

J. W. TOOL, T. F. LINEGAR & J. G. WILLIAMS.
WASHING DEVICE.

APPLICATION FILED MAY 24, 1910.

1,017,606.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.

Fig. 1

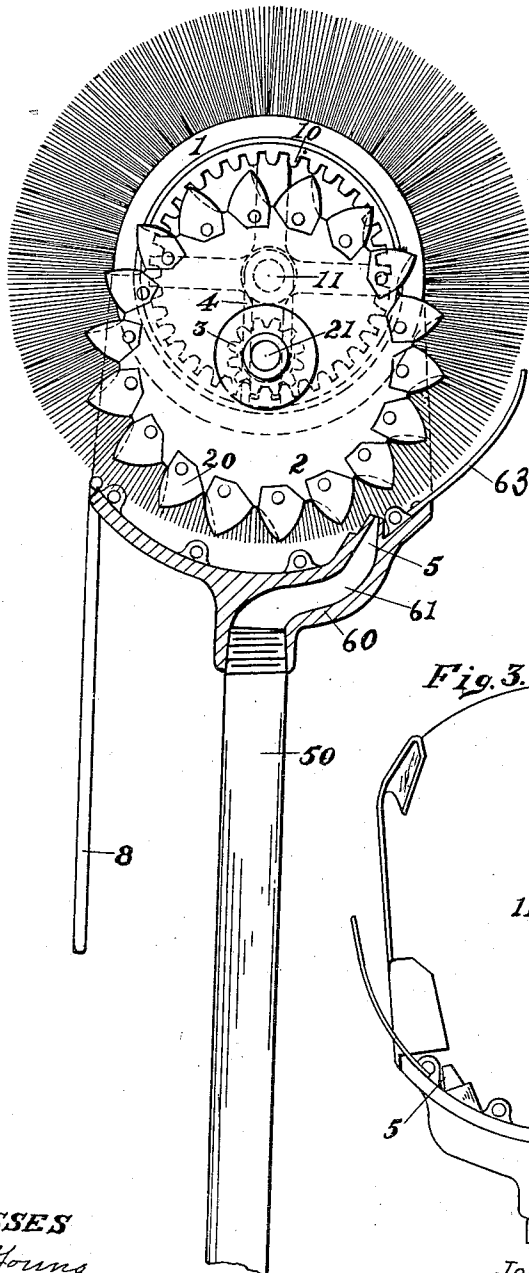


Fig. 2

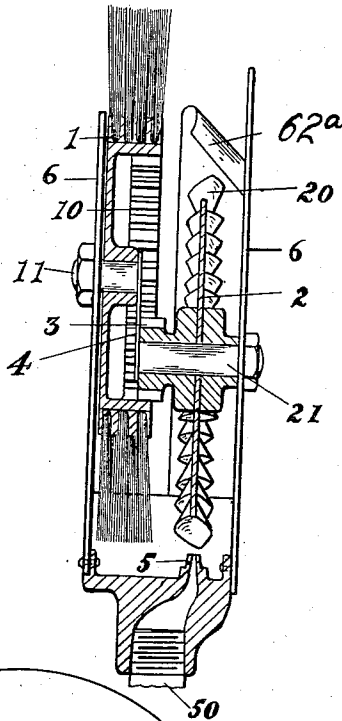
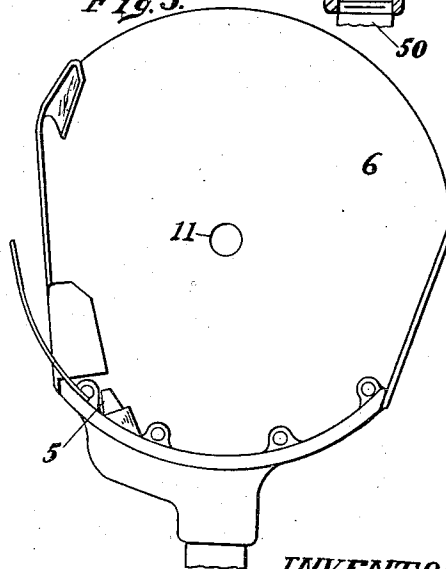


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 4

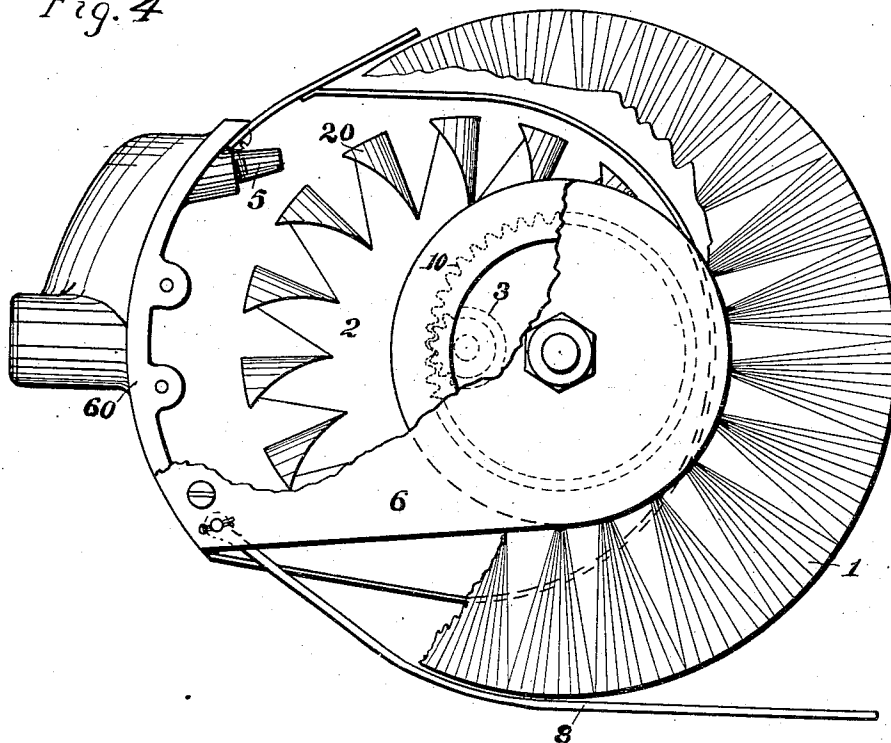
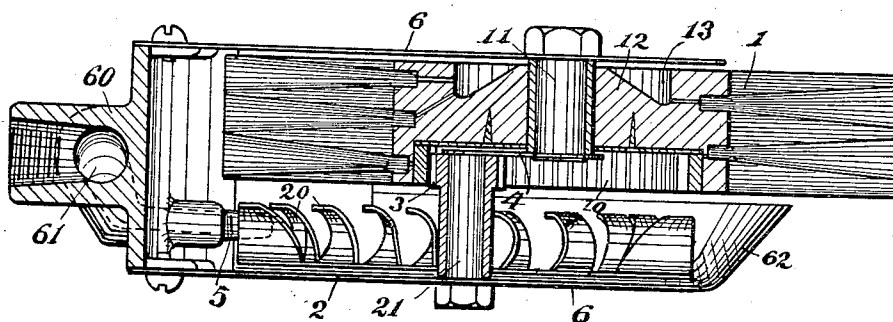


Fig. 5.



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UNITED STATES PATENT OFFICE.

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WASHING DEVICE.

1,017,606.

Specification of Letters Patent.

Patented Feb. 13, 1912.

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To all whom it may concern:

Be it known that we, JOHN W. TOOL, THOMAS F. LINEGAR, and JOHN G. WILLIAMS, citizens of the United States, residing at Seattle, county of King, State of Washington, have invented certain new and useful Improvements in Washing Devices, of which the following is a specification.

Our invention relates to an improvement in washing devices of the type in which a revolving brush is employed which is supplied with water, and comprises the parts and combination of parts which will be hereinafter described and particularly pointed out in the claims.

The object of our invention is to provide a washer of the above described type which is operated by the power contained in the jet of water which is afterward used as the washing medium, and to improve and simplify the operation and construction of such devices.

In the drawing we have shown our invention embodied in the form which is now preferred by us.

Figure 1 is a side view of our device showing a portion of the supporting frame in section and with one side of the inclosing case removed. Fig. 2 is a transverse section taken in general upon the central line. Fig. 3 is a side view of the casing with one side plate removed. Fig. 4 shows in side view, a slightly modified construction, parts being broken away. Fig. 5 is a section through the axis of the two wheels of the modification shown in Fig. 4.

In carrying out our invention we employ a brush wheel 1, which is mounted to turn about its center upon a shaft 11, and an impulse water wheel 2 mounted alongside the brush wheel to turn about its center upon a shaft 21, parallel with, but at one side of the shaft of the brush wheel. The water wheel 2, is adapted to be rotated by a jet of water and is connected with the brush wheel in such a manner as to constitute a motor to rotate the latter.

There are numerous ways of connecting the motor wheel 2 with the brush wheel 1, the method herein shown and which we prefer, consists in providing the brush wheel with the internal toothed wheel 10, and the motor wheel 2 with a concentric pinion wheel 3, which meshes with the toothed

wheel 10 carried by the brush wheel. One advantage of this form of construction is that the motor wheel may be permitted to run at a high speed and the brush wheel at a lower speed, which latter fact is desirable, as the brush will ordinarily give satisfaction if turned only at a moderate rate of speed, and a high speed for the motor wheel gives best satisfaction. This difference in speed of the wheel also increases the power of the motor wheel and insures turning the brush wheel even when applied with considerable force, as is often necessary or desirable.

We have shown the motor wheel as being of the type which is commonly known as an impulse wheel, that is, a wheel having buckets or cups about its periphery into which a jet of water is directed, the power being produced by the impulse of the jets upon said buckets. It is evident that another form of water motor may be substituted in our device, although we consider the impulse wheel as being best adapted to the particular conditions existing in our device.

The shaft 11 upon which the brush wheel turns and the shaft 21 upon which the motor wheel turns, are preferably connected at their inner ends by a bar or plate 4. The outer ends of these shafts are supported in the plates 6 which form the side walls of the inclosing casing which incloses the motor wheels and which largely inclose the brush wheel. The plates 6 which form the side of this case are secured to a base which has a passage formed therein, one end of which is adapted to receive the pipe 50 which pipe serves the double purpose of a conduit for the passage of water used and also as a handle for controlling the device. The passage 61 terminates at one end in a nozzle 5 so placed as to direct the issuing jets into the buckets or cups 20 carried by the motor wheel. The periphery of the brush wheel is partially inclosed by a plate 63 which forms an extension of the base 60.

The water after being used to turn the motor wheel is directed toward the brush so as to saturate the same, the waste from the motor wheel thus providing the water for washing purposes. This direction of the waste water into the brush may be accomplished by somewhat different devices. One,

shown in Figs. 2 and 3, consists of a curved shield or deflector plate 62^a, which may be secured to or form part of one of the casing plates 6. Another expedient is to shape the buckets 20 so that the side thereof farthest removed from the brush is the highest, as is shown in Fig. 2 which will tend to throw the waste water more toward the brush than toward the other side. A third expedient which may be employed is to locate the nozzle so that the jet will strike in the buckets a little beyond the center of the bucket toward the side which is farthest from the brush. Another expedient, shown in Figs. 4 and 5 which is in many ways the most effective of all, is to extend the plate which constitutes the inclosing case on this side, so as to form a protective and directing flange 62, extending over the motor wheel, as shown in Fig. 5, so placed and shaped as to direct the discharge from the wheel into the body of the brush. This flange should extend close to the brush wheel so as to prevent discharge of water before it reaches the brush.

As a protection against the water flying from the brush, an apron or screen may be employed, the same consisting of a web or belt 8 secured at one end to the base 60 and hanging downward.

The type of motor or water wheel which we have shown in Figs. 1 and 2 consists of a central web or disk of sheet metal having separate buckets 20 secured to the periphery thereof. These buckets at their inner ends lap over the edge of the disk and are secured by a single rivet for each. We have shown these buckets so shaped that they are somewhat higher at one side than at the other, the object of this being to deflect the water toward the low side of the buckets, which side is toward the brush.

The type shown in Figs. 4 and 5 has the entire wheel formed from an integral piece of sheet metal, the buckets being formed by slitting the edges of the disk and turning the slit portions over so as to form buckets therefrom. In many ways we prefer this type of wheel. It is cheaper in construction and may be made fully as effective as a power producer, and, considering the difficulty in getting the separate buckets properly formed and secured, it is generally more effective as a power producer.

The brush wheel as shown in Figs. 4 and 5 is made with a wood disk 12 as a base or center to which to secure the brush part or bristles. This is hollowed on one side to form the recess 13 and at the other side to receive the toothed wheel 10. This hollowing at the sides facilitates the insertion of the bristles.

In using this device the water first acts upon the motor wheel 2 to turn it and thereby turn the brush wheel 1. The water

after turning the wheel 2 is discharged into the brush wheel which is also turning. The wheel 1 may be applied to any surface which it is desired to scrub. The combination of the revolving brush wheel and the water discharged continuously into the brush wheel, makes a highly efficient scrubbing device which may be effectively used in washing carriages, automobiles, cars, houses, floors, and all surfaces to which a revolving brush may be applied. It is more effective than an ordinary brush as it is constantly supplied with a liberal amount of water which is directed where it is most needed, and is also turned by the same means, so that the only labor required is to hold it to the surface which is to be washed.

The nozzle 5 is offset from the control position as it is desired to apply it to the power wheel 2 very nearly tangentially and also in the direction to discharge the water upon the surfaces being washed. To do this it is necessary to offset the nozzle from the handle 50, or to offset the attachment of the handle.

What we claim and desire to patent is:—

1. A scrubbing device comprising a brush wheel having radially projecting bristles, an impulse water wheel alongside the brush wheel, said wheels having parallel and separated journals, a casing inclosing both said wheels within a common chamber, a speed-reducing driving connection between said wheels, a nozzle in position to discharge water upon the water wheel in a direction approximately toward that side of the brush wheel which is farthest removed from the axis of the water wheel, the inclosing casing having an opening for the projection of this side of the brush wheel, and also having an inclined portion adapted to deflect the discharge from the water wheel into the bristles of the projecting portion of the brush wheel.

2. A scrubbing device comprising a brush wheel mounted to turn upon a central shaft, an internally toothed wheel concentrically secured to one side of the brush wheel, an impulse water wheel having a pinion concentrically secured thereto and meshing with said gear, a nozzle adapted to discharge upon said water wheel, and a casing inclosing both wheels and having an opening at the side opposite the nozzle for the projection of the brush bristles, and also having a surface in position to receive the waste water from the water wheel and deflect it into the bristles of the brush wheel.

3. A scrubbing device comprising a brush wheel having peripherally projecting bristles, an impulse water wheel mounted to turn alongside the brush wheel, a speed-reducing connection between said wheels, a hollow handle-socket adapted to convey the water supply, a nozzle connected with said

handle socket and adapted to discharge upon
the water wheel, a casing inclosing both
wheels and having an opening opposite the
nozzle through which the brush projects,
5 said casing having an inclined portion in po-
sition to receive the waste water discharge
from the water wheel and deflect it into the
bristles of the brush wheel.

In testimony whereof we have hereunto

affixed our signatures this 9th day of May, 10
1910.

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THOMAS F. LINEGAR.
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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
