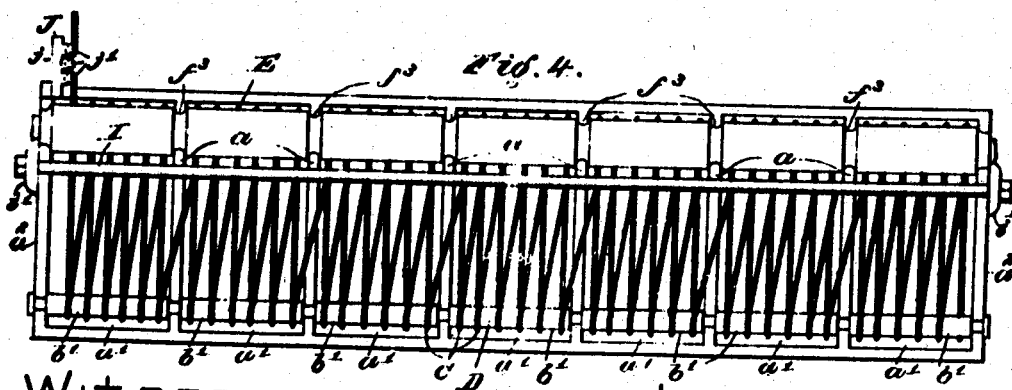
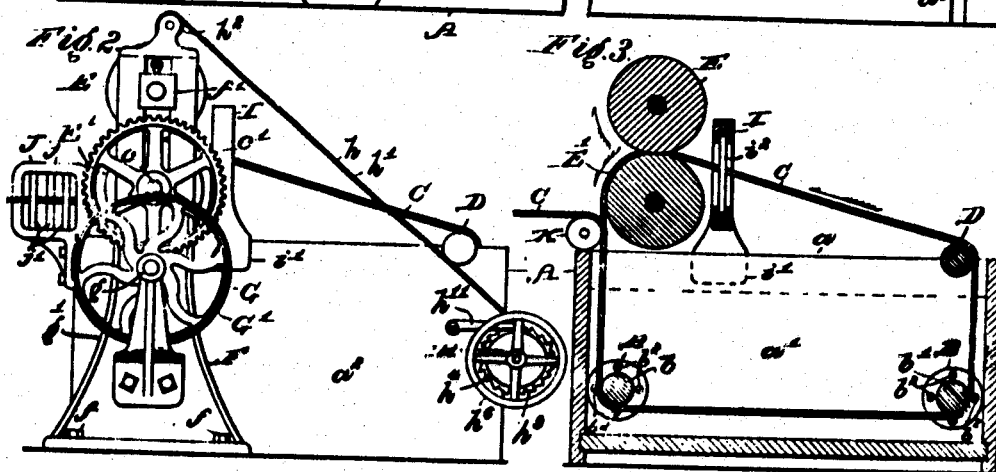
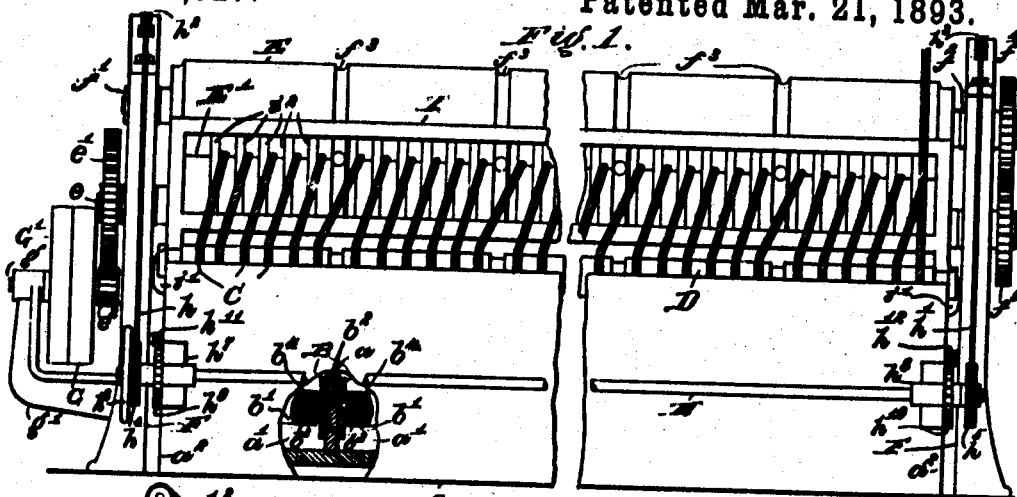


**No Model.)**

**M. H. KOHLRAUSCH.**  
**MACHINE FOR SCOURING CLOTH.**

**No. 493,627.**

Patented Mar. 21, 1893.



Witnesses.

Clark & Co. by de.  
Wm. H. B. B. B.

Inventor

Matthew H. Kohlrausch & Co.  
By Albert M. Moore,  
His Attorney.

# UNITED STATES PATENT OFFICE.

MATTHEW H. KOHLRAUSCH, OF BILLERICA, MASSACHUSETTS.

## MACHINE FOR SCOURING CLOTH.

SPECIFICATION forming part of Letters Patent No. 498,627, dated March 21, 1893.

Application filed March 14, 1892. Serial No. 424,749. (No model.)

*To all whom it may concern:*

Be it known that I, MATTHEW H. KOHLRAUSCH, a citizen of the United States, residing at Billerica, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Machines for Scouring Cloth, of which the following is a specification.

My invention relates to machines for scouring cloth and comprises a series of laterally-adjacent tanks with submerging rollers, arranged in each tank, and a carrier-roll and squeeze-rolls, common to all said tanks, and guides, arranged to conduct the cloth from each tank to the next tank, to pass the cloth successively through all said tanks without intermediate handling, and consists in the devices and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of a machine constructed according to my invention; Fig. 2, a left end elevation of the same; Fig. 3, a vertical section of any one of said tanks at right angles to its rolls and in the same plane a section of all the rolls and guides; Fig. 4, a plan of said machine, omitting the driving gearing.

In machines for scouring cloth or washing cloth, more particularly woollen cloths, to free them from dirt and grease in the wool or received during the process of manufacturing, it is customary to run the cloth through various waters and solutions of soaps and alkalies, each water or solution being contained in a separate tank or receptacle and the cloth requiring to be coiled and uncoiled each time it is changed from one tank to another, the cloth being laid in a heap or coil in the bottom of one tank and drawn back and forth through squeeze-rolls a sufficient number of times and deposited upon the floor or upon a suitable rack or table or in a suitable receptacle and being then placed in another tank containing a different solution of water of a different temperature and again passed repeatedly through squeeze rolls, there being a pair of squeeze-rolls to each tank, and so on successively through all the required number of tanks. Or, more commonly, a single tank is used and after passing the cloth a sufficient number of times through the tank, the water or liquid in the tank is emptied and

the tank filled with water of a different temperature or with a different solution and the cloth is again passed through the same tank, the tank requiring to be emptied and filled as many times as there are different waters or solutions used, much time being required in the filling and emptying of the tanks and the introduction of the cloth between the squeeze-rolls. The cloth during the scouring is gathered laterally into the form of a string.

My improvement saves time, avoids waste of the scouring solutions, saves labor and also floor-space, in cases where a separate tank is used for each water or solution.

In the drawings A represents a long tank divided by vertical transverse partitions *a* into a series of laterally-adjacent smaller tanks *a'*, each water-tight with respect to the adjacent tanks. In each of the tanks *a'* are arranged two submerging-rollers *b b'*, near the bottom of said tank and near the rear and front of said tank, each of said submerging rollers being supported at each end by a stud-plate B bolted to one of the partitions *a* or to the ends *a<sup>2</sup>* of the large tank A, as indicated at *b<sup>2</sup>* in Figs. 1 and 3 and each stud-plate having a central lateral projection *b<sup>3</sup>* which enters a corresponding depression *b<sup>4</sup>* in the adjacent end of the submerging roller supported thereby, to support the submerging rollers in a horizontal position and to allow them to be rotated by the friction of the cloth C. A carrier-roll D may be arranged immediately above the front row of submerging-rollers *b'*, and extended over all the small tanks *a'* and may have its bearing in half-round notches or half journal-boxes cut in the tops of the partitions *a* and end-pieces *a<sup>2</sup>*, said carrier-roll having annular grooves *d*, to receive said partitions and end-pieces, the bottoms of said grooves forming the journals of said carrier-rolls.

The horizontal squeeze-rolls E E' extend above all the tanks *a'* and are supported in stout pedestals or pillow-blocks F F' bolted, at *f f'*, to the floor of the apartment in which the machine stands, the upper squeeze-roll E being supported in sliding-boxes *f' f<sup>2</sup>*, the squeezing action of said rolls being, as usual, due to the weight of said upper squeeze-roll. The squeeze-rolls are preferably grooved at *f<sup>3</sup>* above each partition *a* and end-piece *a<sup>2</sup>*, to

prevent liquid from one tank, when pressed out of the cloth, from running on said rolls and dropping into another tank or on to the floor. The shaft *e* of the lower squeeze-roll has fast thereon a gear *e'* engaged by a pinion *e<sup>2</sup>* fast on the hub of a driving-pulley *G*, the latter being driven from any convenient motor to impart a rotary motion to the lower squeeze-roll, a loose pulley *G'* being arranged in the usual manner concentric with the pulley *G*, to receive said belt when the machine is not running, said pulleys *G* *G'* turning on a horizontal stud *g* supported by a bracket *g'*, bolted to the pillow-block at one end of the machine. The upper squeeze-roll is driven from the lower by means of gears *f<sup>1</sup>* *f<sup>2</sup>* of equal size, fast on the shafts of said squeeze-rolls respectively and engaging each other. The upper squeeze-roll may be raised away from the lower squeeze-roll by means of chains or wire ropes *h* *h'*, attached to the sliding boxes *f<sup>1</sup>* *f<sup>2</sup>* and passing over grooved idle-pulleys *h<sup>2</sup>* *h<sup>3</sup>* and on to other grooved pulleys *h<sup>4</sup>* *h<sup>5</sup>*, fast on the shaft *II*, said shaft *II* being rotated by a hand-wheel *h<sup>6</sup>* and being supported in suitable journal-boxes *h<sup>7</sup>* *h<sup>8</sup>*, bolted to the front of the large tank *A*, as shown in Figs. 1 and 2. To the shaft *II* is secured one or more ratchets *h<sup>9</sup>* *h<sup>10</sup>*, adapted to be held from rotation by pawls *h<sup>11</sup>* *h<sup>12</sup>*, pivoted on the end-pieces *a<sup>1</sup>*, to prevent the chains or ropes *h* *h'* from unwinding and to hold the squeeze-rolls out of contact when desired to introduce work into the machine or to take up slack places in the cloth which might otherwise allow the cloth to be wound around the squeeze-rolls.

Between the squeeze-rolls and the carrier-roll is arranged a guide *I*, consisting of a suitable rectangular frame *I'*, provided with ears *i'*, adapted to be bolted to the end-pieces *a<sup>2</sup>*, and consisting also of vertical parallel guide-bars *i*, the spaces between said bars guiding the cloth in its passage from the carrier-roll to the squeeze-roll.

The cloth is introduced into the machine through a tension-piece *J*, similar in construction to the guide *I* and having a frame *j* and vertical parallel bars *j'*, secured therein, said tension-piece standing at right angles to the guide and on the opposite side of the squeeze-roll therefrom and the proper tension on the cloth being secured by running it on opposite sides of alternate tension-bars *j'*. From the tension-piece the cloth passes over a grooved roll *K*, journaled above the back of the tank, down under the submerging-rolls over the carrier-roll *D*, through the guide *I* and between the squeeze-rolls, then down under the submerging-rollers, over the carrier-roll, through the guide and between the squeeze-rolls repeatedly, the rope of cloth being guided laterally, from the carrier-roll to the squeeze-rolls, away from the end of the

machine at which the cloth enters, so as to pass over each of the partitions *a* and to enter in succession all the tanks. As the cloth leaves the last of the small tanks, it is removed by a stripper or carrier-roll, not shown, but of usual construction in the usual manner.

In the drawings, seven of the small tanks *a'* are represented which may be used as follows:—The tank which the cloth first enters, the one at the left in Fig. 4, may contain hot water to take out the sizing from the warp threads; the next tank may contain an alkali, as soda or potash, to loosen and saponify the oil; the third tank may contain soap and water; the fourth, another solution of soap; the fifth, hot water to remove the greater part of the soap; the sixth, cold water; and the seventh, clear cold water which may be introduced in the form of a sheet or spray directed upon the cloth, in a well known manner, or in a continuous stream, the tank being provided with a suitable overflow or outlet in the usual manner.

I do not intend, however, to limit myself to any specific number of tanks, the number varying with the kind of goods and their treatment during the process of manufacture.

The pressure of the upper squeeze-roll upon the lower may be increased and regulated by levers and weights, in the usual manner, such levers and weights not being shown because being in common use and well understood.

I claim as my invention—

1. The combination of a series of laterally-adjacent tanks, submerging rollers, arranged in each tank, a carrier-roll and continuous squeeze-rolls, arranged longitudinally of said series of tanks and common to all said tanks, and guides, arranged to deflect the cloth in its passage from said carrier-roll to said feed-roll laterally and to guide said cloth from each tank to the next, as and for the purpose specified.

2. The combination of a tank, divided by vertical partitions into a series of laterally-adjacent tanks, submerging-rollers, supported in each of said last-named tanks, a carrier-roll and continuous squeeze-rolls arranged longitudinally of said series of tanks and extending above all said partitions, and a guide, arranged to conduct cloth from said carrier-roll above said partitions from one side to the other of each of said partitions, to pass such cloth successively through all said tanks without intermediate handling, as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 6th day of February, A. D. 1892.

MATTHEW H. KOHLRAUSCH.

Witnesses:

ALBERT M. MOORE,  
MYRTLE C. BEAL.