

chamber will flow in reverse direction through said filter column in communication with said discharge port for cleaning of said filter column, a hydraulic motor in said container, said hydraulic motor having an inlet port and a discharge port, said casing having an inlet port to provide such flow of unfiltered fluid into said container, said casing inlet port being connected to the inlet port of said motor, the outlet port of said motor leading into said container and an intermittent drive mechanism operatively connected between said motor and said arm, said intermittent drive mechanism being conformed to effect step by step rotation of said arm to move the free end thereof from alignment with one of said openings in said second plate into alignment with an adjacent opening in said second plate with continuous rotation of said motor.

2. Equipment for filtering particles from fluids, comprising a container having a chamber at its upper end, having a floor defined by a plate extending transversely across the container spaced from the top wall thereof, said plate having a plurality of circumferentially spaced openings therethrough, said chamber having a discharge port for filtered fluid, a plurality of filter elements positioned in said container between said chamber and the lower end of said container and arranged in a circle circumferentially spaced from each other, each of said filter elements comprising a cylindrical jacket extending parallel to the longitudinal axis of said container, a filter column in each of said jackets, each filter column having a central bore in communication at its upper end with said plurality of circumferentially spaced openings, the lower end of said central bore being closed, said jacket having a closed upper end through which the bore extends and an open lower end, defining the inlet to the filter column therein, a second plate positioned in said container longitudinally spaced from the first plate and parallel thereto, said second plate having a plurality of circumferentially spaced openings aligned respectively with the openings in said first plate, the lower end of each of said jackets being in communication respectively with each of the openings in said second plate, said filter column permitting flow of fluid therethrough from the outer surface thereof into said bore but restraining passage of such particles, means to provide flow of unfiltered fluid into said container, a discharge port for said filter elements, an arm rotatable on an axis longitudinally aligned with the axis of said container and the axis of said circumferentially spaced filter elements, said arm having a passageway therethrough, the free end of said arm being movable in a circle aligned with said circumferentially spaced openings in said second plate and being retained against the undersurface of said second plate to define a sliding seal with respect thereto, the free end of said arm having an opening in communication with one end of the passageway therein and movable into alignment with each of the openings in said second plate as said arm is rotated, the other end of said passageway having a port and a conduit leading from said filter column discharge port to the port at the other end of said passageway and in constant communication therewith, whereby the filtered fluid under pressure in said chamber will flow in reverse direction through said filter column in communication with said discharge port for cleaning of said filter column, a second arm is positioned in said chamber and rotatable on an axis aligned with the axis of said first arm, said arms being ganged to move in unison, said second arm having a passageway there-

through, the free end of said second arm being movable in a circle aligned with the circumferentially spaced openings in said first plate and being retained against the top surface of said first plate to define a sliding seal with respect thereto, the free end of said second arm having an opening in communication with one end of the passageway therein and movable into alignment with each of the openings in said first plate as said second arm is rotated, a cylinder positioned between said pair of plates, axially aligned with said filter elements and inwardly thereof, a piston means slidably mounted in said cylinder, and means to charge the portion of said cylinder above said piston means with filtered fluid while the free ends of said arms are moved from alignment with one set of aligned openings in said plates, into alignment with the next adjacent set of openings, to move said piston means downwardly and means when said arms are in alignment with a set of openings, to move said piston means upwardly to force the filtered fluid in the upper portion of said cylinder through the passageway in said second arm and through the associated filter column to clean said filter.

3. The combination set forth in claim 2 in which the means to effect movement of said piston means comprises a plurality of circumferentially spaced openings in each of said plates inwardly of said cylinder and in communication therewith, each of said arms having an axial disc portion from which the associated arm extends and an inner opening leading into the passageway in the associated arm inwardly of the free end thereof, each disc portion having an outer opening positioned on the side of the disc opposed to the inner opening, said inner and outer openings being arranged with respect to the circumferentially spaced openings inwardly of said cylinder so that when the free ends of the arms are aligned with the associated openings in the plates, the inner openings in the first and second arms will respectively be out of alignment with and in alignment with an associated one of said circumferentially spaced openings inwardly of said cylinder, and the outer openings in said discs will respectively be in alignment with and out of alignment with an associated one of said circumferentially spaced opening inwardly of said cylinder.

4. The combination set forth in claim 2 in which said piston means comprises a pair of rigidly connected axially aligned pistons, the piston adjacent the upper portion of said cylinder being of smaller diameter than the piston adjacent the lower portion of said cylinder, said cylinder having two adjacent portions of diameter corresponding to the diameter of the piston slidable therein and means to vent the portion of said cylinder between the two pistons therein.

#### References Cited

##### UNITED STATES PATENTS

2,767,851	10/1956	Muller	210—333 X
3,169,109	2/1965	Hirs	210—333 X
3,176,846	4/1965	Adams	210—333
3,228,528	1/1966	Mummert et al.	210—333
3,280,980	10/1966	King	210—333 X
3,283,903	11/1966	Muller	210—108

REUBEN FRIEDMAN, *Primary Examiner.*

J. ADEE, *Examiner.*