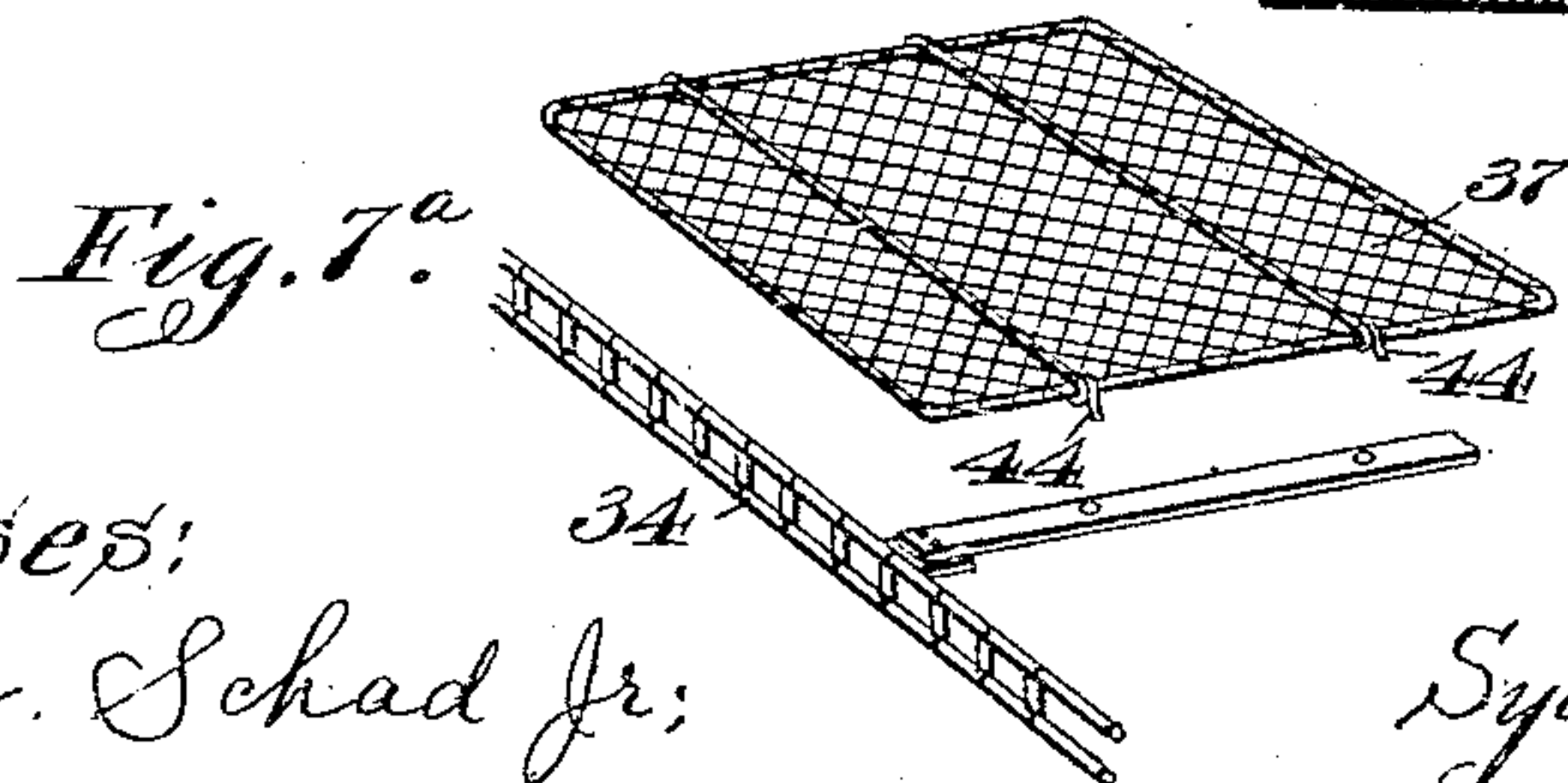
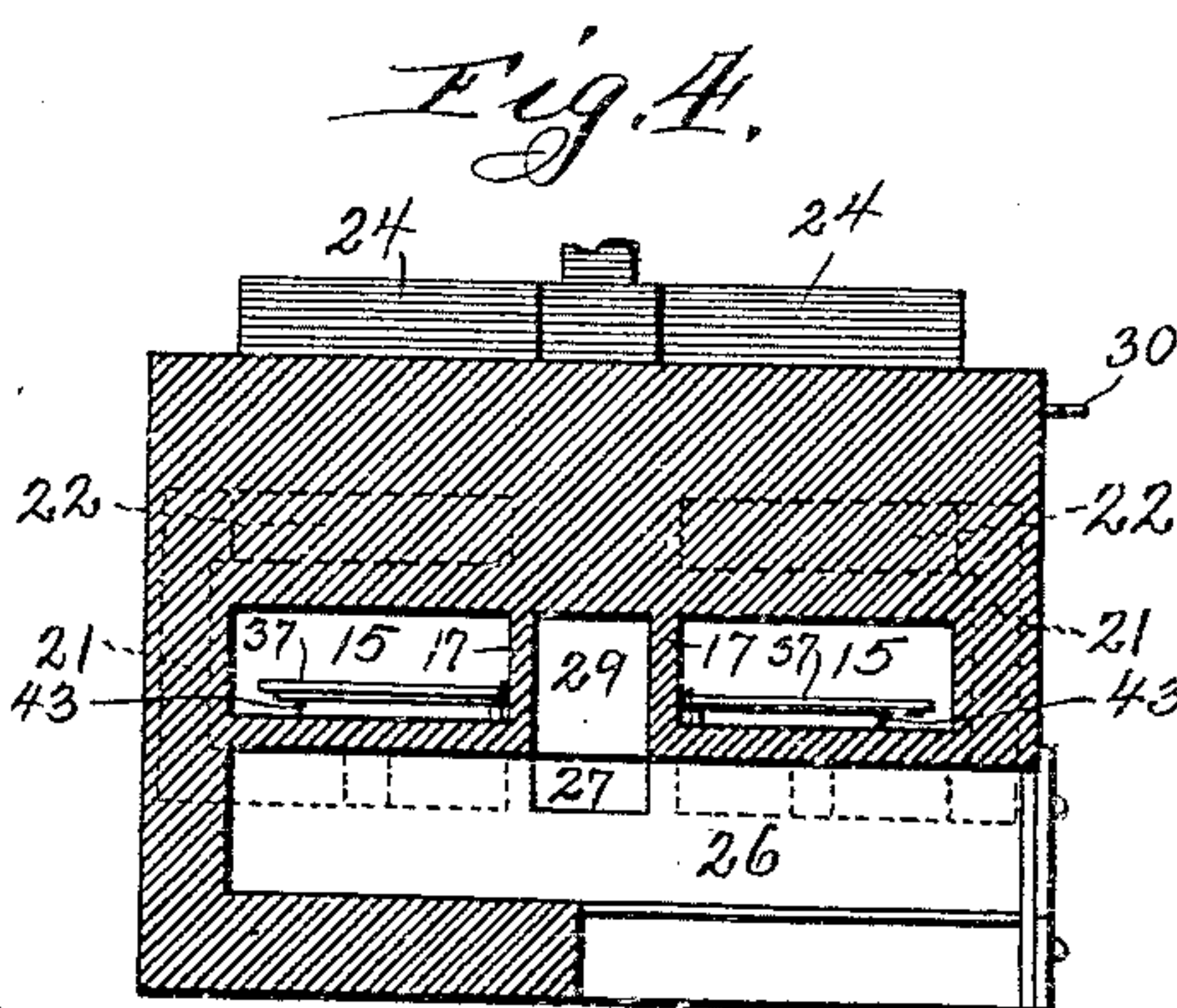
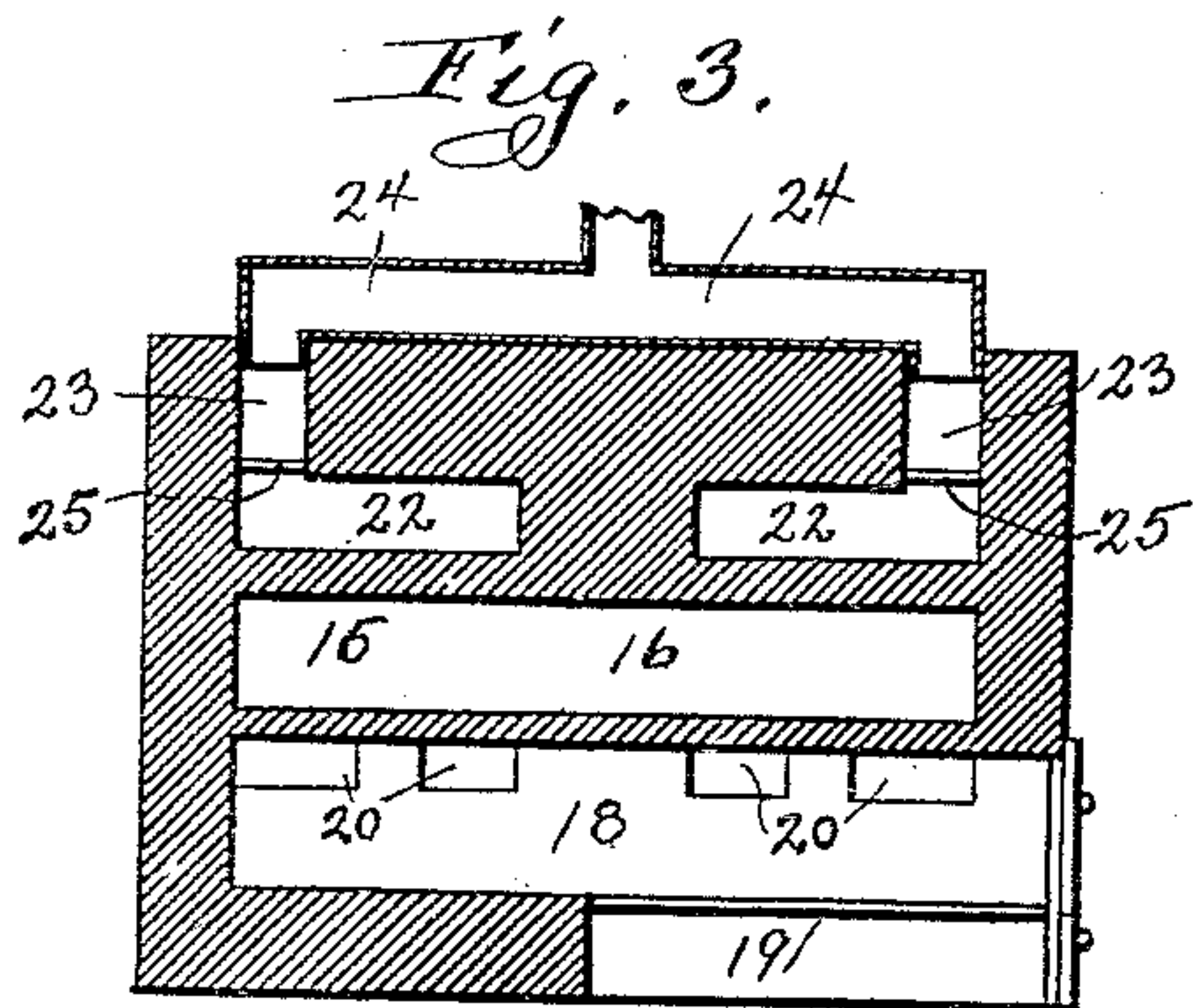
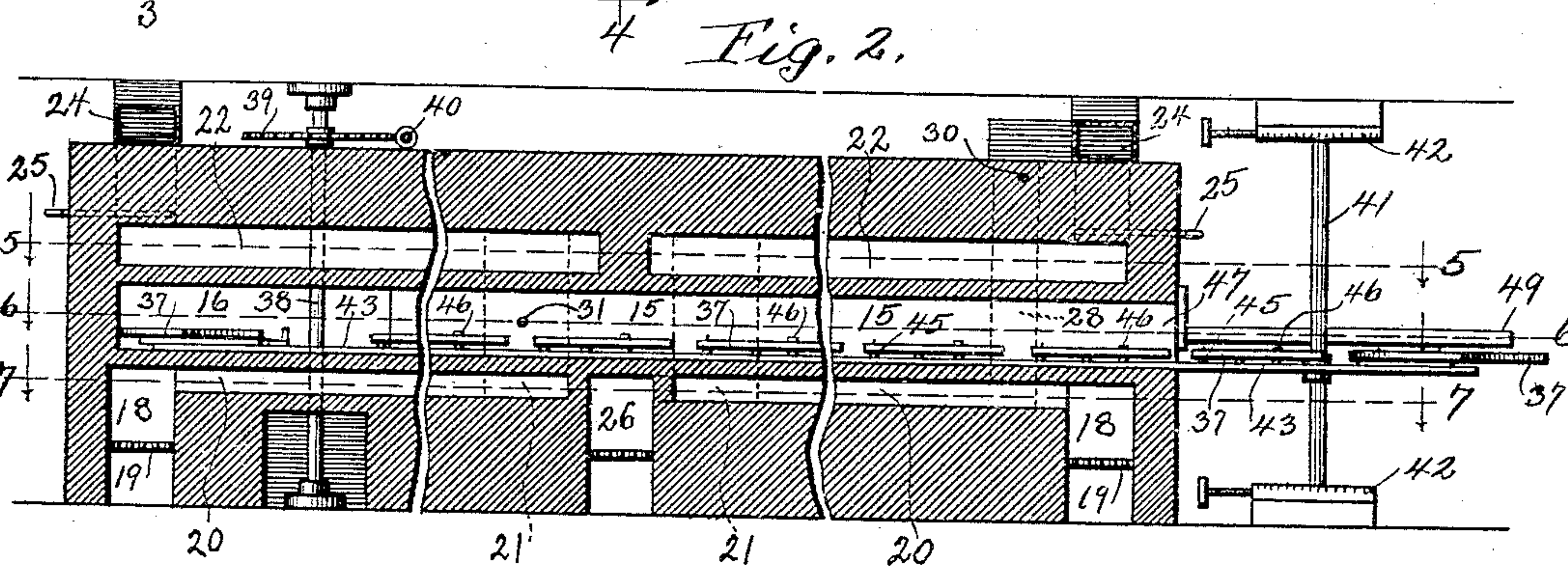
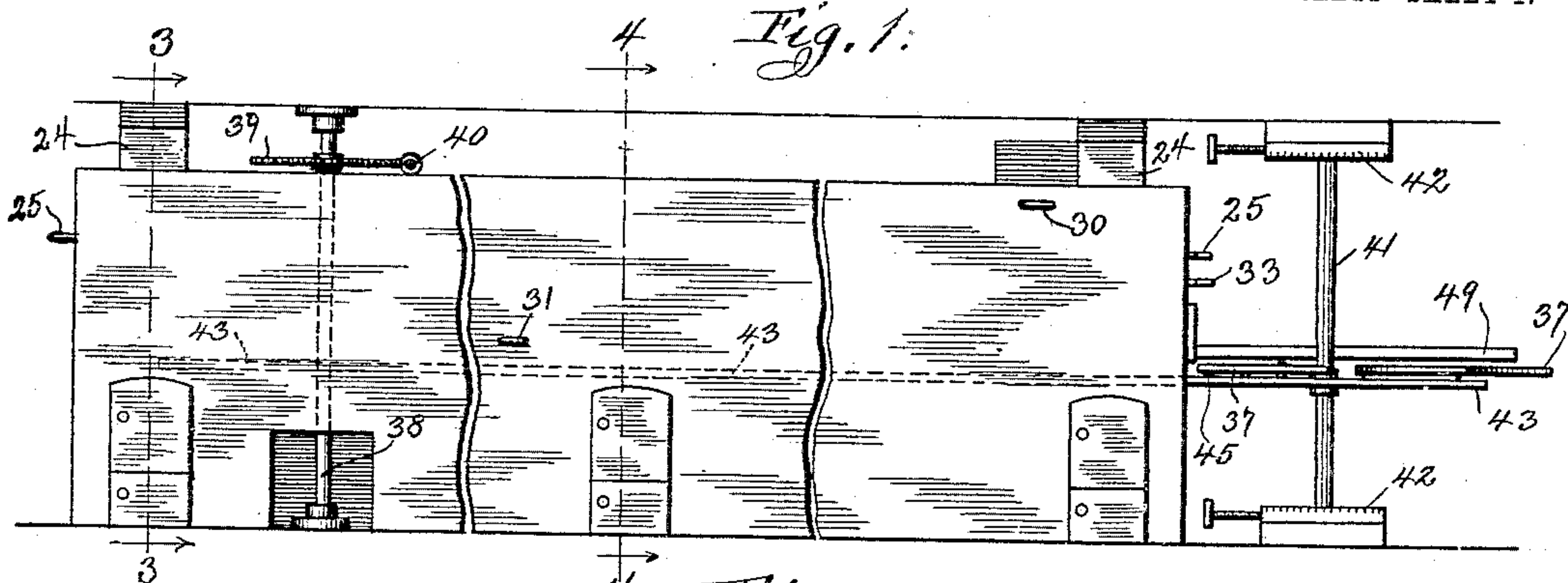


S. JACOBSON.  
CONTINUOUS BAKING OVEN.  
APPLICATION FILED JAN. 27, 1905.

937,000.

Patented Oct. 12, 1909.

4 SHEETS—SHEET 1.



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M. J. Jacker.

Inventor:  
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By R. J. Jacker,  
Atty.

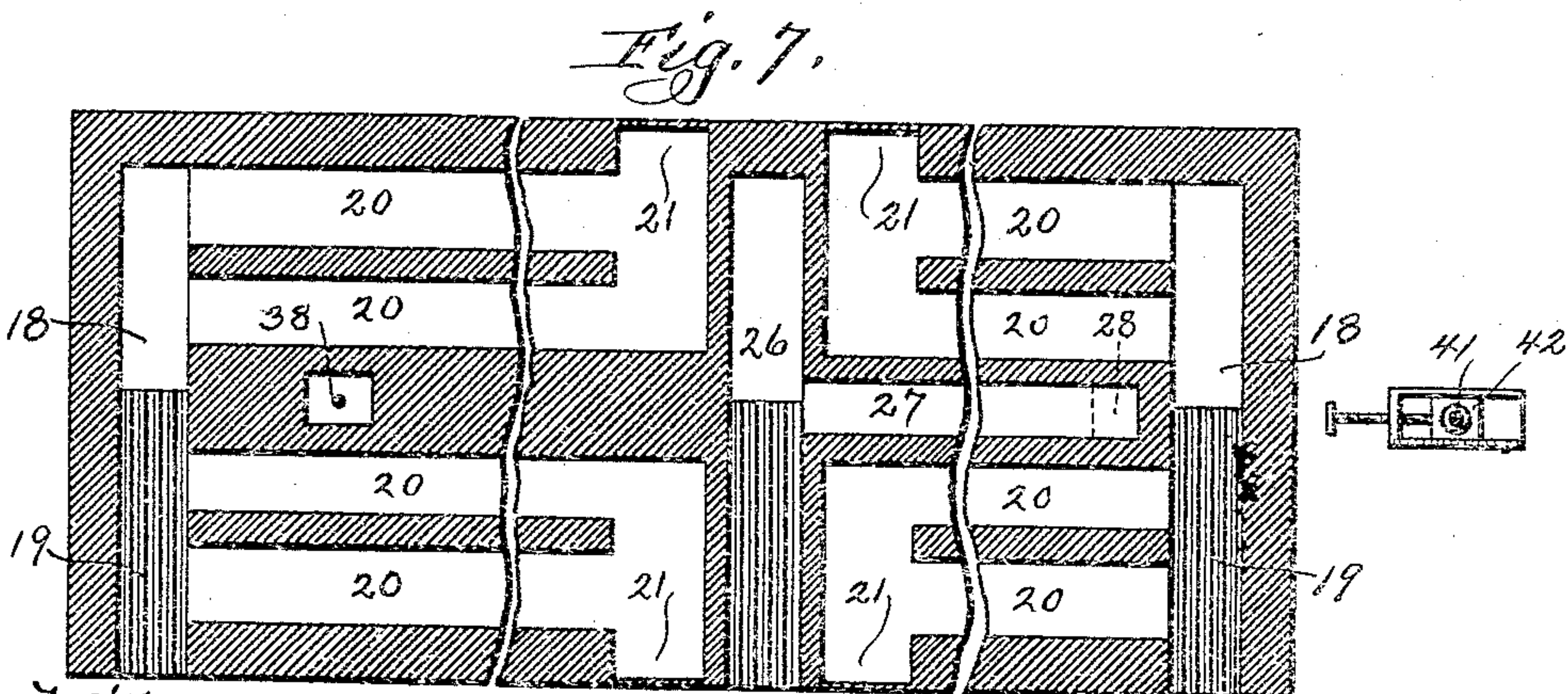
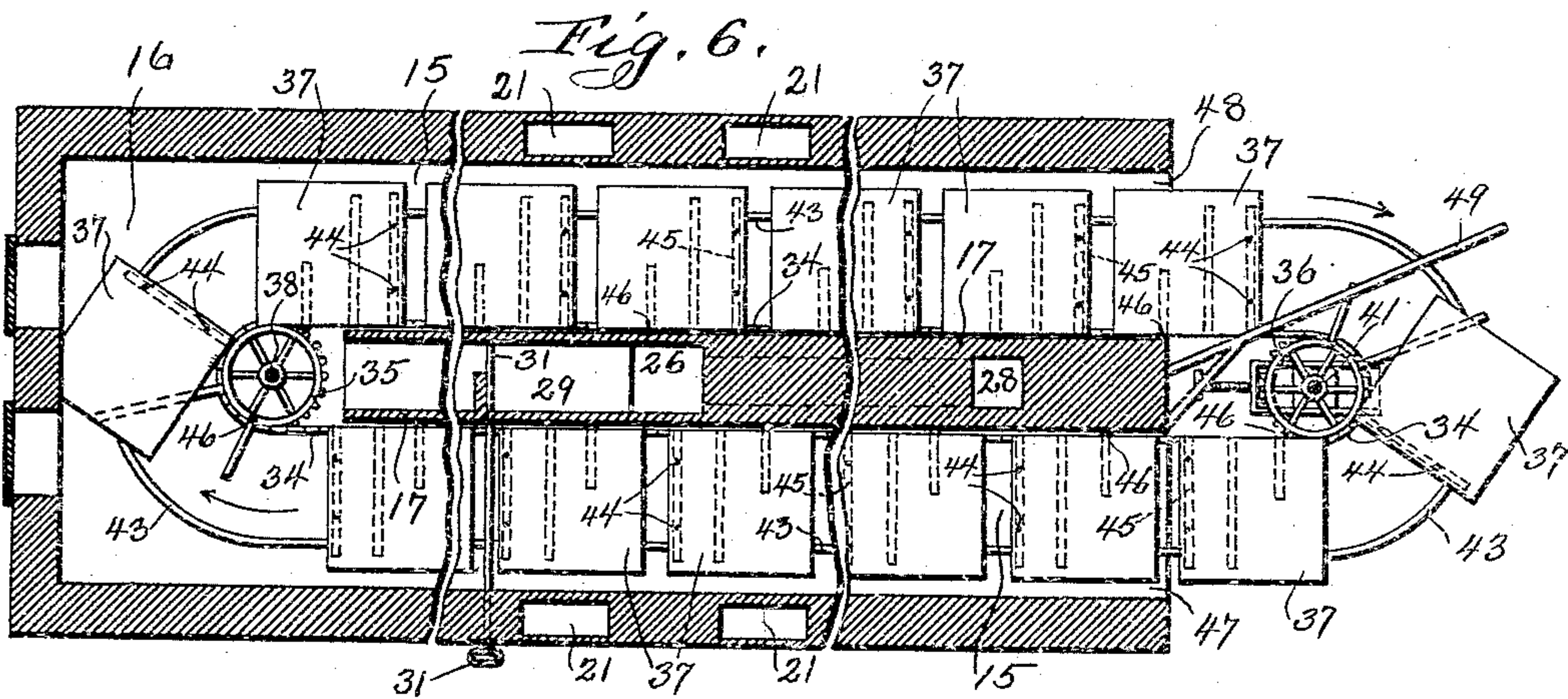
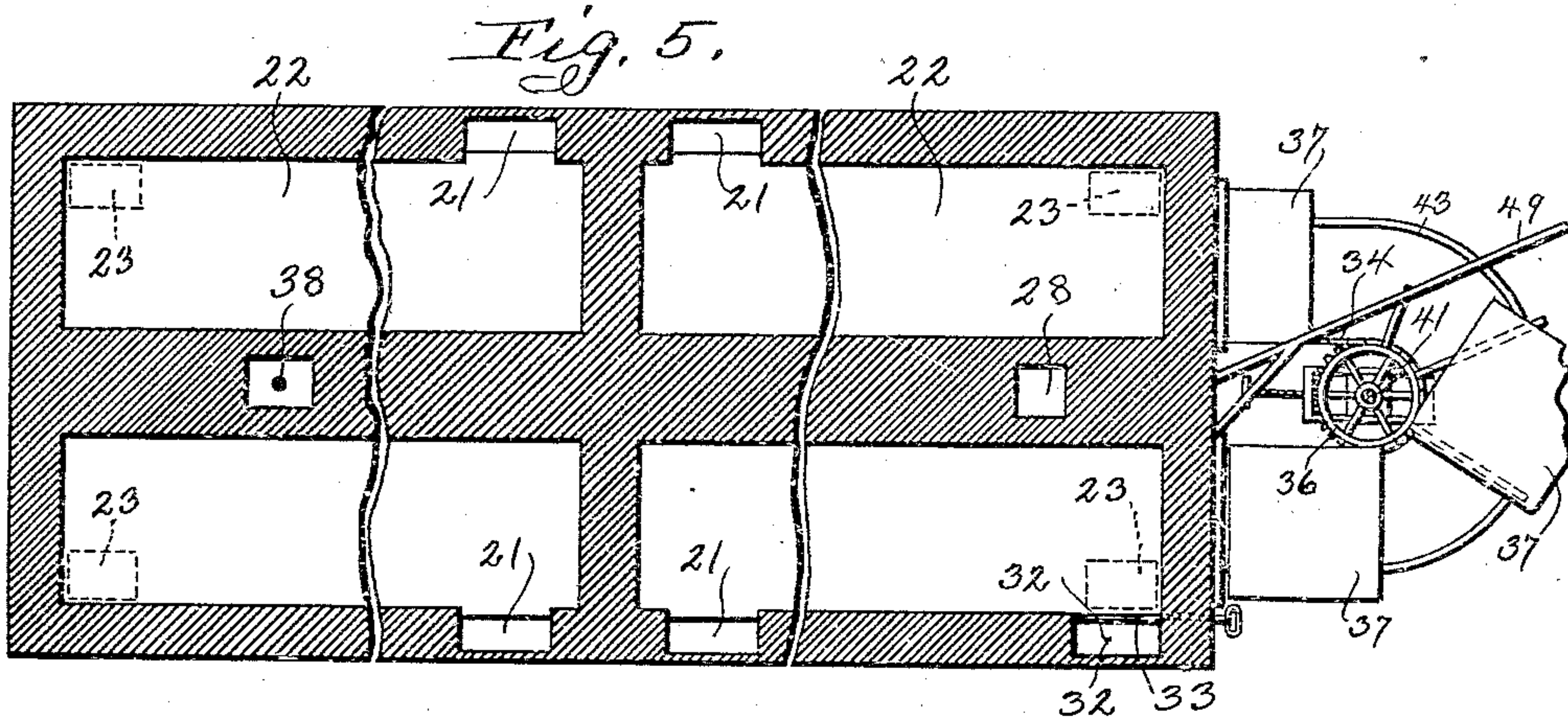


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Patented Oct. 12, 1909.

4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 8.

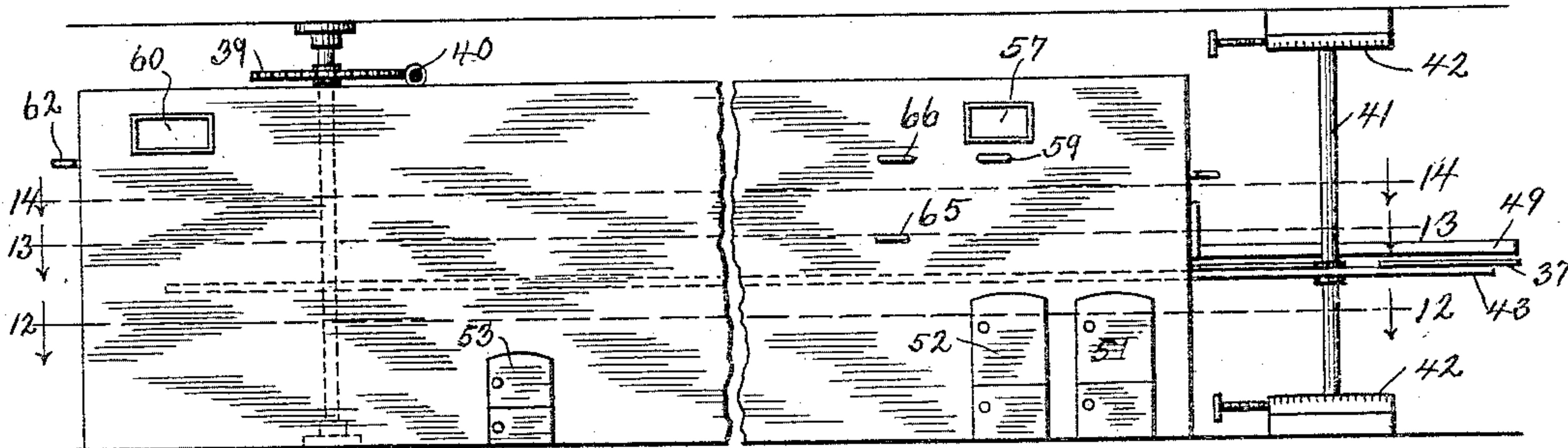


Fig. 9.

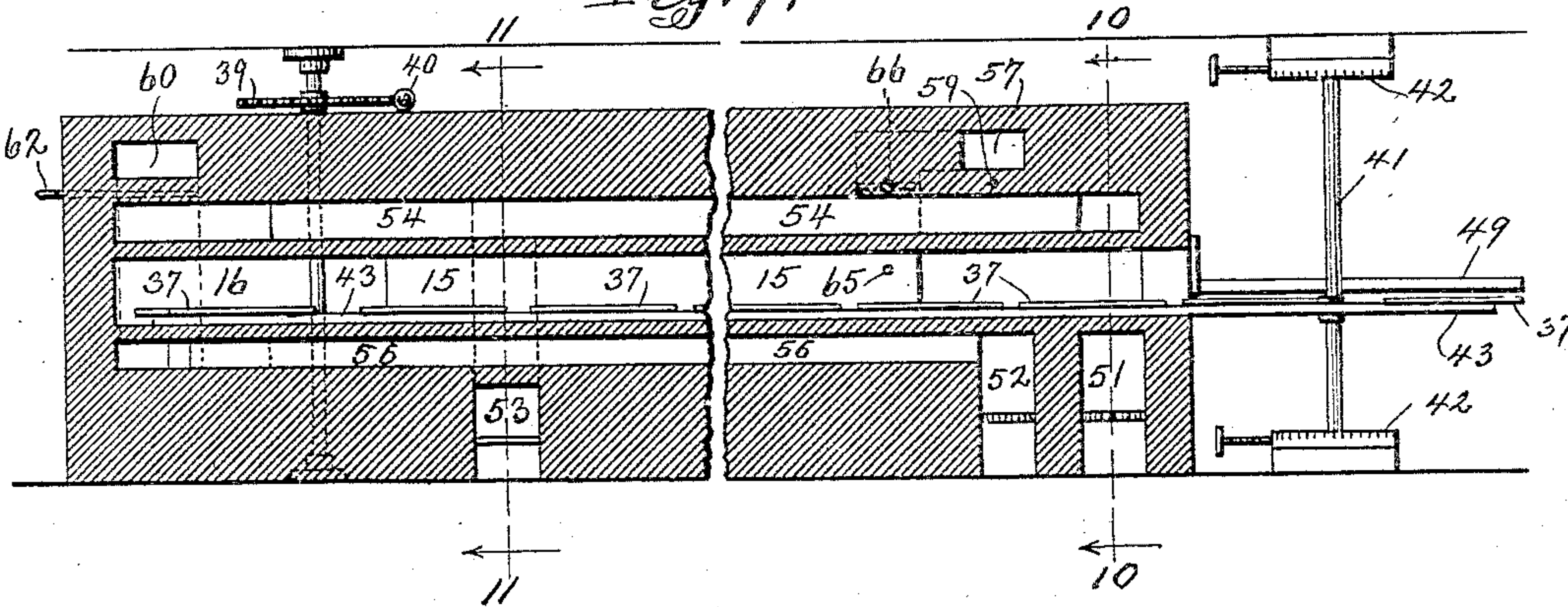


Fig. 10.

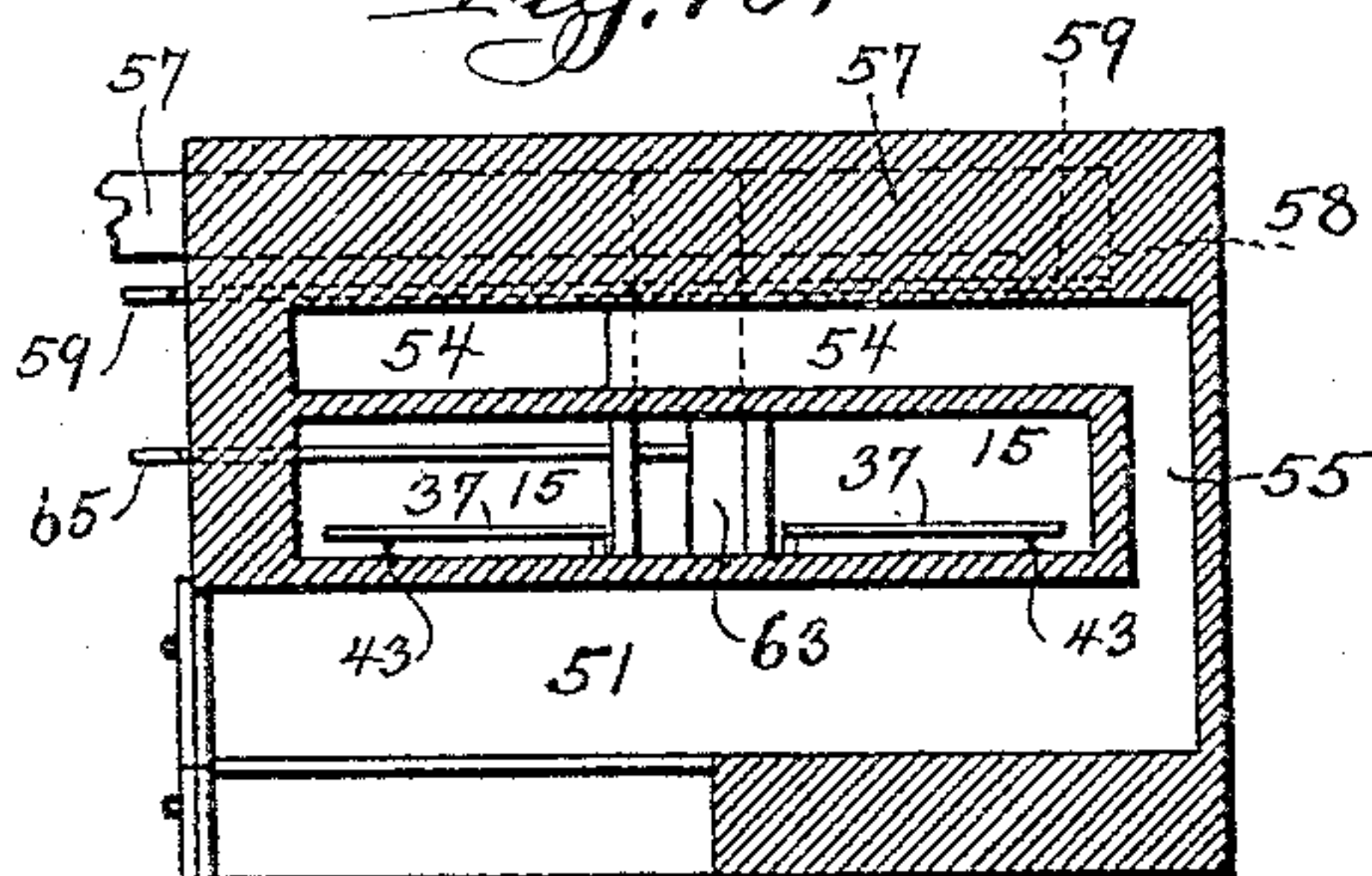
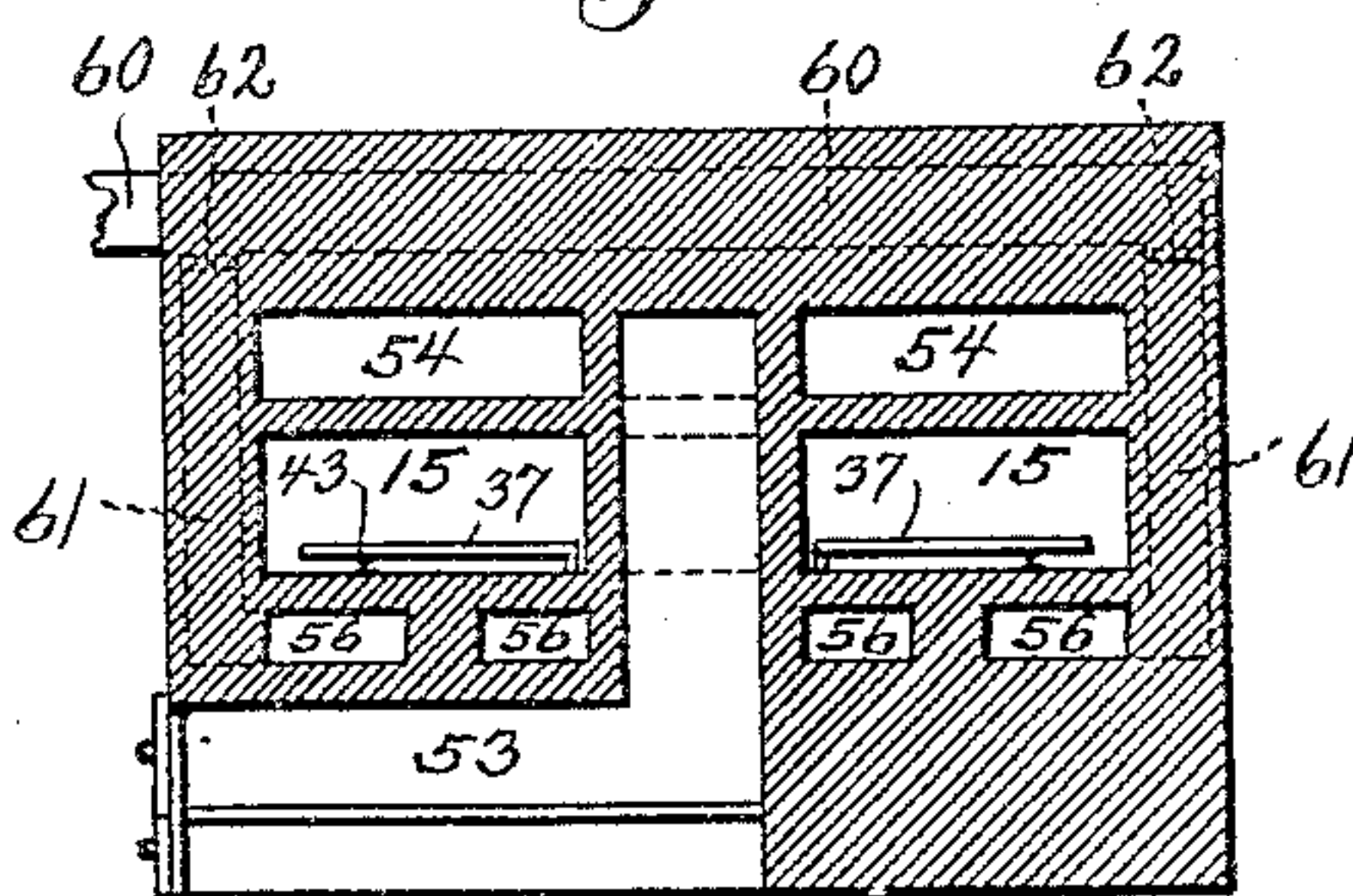


Fig. 11.



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937,000.

Patented Oct. 12, 1909.

4 SHEETS—SHEET 4.

Fig. 12.

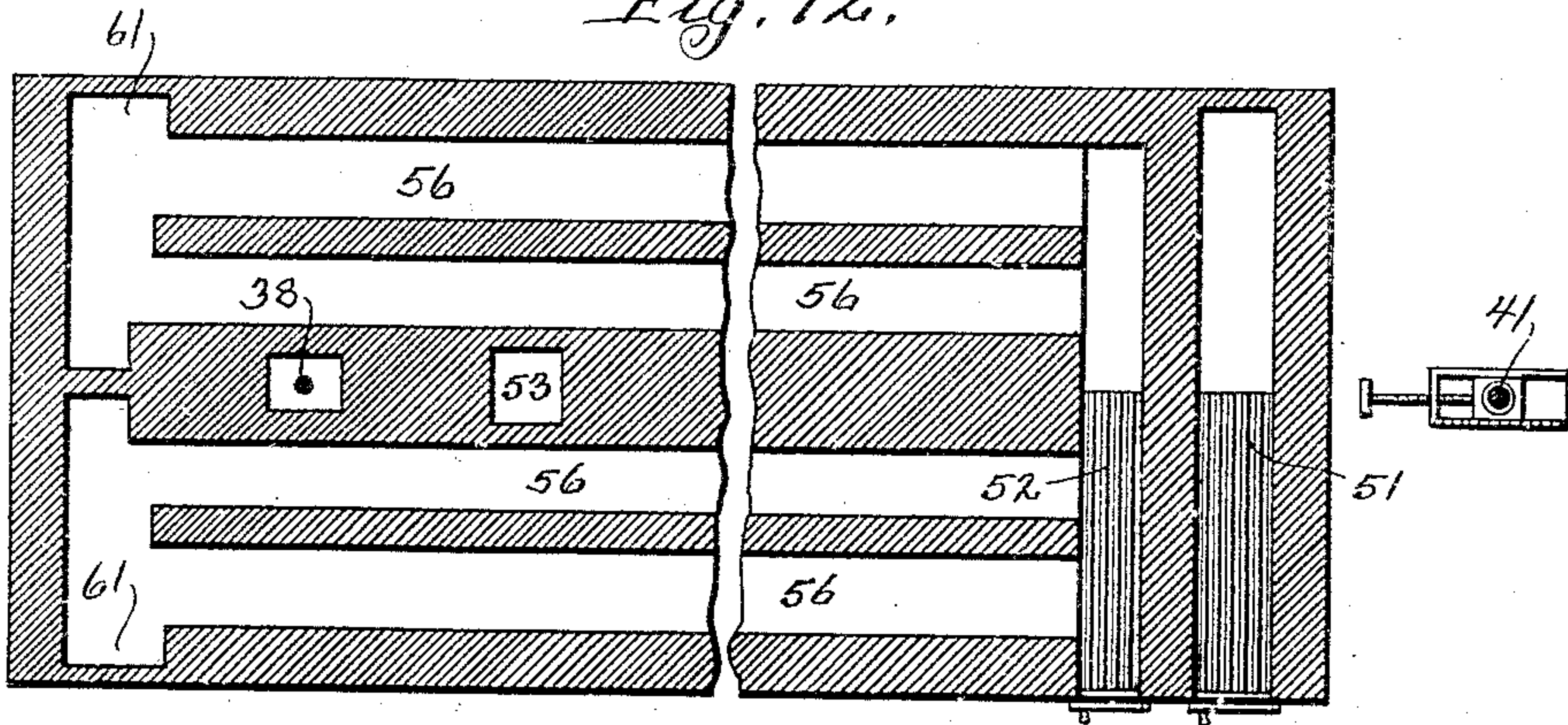


Fig. 13.

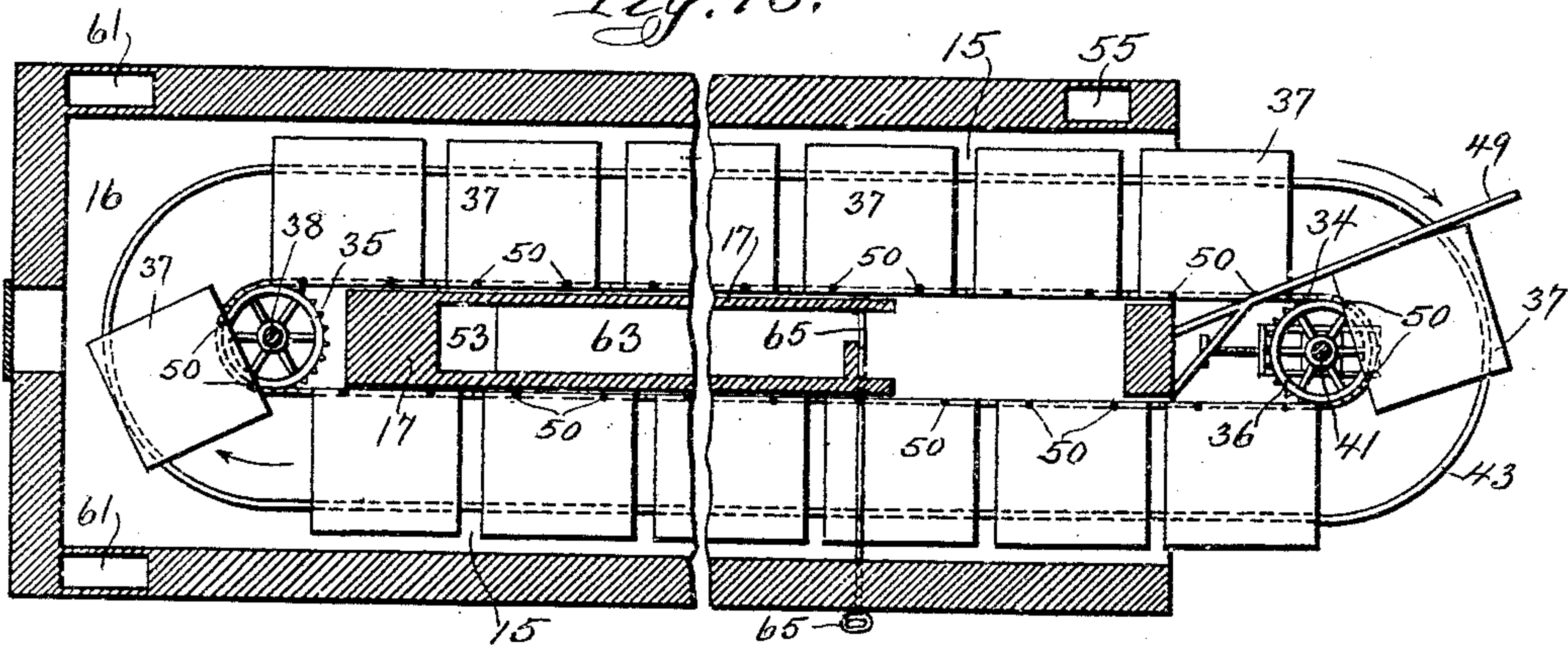
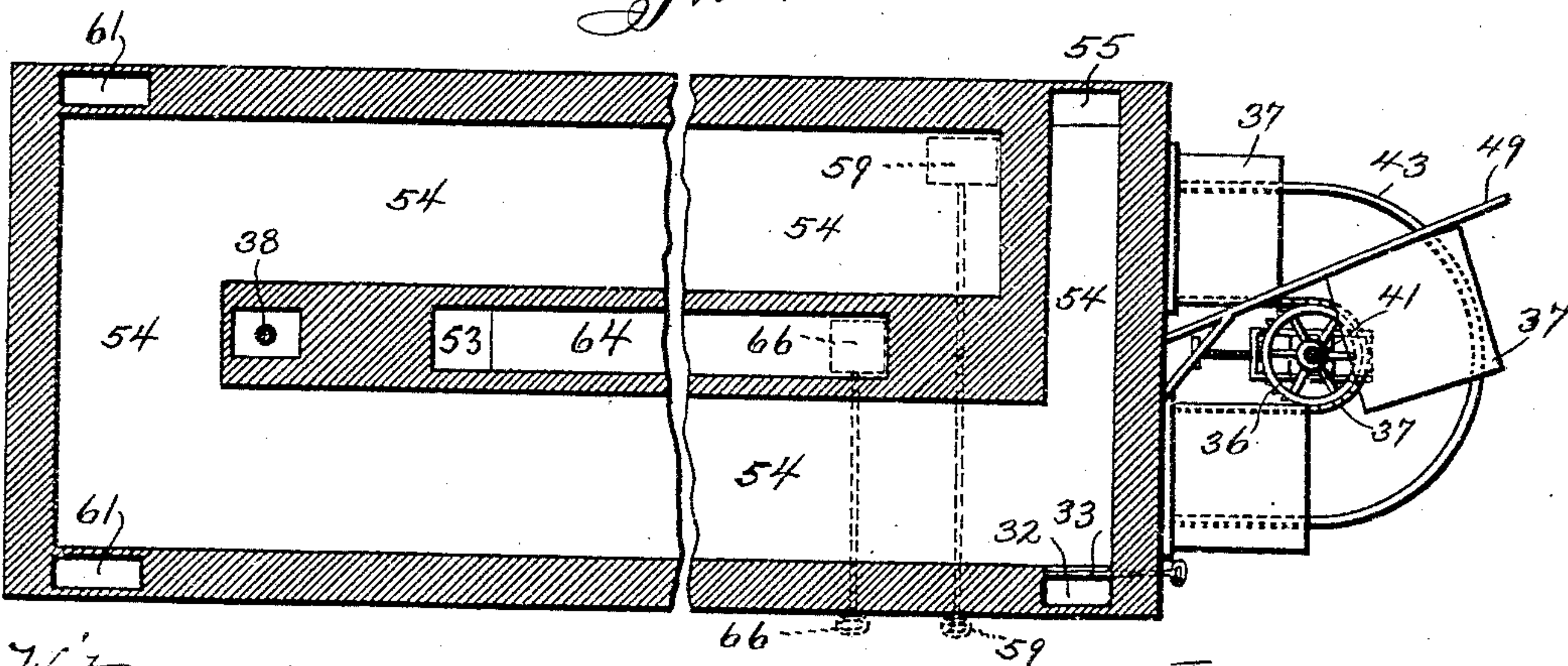


Fig. 14.



Witnesses:  
Fred J. Schad Jr;  
M. Jacker.

Inventor:  
Sydney Jacobson  
By R. J. Jacker  
Atty.



# UNITED STATES PATENT OFFICE.

SYDNEY JACOBSON, OF CHICAGO, ILLINOIS.

CONTINUOUS BAKING-OVEN.

937,000.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed January 27, 1905. Serial No. 242,946.

*To all whom it may concern:*

Be it known that I, SYDNEY JACOBSON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented a new and useful Continuous Baking-Oven, of which the following is a specification.

My invention relates to ovens through which the material to be baked is continually moving, and the objects of my improvements are, first, to provide heating flues below and above the baking chamber and means for forming communication between the baking chamber and a fire place; second, to arrange the flues so that the heat in the different parts of the baking chamber can be regulated; third, to have the material carrier travel in and out of the baking chamber in a horizontal plane; fourth, to secure the pans, upon which the material to be baked is placed, to an endless chain in such manner as to facilitate their travel through the baking chamber, and other objects to become apparent from the description to follow.

Different classes of bakery goods require to be baked different lengths of time, and to accomplish this properly the heat in the baking chamber must be regulated quite accurately.

This invention provides for the regulation of heat in all parts of the baking chamber and insures proper baking.

I have illustrated my invention on the accompanying four sheets of drawings forming a part of this specification, in which:—

Figure 1 is a side elevation foreshortened of an oven embodying my invention; Fig. 2, is a longitudinal section through the same; Fig. 3, is a cross section on 3—3 of Fig. 1; Fig. 4, is a cross section on 4—4 of Fig. 1; Fig. 5, is a plan section on 5—5 of Fig. 2; Fig. 6, is a plan section on 6—6 of Fig. 2; Fig. 7, is a plan section on 7—7 of Fig. 2; Fig. 7<sup>a</sup>, is an enlarged perspective view showing the manner of attaching the pans to the chain; Fig. 8 is a side elevation foreshortened showing a modified form of my invention; Fig. 9, is a vertical longitudinal section through the same; Fig. 10, is a cross section on 10—10 of Fig. 9; Fig. 11, is a cross section on 11—11 of Fig. 9; Fig. 12, is a plan section on 12—12 of Fig. 8; Fig. 13, is a plan section on 13—13 of Fig. 8; and Fig. 14, is a plan section on 14—14 of Fig. 8.

Similar reference characters refer to similar parts throughout the several views.

The complete structure is built of brick or any suitable material preferably faced with tile or fire brick wherever exposed to extreme heat.

I will first describe the preferred construction as illustrated in Figs. 1 to 7. The baking chamber 15 is in the form of two flues open to the exterior at the front side of the structure and connected by the short flue 16 in the rear end of the structure. The flues 15 are separated by the center wall 17. The structure in so far as the heat flues below and above the baking chamber 15 are concerned may be considered as front and rear halves which are arranged alike. Below the baking chamber 15 close to either end of the structure is a fire place 18 provided with the ordinary grate 19. Extending from the fire places 18 toward the center of the structure and immediately below the baking chamber 15 are the four flues 20 which communicate with the flues 21 near the center of the structure; the flues 21 extend upward in the walls beside the baking chamber 15 and communicate with the flues 22 which are located immediately above the baking chamber 15. The flues 22 extend from a point near the center of the structure toward either end near which they communicate, by means of the flues 23, with the chimney flue 24. The dampers 25 are provided in the four flues 23 for regulating the flow of hot gases therethrough. The hot gases formed by combustion of fuel in the fire places 18 will pass through the flues 20 and heat the bottom of the baking chamber 15, thence they will pass upward through the flues 21 into and through the flues 22 and heat the top of the baking chamber 15, after which they will pass out through the flues 23.

To assist in heating the baking chamber 15 and to be able to conduct some hot fumes or gases directly, into the baking chamber 15, a central fire place 26 is provided below the baking chamber 15. One flue 27 leads from the fire place 26 forward to a vertical flue 28 which communicates with the chimney flue 24; and one flue 29 formed in the wall 17 leads from the fire place 26 toward the rear into the baking chamber 15. The flue 28 is provided with a damper 30, and the flue 29 is provided with a damper 31. When the damper 30 is open and the damper 31 is closed the gases from the fire place 26 will pass out through the chimney flue 24, and when the damper 31 is open and the damper



30 is closed the gases from the fire place 26 will pass into the baking chamber 15. To permit any surplus gases or heat to escape from the baking chamber, the flue 32 is provided in one of the walls forming communication between the oven 15 and one of the flues 22; and said flue 32 is provided with a damper 33.

The material to be baked is fed into one of the baking chamber flues 15 and out of the other by an endless chain carrier, which consists of the endless chain 34 passing over the sprocket wheels 35 and 36, and having the plurality of pans 37 attached to the chain 34 to travel therewith. The wheel 35 is located centrally in the rear end of the baking chamber about equidistant from the three outer walls and is secured to the vertical shaft 38 journaled at the top and bottom ends and having a gear 39 secured thereto which is preferably driven by a worm 40. The wheel 36 is located some distance in front of the structure centrally of the two baking chamber flues 15 and is secured to the vertical shaft 41 which is journaled at its upper and lower ends in the adjustable bearing blocks 42. The chain 34 travels in a horizontal plane and the pans 37 are preferably detachably secured to the chain 34 to travel in a horizontal plane. One edge of each pan is supported by the chain 34 and the remaining edge is supported by and slides upon an endless rail 43 arranged in a loop extending in the flues 15 and 16 and encircling the wheels 35 and 36. The pans 37 may be made of sheet metal either perforated or not or of wire and secured to the chain in any desirable manner. I have shown them secured to the chain in Fig. 6, by two pins 44 provided on each pan which extend down into perforations provided therefor in the strap 45 which is rigidly secured to a link of the chain 34. To assist in supporting the pans 37 a plurality of metal straps are provided under each pan secured to the links of the chain 34, and the ends of some of the straps remote from the chain extend beyond the rail 43 so as to slide on said rail when the chain is in motion. Since the strain caused by the chain while pulling the pans around the circuit through the baking chamber is on the forward strap 45 and the chain is flexible the pans tend to twist so as to bring their edges out of alinement with the line of travel and thus contact with the walls of the oven. To retain the pans in perfect alinement and avoid any possible damage a stop 46 is provided above the chain 34 near the rear edge of each pan, which may be formed by bending up the end of one of the supporting straps.

In operation fires are constantly kept up in the fire places 18 and 26, the dampers are regulated as desired and power is applied to rotate the worm 40 thus causing the chain

34 with the pans 37 to travel in the direction indicated by the arrows in Fig. 6. The material to be baked is placed upon the pans 37 just before they pass into the entrance door 47 leading to the baking chamber flue 15, thence it is carried through the baking chamber and out therefrom through the exit door 48, after which it is removed from the pans by an attendant or it may be automatically removed by securing an ejector arm 49 to the structure in such manner that only the empty pans can pass under the same and all material resting on the pans will be pushed from the same as the pans travel under the ejector.

In Figs. 8, to 14, is shown a modified construction of my invention, which has the baking chamber flues 15 and 16, chain 34, wheels 35 and 36 and their connections, pans 37, ejector 49 and rail 43 all arranged as described in connection with Figs. 1 to 7. The pans 37 are secured to the chain 34 by two pins 50 extending up from the chain and through perforations provided therefor in the pan. The pins 50 extending through each pan, are placed such a distance apart that they will serve to retain each pan in its proper position relative to the line of travel. One of the perforations in each pan 37 is elongated so that the pin 50 can freely move therein to compensate for the travel of the pans over the wheels 35 and 36. The fire places 51, 52 and 53 are provided to heat the baking chamber. The fire place 51 is located in the front end of the structure and communicates with the flue 54 above the baking chamber flues 15 by means of the vertical flue 55 provided in the side wall of the structure. The fire place 52 is adjacent the fire place 51 in the front end of the structure, and communicates with the flues 56 arranged below the baking chamber 15. The end of the flue 54 remote from the flue 55 communicates with the chimney flue 57 by means of the short vertical flue 58 which is provided with the damper 59. The ends of the flues 56 remote from the fire place 52 communicate with the chimney flue 60 by means of the vertical flues 61 in either side walls of the structure which are provided with the dampers 62. Two flues lead from the fire place 53 the one 63 leading to the interior of the baking chamber 15 and the other 64 leading to the chimney flue 57. The damper 65 is provided in the flue 63, and the damper 66 is provided in the flue 64. The chain 34 is caused to travel through the baking chamber 15 in the direction indicated in Fig. 13, by passing over the sprocket wheels 35 and 36 and has attached thereto the pans 37. The sprockets 35 and 36 have the same connections as previously described in connection with the construction shown in Figs. 1 to 7. The pans 37 however are secured to



the chain 34 by being provided with two perforations through which the pins 50 extend as previously referred to.

In place of the stationary ejecting board 49 I may prefer to place a stationary brush or it may be a revolving brush conveniently driven by the shaft 41. In place of the ejector shown and described there may be some means provided for tilting the pans up on one side after leaving the baking chamber and thus dumping the baked material off of the same.

I desire to be understood as limiting myself to the exact interpretation of the appended claims only so far as is necessary when considering the prior state of the art to which this invention pertains.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In an oven, a baking chamber having a central dividing wall extending from one end to within a short distance of the other end and an endless goods carrier traveling through said U shaped chamber.

2. In an oven, a long horizontal baking chamber provided with a vertical central dividing wall, heating flues above and below said baking chamber to heat the same and a heating flue in said central wall to heat said baking chamber and communicating with said baking chamber.

3. In an oven, a long horizontal baking chamber provided with a vertical central dividing wall, a series of independently heated flues below and above the front end of said chamber and a series of independently heated flues below and above the rear end of said chamber.

4. In an oven, a long horizontal, baking chamber provided with a vertical central dividing wall, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber and an independently heated flue in said central division wall.

5. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the exterior atmosphere.

6. In an oven, a long baking chamber provided with a central wall, heating flues above and below said baking chamber to heat the same and a heating flue in said central wall to heat said baking chamber, a sprocket wheel mounted to rotate in a horizontal

plane within said baking chamber, a second sprocket wheel mounted to rotate in a horizontal plane on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels and means whereby said second named sprocket wheel is driven by said first named sprocket wheel.

7. In an oven, a long baking chamber provided with a central wall, heating flues above and below said baking chamber to heat the same and a heating flue in said central wall to heat said baking chamber, a sprocket wheel within said chamber rigidly mounted on a vertical shaft having one end extending to the exterior of said baking chamber, a second sprocket wheel on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels and means connected to the exposed end of said vertical shaft to rotate the same.

8. In an oven, a long baking chamber provided with a central wall, heating flues above and below said baking chamber to heat the same and a heating flue in said central wall to heat said baking chamber, a vertical shaft within said baking chamber, a vertical shaft on the exterior of said baking chamber, a sprocket wheel mounted on said first named shaft, a sprocket wheel mounted on said second named shaft, an endless chain connecting said two sprocket wheels, means whereby said second named shaft is rotated by said first named shaft and means for adjusting said second named shaft laterally toward and away from said first named shaft.

9. In an oven, a long baking chamber provided with a central wall, heating flues above and below said baking chamber to heat the same and a heating flue in said central wall to heat said baking chamber, a sprocket wheel mounted to rotate in a horizontal plane within said chamber, a sprocket wheel mounted to rotate in a horizontal plane on the exterior of said chamber, an endless chain connecting said two sprocket wheels and means for constantly rotating said two sprocket wheels.

10. In an oven, a long baking chamber provided with a central wall, heating flues above and below said baking chamber to heat the same and a heating flue in said central wall to heat said baking chamber, a sprocket wheel mounted to rotate in a horizontal plane within said chamber, a sprocket wheel mounted to rotate in a horizontal plane on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels, means whereby said second named sprocket wheel is driven by said first named sprocket wheel and means for moving said second named sprocket wheel toward and away from said first named sprocket wheel.

11. In an oven, a long horizontal baking chamber provided with a vertical central di-



viding wall, heating flues above and below said baking chamber to heat the same, a heating flue, in said central wall communicating with said baking chamber, and an  
5 endless goods carrier continuously traveling through said baking chamber.

12. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber and  
10 a series of independently heated flues below and above the rear end of said chamber, a sprocket wheel mounted to rotate in a horizontal plane within said baking chamber, a second sprocket wheel mounted to rotate in  
15 a horizontal plane on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels and means whereby said second named sprocket wheel is driven by said first named sprocket wheel.

20 13. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber and a series of independently heated flues below and above the rear end of said chamber, a sprocket wheel within said chamber  
25 rigidly mounted on a vertical shaft having one end extending to the exterior of said baking chamber, a second sprocket wheel on the exterior of said baking chamber, an  
30 endless chain connecting said two sprocket wheels and means connected to the exposed end of said vertical shaft to rotate the same.

14. In an oven, a long baking chamber, a series of independently heated flues below  
35 and above the front end of said chamber and a series of independently heated flues below and above the rear end of said chamber, a vertical shaft within said baking chamber, a vertical shaft on the exterior of said baking  
40 chamber, a sprocket wheel mounted on said first named shaft, a sprocket wheel mounted on said second named shaft, an endless chain connecting said two sprocket wheels, means whereby said second named shaft is rotated  
45 by said first named shaft and means for adjusting said second named shaft laterally toward and away from said first named shaft.

15. In an oven, a long baking chamber, a series of independently heated flues below  
50 and above the front end of said chamber and a series of independently heated flues below and above the rear end of said chamber, a sprocket wheel mounted to rotate in a horizontal plane within said chamber, a  
55 sprocket wheel mounted to rotate in a horizontal plane on the exterior of said chamber, an endless chain connecting said two sprocket wheels and means for constantly rotating said two sprocket wheels.  
60

16. In an oven, a long baking chamber, a series of independently heated flues below  
65 and above the front end of said chamber and a series of independently heated flues below and above the rear end of said chamber, a

sprocket wheel mounted to rotate in a horizontal plane within said chamber, a sprocket wheel mounted to rotate in a horizontal plane on the exterior of said baking chamber, an endless chain connecting said two  
70 sprocket wheels, means whereby said second named sprocket wheel is driven by said first named sprocket wheel and means for moving said second named sprocket wheel toward and away from said first named  
75 sprocket wheel.

17. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below  
80 and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, a sprocket wheel mounted to rotate in a horizontal plane within said baking chamber, a second sprocket wheel mounted to rotate in a horizontal plane on the exterior  
85 of said baking chamber, an endless chain connecting said two sprocket wheels and means whereby said second named sprocket  
90 wheel is driven by said first named sprocket wheel.

18. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a  
95 series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, a sprocket wheel within said  
100 chamber rigidly mounted on a vertical shaft having one end extending to the exterior of said baking chamber, a second sprocket wheel on the exterior of said baking chamber, an endless chain connecting said two  
105 sprocket wheels and means connected to the exposed end of said vertical shaft to rotate the same.

19. In an oven, a long baking chamber, a series of independently heated flues below  
110 and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division  
115 wall, a vertical shaft within said baking chamber, a vertical shaft on the exterior of said baking chamber, a sprocket wheel mounted on said first named shaft, a sprocket wheel mounted on said second named shaft, an  
120 endless chain connecting said two sprocket wheels, means whereby said second named shaft is rotated by said first named shaft and means for adjusting said second named shaft laterally toward and away  
125 from said first named shaft.

20. In an oven, a long baking chamber, a series of independently heated flues below  
and above the front end of said chamber, a series of independently heated flues below  
130



and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, a sprocket wheel mounted to rotate in a horizontal plane within said chamber, a sprocket wheel mounted to rotate in a horizontal plane on the exterior of said chamber, an endless chain connecting said two sprocket wheels and means for constantly rotating said two sprocket wheels.

21. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, a sprocket wheel mounted to rotate in a horizontal plane within said chamber, a sprocket wheel mounted to rotate in a horizontal plane on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels, means whereby said second named sprocket wheel is driven by said first named sprocket wheel and means for moving said second named sprocket wheel toward and away from said first named sprocket wheel.

22. In an oven, a long horizontal baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a vertical central division wall in said chamber provided with an independently heated flue communicating with said chamber and an endless goods carrier continuously traveling through said baking chamber.

23. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the exterior atmosphere, a sprocket wheel mounted to rotate in a horizontal plane within said baking chamber, a second sprocket wheel mounted to rotate in a horizontal plane on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels and means whereby said second named sprocket wheel is driven by said first named sprocket wheel.

24. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an

independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the exterior atmosphere, a sprocket wheel within said chamber rigidly mounted on a vertical shaft having one end extending to the exterior of said baking chamber, a second sprocket wheel on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels and means connected to the exposed end of said vertical shaft to rotate the same.

25. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the exterior atmosphere, a vertical shaft within said baking chamber, a vertical shaft on the exterior of said baking chamber, a sprocket wheel mounted on said first named shaft, a sprocket wheel mounted on said second named shaft, an endless chain connecting said two sprocket wheels, means whereby said second named shaft is rotated by said first named shaft and means for adjusting said second named shaft laterally toward and away from said first named shaft.

26. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the exterior atmosphere, a sprocket wheel mounted to rotate in a horizontal plane within said chamber, a sprocket wheel mounted to rotate in a horizontal plane on the exterior of said chamber, an endless chain connecting said two sprocket wheels and means for constantly rotating said two sprocket wheels.

27. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the ex-



terior atmosphere, a sprocket wheel mounted to rotate in a horizontal plane within said chamber, a sprocket wheel mounted to rotate in a horizontal plane on the exterior of said baking chamber, an endless chain connecting said two sprocket wheels, means whereby said second named sprocket wheel is driven by said first named sprocket wheel and means for moving said second named sprocket wheel toward and away from said first named sprocket wheel.

28. In an oven, a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division in said chamber and an independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the exterior atmosphere, and an endless goods carrier arranged to continuously travel in a loop ly-

ing in a horizontal plane within said baking chamber. 25

29. In an oven a long baking chamber, a series of independently heated flues below and above the front end of said chamber, a series of independently heated flues below and above the rear end of said chamber, a central division wall in said chamber and an independently heated flue in said division wall, means for forming communication between said last named flue and said baking chamber and means for forming communication between said baking chamber and the exterior atmosphere, and an endless goods carrier continuously traveling through said baking chamber. 30 35 40

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses this 21st day of January, 1905 at Chicago, Illinois.

SYDNEY JACOBSON.

Witnesses:

R. J. JACKER,

FRED. J. SCHOD, Jr.