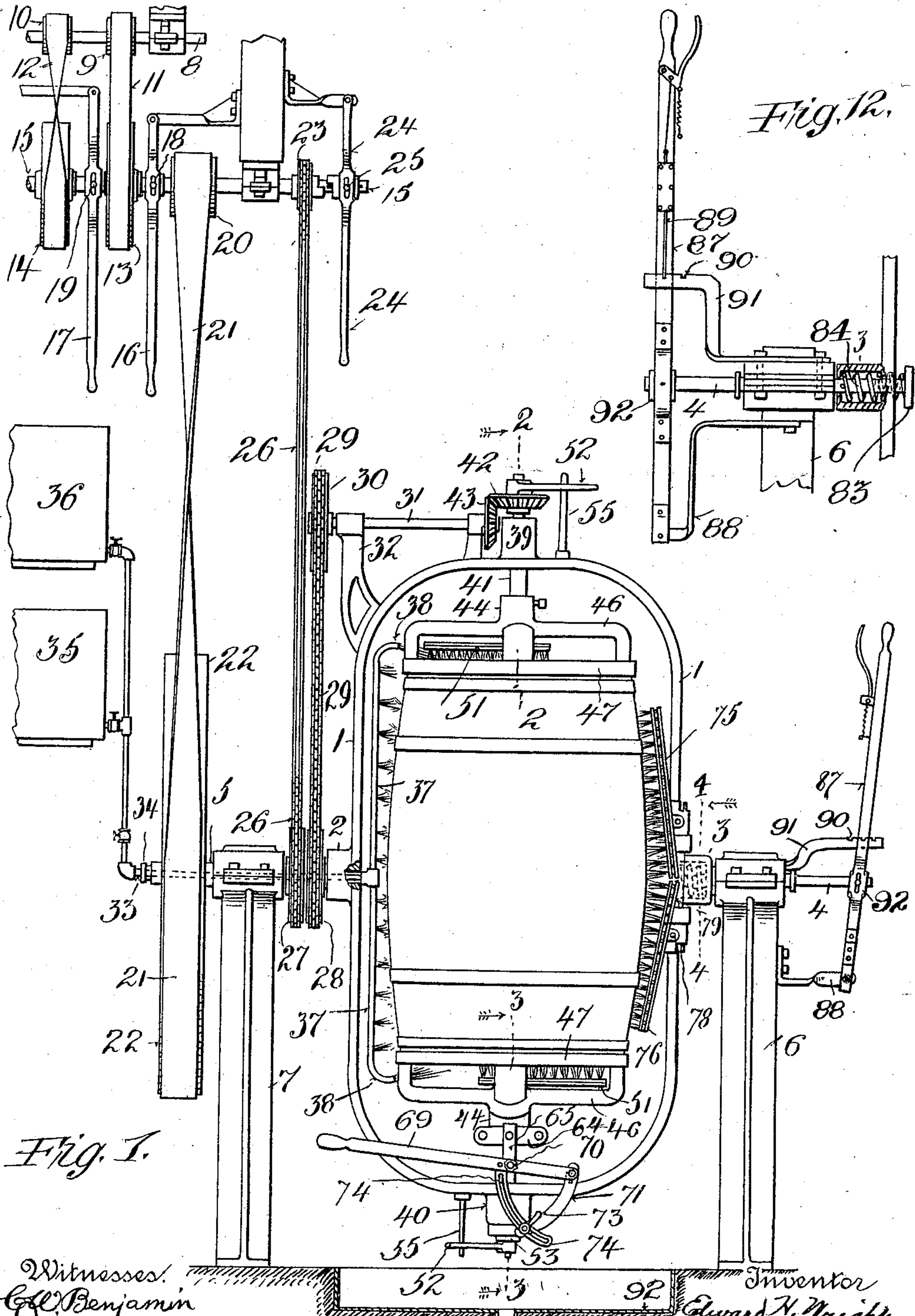


E. H. WRIGHT.
 BARREL WASHING MACHINE.
 APPLICATION FILED MAY 22, 1908.

966,507.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1.



Witnesses:
 C. Benjamin
 Charles W. Brown Jr.

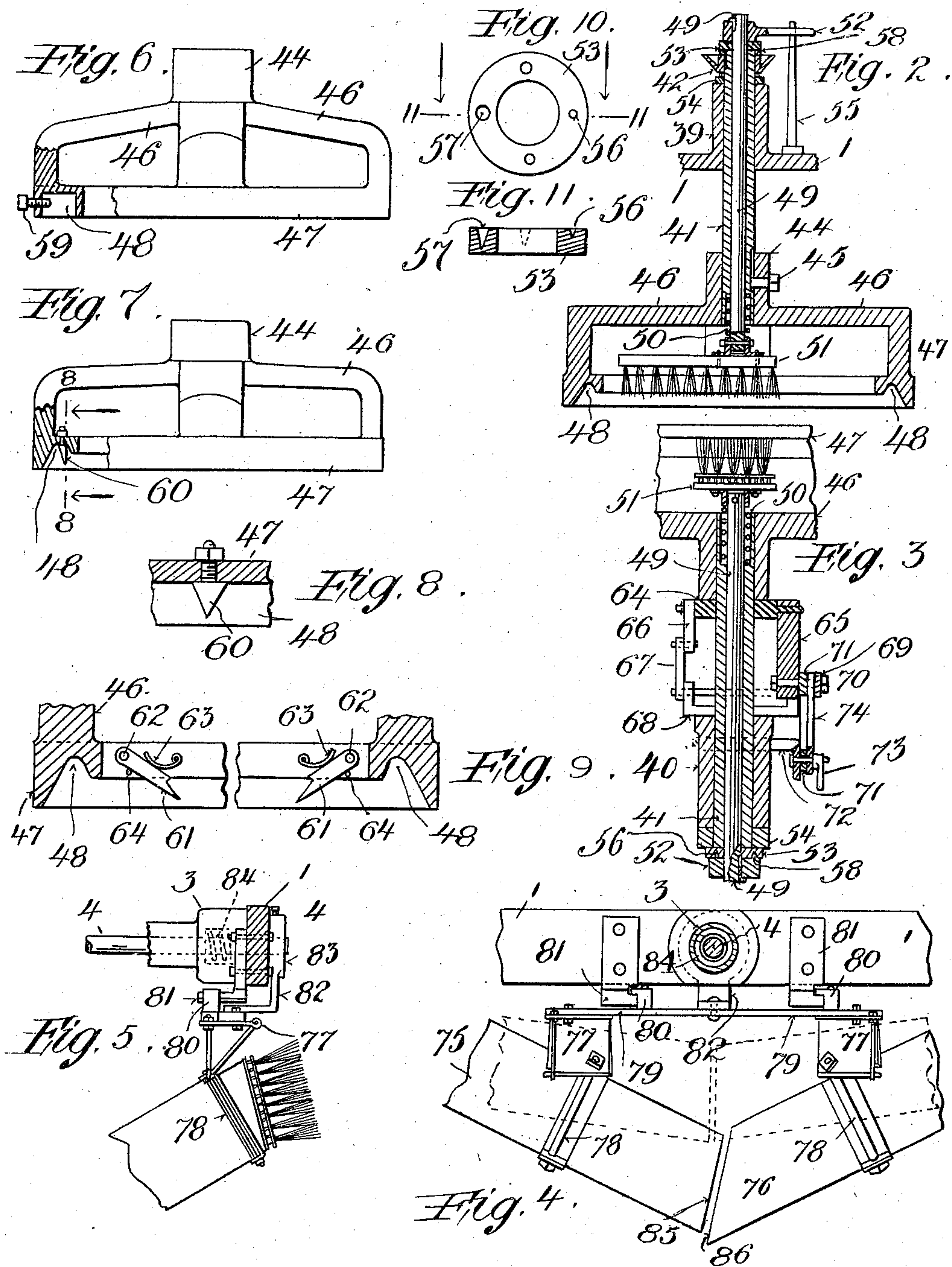
Inventor
 Edward H. Wright
 By *Charles G. Hensley* Attorney

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UNITED STATES PATENT OFFICE.

EDWARD HOLLY WRIGHT, OF OLEAN, NEW YORK.

BARREL-WASHING MACHINE.

966,507.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed May 22, 1908. Serial No. 434,249.

To all whom it may concern:

Be it known that I, EDWARD H. WRIGHT, a citizen of the United States, and a resident of the city of Olean, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Barrel-Washing Machines, of which the following is a specification.

My invention relates to barrel washing and cleaning devices and my object is to produce a device which will not only clean every part of the interior of the barrel regardless of the previous use to which the barrel may have been put but to also clean the exterior of the barrel and at the same time as the interior is being cleaned.

Heretofore where devices have been made for revolving the barrel with a cleaning solution in the inside, the cleaning has not been complete as the cleaning solution has not been made to scour all parts of the interior of the barrel, including the head and the space between the heads and the bilge.

In the present device I contemplate using a solution of caustic soda which is put into the barrel through the bung hole, together with a quantity of metal punchings, or the like, and the barrel is then put in my device which revolves the barrel on a plurality of different axes, which are preferably at right angles to each other, so that the metal punchings together with the soda solution scours every part of the interior of the barrel. At the same time that the barrel is being revolved on the different axes there are several brushes which contact with and clean both the exterior of the heads and the body of the barrel and these brushes preferably remain with the barrel frame while the barrel revolves so as to cause the exterior to be cleaned. A solution of the soda is also fed to the exterior of the barrel for the purpose of aiding in cleaning the exterior.

My device is so made that either the head or body brushes or both may be thrown out of contact with the barrel whenever they have completed their work, should the interior still need further cleaning. Furthermore, the device is so arranged that the means for revolving the barrel may be reversed so as to run the barrel in either direction on either of its axes. This latter feature makes the cleaning of the entire interior possible. The revolution of the barrel on either axes may be done independently of the rotation on its other axis. There are

many novel details of construction all of which will appear in the description hereinafter.

In the drawings forming a part of this application, Figure 1 is a front elevation of my improved washer, Fig. 2 is a cross section taken on the line 2—2 of Fig. 1, Fig. 3 is a cross section taken on the line 3—3 of Fig. 1, Fig. 4 is a cross section taken on the line 4—4 of Fig. 1, looking in the direction of the arrows—Fig. 5 is a cross section showing the body brush adjustment. Fig. 6 is an elevation, partly in section, of the spider which holds the barrel in the frame, Fig. 7 is a similar view of a modified form of spider, Fig. 8 is a cross section taken on the line 8—8 of Fig. 7, Fig. 9 is a cross section taken through a further modified form of spider showing another way of gripping the barrel head, Fig. 10 is a plan view of a cap, Fig. 11 is a cross section taken on the line 11—11 of Fig. 10, and Fig. 12 is a side elevation, partly in section, of some of the body brush adjusting means.

In the carrying out of my invention I provide a holder or frame in which the barrel is held and in which the barrel is adapted to be revolved, there being means for revolving the barrel in relation to such frame or holder, so that the barrel may be revolved on a plurality of axes at the same time to cause the cleaning fluid and metal particles within to scour every possible part of the interior of the barrel.

For revolving the barrel on one of its axes I provide a frame 1, which may be of oblong shape as shown and large enough to surround the barrel lengthwise and also allow for the carrying of certain working parts as will be seen. This frame is preferably of one piece, cast of metal, and has hubs 2 and 3 on opposite sides thereof, which preferably come at the middle of the barrel, and by revolving the frame from these hubs, with the barrel held in the frame, one of the axes for the revolution of the barrel is determined. The hubs 2 and 3 respectively surround the short shafts 4 and 5, the former being journaled in the supporting standard 6 and the other in the standard 7 which rest on the floor or other foundation; and to one only of these shafts I have applied power for running the machine, that is to the shaft 5.

By reference to Fig. 1 it will be seen that there is a main shaft 8 from which the

power is received for operating the machine and on which there are two pulleys, 9 and 10, which, through the belts 11 and 12 and pulleys 13 and 14 operate a secondary shaft 15, mounted near the first shaft; the belt 11 being straight, while the belt 12 is crossed and only one of the belts is adapted to operate at a time. The two shafts here referred to may be mounted on any suitable support and arranged convenient for operating the machine. I have provided levers 16 and 17 carrying clutches 18 and 19, by which either the pulley 13 or the pulley 14 may be thrown into action through their belts 11 and 12, thus causing the shaft 15 to rotate in one of two directions, depending on which of the two pulleys 13 and 14 are connected up.

It might be here noted that when the barrel is to be cleaned a quantity of cleaning solution such as caustic soda and water is placed in the barrel through the bung hole, together with a frictional agitating means such as metal punchings and the bung is then put in place to prevent the escape of the material during the revolution of the barrel in the cleaner.

From the shaft 15 the power is applied to the frame for revolving the barrel, and the means for applying the power consists of the following: on the shaft 15 I provide a pulley 20 which drives a pulley 22 on the shaft 5, through a crossed belt 21. There is also provided on the shaft 15 a chain sprocket 23, which may lie loosely thereon and be connected to move with the shaft by a lever 24 carrying a clutch 25. On this sprocket there is provided a chain 26 which passes down and around the axis of the barrel carrying frame and as herein shown the shaft 5 of the barrel frame has loosely journaled thereon a double sprocket, consisting of the sprocket wheel 27 and the sprocket wheel 28 both of which are either made in one piece or so connected as to move together. The chain 26 which comes from the sprocket 23 on the shaft 15 passes around the sprocket 27 and when the chain travels it also causes the sprocket 28 to move with the sprocket 27 and thus cause another chain 29 to travel around a sprocket 30 and revolve a shaft 31 which is journaled in a bracket 32 on the frame 1.

As my device is adapted to not only clean the inside of the barrel but also the outside and at the same time as it cleans the inside I will now describe the means for discharging a stream of cleaning liquid against the exterior of the barrel body and head, to act with the cleaning brushes, before passing to a description of the barrel holding and rotating means. The shaft 5 of the frame is hollow and running therethrough is a pipe 33 which has a suitable packed connection 34 with the shaft at the end thereof, and this pipe is connected with several tanks

35 and 36 from which caustic soda and water may be supplied. The pipe 33 after passing through the shaft 5 is provided with a cross piece 37, arranged inside of the frame 1 and moving therewith and with the shaft 5; and this cross pipe whose bore connects with the bore of the pipe 33 is provided with a number of apertures from which the liquid is discharged against the body of the barrel during the rotation of the latter in the frame, the discharge of the liquid not being effected by the revolution of the barrel on its several axes, as the supply pipe 37 travels with the frame 1 in its movement. The ends 38 of this pipe discharge liquid against the heads of the barrel and the purposes of this will appear later.

For holding the barrel in the revoluble frame and for cleaning the outside of the barrel while it is being so revolved I provide the following. At each end of the frame I have provided journal sleeves 39 and 40 and in the sleeve 39, which is shown at the top in Fig. 1 there is a shaft 41 carrying a gear 42 which is mitered with a similar gear 43 on the shaft 31 so that the power applied to the shaft 31 is transmitted through the meshing gears 42 and 43 to the shaft 41. Reference should here be had to Figs. 2 and 3. On the inner end, or that within the frame 1 of the machine, I have provided on the shaft 41 a member for holding the end of a barrel and this member I have termed a spider, and it consists of a sleeve 44 which fits over the end of the shaft 41 and is held thereon by suitable means such as the screw 45, so as to revolve with the shaft. Extending outwardly from the sleeve are radially arranged arms 46 which have a circular rim 47 corresponding to the flange at the end of the barrel. This rim is provided with a groove 48 which receives the end flange or chime of the barrel. The arms 46 may be of any number and shaped as desired. Within the spider I have provided a head brush which is arranged so that it will not revolve with the barrel in so far as the frame is concerned, but remains still while the barrel is revolved in the frame 1 and by causing this head brush to contact with the head of the barrel while the latter revolves I am enabled to clean the exterior of one of the heads of the barrel, the operation of the opposite end being referred to in subsequent description.

The shaft 41 is hollow and extending through it is a shaft 49 which projects beyond it at each end. On the lower end of this shaft 49 I have provided at right angles thereto a brush 51, which is so proportioned that it is at least as long as the radius of the barrel head and so arranged that the revolution of the barrel in relation thereto will cause the brush to clean all parts of the exterior of the barrel head. A spring

50 within the shaft 41 presses down on the brush and forces it against the barrel head. The gear 42 is secured to the shaft 41 and is separated from the part 39 by a washer 54, to allow the shaft to rotate without affecting the frame. The upper end of the shaft 49 is provided with an arm 52, which is keyed or otherwise connected with it, and the arm is separated from the gear 42 by a cap or washer 53, and a post 55 on the frame 1 prevents the arm 52 and shaft 49 from revolving with the shaft 41. If the head brush completes its operations and it is desired to allow the machine to continue running to further clean the interior of the barrel, the head brush may be thrown out of contact with the barrel. The cap or washer 53 is provided with apertures 56 of one depth and others 57 of greater depth and the arm 52 has pins 58 which seat either in the apertures 56 or 57. If the pins have been in the apertures 57 during the operation of the brush and it is desired to throw the brush out of action, the arm 52 is raised and it is then turned until the pins seat in the apertures 56, which, being of less depth than the apertures 57, will hold the brush free of the barrel head. The spring 50 at all times holds the brush in either of these positions; and when the brush is in operation it is yieldingly pressed against the barrel head by the spring.

The spider for contacting with and holding the barrel may be seen more clearly in Figs. 6 to 9. In Fig. 6 I have shown a screw 59 which passes through the flange of the spider and is screwed tight against the barrel flange or head hoop. In Figs. 7 and 8 I have shown a pin 60 which pierces the head of the barrel and grips the barrel for revolving it. In Fig. 9 I have shown oppositely disposed pointed dogs 61 which are pivoted to the spider at 62 and are pressed down by the springs 63 until they strike the stops 64. If the spider moves in either direction, the dogs being reversely disposed, will grip the barrel and cause it to rotate with the spider. The parts relating to the barrel holding and turning as well as the brush elements at the opposite end of the barrel frame are somewhat similar to those just described, and are shown more clearly in Figs. 1 and 3. The spider is the same and is secured to a shaft 41, which is not provided with a gear as on the other shaft. The shaft 49 in this instance has the arm 52 the same as before with a washer 53, and the stop 55 acts upon this arm the same as on the other arm 52. There is provided however, a device for clamping the spider to barrels of different sizes so that adjustment is made preferably at this end for barrels of varying length. There is a sleeve or collar 64 which abuts against the part 44 of the spider to force the latter against the barrel so that

the barrel will be held between both spiders; and this collar is provided with a connection 65 fulcrumed thereto and by a jointed link 66—67 to a cross piece 68 which abuts against the frame 1. A lever 69 is fulcrumed at 70 to the piece 65 and to a circular bracket 71, which latter is supported upon a member 72. A screw handle 73 serves to clamp the annular segmental piece 74, carried by the lever 69 to the bracket 71 in different positions.

The body brushes are in themselves novel and serve to properly clean the full length of the barrel and adjust themselves to barrels of different shapes, the brushes being thrown in or out of action as desired by lever action. The brushes are preferably made in two halves 75 and 76 which are arranged to contact lengthwise with the body of the barrel from end to end. The brushes are mounted on similar hinges 77 by a bolt connection 78 which latter allows the brushes to pivot longitudinally to adjust themselves to barrels having various bilges and through the adjustment of the hinges 77 they may be tilted to properly contact with the barrel, and also adjusted to make up for wear of the brushes. The hinges 77 are each carried upon a support 79 which has angle metal guides 80 guided by angle metal tracks 81 on the frame 1 where by the various parts, including the brushes, may be moved toward or away from the barrel. An angular bracket 82 is connected to the member 79 and extends over the frame 1 where it has an apertured plate 83 which is secured to the shaft 4 with which it moves and through this connection the brushes carried on the member 79 are moved to and from the barrel. A spring 84 presses against this plate 83 and against the rear of the hub 3 in which it is inclosed and cushions the action of the brushes on the barrel to allow for irregularities in the latter. It will be noted that the ends 85 and 86 of the brushes are slanting or chamfered so that their ends will overlap and prevent any part of the barrel from escaping the action of the brushes. To move the shaft 4 back and forth to operate the brushes I have provided a lever action. A lever 87 is fulcrumed at one end to a bracket 88 and a spring operated dog 89 on the upper part engages in recess 90 in the bracket 91 to hold the lever in either of its positions. A collar 92 on the lever 87 engages the shaft 4, which revolves therein, and by moving the lever 87 the shaft 4 is moved in or out to set or withdraw the body brushes, and when adjusted the dog 89 holds the lever in either position.

The operation of my improved machine is as follows: The barrel to be cleaned first has the cleaning material, with metal punchings or whatever is to be used, placed inside. The body and the head brushes are withdrawn from their operative position and

the barrel is placed in position between the opposite spiders. The lever 69 is then moved to throw the spider carried by it into contact with the barrel flange and when the barrel has been firmly clamped between the spiders the lever 69 is set by turning the handle 73 which clamps the segment 74. The barrel is now set for cleaning and if the exterior cleaning is to be begun the arm 52 is withdrawn at each end of the frame and turned until the pins 58 engage in the deeper recesses 57 of the washers 53 when the springs 50 will force the head brushes into contact with the barrel heads within the spiders. The lever 87 is moved forward and causes the body brushes to be moved into contact with the body of the barrel, to which they will conform and the spring 84 cushions the action of these brushes while in operation.

The machine is now ready to be started. The operator throws on either clutch 18 or 19 when shaft 15 will be revolved and through the pulleys 20 and 22 and belt 21 the barrel frame will be revolved on its axis, which will be on the longitudinal axis of the barrel, carrying the barrel and the various operating parts connected with the frame. The clutch 25 may then be thrown in when through the sprocket 23 the chain 26 will be caused to travel in the reverse direction to the belt 21, and through the action of this chain on the sprockets 27 and 28 the chain 29 will be caused to travel. The chain 29 will rotate the sprocket 30, shaft 31 and gear 43. The meshing of the gear 42 will rotate the shaft 41 and with it the spider. The latter as was explained grips the barrel. While the barrel is revolving the head brushes are prevented from revolving by the arms 52 contacting with the stops 55. The rotation of the barrel causes the stationary head brushes to clean the barrel heads. The rotation brought about by the action just described is on a different axis from that caused by the rotation of the barrel frame on its axis and simultaneously therewith. The rotation is preferably transverse of the barrel. The liquid in the tanks 35 and 36 may now be allowed to flow through pipes 33 and 37 when it will be discharged against the body and heads of the barrel where it will coact with the brushes to clean the exterior. It will be observed that the rotation of the barrel frame is controlled independently of the rotation of the barrel within the frame and either may be operated independently of the other or they may be operated together. If the clutch 18 was thrown in first and it is desired to reverse the operation of the machine clutch 18 is thrown out and clutch 19 is thrown in, when the belt 12, being crossed will reverse the direction of shaft 15 and thus reverse the operation of the machine. If the exterior

of the barrel has been cleaned before it is desired to stop the interior cleaning the body brushes may be withdrawn from action by lever 87 and each of the head brushes may be withdrawn by pulling the arms 52 and turning them to drop pins 58 in the shallow holes 56. I provide a drip pan 92 to catch the liquid thrown from the barrel.

It will be apparent that the rotation of the barrel having a cleaning material inside, on different axes, will cause the material to clean every possible part of the interior of the barrel and by causing the barrel to revolve on both axes at the same time the cleaning is such that the barrel no matter what its condition may have been may be used for almost any purpose. Furthermore the cleaning of the exterior may be simultaneous with the interior and the machine may be used for barrels of varying sizes and shapes.

The device is preferably arranged so that the speed of the revolution on one axis will be different to that on the other axis whereby greater disturbance of the material will increase the efficiency of the cleaning.

While I have shown and described in detail one embodiment of my invention I desire to include all devices coming within the spirit of the following claims.

Having described my invention what I claim is:

1. A barrel washing machine comprising means for revolving a barrel on a plurality of axes and means contacting with the exterior of the barrel and adapted to clean the exterior thereof during the revolution of the barrel on the several axes.

2. A barrel washing machine comprising a revoluble frame for holding a barrel, means for revolving a barrel in said frame whereby the barrel will be caused to revolve on a plurality of axes simultaneously and body and head brushes adapted to clean the barrel during its revolution and means whereby said brushes may be independently thrown out of action.

3. A barrel washing machine comprising a revoluble frame adapted to hold a barrel, means for revolving the barrel in said frame, whereby the barrel will be revolved on a plurality of axes, a brush movable with said frame and adapted to clean the exterior of the barrel and means movable with said frame, adapted to discharge liquid on the barrel while the latter revolves.

4. A barrel washing machine comprising a movable revoluble frame adapted to hold a barrel, means for revolving the barrel in said frame whereby the barrel will be made to revolve on a plurality of axes and head brushes carried with said frame, but stationary as to the revolution of the barrel in the frame, said head brushes being adapted to clean the heads of the barrel.

5. A barrel washing machine comprising a frame adapted to revolve and to revolve a barrel therewith and means for revolving the barrel in said frame and a brush adapted to clean the said barrel and adapted to revolve on the axial line of the said revoluble frame.

6. A barrel washing machine comprising a frame adapted to revolve and to revolve a barrel therewith and means for revolving the barrel in said frame, a brush adapted to clean the said barrel and adapted to revolve on the axial line of said revoluble frame and means for throwing said brush into or out of contact with the barrel in said frame.

7. A barrel washing machine comprising a revoluble frame adapted to carry a barrel, spiders carried by said frame adapted to hold a barrel therein, a lever fulcrumed to a part of the frame and fulcrumed to a portion of one of said spiders, which it is adapted to force against the barrel, a segmental member carried by the frame and an arm on said lever having an adjustable connection with said segmental member, whereby the lever may be adjusted in various positions.

8. A barrel washing machine comprising a revoluble frame, hollow shafts carried by said frame and provided with means for gripping a barrel to revolve it with the said frame, and other shafts extending through said hollow shafts and provided with head brushes adapted to clean the heads of the barrel and means for causing a relative movement between said first and said last mentioned shafts, whereby the brushes will operate to clean the barrel heads during the revolution of the barrel with the frame.

9. A barrel washing machine comprising a frame, a plurality of hollow shafts journaled in the frame and provided with barrel holding means, means for revolving said shafts, other shafts passing through said first shafts and provided with brushes, washers on said second shafts having apertures of different depth, a member carried by said shaft and provided with pins adapted to engage the apertures in said washers, means for forcing said brushes against the barrel and means for preventing their revolution.

10. A barrel washing machine comprising a frame and a spider for holding a barrel therein, said spider having reversely disposed dogs fulcrumed thereto and adapted to engage the barrel and springs for pressing said dogs.

11. A barrel washing machine comprising a revoluble frame for holding and revolving a barrel and a plurality of brushes and

means on said revoluble frame by which said brushes are carried so that said brushes will swing to conform to the shape of the barrel, said brushes having chamfered overlapping ends whereby when they are swung they will continue to form an uninterrupted cleaning means for the barrel body.

12. A barrel washing machine comprising a revoluble frame for holding and revolving a barrel, a brush for cleaning the body of the barrel, a bracket carried by said revoluble frame and means for supporting the brush on the bracket so that the brush can swing to conform to the bilge of the barrel and the said bracket being adjustable to permit of an adjustment of the plane of the brush bristles in relation to the periphery of the barrel.

13. A barrel washing machine comprising a revoluble frame for holding and revolving a barrel, a brush for cleaning the body of the barrel, means on said frame by which said brush is so mounted as to swing to conform to the bilge of the barrel and a spring adapted to force the brush into contact with the barrel.

14. A barrel washing machine comprising a revoluble frame, means for revolving a barrel held in said frame, a brush hinged to a support having a sliding engagement with said frame said brush being adapted to revolve on the axial line of said frame, a spring for forcing the brush into contact with the barrel and a lever adapted to move said brush out of contact with the barrel.

15. A barrel washing machine comprising a revoluble frame adapted to carry a barrel, means for revolving a barrel in said frame, a brush carried by a member having a sliding connection with said frame and adapted to revolve on an axial line of the frame, said brush being adapted to engage the body of the barrel carried by the said frame.

16. A barrel washing machine comprising a revoluble frame adapted to carry a barrel and means for revolving the barrel in relation to the said frame, a brush revolving with the frame and on its axial line, a spring for forcing the brush into contact with the barrel and a lever mounted on a stationary part of the machine and adapted to throw said brush out of contact with the barrel.

Signed at Olean, in the county of Cattaraugus, and State of New York this 20th day of May, 1908.

EDWARD HOLLY WRIGHT.

Witnesses:

K. V. MONAHAN,

M. M. SENNETT.