

(No Model.)

3 Sheets—Sheet 1.

H. TREICHLER.
WASHING MACHINE.

No. 555,591

Patented Mar. 3, 1896.

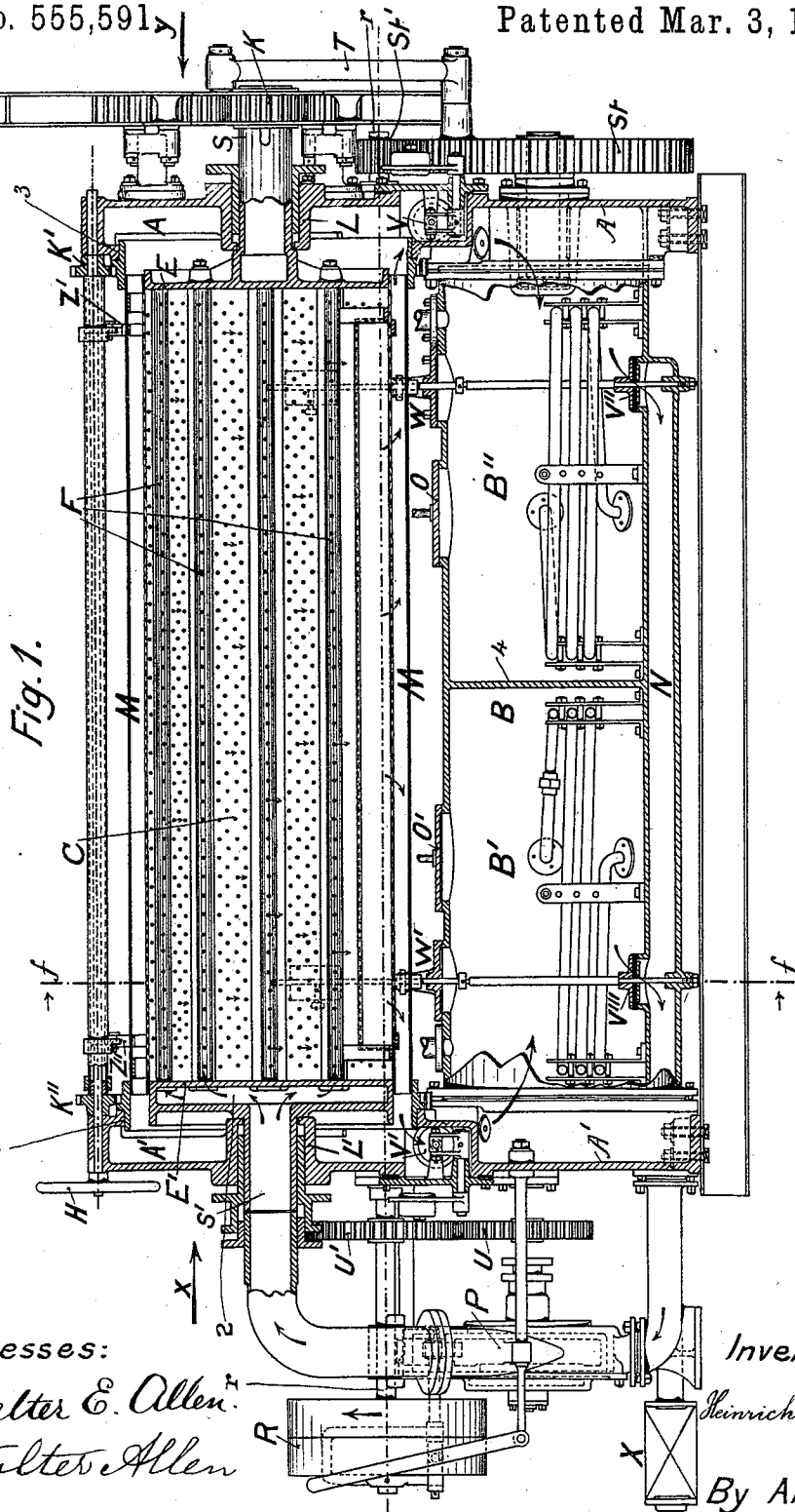


Fig. 1.

Witnesses:

Walter E. Allen.
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Inventor:

Heinrich Treichler.

By Attorney:

Herbert H. Jenner.

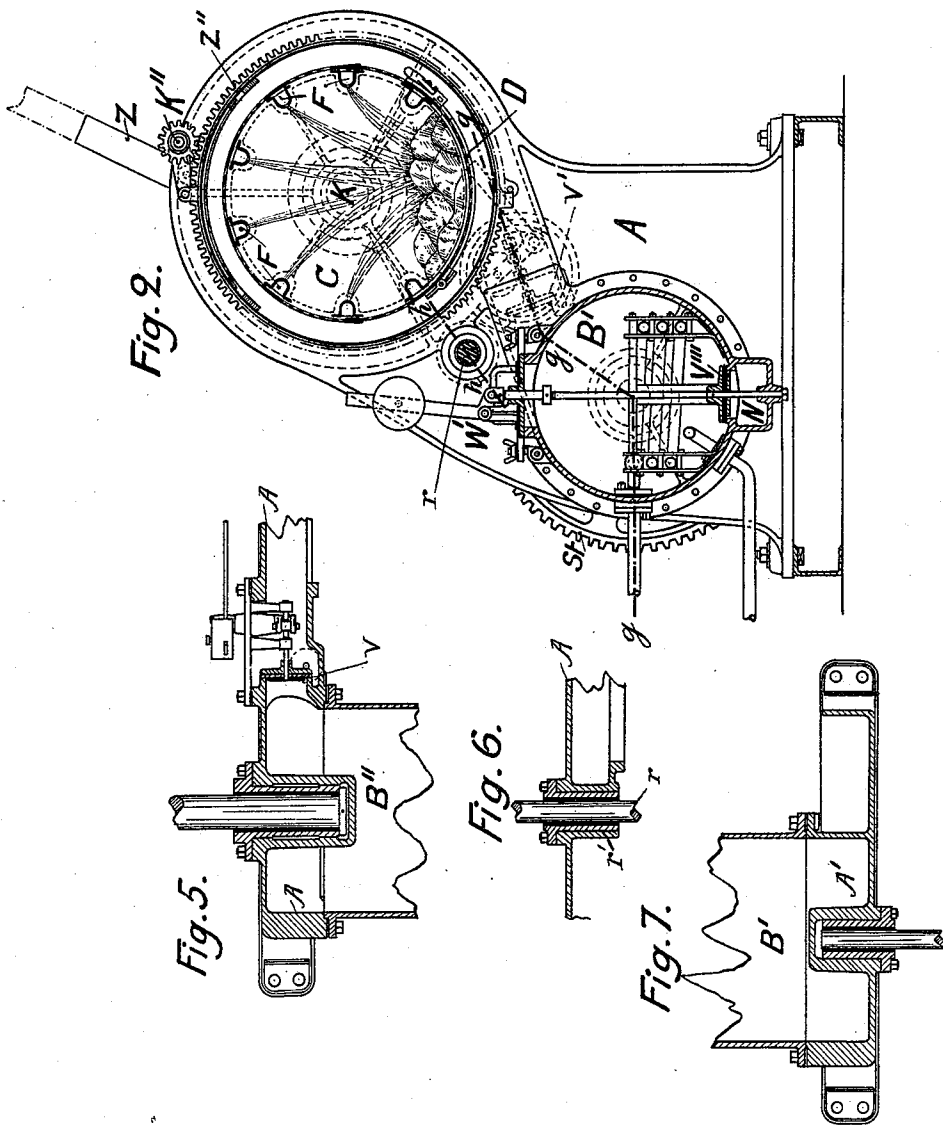
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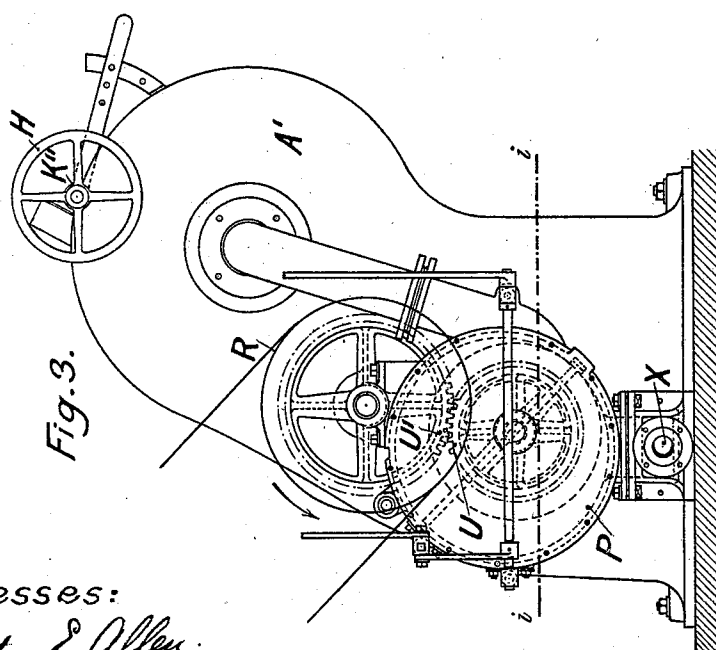
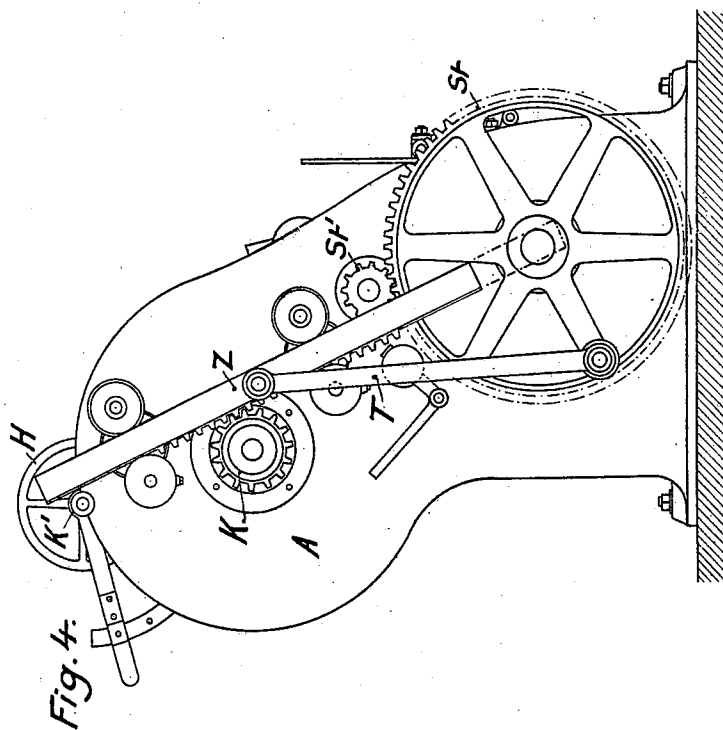
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Inventor:

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UNITED STATES PATENT OFFICE.

HEINRICH TREICHLER, OF WOLLISHOFEN, SWITZERLAND.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 555,591, dated March 3, 1896.

Application filed August 17, 1894. Renewed December 31, 1895. Serial No. 573,972. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH TREICHLER, a citizen of Switzerland, residing at Wollishofen, Switzerland, have invented certain new and useful Improvements in Washing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for washing and rinsing all kinds of fabrics; and it consists in the novel combination of parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a sectional front view of the apparatus. Fig. 2 is a cross-section of the apparatus, taken on line *ff* in Fig. 1. Fig. 3 is an end view at *x*, and Fig. 4 is an end view at *y* in Fig. 1. Fig. 5 is a section taken on the line *ggg* in Fig. 2. Fig. 6 is a section taken on the line *hh* in Fig. 2. Fig. 7 is a section taken on the line *iii* in Fig. 3.

Two hollow frames *A A'* are secured to the lower cylindrical receiver, *B*, so as to form one structure. These frames have bearings *L L'*, in which the axes *S S'* of the oscillating drum *C* work. These bearings are made in the form of stuffing-boxes containing packing material which prevents the leakage of the lubricating-oil into the cleaning liquid.

The articles to be washed are placed in the drum *C*, as shown in Fig. 2. This drum consists of a sheet-metal cylinder, in the periphery of which a number of very small perforations are formed in order to enable the lye or water to flow off rapidly. The drum *C* is provided with a door *D* of any approved construction that can be easily opened and closed for introducing and removing the objects, as shown in Fig. 2. The two ends of the drum *C* are closed by plates *E E'*, of which *E* carries an axis *S* running in the bearing *L* and receiving the motion of the driving-gear, and the plate *E'* has a tubular axis *S'*, through which the cleansing liquid is introduced for supplying the jet-tubes *F* of the drum *C*. For insuring the uniform supply of liquid to these jet-tubes *F* they are not connected directly to the pressure-supply pipe, but are connected to a chamber 2 formed in the hollow end plate, *E'*. The jet-tubes offer a very small sectional area of discharge-opening as com-

pared with the main supply-pipe, so that a considerable pressure can be maintained in them. A pressure-supply pump *P* is connected to the said chamber 2, as shown in Fig. 1.

The drum *C* is driven from the toothed wheel *St*, which is connected by a rod *T* to the toothed rack *Z* gearing into a toothed pinion *K* secured on the axis *S* of the drum *C*, so that the rotation of the wheel *St* imparts a reciprocating motion to the rack *Z* and causes the drum *C* to rotate in opposite directions alternately.

M is a sheet-metal casing for catching the washing liquid or rinsing-water which passes away from the drum *C*. The casing *M* has an opening corresponding to the door *D* and is carried in bearings 3 on the side frames *A A'*. The casing *M* can be revolved by means of a hand-wheel *H* and toothed wheels *K' K''*, gearing into toothed segments *Z' Z''*, secured to the periphery of the casing, so as to bring its opening opposite the door *D* for introducing and removing the articles. During the washing operation the opening of the casing *M* is situated at the top, and is closed by any suitable cover. The ends of the casing *M* are open and the liquid from the drum *C* is led off to the right hand or to the left hand, according to whether it is washing liquid or rinsing-water, and is discharged into the receiver *B*, which is divided by a central partition 4 into two similar compartments *B' B''*. For the purpose of regulating this discharge of liquid valves *V V'* are provided in the side frames *A A'*, and by opening one or the other of these valves the liquid is discharged into the right or the left hand compartment.

The compartments *B'' B'* have valves *V'' V'''*, which can be raised and lowered by means of bell-crank levers *W W'*, (see Fig. 2,) so that on opening the one or the other valve the corresponding compartment of the receiver *B* is put in communication with a trough *N* at the bottom of the receiver and leading to the force-pump *P*. Thus the liquid discharged from the drum *C* into the casing *M* flows thence into a compartment of the receiver *B*, whence it is led by the trough *N* to the pump *P*, which forces it back into the drum *C* through the jet-pipes *F*.

When the rinsing-water has been passed

through the drum a sufficient number of times, it can be allowed to flow away, and the compartment containing it can be charged with bluing-water.

5 When the washing-lye has been circulated a sufficient number of times, it is retained in the compartment B'', and a quantity of fresh lye is added to it, so as to restore it to its proper strength. It is then stored in the com-
10 partment B'', ready for the next washing operation. When the lye is completely exhausted or deteriorated, it is discharged through a valve at X.

The rinsing-water can be heated by intro-
15 ducing steam directly into it; but the lye should be heated by some approved form of steam-heating coils in order not to dilute it by the condensation of the steam.

For cleaning the compartments B' B'' and
20 charging them with liquid openings O O' are provided and are closed by hinged covers.

The apparatus can be driven either directly or indirectly. Pulleys R and belts may be used, as shown in Fig. 3, the motion being
25 transmitted from the driving-shaft *r* of the pulleys by toothed gearing U U' to the pump P and by the toothed wheel S' to the toothed wheels which drive the drum C.

The driving-shaft *r* passes longitudinally
30 across the machine and is carried in bearings *r'* where it passes through the hollow frames A A'. Fig. 7 shows the connection between the compartment B' and the hollow frame A'. The compartment B'' is connected to the hol-
35 low frame A in a similar manner.

In operating the machine the washing-drum is revolved to the right and to the left alter-
40 nately, thereby turning over the clothes in opposite directions, and the washing liquid is simultaneously forced against the clothes

from the jet-tubes at a pressure of about sixteen-feet water-head. The lye or washing liquid impinges against the clothes with considerable force and cleanses them by mechanical and chemical action. The waste lye
45 passes quickly through the perforated drum and the force of the jets of lye is not diminished by any liquid surrounding the clothes.

What I claim is—

1. In a washing-machine, the combination,
50 with a perforated drum, and a pump for forcing liquid into the drum; of a casing for receiving the liquid from the drum, a receiver divided into two compartments each provided with an inlet and an outlet valve, and a pipe
55 connecting the said outlet-valves with the pump, whereby washing and rinsing liquid can be forced alternately through the drum, substantially as set forth.

2. In a washing-machine, the combination,
60 with a perforated drum, a casing surrounding the drum, a receiver under the drum, said receiver being divided into two compartments each provided with an inlet and an outlet valve, and hollow frames provided with bear-
65 ings operating to support the said drum and its casing and having passages for conducting the liquids used in the washing-drum to the respective compartments of the receiver; of driving mechanism operating to revolve the
70 drum, a pump for forcing the liquids into the drum, and a pipe connecting the two said outlet-valves with the pump, substantially as set forth.

In testimony whereof I affix my signature
75 in presence of two witnesses.

HEINRICH TREICHLER.

Witnesses:

JULIUS UTTER,

HARDMEYER BLENLER.