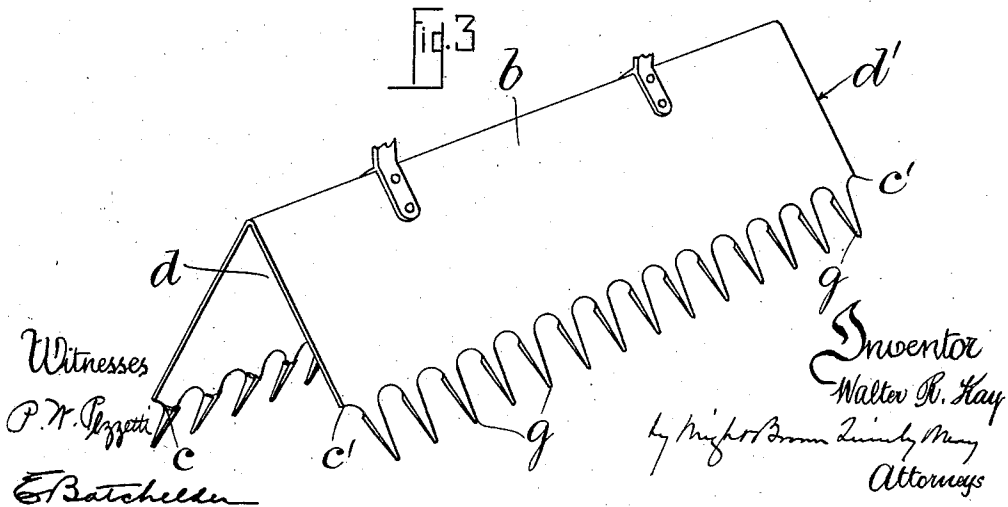
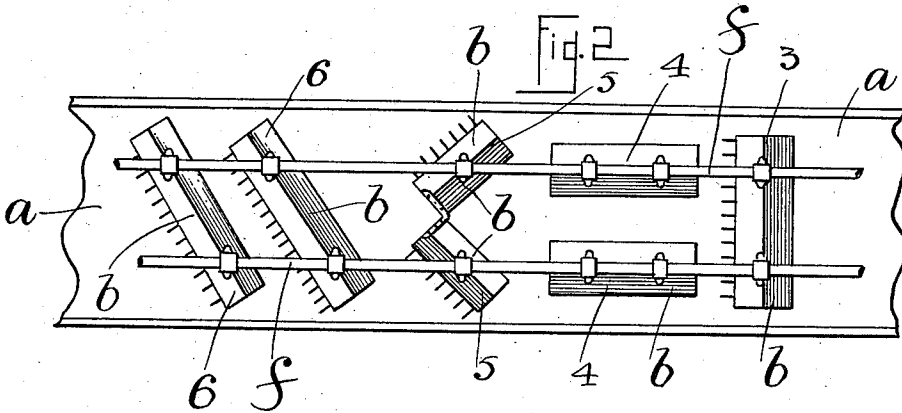
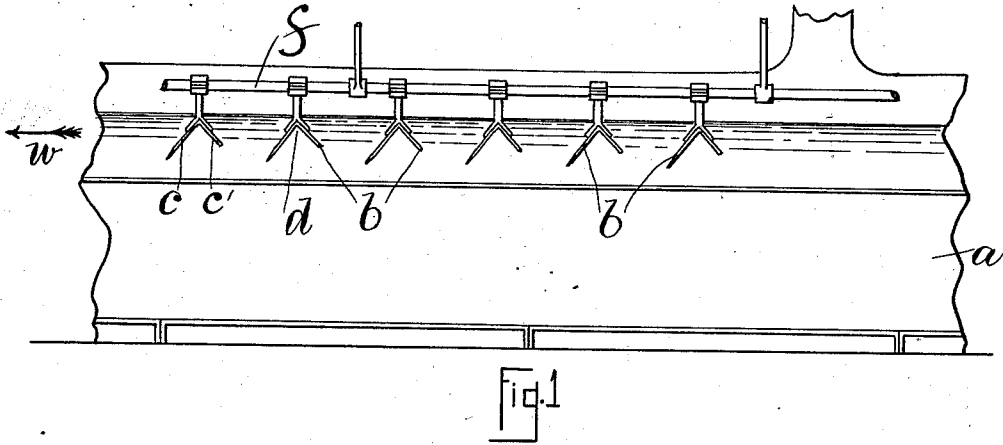


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 APPARATUS FOR WASHING FIBROUS SUBSTANCES.
 APPLICATION FILED NOV. 24, 1911.

1,065,947.

Patented July 1, 1913.



UNITED STATES PATENT OFFICE.

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APPARATUS FOR WASHING FIBROUS SUBSTANCES.

1,065,947.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed November 24, 1911. Serial No. 662,213.

To all whom it may concern:

Be it known that I, WALTER RAMSAY KAY, a subject of the King of Great Britain, and resident of Brookside, Cottingley, near Bingley, in the county of York, England, have invented certain new and Improved Apparatus for Washing Fibrous Substances, of which the following description, having reference to the accompanying sheet of drawings, is a specification.

My invention relates to machines for washing or scouring wool and other fibrous substances or the like and particularly to the type wherein such wool or fibrous substances is or are caused to travel through bowls or long troughs containing the washing liquids, and the object of my invention is to so construct the devices which carry the wool through said liquid that better results in the washing of said wool or fibrous substances are effected by reason of the washing liquid being caused to impinge upon or circulate through or among said fibrous substances more freely than heretofore and that without causing entanglement of said fibrous substances, as is the case when mere depressing or immersing devices are used in combination with additional devices for carrying the fibrous substances longitudinally through the bowls.

In carrying my invention into effect I make use of devices which will, on entering the liquid within the bowl or trough, force down or tend to force down said liquid in a vertical direction and then to cause said liquid to pass longitudinally along or through said trough, while on rising out of said bowl, said liquid is caused to flow in other directions and other currents are set up as will hereinafter be more fully explained.

In the accompanying sheet of drawings:—Figure 1 is a side elevation of sufficient of the apparatus to show the application of my improved parts. Fig. 2 is a plan showing my improved devices arranged in several positions. Fig. 3 is a perspective view showing the formation or construction of my improved device as hereinafter described.

To attain the object of my invention the rising and falling or reciprocating forks heretofore employed in the type of machine to which my invention relates, are partly dispensed with and in place of same in appropriate positions within the bowl *a* I

mount series of deflector plates *b* which are in the form of V shaped troughs, the apex of the V being at the top, while the splayed edges *c*, *c'* are beneath, and the outer ends at *d*, *d'* are open. Somewhat similarly formed plates but with inclosed ends have already been proposed to be used for immersing the fibrous substances within the bowls by having motion in a vertical direction, alone imparted to them. However the plates *b* of the improved form above described are, in accordance with my invention, mounted upon framework *f* which is caused to rise and descend as well as to travel horizontally through the liquid within the bowl *a* (as say, in the direction indicated by the arrow *w*) by any of the well known types of mechanism already in use. When these plates *b* enter the liquid vertically said liquid is caused to flow up within the inner inclined surfaces of said plates *b* (which surfaces are at an angle to the paths followed by said plates when entering the liquid) as well as laterally therefrom to rise above same, and when said plates are moved horizontally through the liquid said liquid is caused to flow in the direction of said horizontal movement, while when finally rising out of said liquid the tendency to leave the same on the part of said device causes such liquid to flow laterally and otherwise in order to cause eddies or cross currents, which I have found in practice to be of great benefit for the washing away of the dirt or foreign matter connected with the wool or fibrous substances being treated. I further find that such circulation of the liquid does not cause as much matting or stringing together of the fibers as do the devices heretofore made use of consequently the fibrous substances treated by my devices are more free and open and may be therefore more easily carried through the subsequent portions of their treatment.

The devices *b* formed as above described may be mounted in series crosswise the bowl *a* as is shown by Fig. 1, and at 3 by Fig. 2, or my devices *b* may be arranged longitudinally their framework *f* as is shown at 4—4 Fig. 2, or they may occupy relative positions as is shown at 5—5 Fig. 2; or again they may be arranged as shown at 6—6 Fig. 2, or a combination of these arrangements may be made use of as circumstances may determine as being necessary.

Along one or other or both of the lower

edges *c, c* of the devices *b* (but preferably only on the leading edge as shown at 3, Fig. 2) I form the prongs *g* which displace entirely the ordinary prongs heretofore employed at such parts of the apparatus where I mount my improved devices, although under certain conditions it may be desirable to have a series of the common prongs in one part of the bowl *a* with a series of my devices *b* in another part of said bowl *a*. These prongs *g* are formed integrally with the plates *b* by a process of stamping and bending them over as illustrated by Fig. 3, or I may form these prongs *g* separately from said plates and secure them thereon by rivets, bolts or otherwise as may be found advantageous.

Such being the nature and object of my invention, what I claim is:—

1. In machines for washing wool or other fibrous substances, deflector or depressing plates in the form of inverted V shaped troughs with their outer ends open substantially as herein specified.

2. In machines for washing wool and other fibrous substances, deflector or depressing plates in the form of inverted V-

shaped troughs having open ends, the same having prongs as *g* arranged along their leading lower edges, substantially as herein set forth.

3. In machines for washing wool or other fibrous substances a series of deflector or depressing plates in the form of inverted V-shaped troughs having open ends, the same being mounted upon their supporting framework to occupy positions lengthwise the washing bowl, substantially as set forth.

4. In machines for washing wool and other fibrous substances a series of deflector or depressing plates in the form of inverted V-shaped troughs having open ends, the same being mounted upon their supporting framework to occupy positions at angles other than right angles to their paths of motion in the washing bowl, substantially as set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

WALTER RAMSAY KAY.

Witnesses:

SAMUEL HEY,
FRED. HAMMOND.

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