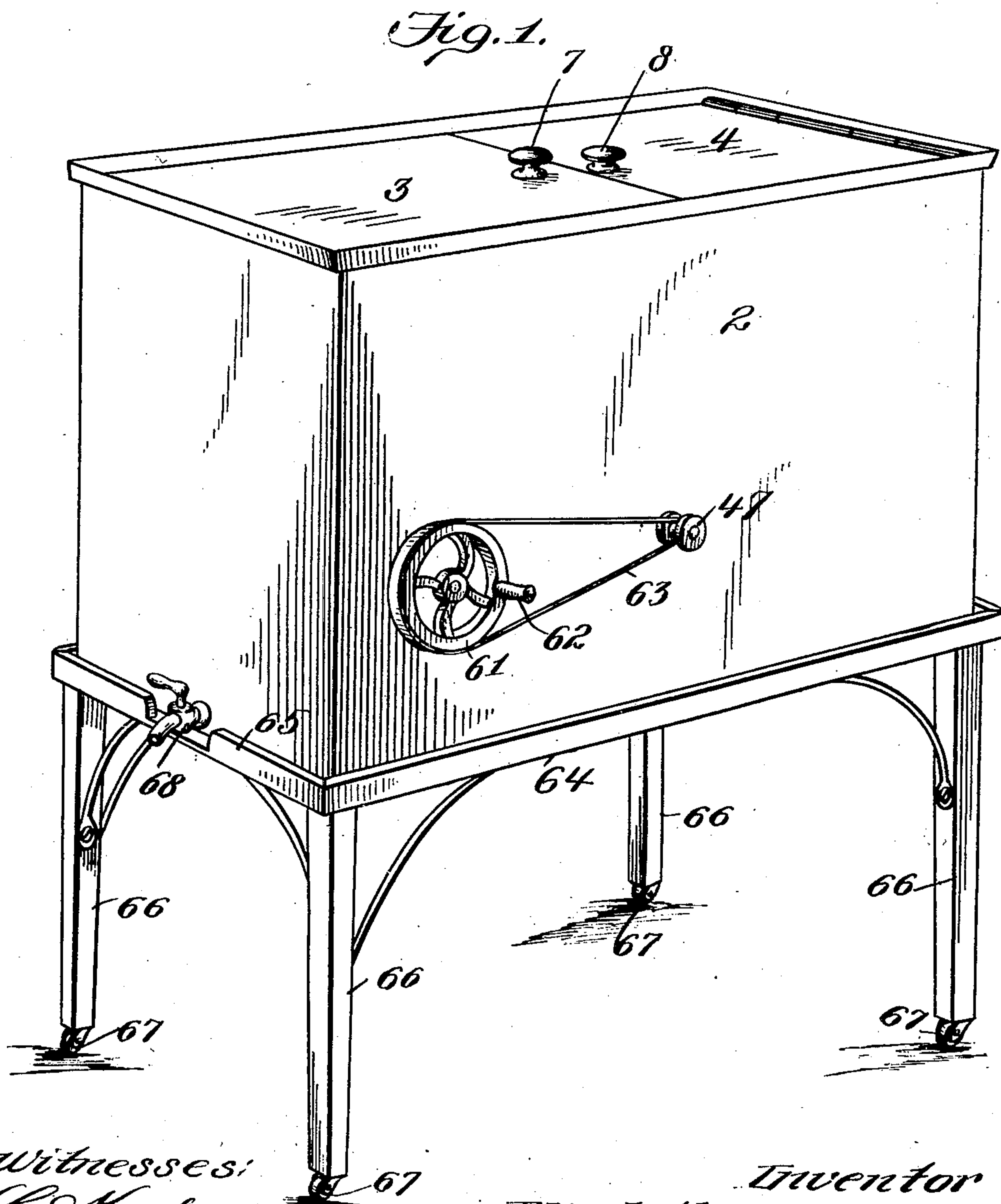


No. 862,662.

PATENTED AUG. 6, 1907.

E. J. ROBINSON.
DISH WASHING MACHINE.
APPLICATION FILED DEC. 31, 1906.

4 SHEETS—SHEET 1.



Witnesses:
C. H. Mesler

J. B. Kiefer

Inventor
Elizabeth J. Robinson

By
James L. Norris

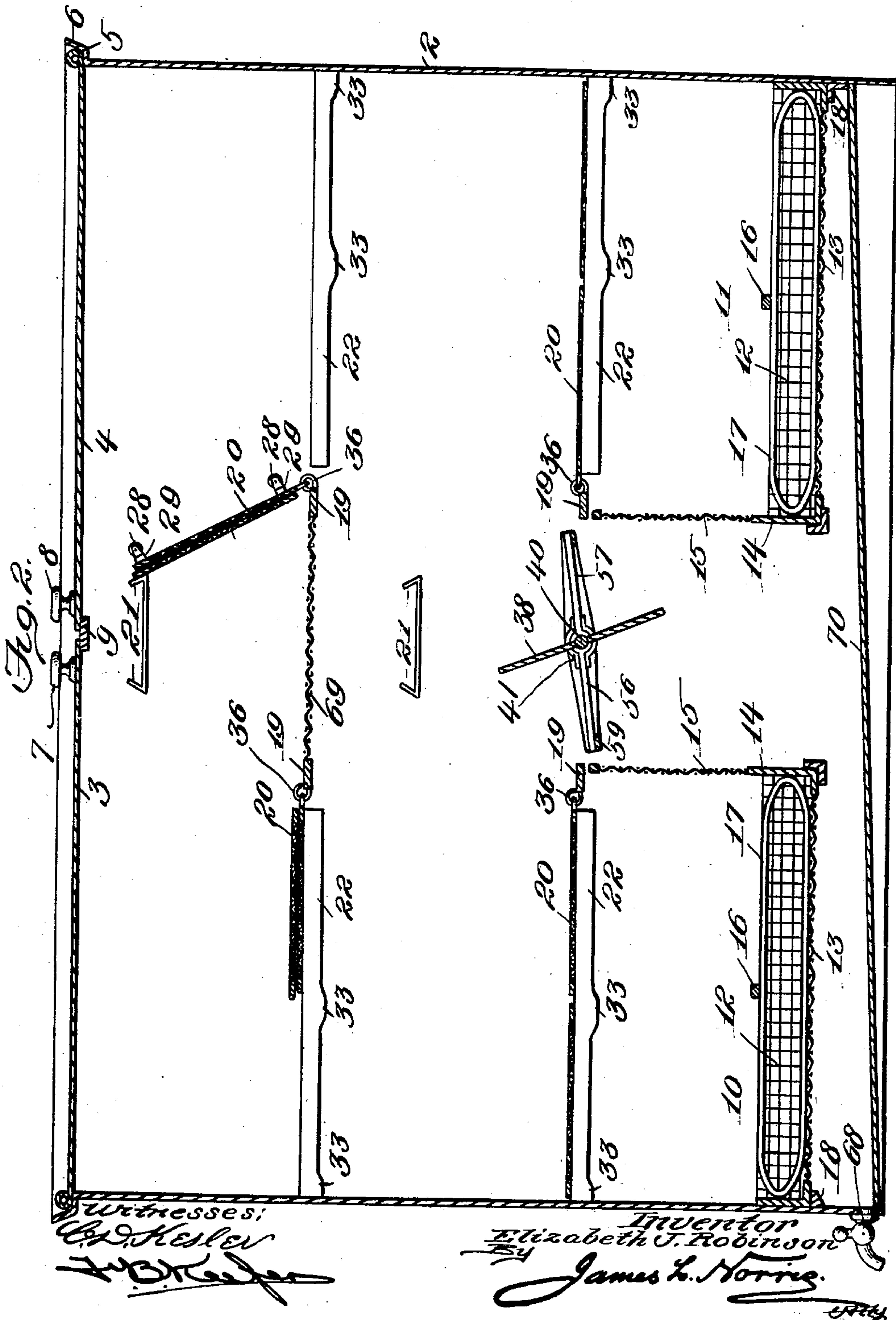
Att'y.

No. 862,662.

PATENTED AUG. 6, 1907.

E. J. ROBINSON.
DISH WASHING MACHINE.
APPLICATION FILED DEC. 31, 1906.

4 SHEETS—SHEET 2.



No. 862,662.

PATENTED AUG. 6, 1907.

E. J. ROBINSON.
DISH WASHING MACHINE.

APPLICATION FILED DEC. 31, 1906.

4 SHEETS—SHEET 3.

Fig. 3.

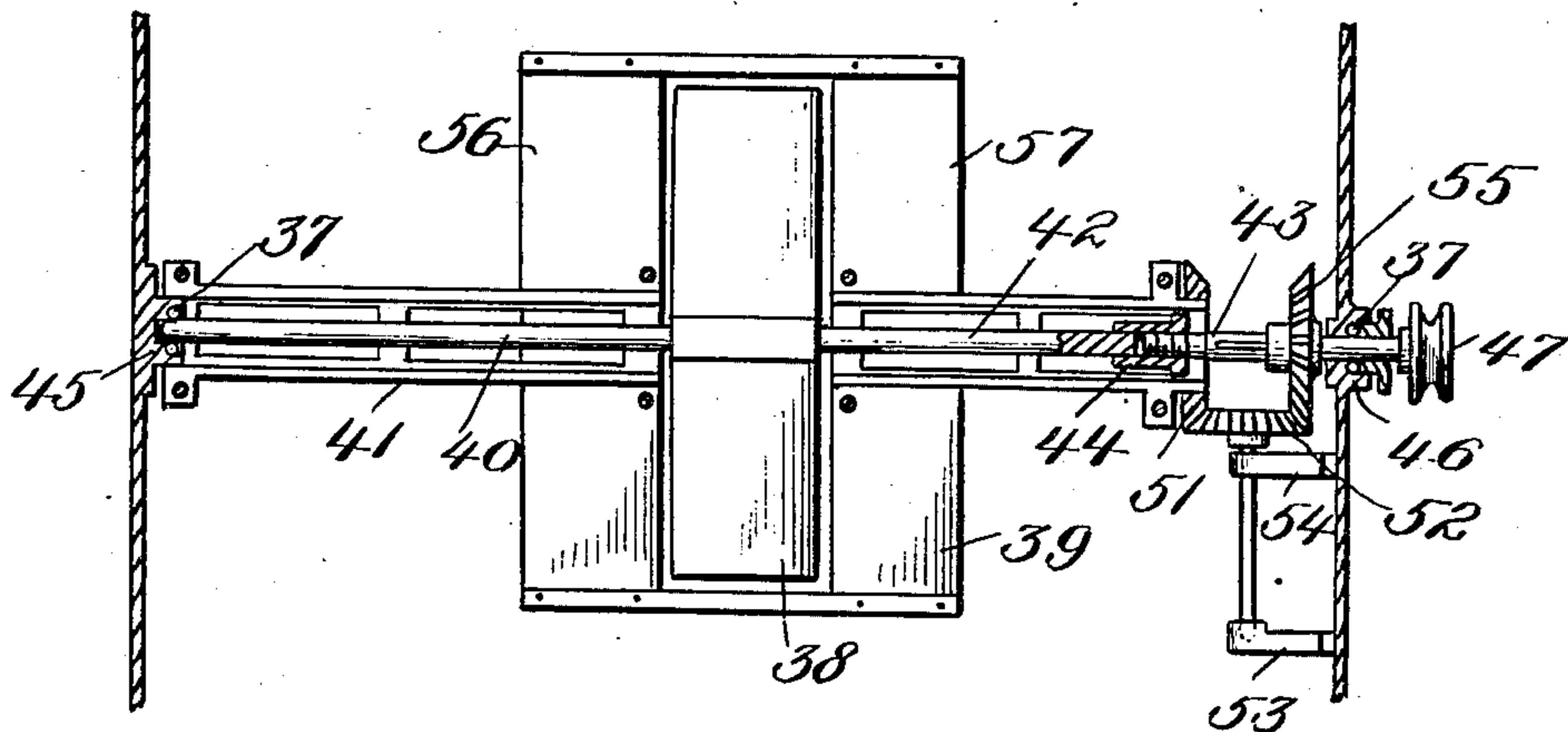


Fig. 4.

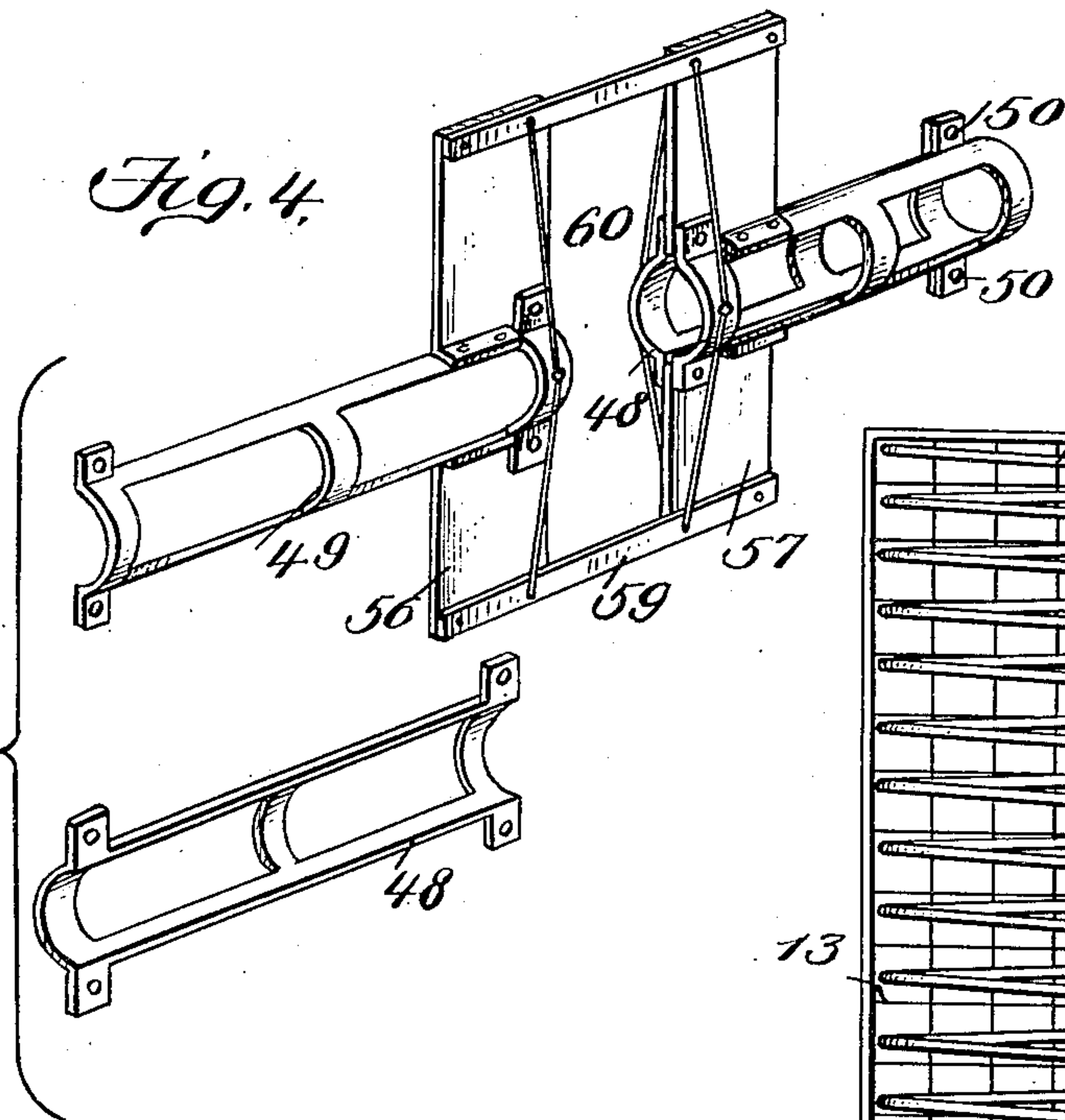
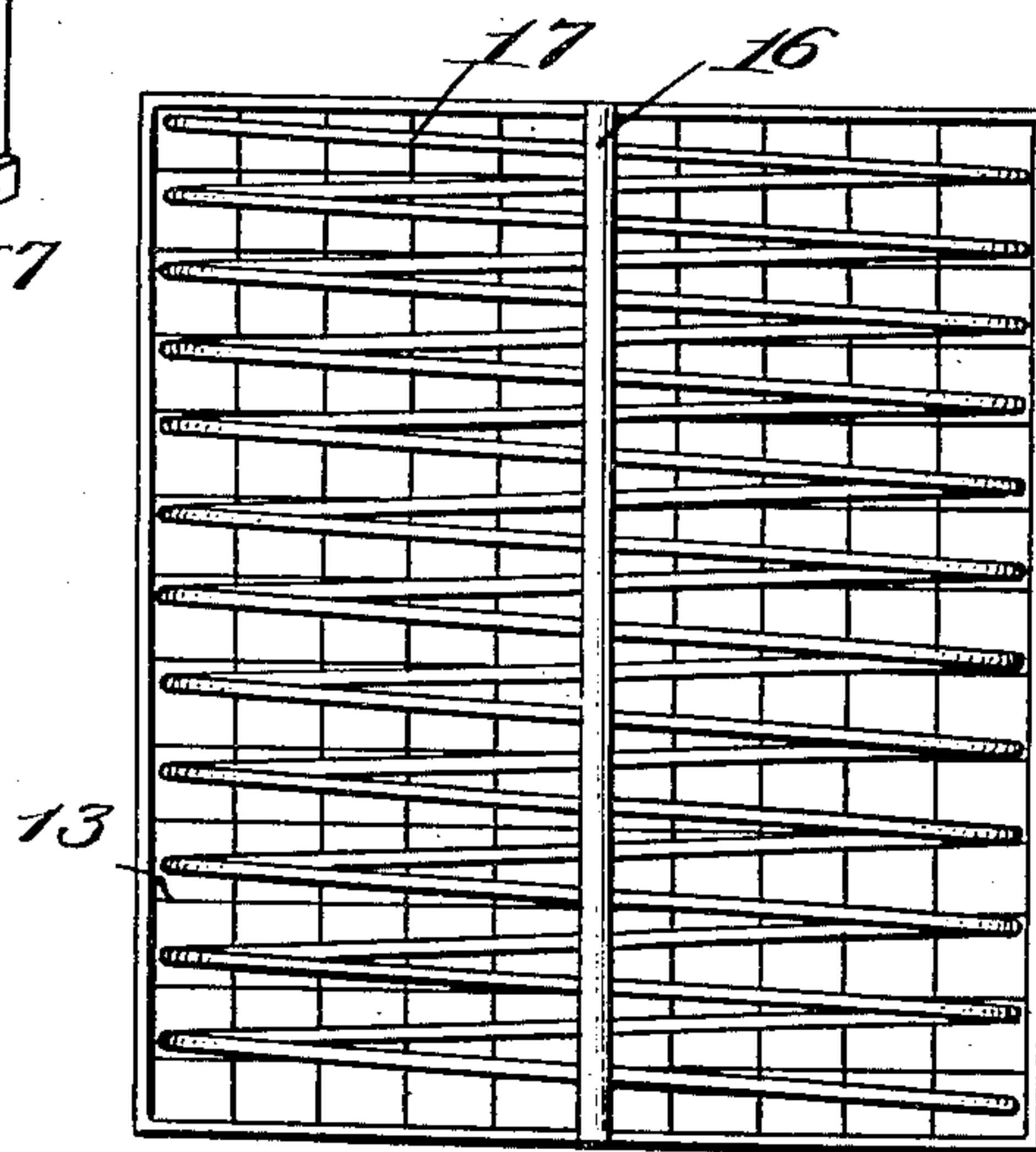


Fig. 5.



Witnesses:

W. H. Kessler

J. B. Keeler

Inventor

Elizabeth V. Robinson

James H. Morris

Atty.

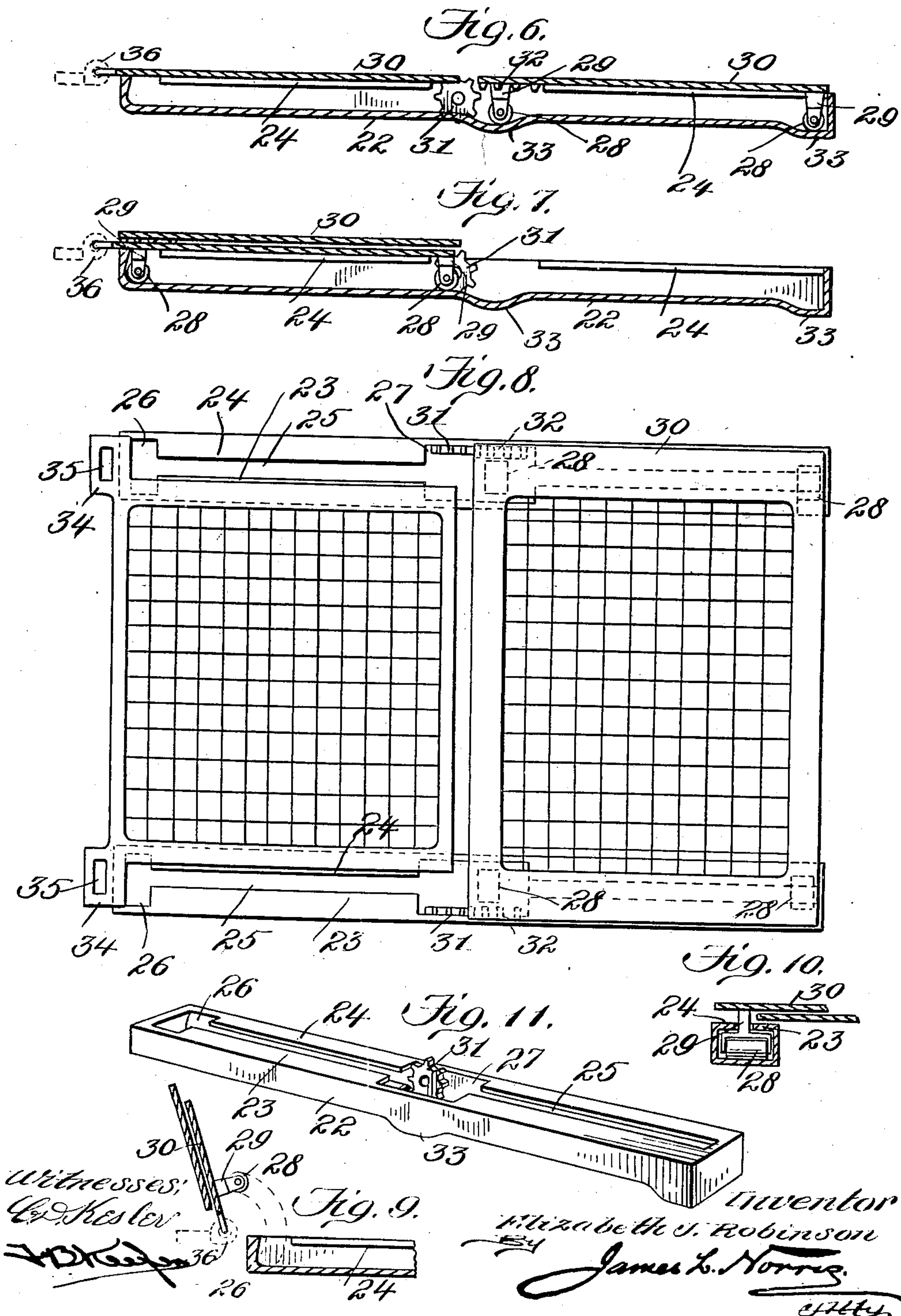
No. 862,662.

PATENTED AUG. 6, 1907.

E. J. ROBINSON.
DISH WASHING MACHINE.

APPLICATION FILED DEC. 31, 1906.

4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

ELIZABETH J. ROBINSON, OF ARLETA, OREGON.

DISH-WASHING MACHINE.

No. 862,662.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed December 31, 1906. Serial No. 350,191.

To all whom it may concern:

Be it known that I, ELIZABETH J. ROBINSON, a citizen of the United States, residing at Arleta, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Dish-Washing Machines, of which the following is a specification.

The invention relates to a dish washing machine.

One of the primary objects of the invention is the provision of means for supporting articles to be washed in various localities in the machine.

Another object of the invention is the provision of means for supplying water throughout the interior of the area of the machine so that the articles will come in contact with the water and be thoroughly cleansed without being handled by the operator.

A further object of the invention is the provision of means for shifting the supporting means, such as shelf sections for receiving articles to be cleaned in a position so as to occupy the least possible space within the machine, and to allow access to the bottom of the latter.

A still further object of the invention is the provision of article supporting means such as shelf sections, one adapted to be shifted on to the other, and at least one of the sections of each supporting means being hingedly connected at the interior of the machine.

Other objects of the invention are the simplicity of construction, efficiency of operation, durability and inexpensiveness of the manufacture.

With these and other objects in view the invention, for example, consists in the construction, combination and arrangement of parts hereinafter described and the preferred form of construction as embodied in the accompanying drawings, and it is to be understood that I may make such changes, variations and modifications as come properly within the scope of the claims hereunto appended without departing from the spirit of the invention.

In the drawings:—Figure 1 is a perspective view of the machine; Fig. 2 is a vertical longitudinal section; Fig. 3 is a section taken longitudinally of the shafts carrying the blades; Fig. 4 is a detail perspective view of the skeleton shaft and blades carried thereby; Fig. 5 is a top plan view of one of the removable trays; Fig. 6 is a longitudinal section of the shiftable supporting shelf sections and the supporting guide therefor, the sections being in their normal position; Fig. 7 is a longitudinal section of the shiftable supporting means and supporting guide, one of the shelf sections being shifted on to the remaining section; Fig. 8 is a top plan view of the shiftable supporting means, such as shelf sections, the same being in normal position and the supporting guides; Fig. 9 is a fragmentary view in section of the supporting guide and shelf sections being elevated disclosing the hinged connection of one of the shelf sections and the manner in which the roller

leaves the slot formed in the supporting guide; Fig. 10 is a fragmentary transverse sectional view of the supporting guide and shelf sections, one open, the other disclosing in detail the roller held within the supporting guide and the bracket member for said roller; Fig. 11 is a perspective view of the supporting guide detached from the interior of the machine.

Reference being had to the accompanying drawings forming part of this specification wherein like characters indicate corresponding parts throughout the several views.

In the drawings the numeral 2 indicates a receptacle or casing of any desired shape and material, and having two covers 3 and 4 hinged to the upper edge of said casing 2. Said covers 3 and 4 are provided with beveled edges 5 so that when the same are in a closed position they will engage with correspondingly beveled edges 6 of the casing 2, thereby forming close joints and to prevent water when being sprinkled in the casing 2 from discharging through such joints and trickling down the outside of the said casing. Each of the covers 3 and 4 is provided with handles 7 and 8, respectively, so as to open the same to allow entrance to the casing 2, and when said covers are in an open position the same will be held at an inclination owing to the beveled edges 6 of said casing 2 to allow the water sprinkled on said covers to drain into the said casing.

Arranged transversely of the casing 2 and at the top edges thereof is a parting member 9 which divides the casing into two sections for the respective covers 3 and 4, and also serving as a support therefor.

At the interior of the casing 2 and near the bottom thereof are removable supporting trays 10 and 11, each having wire woven side walls 12, and a wire woven bottom 13. One of the said walls 12 of each of said trays 10 and 11 is provided with an extension 14 the same being perforated or reticulated as at 15 to produce a spray of water as the same is circulated in the direction of said trays for thoroughly spreading the water on to the articles supported in said trays. Extending from one side to the other and at the top edge of each of said trays 10 and 11 are bars 16 for holding in position intermediate the latter and the bottom 13 a convoluted or spirally arranged wire 17 forming a rack for supporting articles vertically in said trays and to afford thorough circulation of the water when the same is sprinkled on to the articles supported thereby.

I have provided supports 18 secured to the interior of the casing 2 so as to elevate the trays 10 and 11 a distance from the bottom of the casing 2 and to allow the water drained from the articles in said trays to freely flow through the wire woven bottom 13 on to the bottom of said casing.

Above the trays 10 and 11 are cross bars 19 secured at the interior of the casing 2 a suitable distance from

each other, and hingedly connected thereto are tray sections 20 adapted to be raised to an open position and when in such a position rest against stops 21 secured to the inner side walls of the casing, thus giving access to the lowermost part of the latter. At the opposite side walls of the casing are fixed supporting guides 22, the latter being trough-shaped formed by overhanging ledges 23 and 24, producing centrally of said support an elongated slot 25, one end terminating in an increased opening 26, and intermediate the ends of said slot is a further opening 27 for receiving there-through frictional rollers 28, the latter supported by brackets 29 fixed near the front corner at opposite sides to the under face of shelf sections 30. Near the rear corners of the shelf sections 30 and secured to the under side thereof are further provided brackets 29 supporting the rollers 28. Said rollers 28 are adapted to traverse the trough-shaped supporting guides 22 when the said sections 30 are being shifted on to the sections 20. Rotatably mounted within the supporting guides 22 are cog-wheels 31 which are adapted to extend up through the opening 27 in said support 22 and for engagement with a plurality of rack teeth 32 depending from the under side of the sections 30 at opposite front corners thereof. Said cog-wheel 31 is adapted when engaging the rack teeth 32 to elevate the shelf sections 30 so that the same may be shifted above and on to the shelf sections 20, and also to release the frictional rollers 28 from their countersunk seats 33 formed in the bottom of the supporting guides 22, the said trays 30 when in their normal position, that is, not being shifted on to the shelf sections 20 have the rollers 28 seated in the countersinks 33 formed in the bottom of the supporting guides 22, and the said section 30 is at rest on the ledges 23 and 24 of the supporting guides.

It is apparent that the countersinks 33 prevent the rollers 28 carried by the sections 30 from accidentally becoming displaced resulting in the moving of the tray from normal position on the supporting guides. When it is desired to shift the sections 30 the operator pushes on the sections 30 in the direction of the sections 20 so as to bring the rack teeth 32 into engagement with the cog-wheels 31 which will elevate the said sections 30 and after the cog-wheels 31 have traversed the rack teeth 32 the rollers then have left the countersinks 33 in the supporting guides 22 and are caused to traverse said supporting guides 22 throughout the longitudinal extent of the elongated slot 25 over and on to the shelf sections 20, and after this has been accomplished if the operator desires to lift the shelf sections 20 underlying the sections 30 he raises the said sections 20 by its hinged connection to the bars 19 and during such movement the rearmost rollers 28 will be caused to move in an arc through the openings 26, and the sections 20 and 30, respectively, are brought to rest against the brackets 21, thereby giving free access to the lowermost portion of the casing 2. For hingedly connecting the shelf sections 20 are provided extensions 34 having openings 35 connected to eyes 36 formed in the bars 19.

Interposed between the open wire sections and centrally within the casing 2 are rotatable paddle blades 38 and 39 carried by shafts 40 and 41, respectively. Said shaft 40 carrying the blade 38 includes two sec-

tions 42 and 43 and jointed to one another by a coupling sleeve 44, said shaft 40 being journaled in bearings 45 and 46 having the usual ball bearings 37, and one end thereof terminating exterior of the latter in a pulley 47. Surrounding said shaft 40 is the shaft 41 composed of a plurality of separated skeleton sections 48, 49, the same being connected by suitable fastenings 50, and, when so connected, one end thereof is rotatably mounted on the bearing 45, and the other end having fixed thereto a bevel gear wheel 51 which meshes with a bevel pinion 52 supported within the casing 2 by suitable brackets 53 and 54 at one side thereof. Said pinion 52 is adapted to engage another bevel gear 55 keyed to the shaft 40 so that, when motion is imparted to the several shafts, the same will move in opposite directions, and will cause the paddle blades 38 and 39 respectively to traverse in a corresponding direction to the shafts upon which each blade is mounted. Said paddle blade 39 includes two plates 56 and 57, each secured to the respective skeleton sections 48 and 49 and braced thereon by the rods 58. To the upper edges of said blades 56 and 57 are bars 59, which hold the same separated a distance from each other to form a space 60 for the other paddle blade 38 carried by the shaft 40, and also to connect the said plates 56 and 57 and the skeleton sections 48 and 49 to form a unitary structure of the hollow shaft 41.

It will be observed that, owing to the formation of the coupling sleeve 44, the same produces a bearing surface for the said shaft 41 at one end thereof, and properly centers the same in relation to the other shaft.

When the shafts have been put in motion, it will be observed that, owing to the arrangement of the gearing, one will be driven in one direction, while the other moves in the opposite direction.

On the outside of the casing 2 is revolubly mounted a driving wheel 61 having a handle 62, and which imparts motion through the medium of a belt 63 to the pulley 47 and to the respective shafts.

The casing 2 is held by a support including a base 64 having a rim 65 and legs 66 provided with the usual casters 67. To drain the water from the interior of the casing 2, I have provided a cock 68.

It will be apparent that, by having the shiftable shelf sections movable over the hinged shelf sections, the latter, when brought to an open position, give access to the lowermost part of the casing, and, therefore, articles can easily be placed within said casing without the removal of a single section, and, when the respective sections are in a closed position, after having filled the lower parts of the casing and placed articles on the said sections, the same will be assorted in various localities around the revolving blades so that the water can come in contact with such articles and be thoroughly cleansed.

Secured between the hinged sections 20 and fixed to the cross bars 19 is an open wire section 69 forming a support for articles to be washed.

It is obvious that the bottom of the casing is trough-shaped, as at 70, and the same being slightly elevated at one end thereof causes the water and also any sediment remaining in the latter to flow in the direction of the drain cock 68, which is situated at the lowermost end of said trough-shaped bottom.

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

1. In a machine of the class described, a casing, a plurality of removable trays therein, a plurality of hinged sections having shiftable sections cooperative therewith and arranged above the trays, rotatable blades within the casing, and means for actuating the same.

2. In a machine of the class described, a casing, a plurality of article receiving trays arranged at the bottom of said casing, a plurality of hinged open wire sections, shiftable open wire sections movable directly on to the hinged sections, and means intermediate the trays and sections for circulating water in said casing.

3. In a machine of the class described, a casing, removable trays therein, separated hinged sections above the trays and having slidable sections movable thereover, a fixed section above the hinged sections and having a plurality of hinged open wire sections provided with shiftable open wire sections, and water circulating means in the casing.

4. In a machine of the class described, a casing having hinged covers, trays provided with open wire bottoms and further provided with perforated extensions at their outer sides, hinged open wire sections above said extensions, and having shiftable sections movable over the said hinged sections, a fixed open wire section near the top of the casing, hinged sections secured at opposite sides of the fixed section, and shiftable sections carried by the last mentioned hinged sections and movable over the same.

5. In a machine of the class described, a casing having hinged covers, a plurality of hinged sections in said casing, shiftable sections movable over said hinged sections, and means for circulating water in the casing.

6. In a machine of the class described, a plurality of hinged open wire sections arranged above one another, shiftable open wire sections carried by the hinged sections and movable thereover, and means for circulating water in the casing.

7. In a machine of the class described, a casing having separated hinged covers, removable trays supported within

the casing near the bottom thereof, a plurality of hinged open wire sections secured in the casing and arranged a suitable distance from each other, shiftable open wire sections carried by each of the hinged sections and movable thereover, and means carried by each of the hinged sections and cooperative with the shiftable sections for causing the latter to move in a uniform and even manner on to the said hinged sections.

8. A machine of the class described, including a casing having hinged covers, a plurality of hinged sections arranged above one another, shiftable sections movable over said hinged sections, trays below said sections, and means for circulating water in the casing.

9. In a machine of the class described, a casing, hinged sections supported within the same, each having trough shaped guides provided with slots, cog wheels mounted in the slots, shiftable sections having frictional rollers for engagement in the slots, a plurality of rack teeth depending from the under side of the shiftable sections for engagement with the cog wheels for lifting the shiftable sections to initially start the same for movement on to and directly over the hinged sections, and removable trays arranged under the lowermost hinged sections.

10. In a machine of the class described, a casing, hinged sections supported within the same, each having trough shaped guides provided with slots, cog wheels mounted in the slots, shiftable sections having frictional rollers for engagement in the slots, a plurality of rack teeth depending from the under side of the shiftable sections for engagement with the cog wheels for lifting the shiftable sections to initially start the same for movement on to and directly over the hinged sections, removable trays arranged under the lowermost hinged sections, and means for circulating water within the casing.

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

ELIZABETH J. ROBINSON.

Witnesses:

H. H. NEWHALL,
GEORGE E. ROBINSON.