

J. E. GAGEN.
DISHWASHING MACHINE.
APPLICATION FILED MAR. 20, 1920.

1,417,162.

Patented May 23, 1922.

5 SHEETS—SHEET 1.

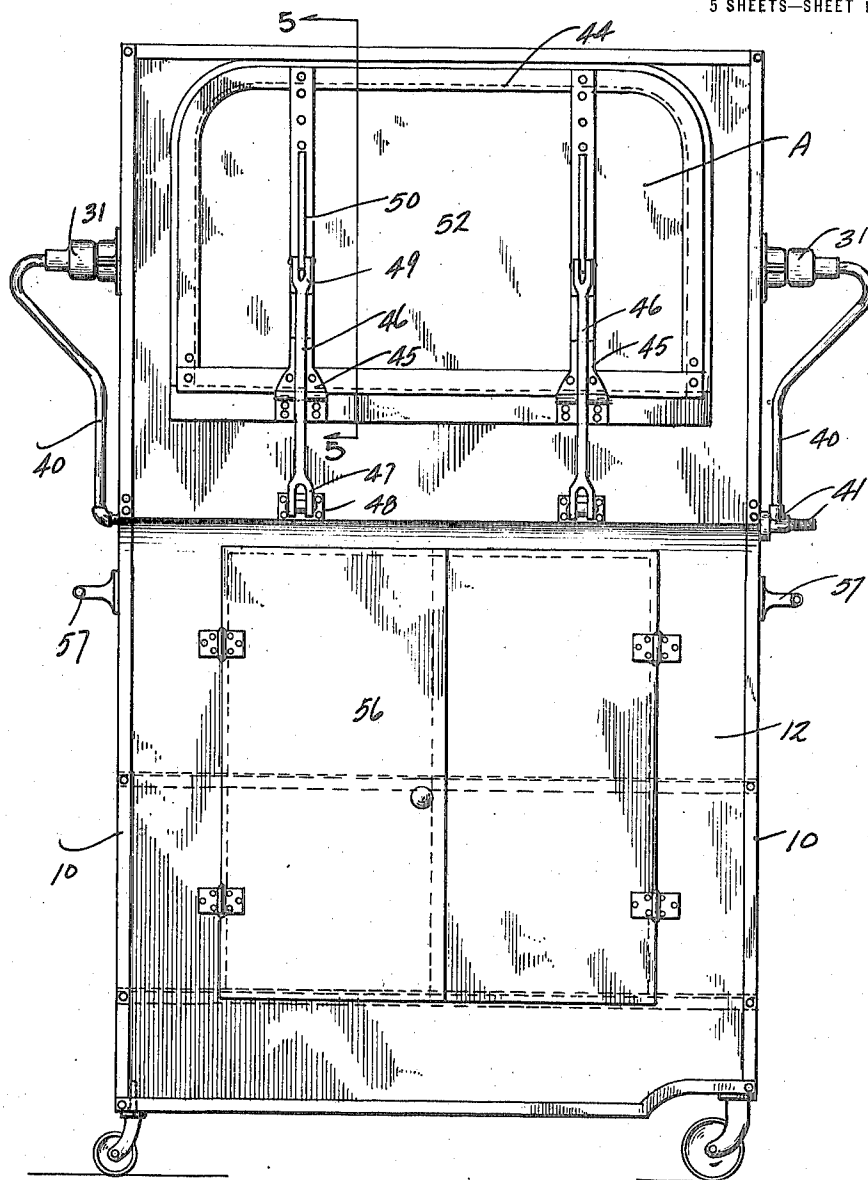


Fig. 1.

John E. Gagen.
Inventor

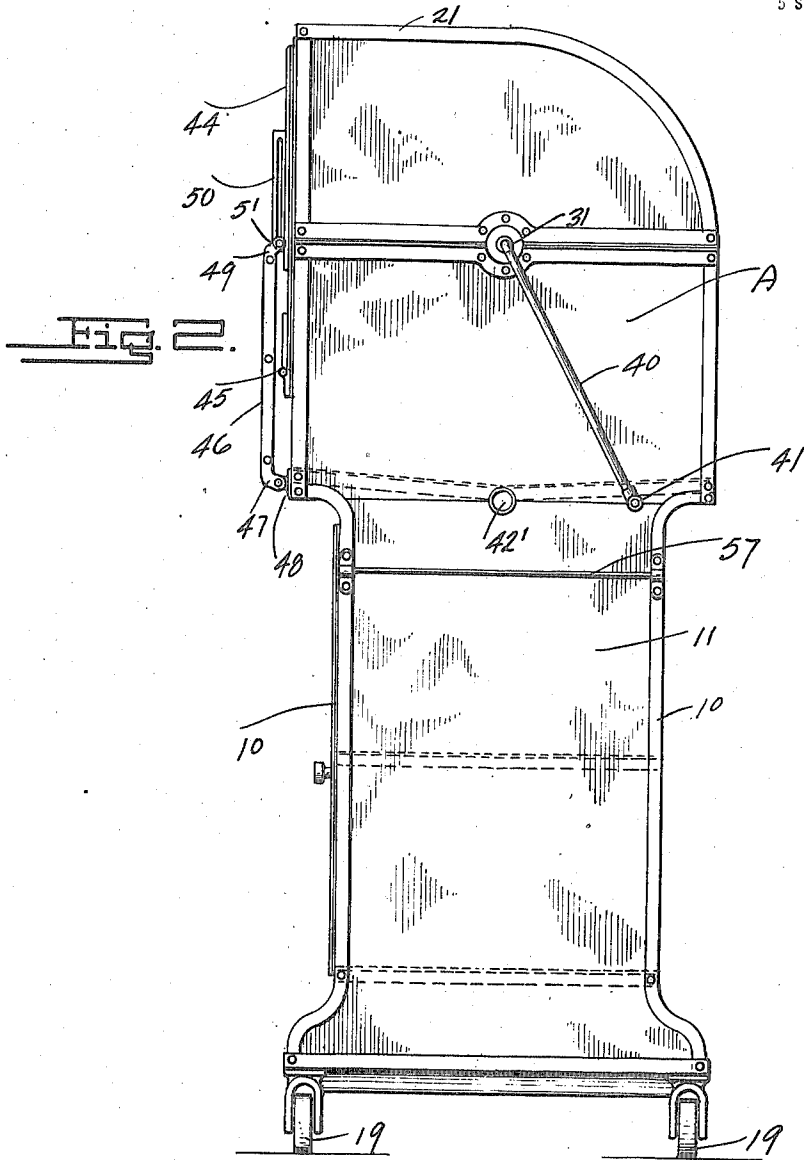
By *Launcester and Allen*
Attorneys

J. E. GAGEN.
DISHWASHING MACHINE.
APPLICATION FILED MAR. 20, 1920.

1,417,162.

Patented May 23, 1922.

5 SHEETS—SHEET 2.



John E. Gagen.
Inventor

By *Laucaster and Allen*
Attorneys

J. E. GAGEN.
DISHWASHING MACHINE.
APPLICATION FILED MAR. 20, 1920.

1,417,162.

Patented May 23, 1922.

5 SHEETS—SHEET 3.

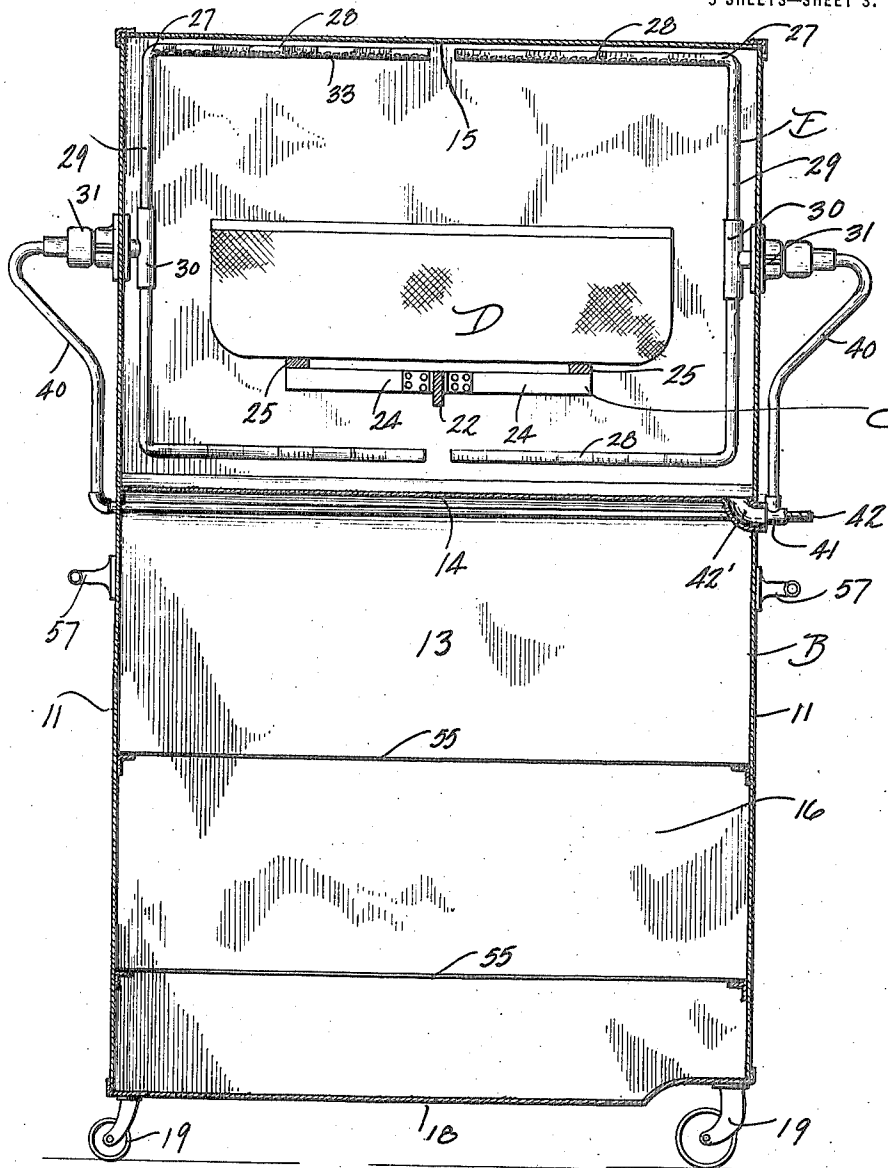


Fig. 3

John E. Gagen
Inventor

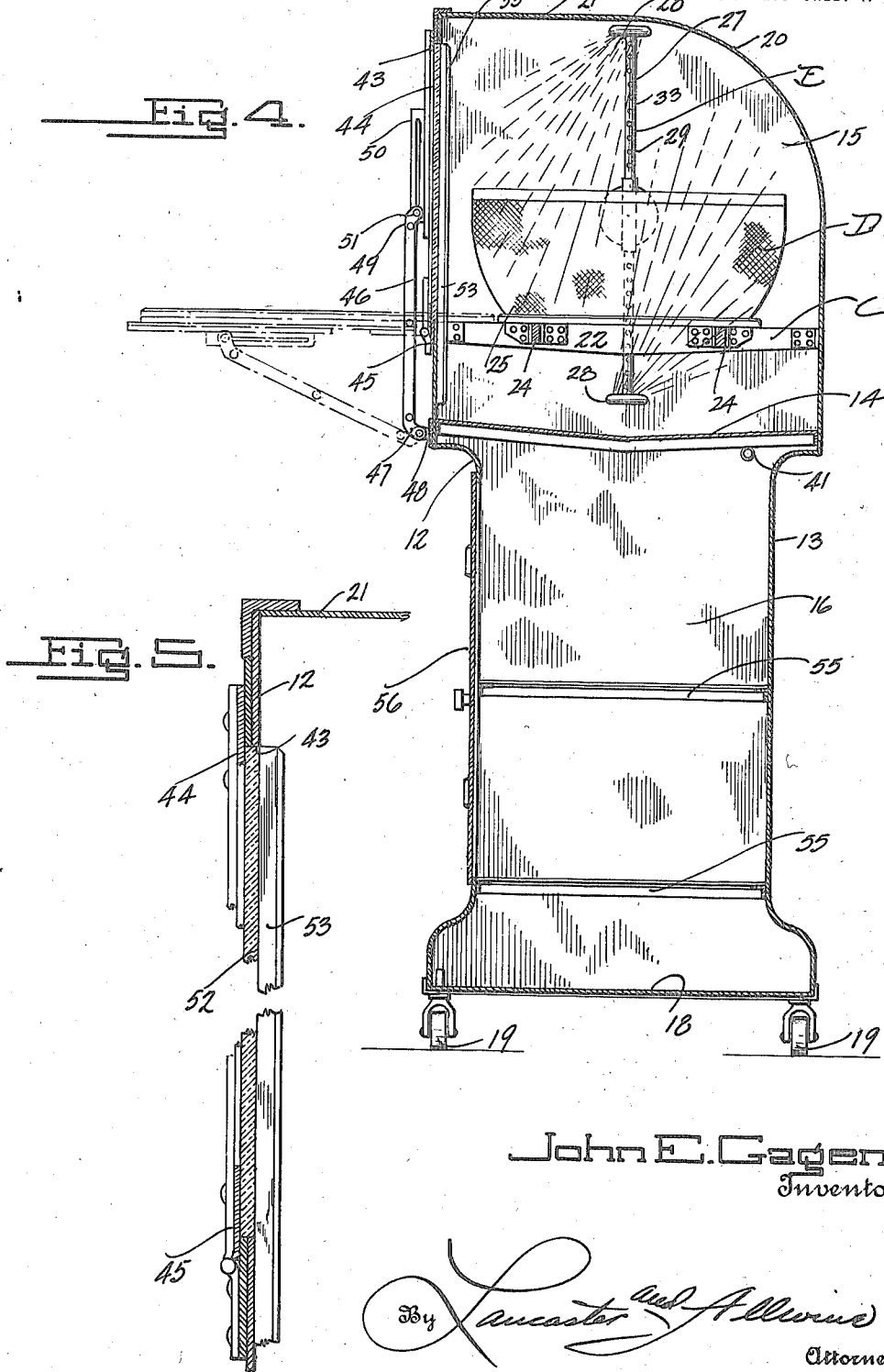
By *Laurel and A. Morris*
Attorneys

J. E. GAGEN.
 DISHWASHING MACHINE.
 APPLICATION FILED MAR. 20, 1920.

1,417,162.

Patented May 23, 1922.

5 SHEETS—SHEET 4.



John E. Gagen.
 Inventor

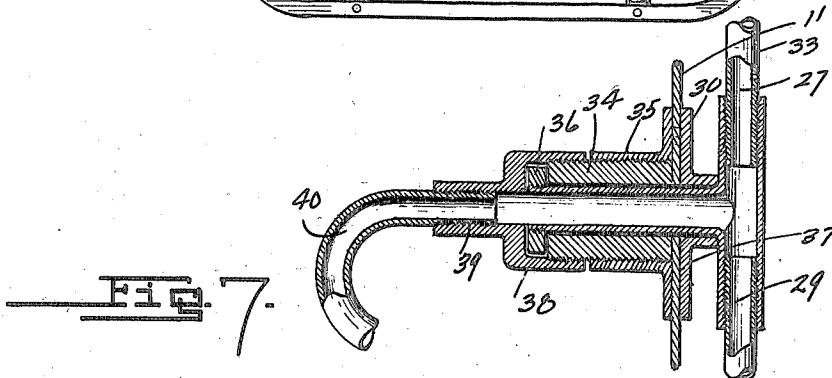
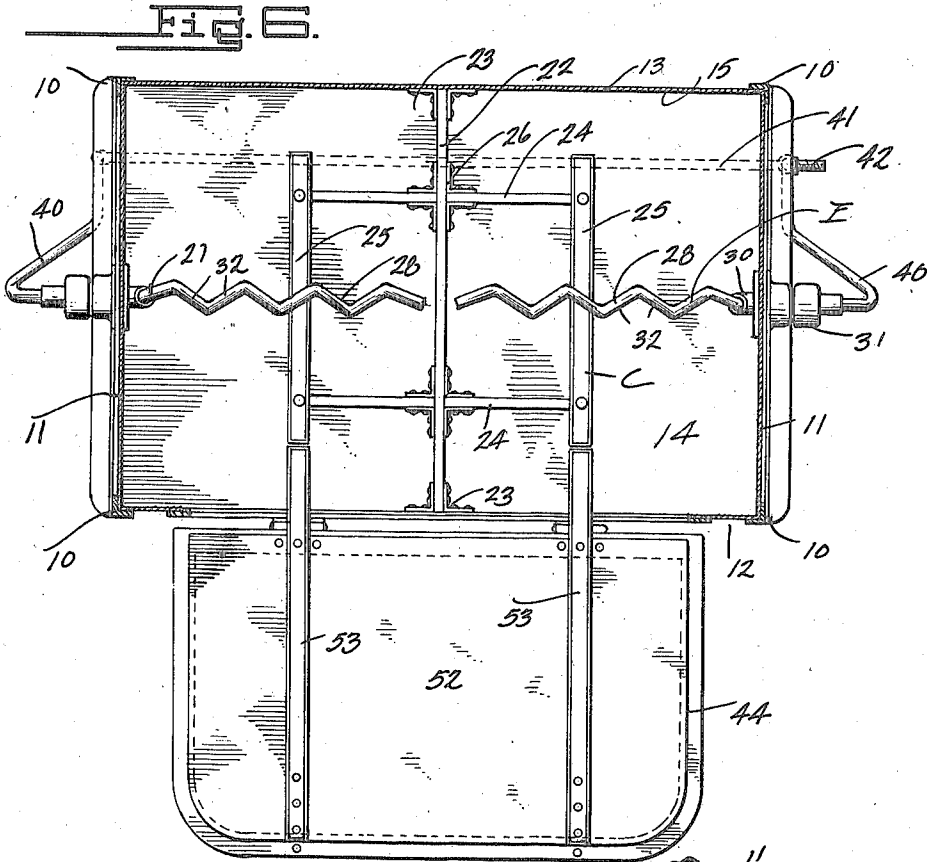
By *Lancaster and Allinson*
 Attorneys

J. E. GAGEN.
DISHWASHING MACHINE.
APPLICATION FILED MAR. 20, 1920.

1,417,162.

Patented May 23, 1922.

5 SHEETS—SHEET 5.



John E. Gagen.
Inventor

By *Lancaster and Allwine*
Attorneys

UNITED STATES PATENT OFFICE.

JOHN EDWARD GAGEN, OF PITTSBURGH, PENNSYLVANIA.

DISHWASHING MACHINE.

1,417,162.

Specification of Letters Patent. Patented May 23, 1922.

Application filed March 20, 1920. Serial No. 367,554.

To all whom it may concern:

Be it known that I, JOHN E. GAGEN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Dishwashing Machines, of which the following is a specification.

This invention relates to washing machines, and the primary object of the invention is to provide an improved dish washing machine in which a plurality of revolving water pipes are mounted for movement around a stationary basket containing the dishes to be washed, the pipes being arranged to forcibly eject water at all angles against dishes contained in the basket.

Another object of the invention is to provide a dish washing machine embodying a movable housing having an improved means for supporting the basket for the dishes and having an improved means for forcibly ejecting clean water on the dishes at all angles, so that the entire surface of the dishes, irrelevant to the manner in which they are packed in the basket will be acted upon by the water and thus be thoroughly cleaned.

A further object of the invention is to provide a washing machine embodying a stationary reticulated basket, and an improved cleaning fluid, ejecting device including oppositely disposed rotatably mounted U-shaped hollow perforated pipes, the terminals of the arms of the pipes ending adjacent to each other, the U-shaped pipes being adapted to be rotated by the action of the water leaving the same through the perforations, the U-shaped pipes and the basket being arranged in such a manner in relation to each other that the U-shaped pipes completely surround the said basket during the rotation thereof and subject the contents thereof to a continuous pour of the cleaning fluid.

A further object of the invention is to construct the arms of the rotatable U-shaped members in such a manner that the water will be ejected therefrom at all angles, so that the entire surfaces of the dishes will be acted upon by the cleaning fluid.

A further object of the invention is the provision of an improved means for rotatably supporting the U-shaped members in the housing, so as to permit the free movement of the arms and to prevent the leakage of water between the arms and housing.

A further object of the invention is the provision of an improved dish washing machine including a housing having a supporting track for the dish basket, the housing having a pivoted door provided with an improved means for holding the same in a horizontal plane when in an open position, the door carrying stationary guides or tracks adapted to be brought into alignment with the tracks carried by the housing when in its open position, so as to permit the easy and convenient placing and removing of the dish basket from the housing.

A still further object of the invention is the provision of an improved dish washing machine of the above character which is durable and efficient in use, one that is simple and easy to manufacture, and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, forming a part of this specification, and in which drawings:

Figure 1 is a front elevation of the improved dish washing machine.

Figure 2 is a side elevation of the same.

Figure 3 is a central vertical longitudinal section through the same.

Figure 4 is a central vertical transverse section through the same.

Figure 5 is an enlarged fragmentary vertical section through the housing and door taken on the line 5—5 of Figure 1.

Figure 6 is a horizontal section through the housing showing the door in its open position, and

Figure 7 is an enlarged fragmentary vertical section through the housing and coupling for the rotatable U-shaped members and the water supply pipe therefor.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A indicates the improved washing machine which includes the housing or casing B, the dish basket support C, the dish basket D, and the improved cleaning fluid ejecting device E.

The casing or housing B can be made of any preferred materials or combination of materials, such as enamelled or galvanized iron, aluminum, copper or the like. It is preferred in the construction of the housing that

the upper portion thereof be constructed of aluminum, while the lower portion thereof be constructed of heavy Japanned sheet metal, but this is merely a matter of choice. The housing or casing B consists of angled irons 10 arranged at the corners thereof to which are suitably secured the end walls 11 and the front and rear wall 12 and 13. The upper portion of the housing is preferably bowed outwardly so as to increase the capacity thereof, and the upper portion is divided from the lower portion by a horizontally disposed aluminum plate or partition 14, which is inclined inwardly toward a central longitudinal line to permit the water collecting in the upper portion of the housing to readily drain therefrom. The partition 14 divides the housing B into an upper dish cleaning chamber 15 and a lower dish drying chamber 16. The extreme lower portion of the chamber 13 is formed relatively wide as at 17 so as to form a relatively large supporting base and the same is provided with a bottom wall 18 which supports the casters 19. This permits the dish washing machine to be moved to any point desired. It is to be understood however that the machine may be built into a building and form a portion of the walls thereof. The rear wall 13 of the dish washing chamber 15 is curved as at 20 and terminates in a horizontally disposed upper wall 21.

The dish basket support C is arranged in the dish washing compartment 15 and includes a centrally disposed transversely extending beam 22 held in place by suitable angle brackets 23. The transversely extending beam or bar 22 carries at equi-distantly spaced points the oppositely projecting arms 24, the terminals of which have bolted or otherwise secured thereto the tracks or guides 25 for the dish basket D. The arms 24 may be secured to the beam or rod 22 in any preferred manner, such as by angle brackets 26 or the like. The arrangements of the dish support C is such that a broad side entrance or exit of the dish basket D is permitted. This allows the convenient and easy removal and placing of a basket in the washing chamber. This arrangement of the support also permits the washing machine to be in any length.

The dish basket D is preferably formed of woven wire so that the water or other cleaning fluid will readily pass through the same and thereby permit the dishes held therein to be acted upon by the cleaning fluid. However, it is to be understood that the dish basket C may be made out of any reticulated material.

The improved cleaning fluid ejecting device E consists of a pair of substantially U-shaped members 27, the arms 28 of which are disposed in a horizontal plane and terminate adjacent to each other and the trans-

verse axis of the housing. The space between the terminals of the arms is just sufficient to accommodate the transverse beam or bar 22. This permits the rotation of the U-shaped members 27 in the dish cleaning compartment 15 as will be hereinafter more fully described. The bight portion 29 of each U-shaped member 27 has the central part thereof connected by a T-joint 30 and coupling 31, which will be hereinafter more fully described, to the end walls of the casing. The arms 28 are bent to form a plurality of angularly related portions 32, and the arms are provided with a plurality of apertures 33 provided for the exit of the cleaning fluid. The stem portions of the T-joints 30 form means for rotatably supporting the U-shaped members. It can be seen that certain of the apertures 33 are positioned to project sprays tangentially of the path of rotation, and the forcible exit of the water from the arms acting upon the air rotates the members on the stems. The arms 28 are bent to form a plurality of angularly disposed portions 32 so that the water or other cleaning fluid will leave the same at different angles and thereby act on all portions of the dishes contained in the dish basket D during the rotation of the members.

Each coupling 31 includes an externally threaded sleeve 34, which is held in place on the exterior of the housing by an internally threaded coupling 35 which is bolted or otherwise secured in position. This sleeve 34 rotatably receives the stem of the T-joint 30 and the same is held against withdrawal from the sleeve by means of a nut or the like 36 which is threaded on the outer end of the stem. The U-shaped members 27 are held in spaced relation to the inner surface of the side walls of the housing by spacing elements 37 which are bolted or otherwise secured to the side walls. The sleeves 34 have threaded thereon the nipples 38, which are provided with reduced outer terminals 39, which are internally threaded for the reception of the branch water supply pipe 40. The branch water supply pipe 40 connects with a longitudinally extending water supply pipe 41, which extends through the housing B, directly below the horizontal partition 14. The terminal of the pipe 41 may be provided with any suitable or preferred type of coupling 42, whereby the same may be connected with a suitable supply pipe, so that hot water or other cleaning fluid may be forced therein. One of the side walls 11 is provided with an outlet opening 42' which is in direct alignment with the longitudinal center of the partition 14. This outlet opening serves as a means for permitting water to drain from the dishwashing chamber 15.

The front wall 12 of the casing B is pro-

vided with a relatively large opening 43 which connects with the interior of the cleaning chamber 15 and this opening 43 is adapted to be closed by a door 44, which is held in place by suitable hinges 45. The door is adapted to be swung to a horizontal position as clearly shown in Figures 4 and 6 of the drawings and the links or arms 46 are provided for holding the door in such position. The links or arms 46 are provided with lower angled terminals which are pivotally connected to ears 48 carried by the front wall below the opening 43. The upper terminals of the arms 46 are also angled and forked as at 49 and the forked terminals embrace the opposite sides of outwardly extending slotted guides 50 secured to the outer face of the hinges 45, which extend entirely across the face of the door for a purpose which will hereinafter more fully appear. The angled terminals 49 of the links or arms 46 carry pins 51 which are slidably mounted in the slotted guides 50. The door 44 is provided with a glass panel 52 so that the action of the water on the dishes may be readily seen. The inner surface of the door 44 carries guides or tracks 53 and these guides or tracks are in direct alignment with the guides or tracks 25 carried by the outstanding arms 24. The guides or tracks 53 extend below the lower edge of the door 44 and when the door 44 is swung to its horizontal position the lower terminals of the track 53 are brought into alignment and flush with the upper surface of the tracks 25. This permits the ready removal or placing of the basket on the support C.

The lower dish drying chamber 16 may be provided with suitable racks 55, for the reception of dishes or other articles and the lower chamber is provided with a pair of doors 56 which are hingedly secured to the front wall 12.

The end walls 11 are provided with end rails 57 which may be formed of any preferred material. These end rails 57 are located intermediate the ends of the machine, so that the operator thereof can readily push the machine to any portion of a room.

In operation of the improved machine, the door 44 is swung to its horizontal position as clearly shown in Figures 4 and 6 of the drawings and held in that position by the arms or links 46 and the basket D with the dishes is then placed on the tracks 53 and pushed into the interior of the compartment 15. The door 44 is then swung to its closed position and held in said position by any suitable or preferred type of lock, (not shown). The cleaning fluid is then permitted to flow through the pipe 41, from whence it will flow into the U-shaped members 27 into the arms 28. The water leaving the arms will rotate the U-shaped members 27 and the water or other cleaning fluid will be

forced against the dishes in the basket and thus thoroughly clean the same. It can be seen that by the arrangement of the U-shaped members in the cleaning chamber the basket is completely subjected to a shower of the cleaning fluid which strikes the same at all angles. The arms 28 of the U-shaped members 27 are permitted to pass entirely around the basket D and the support C owing to the fact that a single centrally disposed transverse supporting bar is provided for securing the support C to the housing. When the dishes have been thoroughly cleaned the door 44 can be lowered to its horizontal position and the basket of dishes removed from the housing. The same can be placed on the members 55 in the compartments 16 if so desired.

From the foregoing description, it can be seen that an improved washing machine is provided, which is so constructed that the dishes to be cleaned are subjected to a continuous spray of water which is thrown against all portions of the same and the means provided for projecting the cleaning fluid against the dishes will be operated by the action of the cleaning fluid leaving the same.

Changes in details may be made without departing from the spirit or scope of my invention; but,

I claim:

1. A dish cleaning machine comprising an elongated housing, a support arranged in the housing for a dish supporting basket, a pair of substantially hollow U-shaped members rotatably carried by the end walls of the housing, the arms of the U-shaped members being arranged in parallel relation and each extending substantially one half of the length of the housing, said members being spaced so as to pass said support, the U-shaped members having a plurality of cleaning fluid exit openings therein, the exit of water through said openings being adapted to move the arms of said members in circular paths.

2. A dish cleaning machine comprising an elongated housing, a support for dishes in the housing, a pair of U-shaped hollow members rotatably supported by the opposite ends of the housing arranged to embrace the support, the hollow members having a plurality of outlet openings formed therein.

3. A dish washing machine comprising an elongated housing, a support for dishes in the housing carried by the front and rear walls, a pair of U-shaped members rotatably carried by the end walls of the housing, the arms of the U-shaped members arranged for movement around the support, a supply pipe, and means for connecting the supply pipe with the U-shaped members.

4. A dish washing machine comprising an elongated housing, a support arranged in

the housing, means for securing the support to the housing intermediate the terminals of the housing, a pair of rotatable hollow U-shaped members arranged in the housing including arms disposed on opposite sides of the support arranged for movement in a circular path around the same, a cleaning fluid supply pipe, means for connecting the supply pipe with the rotatable U-shaped members, the U-shaped members having a plurality of outlet openings formed therein, certain of said openings being so arranged that the exit of the cleaning fluid from the openings will turn the arms of the U-shaped members.

5. In a dish washing machine, the combination, a housing, a support for dishes arranged in the housing including a transverse bar secured to the housing, longitudinal arms secured to the bar, a pair of hollow U-shaped cleaning fluid projecting members rotatably mounted in the housing, the terminals of the arms of the U-shaped members ending on the opposite sides of the bar.

6. In a dish washing machine, the combination of a housing, a support for dishes in the housing including a transversely extending beam having its terminals secured to the front and rear walls of the housing, outwardly projecting longitudinally extending arms secured to the beam, and a pair of oppositely disposed U-shaped fluid projecting members rotatably carried by the side walls of the casing, the terminals of the arms of the U-shaped members ending short of the beam and in close proximity thereto.

7. In a dish washing machine, the combination of a housing, a support for dishes arranged in the housing including a transversely extending beam having its terminals secured to the front and rear walls of the housing, outwardly extending arms formed on the beam, a pair of oppositely disposed hollow U-shaped members rotatably carried by the end walls of the housing, the arms of the U-shaped members being arranged for movement around the support and terminating on opposite sides of the beam, a supply pipe extending longitudinally through the housing, and means connecting the supply pipe with the U-shaped members.

8. The combination with an elongated housing including side walls, front and rear walls, top and bottom walls, a support arranged in the housing including a transversely extending beam arranged at the transverse axis of the housing and having its terminals secured to the front and rear walls, outwardly extending arms secured to the side faces of the beam, tracks secured to the arms, a pair of oppositely disposed rotatably mounted U-shaped members carried by the side walls having perforations, the arms of the U-shaped members extending in-

wardly from the end walls toward the transverse axis of the housing and terminating on the opposite sides of the beam, a supply pipe, and means connecting the supply pipe with the U-shaped members.

9. In a dish washing machine, the combination with a housing, a dish basket receiving rack arranged in the housing, a pair of oppositely disposed U-shaped members rotatably carried by the end walls of the housing, the arms of the U-shaped members extending inwardly from the end walls of the housing toward the transverse axis of the housing and arranged for movement around the rack, the arms being bent to provide a plurality of angularly related portions, said portions having a plurality of outlet openings formed therein.

10. In a dish washing machine, the combination, a housing having front and rear walls, end walls, and top and bottom walls, a rack arranged in the housing including a beam arranged at the transverse axis of the housing and having its terminals secured to the front and rear walls, outwardly extending arms secured to the beam, tracks secured to the arms, a front wall having an opening therein, a pivoted door for the opening, and tracks carried by the door and arranged to be brought into alignment with the tracks carried by the rack when the door is in its lowered position.

11. A dish washing machine comprising a casing having end walls, a dish supporting member arranged in the casing intermediate the end walls, a pair of oppositely disposed cleaning fluid projecting members arranged within the casing including parallel arms and a connecting bight portion, outwardly extending hollow stems carried by and communicating with the bight portions, sleeve members carried by the end walls of the casing arranged to rotatably receive said stems, means for preventing the accidental displacement of the stems from said sleeve members, caps carried by said sleeve members, and cleaning fluid supplying devices connected to said caps.

12. A dish washing machine comprising an elongated casing having a longitudinally extending partition, said partition being inclined downwardly from its side edges to the longitudinal center of the casing, an outlet pipe carried by the casing and connected to the partition at the longitudinal center thereof, a dish basket supporting bracket arranged in the casing above the partition, a longitudinally extending door arranged in one of the walls for permitting a dish basket to be placed broad side upon the rack, and a fluid projecting device arranged in the casing above the partition for movement around said dish basket supporting rack.

JOHN EDWARD GAGEN.