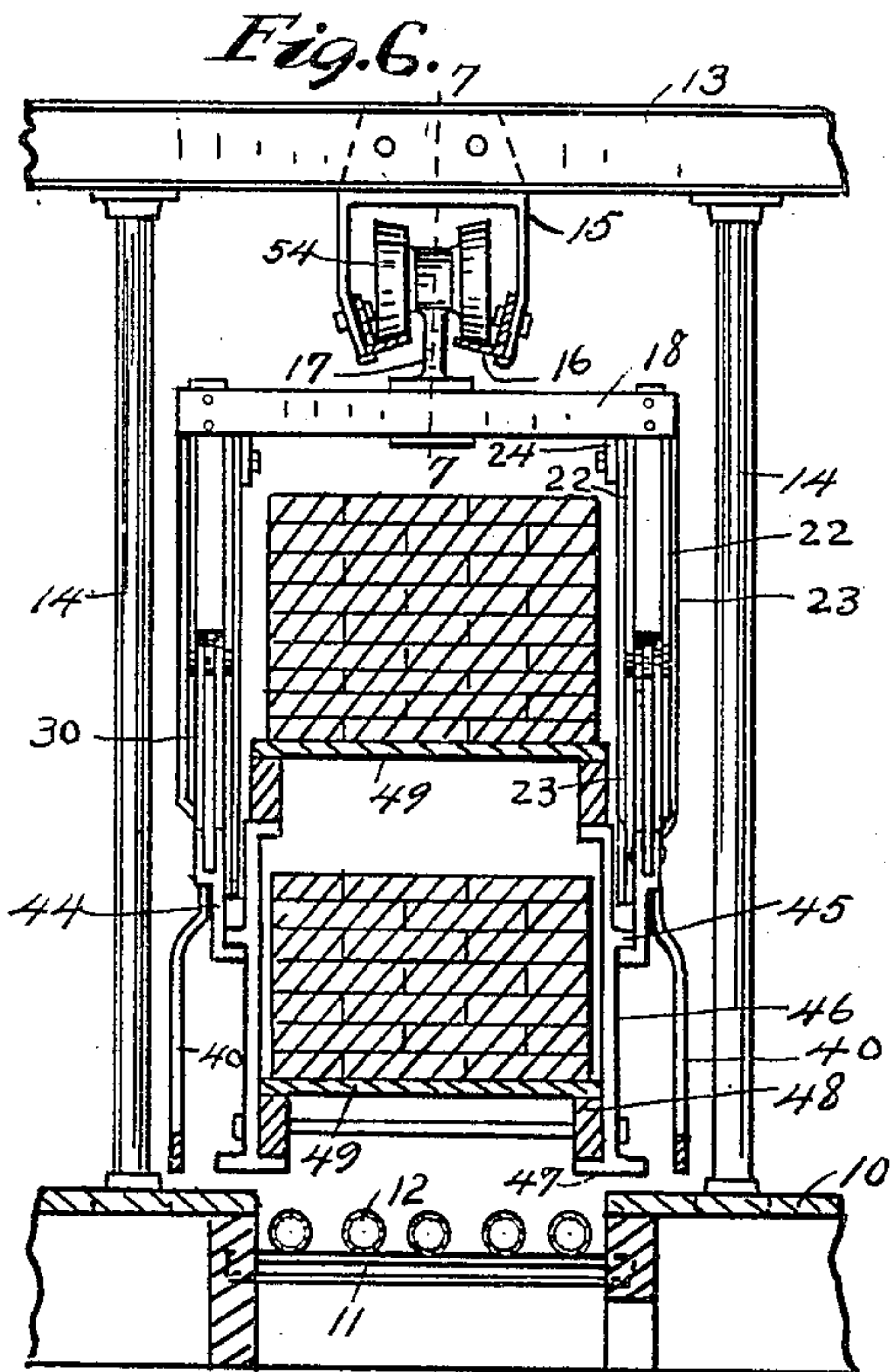
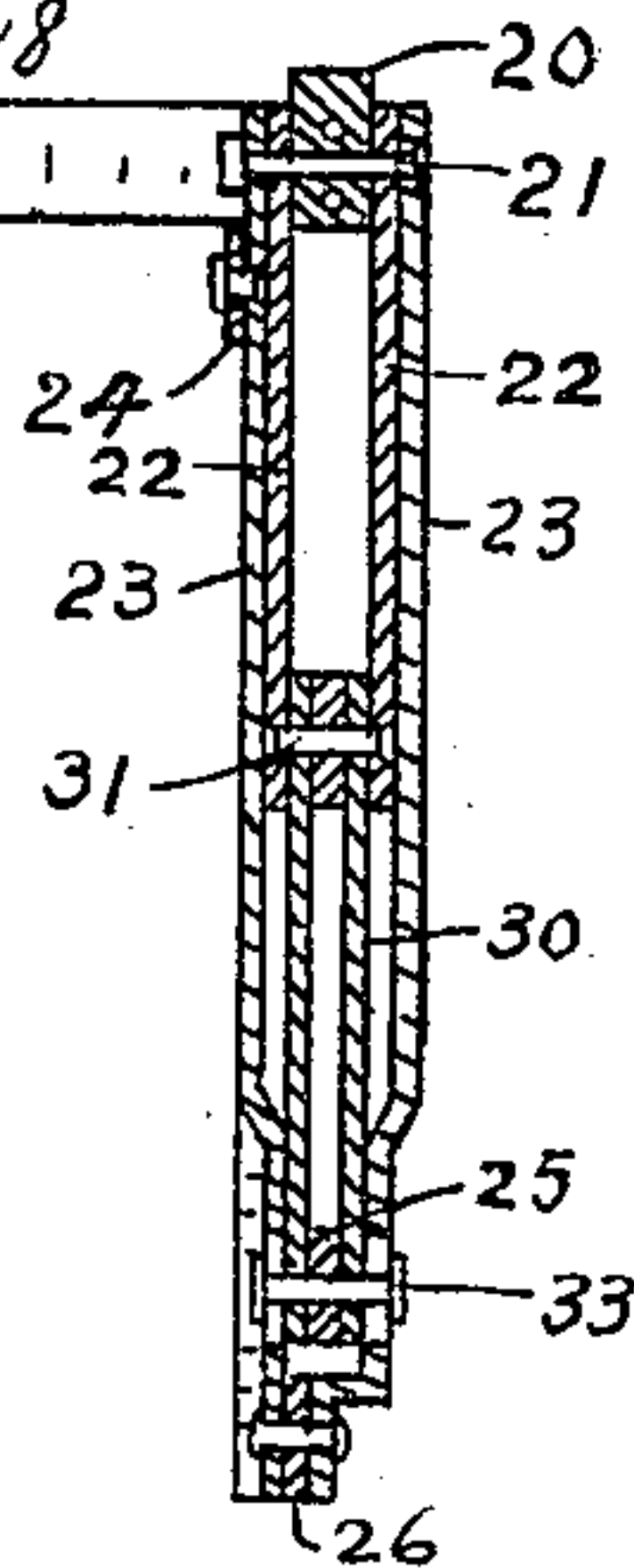


Fig. 9.



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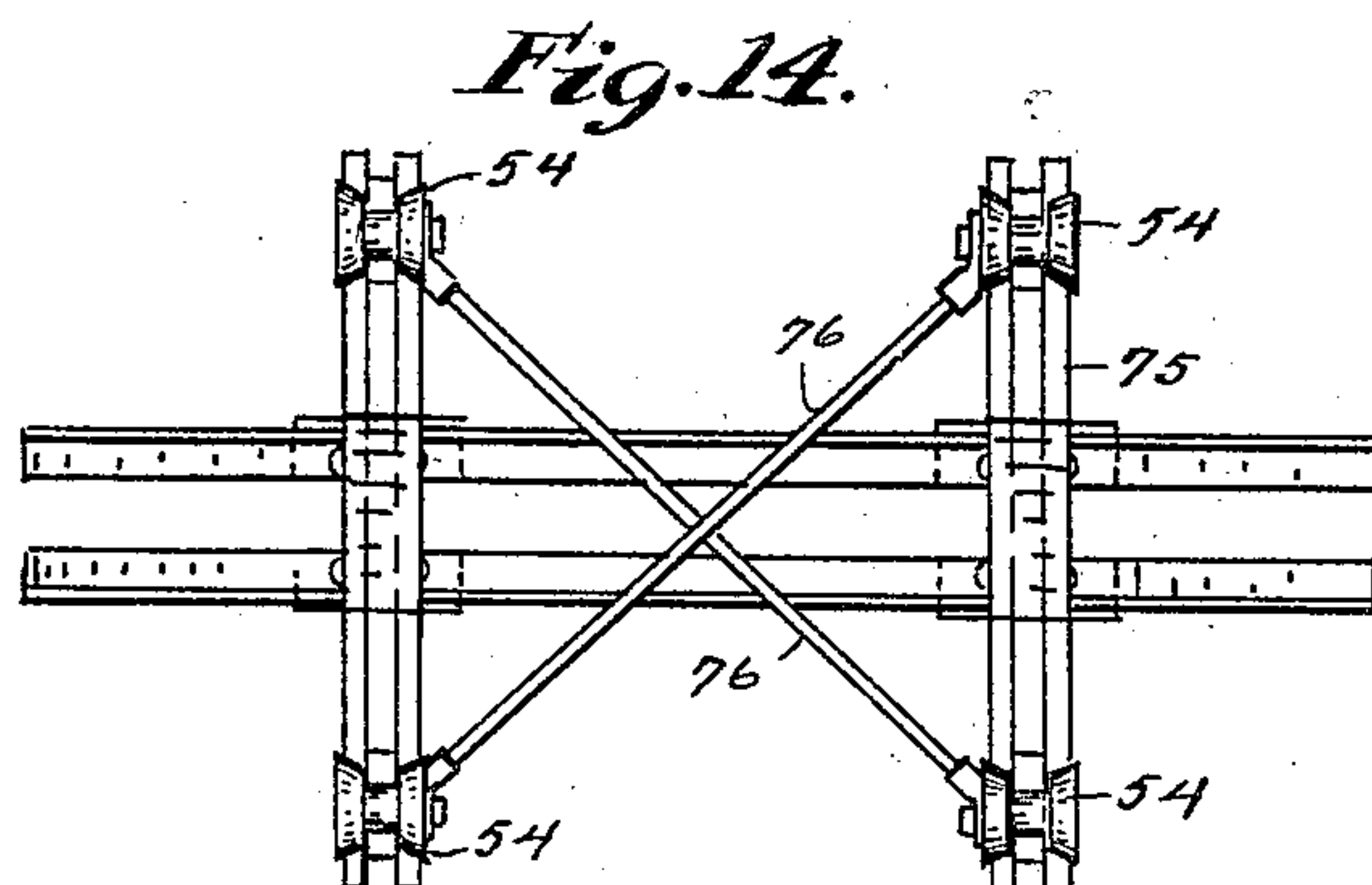
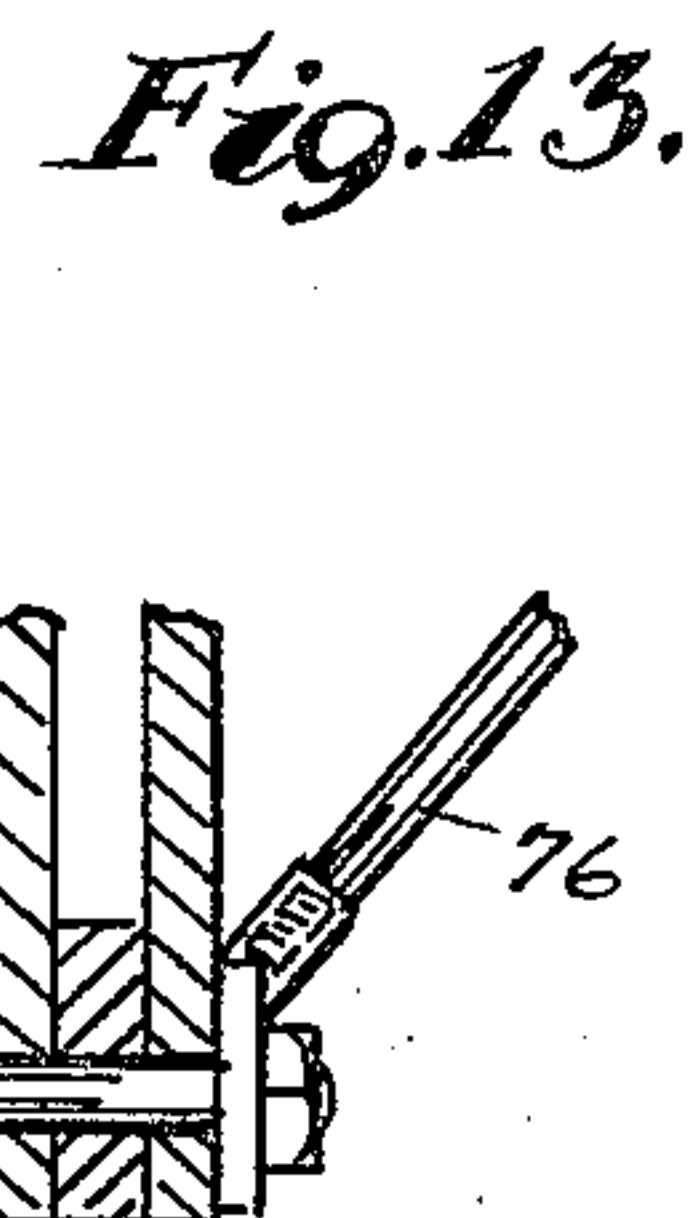
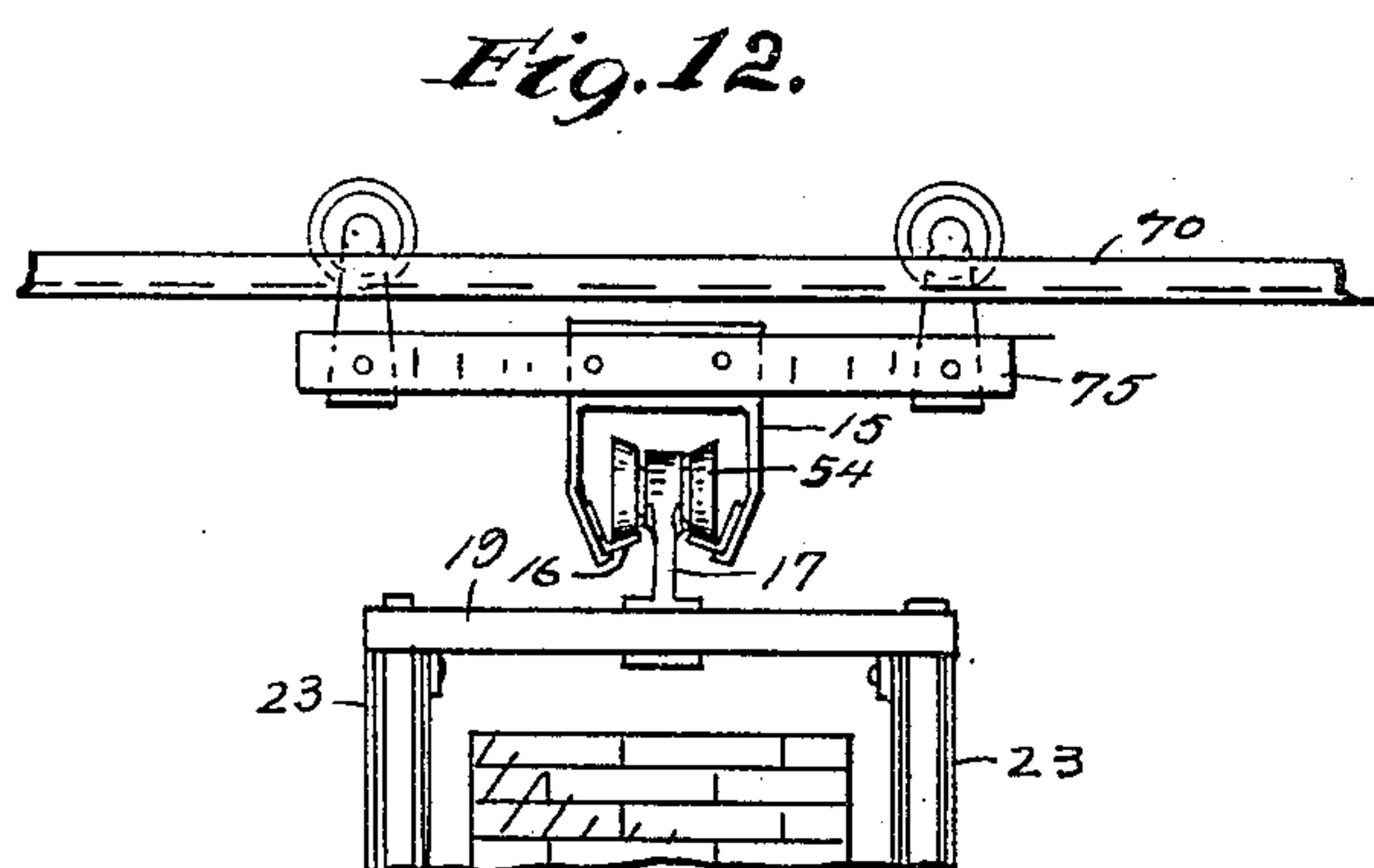
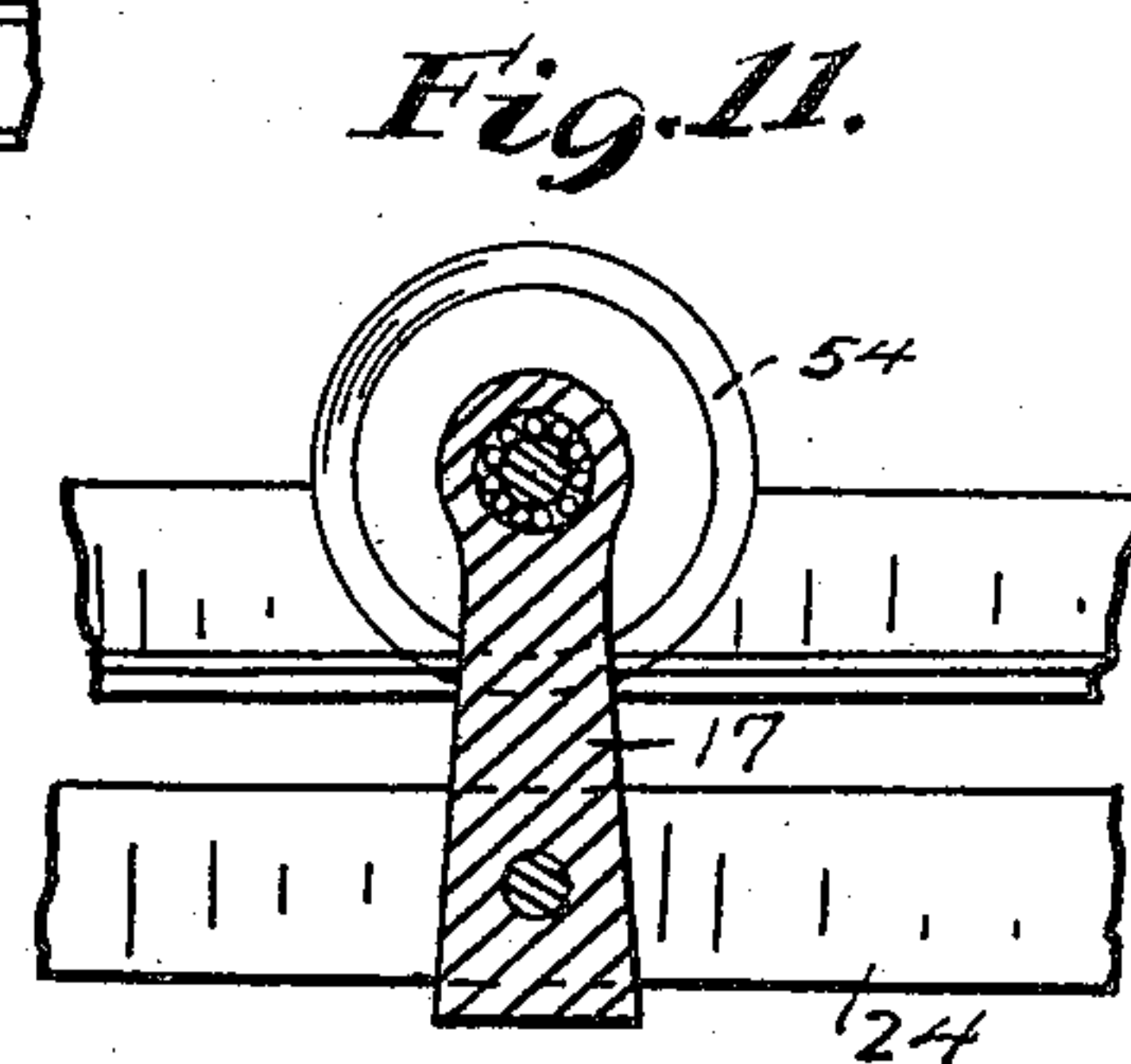
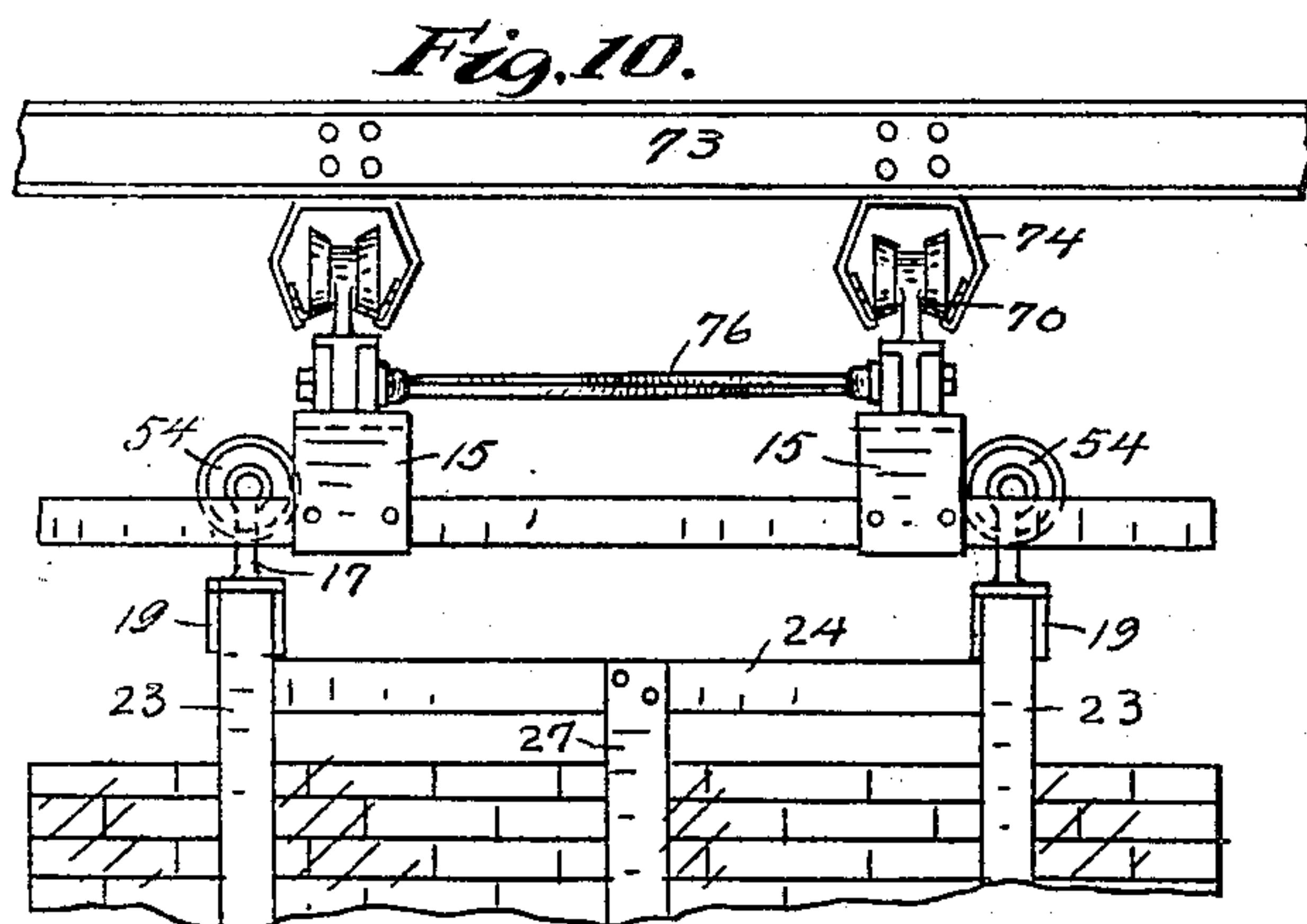
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

JOHN R. HUSSEY, OF INDIANAPOLIS, INDIANA.

DRIER.

No. 817,643.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed May 17, 1905. Serial No. 260,769.

To all whom it may concern:

Be it known that I, JOHN R. HUSSEY, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Drier; 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.

10 This invention relates to means for handling loads in dry kilns. To this end the building is in sections, each preferably adapted to hold less than the daily production of bricks or the thing to be dried. In each section there is a central longitudinal depression in the floor in which the heating-pipes are located, and on each side of the heating-pipes there are floor-walls upon which trays loaded with brick or the like are deposited, bridging the space between the walls in which the heating-pipes are located. Each section has a longitudinally-extending overhead track with a carrier that travels thereon that is adapted to pick up, convey, and deposit a tray loaded with bricks or the like at any point desired. The carrier, therefore, is over the tray, and there is nothing between the heating-pipes and the trays. The carrier is between the overhead track and the trays and is movable longitudinally by any load that has been deposited. There is one carrier for all the trays, and with that any of them may be singly picked up, conveyed, and deposited, as desired. The carrier engages the sides of the tray for this purpose and is quickly engaged therewith or disengaged therefrom. The carrier has downward side extensions for this purpose that are so far apart that they are movable astride and by any load.

The great advantage and object of the foregoing arrangement is that only one carrier is necessary in an entire dry kiln, and an especial advantage is that there is nothing between the heating-pipes and the load of material to be dried—that is, the carrier is not below the load, but is above it—and the load can be placed close to the heating-pipes. If desired, of course, there may be a carrier for each section of the kiln.

Another feature of the invention consists in the combination, with the track-sections, of transfer-sections with overhead tracks. With this arrangement the material to be dried may

be left in one position and without any movement thereof until it is entirely dried or treated and in this respect differs from what is known as the "continuous-treatment" method, wherein the loads are removably mounted in the kiln and are moved intermittently through the kiln during the process of drying.

The various features of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 shows a horizontal section through one corner of a brick-kiln at a point immediately above the loads, the overhead tracks being shown in dotted lines. Fig. 2 is a perspective view of a portion of one end of said dry kiln with the roof not shown and parts broken away. Fig. 3 is a plan view of a carrier. Fig. 4 is a side elevation of the carrier and overhead track, the carrier being shown with a load lowered. Fig. 5 is the same with the load elevated. Fig. 6 is a vertical transverse section of a portion of a dry kiln adapted for the use of the overhead carrier, said carrier being shown therein in vertical section on the line 6 6 of Fig. 5. Fig. 7 is a longitudinal vertical section on the line 7 7 of Fig. 6 with no load shown. Fig. 8 is a horizontal longitudinal section on the line 8 8 of Fig. 5. Fig. 9 is a vertical section of one side of the truck on the line 9 9 of Fig. 5. Fig. 10 is a side elevation of the upper portion of the carrier and means for supporting the same, parts being broken away. Fig. 11 is a vertical section through one of the arms by which the carrier is suspended with parts in side elevation and parts broken away. Fig. 12 is an end elevation of the upper part of the carrier and of the transfer-carrier. Fig. 13 is a horizontal section of one corner of the transfer-carrier. Fig. 14 is a plan view of the transfer-carrier.

In detail, 1 represents one of the side walls of a building, 2 doors opening into the various sections of the kiln, and 3 walls between the doors at the end of the kiln.

10 represents floor-walls extending longitudinally of the kiln and having between them a longitudinally-extending heating-space, in which heating-pipes 12 are supported on transverse rods 13, that are secured in the floor-walls so that the heating-pipes will be slightly below the level of the floor-walls. There is a floor-wall 10 between each pair of

sections, as seen in Fig. 1, upon which at intervals posts 14 are secured, that support the beams 53, extending longitudinally of the kiln, and beams 63, that extend transversely of the kiln and are mounted upon the beams 53.

An overhead track for each section is formed of a pair of angular track-rails 16, carried in the brackets 15, under and secured to the cross-beams 63. This track is located centrally of its section, and therefore centrally over the heating-space between the floor-walls 10. Upon said overhead tracks an overhead carrier is adapted to be moved. The carrier herein shown consists of a double trolley 54, that rides upon said track, and from the axle of the double trolley a bar 17 extends downward freely between the two tracks, and to each side of said bar a cross-bar 18 is secured by the bolt 19. Between the ends of each pair of bars 18 a block 20 is secured by the bolt 21, as seen in Figs. 8 and 9. From said bolt 21 an inner pair of bars 22 are supported and also an outer pair of bars 23. A longitudinal bar 24 is secured to the inner bars 23 on each side of the device to hold them in their proper relative positions. A longitudinal bar 25 is mounted on the bolts 26, that connect the lower ends of the bars 23. Likewise a bar 27 (seen in Fig. 4) is secured at its upper end to the middle of the bar 24 and at its lower end to the middle of the bar 25. Therefore the bars 23, 24, 25, and 27 constitute in themselves a frame supported from the blocks 20 between the ends of the cross-bars 19.

The bars 30 are pivoted at their upper ends to the bolt 31, which extends through the lower ends of the bars 22. The bars 30 are pivoted at their lower ends on the bolt 33, that extends through the vertical slots 34 in the vertical bars 23. Horizontal bars 35 are fulcrumed on the bolt 33 near one end and extend inward and at their inner ends are pivoted to the inner ends of the bars 36 by the pins 37. The bars 36 are inclined and at their upper ends pivoted to the bolts 31. A hand-operated lever 40 is fulcrumed to the bar 25 at each side of the device. Connecting-links 41 are pivoted at their lower ends to the lever 40 and at their upper ends to the pivot 37 of the bars 35 and 36. The outer ends of the bars 35 are pivoted at 42 to the downwardly - extending catches 44. Said catches are bent inward or toward each other at their lower ends, as seen in Fig. 6, and adapted to catch under the lugs 45, secured to the sides of the vertical tray-bars 46.

The trays 49 have bars 48, to which the tray-bars 46 are secured. Said tray-bars may be made double length to support two trays by having the lugs 45 about midway and at the tops having flanges 47 to support the upper tray, as seen in Fig. 6.

When the carrier is loaded, the parts are in the position shown in Fig. 5, with the outer

end of the handle 40 down and held down by notched arms 50, extending from the lower ends of bars 23. The weight of the load will force the handle upward when released to the position shown in Fig. 4, where it is supported by a bar 52, swiveled on the arm 51, extending from the middle of a cross-bar 19.

After the carrier has been loaded and run into dry kiln it is in the position shown in Fig. 5. When it is moved to the unloading position, the hand-lever 40 is released and permitted to move upward, and the load settles down, as shown in Fig. 4, so that the tray-supporting bars 46 rest upon the floor-walls 10 and with the platform carrying the bricks immediately over the heating-pipes.

When the load is deposited, the hooked lower ends of the bars 44 will drop below the lugs 45, so that the carrier may be pulled or pushed longitudinally away from the load and carried back to obtain another load. After the brick or material has been dried sufficiently the load is picked up again by moving the carrier into position over it, so that the hooked lower ends of the bars 44 will move under the lugs 45 on the bars secured to the sides of the trays. Then the outer end of the lever 40 is pulled downward from the position shown in Fig. 4 to that shown in Fig. 5. Very little power is required to do this work. One person can easily operate the device and pick up or deposit or transport quite a heavy load.

While I have shown and described a particular construction of overhead carrier for the purpose of this invention, I do not wish to be limited to the same, as the invention contemplates any suitable carrier adapted to be movable overhead and accomplish the work of this carrier. However, a carrier should be so constructed that it can pick up any tray or deposit any tray as desired without interfering with the load and so that the carrier can move longitudinally astride any previously-deposited load or past the same in some way. With this arrangement there is ample room between the loads for workmen to move and perform the various duties on the floor-walls 10 and to pass the posts 14, extending upward from the floor-walls, without any interference upon the part of the loads or the carrier. Likewise the loads are laid down close to the heating-pipes without any intermediate carrier between them.

I provide an overhead transfer system in combination with overhead tracks extending longitudinally through each section. The transfer system consists of a pair of similarly-made trucks 70, mounted transversely of the tracks in the drier and at the end of said series of tracks. To this end longitudinal beams 71 are mounted upon the ends of the beams 53, and a corresponding pair of beams 72 are mounted upon posts 14. Short beams 73 are mounted upon said beams 71 and 72

and carry the two transfer-trucks 70, as shown in Figs. 2 and 10. The beams 72 each carry the brackets 74, as seen in Fig. 10, said track-rails and brackets being formed in the same manner as the brackets 15 and track-rails 16, heretofore described. A transfer-carrier is provided for this transfer-track, as seen in Figs. 10, 12, and 14. It has four double trolleys 54, carried by a pair of beams 75 and reinforced by a pair of diagonal braces 76. The beams 75 and the transfer-carrier supports a pair of brackets 15 and a short section of track-rails 16, so as to receive the trolley 54 of the carrier for transporting the trays into and out of the kiln. In this way a short section similar to the track-rails 16 is carried by the transfer-carrier along the end of the drier, so as to bring said short section in line with any one of the overhead tracks extending longitudinally through the drier, and therefore the overhead carrier can be run from the transfer-carrier upon any of said tracks, or the reverse may be done.

A track 80 is provided leading to the transfer-tracks from the place where the bricks are formed, whereby they are brought to the transfer-tracks and to the drier. It is similar to the other tracks, is an overhead track, and is supported upon short transverse beams 63 and longitudinally-extending beams 53, as seen in the right-hand lower corner of Fig. 2, where a lower overhead hanger is shown in position for movement toward the drier. When the transfer-carrier is moved into alinement with the track 80, the load shown at the lower right-hand corner of Fig. 2 can be moved in upon the transfer-carrier and then can be moved in either direction laterally in a position for transfer to any track running through the drier. The overhead-track system is shown by the dotted lines in Fig. 1, and one load there is shown in position ready to be moved from the transfer-tracks into the drier.

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

1. In a drier, a carrier for conveying and depositing loads therein, said carrier being arranged and conveyed to pass any or all loads.

2. In a drier, overhead tracks for conveying loads in and out of the drier, and a carrier running on said tracks for conveying said loads, said carrier being adapted when empty to pass any load which it has deposited.

3. In a drier, overhead tracks for conveying loads in and out of the drier, trays for the loads, and a carrier running on said tracks adapted to engage the sides of the tray from above.

4. In a drier, overhead tracks for conveying loads in and out of the drier, trays for supporting the loads, and a carrier running on said tracks with two sides extending downward and adapted to engage the sides of the

trays, said sides of the carrier being far enough apart to pass longitudinally astride the loads.

5. In a drier, a plurality of overhead tracks therein for conveying loads, a transfer overhead track extending transversely of and at the ends of said drier, tracks from which a load may be passed to any of said drier-tracks, a loading overhead track leading to said transfer-track, and a carrier adapted to run on said overhead tracks.

6. In a drier, overhead tracks therein for conveying loads in and out of the drier, a transfer-track on each side of the drier extending transversely of said drier-tracks, an overhead loading-track leading to one transfer-track, and a carrier adapted to run on said overhead tracks.

7. The combination of an overhead traveling carrier, a tray, and a lever mechanism mounted in connection with said carrier adapted to engage or disengage said tray for elevating or lowering it.

8. The combination of an overhead traveling carrier consisting of a top portion and two downwardly-extending side portions, a tray, and means on one of said parts for causing the engagement or disengagement of the carrier and the sides of the tray in order to elevate or lower said tray.

9. The combination of an overhead traveling carrier consisting of a top portion and two downwardly-extending side portions, a tray, a lever mechanism mounted in connection with each side of said carrier adapted to engage or disengage said tray, and means for the simultaneous operation of the lever mechanism at both sides of said carrier.

10. The combination of an overhead traveling carrier consisting of a top portion and two side portions, a tray, means mounted in connection with each side portion for engaging or disengaging said tray to elevate or lower it, and a single hand-operated lever for simultaneously operating the lever mechanism on the two side portions of said carrier.

11. The combination of an overhead traveling carrier consisting of a top portion and two downwardly-extending side portions, a tray, a lever pivoted to the lower side of each side portion of said carrier, horizontally-disposed tray-carrying levers mounted in connection with each side portion and operatively connected with said hand-lever, means at the opposite ends of said tray-carrying levers for engaging or disengaging the tray, and means operated by the hand-lever for operating the ends of said tray-carrying levers.

12. The combination of an overhead traveling carrier consisting of two cross-bars at the top, a downwardly-extending bar on each side of said cross-bars and a longitudinally-extending side bar at the lower end of said vertical bars being each provided with a ver-

tical slot, a tray, a hand-lever pivoted to each side bar at each side of said carrier, a tray-lever fulcrumed in each of said vertical slots so the fulcrum thereof will be vertically movable, said tray-carrying levers extending in opposite directions, means on the opposite ends of said tray-carrying levers for engaging or disengaging the tray, vertically-extending toggle-levers pivoted at their upper ends to some part of the carrier and at their lower ends to said tray-carrying levers near the tray-carrying ends, connecting-bars pivoted to the middle of the toggle-levers and to the inner ends of the tray-carrying levers, and vertically-extending connecting-bars pivoted at one end to the inner ends of said toggle-connecting bars and said load-carrying levers and at the other end pivoted to said hand-lever.

13. The combination of an overhead traveling carrier with two downwardly-extending sides, a tray, means at each side of the carrier for engaging or disengaging the tray, a single lever for operating said means on both sides of said carrier, and means connected with said carrier for holding said hand-lever in position.

14. The combination of an overhead traveling carrier with two downwardly-extending sides, a tray, means at each side of the carrier for engaging or disengaging the tray, a single lever for operating said lever mechanism on both sides of said carrier, means connected with the carrier for holding the hand-lever in an elevated position, and means connected with the tray for holding the hand-lever in its lower position.

15. The combination of an overhead traveling carrier open at both ends, a tray that is narrower than said carrier whereby the carrier may be moved astride the load on the tray, and means on one of said parts for engaging the other part in order to elevate or lower said tray.

16. The combination of an overhead traveling carrier with the bottom and ends of said carrier open, a double-deck tray with the upper deck narrower than said carrier whereby said carrier may be moved astride said upper deck, and means on one of said parts for engaging the other part in order to elevate or lower said carrier.

17. The combination of an overhead traveling carrier, a tray, posts extending up at each side of said tray, and means for causing the engagement or disengagement of said posts and carrier to elevate and lower said tray.

18. The combination of an overhead traveling carrier, a tray, posts secured to the sides of said tray and extending upward, an upper tray mounted on the upper ends of said posts, and means mounted in connection with the sides of said carrier for engaging or disengaging said tray to elevate or lower the tray.

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

JOHN R. HUSSEY.

Witnesses:

W. H. BONHAM,
N. ALLEMONG.