

Sept. 26, 1933.

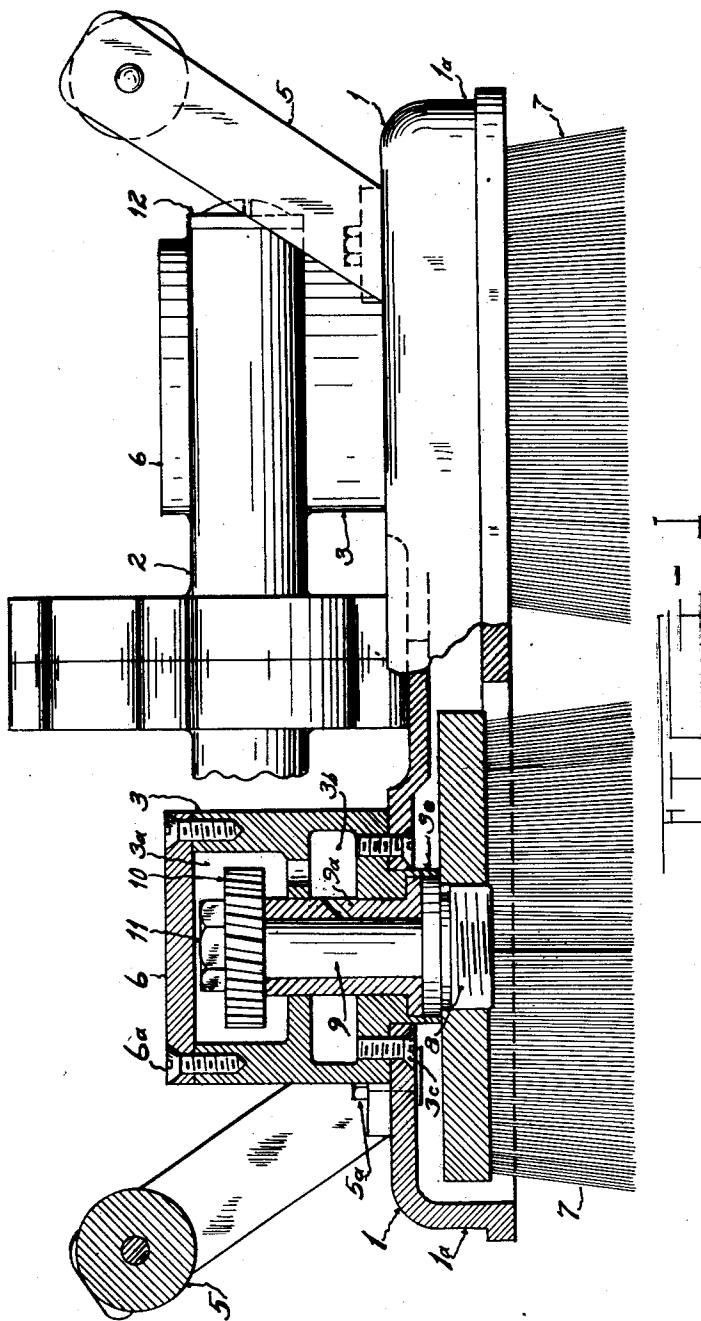
R. J. BRINKER

1,928,246

STONE AND MASONRY RENOVATING DEVICE

Filed Dec. 13, 1932

4 Sheets-Sheet 1



INVENTOR.

BY *Richard J. Brinker*
Ben J. Chrony
ATTORNEY.

Sept. 26, 1933.

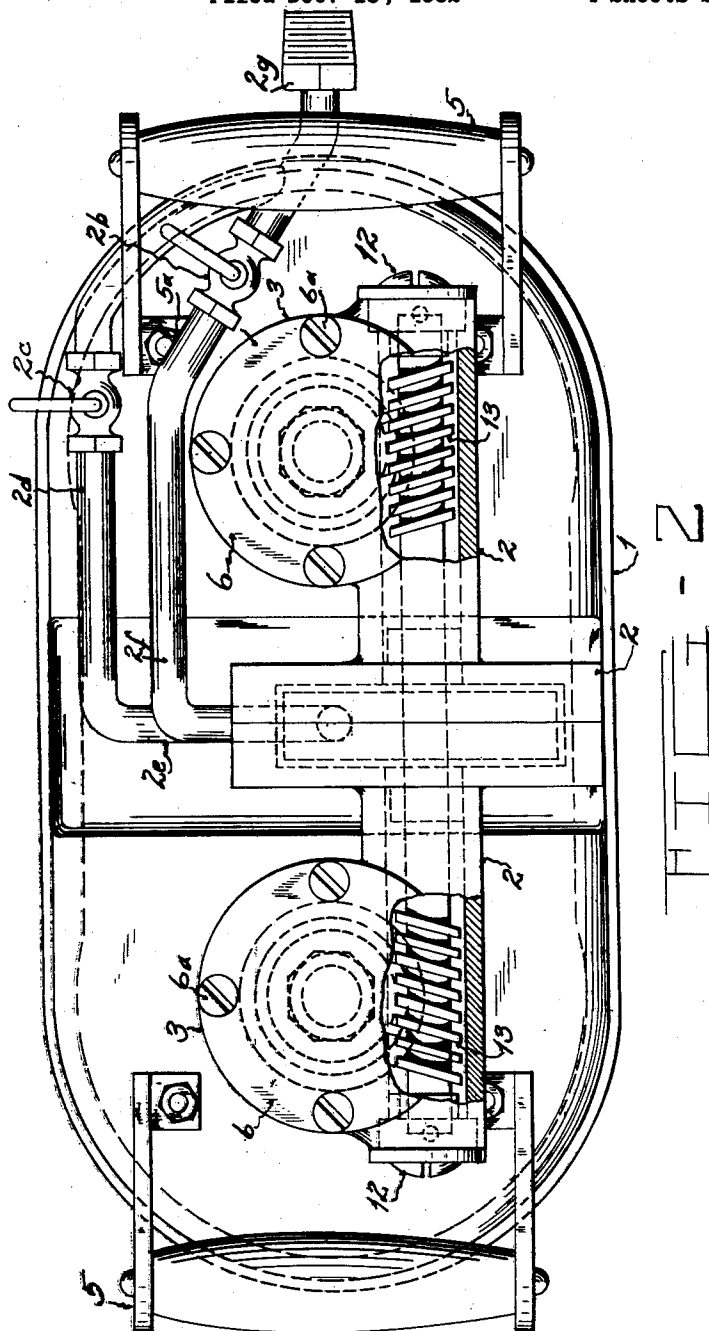
R. J. BRINKER

1,928,246

STONE AND MASONRY RENOVATING DEVICE

Filed Dec. 13, 1932

4 Sheets-Sheet 2



INVENTOR.

BY

Richard J. Brinker
Ben J. Chrony
ATTORNEY.

Sept. 26, 1933.

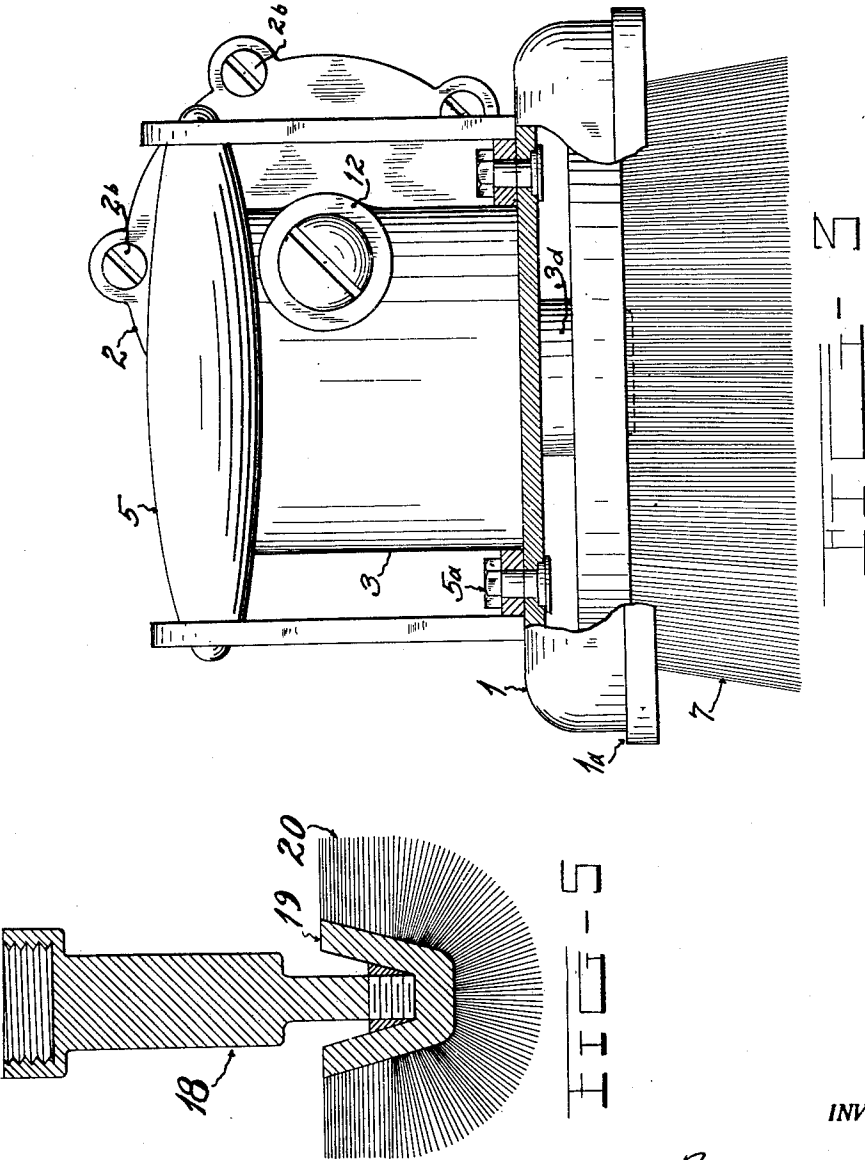
R. J. BRINKER

1,928,246

STONE AND MASONRY RENOVATING DEVICE

Filed Dec. 13, 1932

4 Sheets-Sheet 3



INVENTOR.

BY

Richard J. Brinker
Ben J. Chrony
ATTORNEY

Sept. 26, 1933.

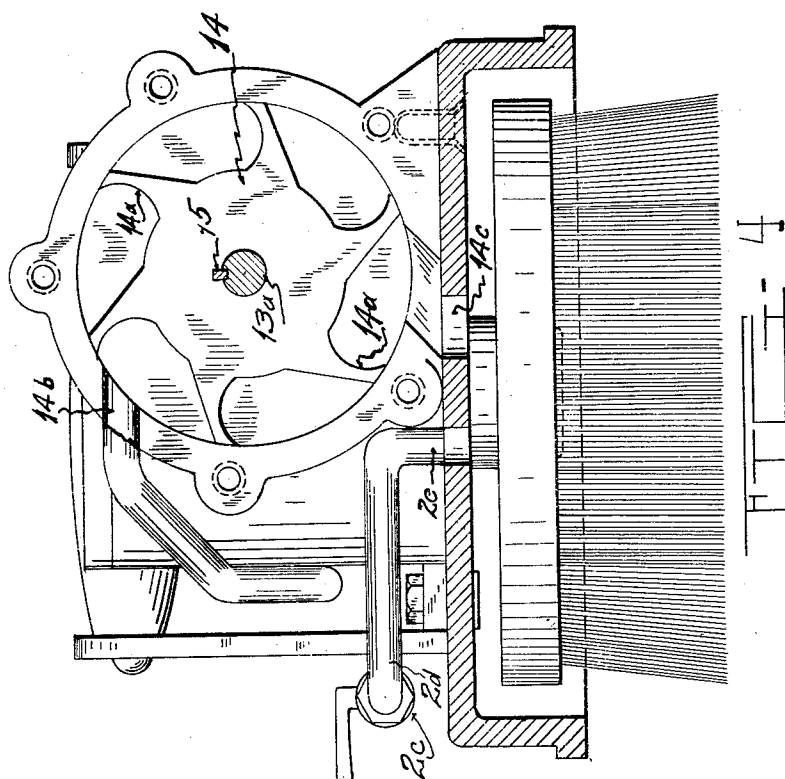
R. J. BRINKER

1,928,246

STONE AND MASONRY RENOVATING DEVICE

Filed Dec. 13, 1932

4 Sheets-Sheet 4



INVENTOR.

Richard J. Brinker

BY

Ben J. Cherry

ATTORNEY.

UNITED STATES PATENT OFFICE

1,928,246

STONE AND MASONRY RENOVATING
DEVICE

Richard Joseph Brinker, Washington, D. C.

Application December 13, 1932
Serial No. 647,033

2 Claims. (Cl. 15—50)

This invention relates to cleaning apparatus generally. More specifically this invention relates to scrubbing and cleaning apparatus employing steam driven rotary brushes.

5 An object of this invention is to provide a steam driven rotary brush scrubbing mechanism housed in a frame in such a manner that it is readily and conveniently adapted for use in removing accumulated debris from building surfaces particularly the vertical walls.

10 Another object of my invention is to provide a steam driven rotary brush scrubbing mechanism with a pair of brushes adapted for rotation in opposite directions to facilitate balanced operation of the mechanism and to more efficiently and readily remove accumulated debris from building walls.

15 Still another object of this invention is to provide a steam driven rotary scrubbing mechanism with a pair of rotary brushes housed in a conveniently handled casing in such a manner as to facilitate the application and use of the brushes in the cleaning of building walls and surfaces.

20 Other and further objects of this invention will be apparent to those skilled in the art to which it relates from the following specification:

25 In accordance with this invention I provide a steam driven rotary brush mechanism particularly adapted for use in the scrubbing and cleaning of building walls and surfaces. A pair of rotary brushes driven in the opposite directions by means of a small steam turbine which is geared to the shafts of the brushes, are employed in my invention to loosen and remove the dirt and other accumulated debris from the walls being cleaned. Suitable valves are used to control the steam for driving the turbine and also to control the steam fed to the rotary brushes adjacent to the surface being cleaned. In accordance with this invention I also employ a solution saturated steam both for driving the rotor for turning the brushes and for cleaning and scrubbing the walls. In the cleaning of the walls a solution made up of one of the weak acids derived from fruits, such as, the citrus fruits, particularly, limes, is used to remove the undesired wall surface. After the stone and masonry walls are cleaned I apply a molten wax to the surface thereof. This wax is preferably derived from the peelings of citrus fruit and is applied by the action of steam.

50 These and other features of this invention will be readily understood from the following description when read in conjunction with the drawings which form a part thereof and in which

Fig. 1 illustrates a vertical view in fragmentary section of an embodiment of this invention; Fig. 2 shows a top plan view; Fig. 3 is a view in side elevation; Fig. 4 is a sectional view taken on a plane through the motor housing in Fig. 1; and Fig. 5 is a detail view of a brush attachment.

Referring to the drawings in detail reference numeral 1 designates the lower frame section of the scrubbing mechanism to which is attached the housing 2 which is provided with the steam turbine or rotor housing section intermediate longitudinally extending worm gear housing sections and the gear housing sections 3. These latter sections 3 are attached to the lower frame section 1 by screws 3c and are enclosed at the top by plates 6 attached thereto by screws 6a.

Handles 5 are attached to the ends of the frame 1 by suitable screws or bolts 5a as illustrated in Fig. 3. All of these members, that is, the frame 1, housing 2, casings 3 and handles 5 are preferably made of aluminum or suitable alloy which is both light in weight and of sufficient strength.

Brushes 7 are attached to the shaft 9 by the threads 8 for rotation by the gear 10 as illustrated in the partial section of Fig. 1. These brushes 7 may be made of any suitable material, such as, vegetable or animal fibres or metal wires attached to a suitable supporting member.

This gear 10 is attached to the shaft 9 by the nut 11 and is positioned for rotation in the space 3a of the casing 3. A similar arrangement of a gear attached to a shaft and retained in place by a nut is provided to drive the other brush, that is, the mechanism in both of the casings 3 is the same. A bronze bearing bushing 9a is positioned in the casing 3 and extends downward through the frame 1 and section 3d adjacent to the brush 7. The spaces 3a and 3b in the casing are normally kept practically full of heavy oil for lubricating the gear 10, worm gear 13 and shaft 9.

The apron 1a of the frame 1 may be extended further downward to practically enclose the sides of the brushes, if desired, to prevent spreading of the dirt and other material removed from the building walls at high velocity.

The intermediate portion of the housing 2 is provided with a hole 14b for receiving the tube 2f as illustrated in Figs. 2 and 4.

In Fig. 2 fragments of the worm gear housing and covers 6 have been cut away to illustrate the worm gears 13 in engagement with the gears 10. These worm gears 13 are retained in place upon the shaft 13a of the steam turbine or rotor 14 by suitable keys. This rotor 14 is retained in

position on the shaft 13a by means of the key 15.

Suitable bearings, such as, a ball made of properly treated steel are provided between the ends of the shaft 13a and the members 12, which are
5 adjustably retained on the open ends of the worm gear housing by suitable threads or in any other methods well known in the art. The design of these bearings is, of course, determined by the number of revolutions that the shaft is required
10 to make in a given time, however, for most practical purposes the type of bearing employing a single steel ball of suitable size is very satisfactory.

Tubes 2d and 2f are provided to feed the steam or solution saturated steam to the brushes and the rotor, respectively. The tube 2d is bent to form an elbow having the section 2e which is fitted into a hole provided to the frame 1 below the rotor housing. Small valves 2b and 2c are connected to the tubes 2d and 2f to provide means
15 for controlling the flow of steam or solution to the brushes and rotor, respectively. The tubes 2d and 2f are joined together at a point adjacent to the valves and the supply line coupling member 2g which is provided to facilitate connecting this
20 device to the supply of cleaning solution.

This cleaning solution is fed to the rotor and brushes preferably as wet steam which may be super heated if desired.

The housing surrounding the rotor 14 is preferably made in two sections, as illustrated in Fig. 1, held together by screws 2b, as shown in Fig. 3. By making this housing in this way it may be made by casting molten metal and access to the rotor 14 may be more readily gained.

A modified form of brush which is more readily adapted for use in cleaning crevices and various forms of decorative recesses in building walls is illustrated in Fig. 5 wherein the brush supporting member 18 is attached to the shaft
35 9 for rotation. The circular member 19 which carries the brush fibers 20 is attached to or made integral with the member 18 and is preferably made long enough so that the brush fibers 20 extend beyond the apron 1a of the scrubber
40 chassis.

It is, of course, apparent that various other forms of brushes may be used with the apparatus of my invention where certain unusual places are to be reached for scrubbing and cleaning.

In operation this apparatus of my invention is connected to a source of steam supply, as illustrated in Fig. 2. The pet cocks 2b and 2c are used to control the flow of steam to the rotor 14 and to the brushing and cleaning chambers, respectively. When the steam is turned on to the rotor 14 through the pet cock 2b it flows through the tubular hole 14b of the rotor housing and impinges upon the blades of the rotor 14 thereby rotating the rotor which transmits rotary motion to the brushes. The speed of rotation of the brushes may be governed at will by increasing or decreasing the flow of steam to the rotor.

The exhaust steam from the rotor is fed to the brushes through the hole 14c. Where additional steam or cleaning solution is desired around the cleaning surface than is obtained from the rotor exhaust or where it is desired to blow out dust or dirt from wall crevices without rotating the brushes the pet cock 2c which is attached to the steam pipe 2d and feeds steam to the cleaning surfaces through the pipe 2e, is opened. This permits the use of additional
75 steam for cleaning purposes when desired and

also permits the use of steam to blow dirt away from the brushes in order to prevent accumulations of grit and similar foreign matter from reaching the bearings of the brush shafts.

A projecting sleeve 3e is formed on the bottom of each of the housings 3 to fit against the top of the brush support adjacent to the threaded section 8 for the purpose of preventing foreign matter to gain access to the shaft 9 bearing surfaces.
80 85

While I have described my invention in certain preferred embodiments in some detail it is, of course, to be understood that numerous variations thereof may be made without departing from the spirit and scope thereof and that therefore I do not desire to limit this invention to those exact details except in so far as they may be defined by the appended claims.

What I claim and desire to secure by Letters Patent of the United States is as follows:
95

1. In scrubbing apparatus the combination of an elongated frame having a depending flange, a pair of handles positioned adjacent to the ends of said frame, a pair of shafts rotatably supported in said frame, a pair of rotatable brushes supported on the lower side of said frame by said shafts, gears mounted on each of said shafts, a fluid actuated motor for driving said brush shafts, a shaft for rotatably supporting said fluid actuated motor, worm gears mounted on each end of said fluid actuated motor supporting shaft, said worm gears meshing with said first mentioned gears, a housing positioned on the upper surface of said frame for enclosing said first mentioned gears, said worm gears and said fluid actuated motor, means for feeding a fluid medium to said fluid actuated motor, means positioned between said brushes for feeding a cleaning fluid to said brushes, the lower portion of said housing for enclosing said motor having a hole formed in alignment with a corresponding hole in said frame for exhausting said fluid medium from said motor to said brushes, means for controlling the feeding of said fluid medium to said motor and means for controlling the feeding of said cleaning fluid to said brushes.
100 105 110 115 120

2. In scrubbing apparatus the combination of an elongated frame having a depending flange, a pair of handles positioned adjacent to the ends of said frame, a pair of shafts rotatably mounted in said frame, a pair of rotatable brushes supported on the lower side of said frame by said shafts, gears mounted on each of said shafts, a fluid actuated motor for driving said brush shafts, a shaft for rotatably supporting said fluid actuated motor, worm gears mounted on each end of said fluid actuated motor supporting shaft, said worm gears meshing with said first mentioned gears, a housing positioned on the upper surface of said frame for enclosing said first mentioned gears, said worm gears and said fluid actuated motor, pipe connections for feeding a fluid medium to said fluid actuated motor, pipe connections for feeding a cleaning fluid to said brushes, the lower portion of said housing for enclosing said motor having a hole formed in alignment with a corresponding hole in said frame for exhausting said fluid medium from said motor to said brushes, means for controlling the feeding of the fluid medium to said motor and means for controlling the feeding of cleaning fluid to said brushes.
125 130 135 140 145

RICHARD JOSEPH BRINKER.