

(No Model.)

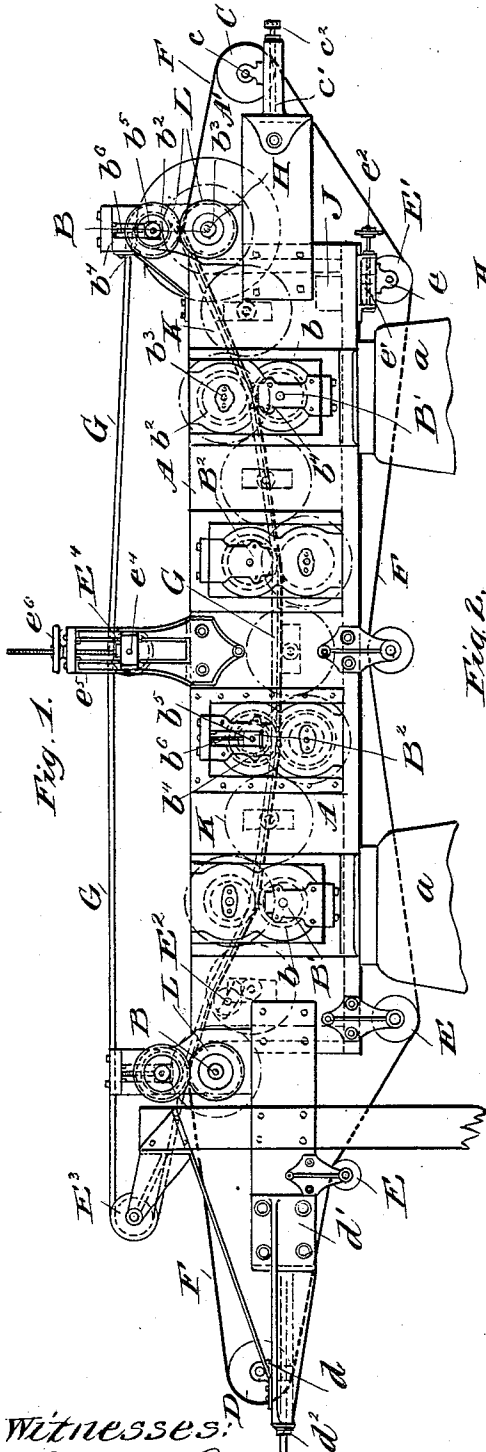
2 Sheets—Sheet 1.

T. BURNS.

APPARATUS FOR SCOURING AND WASHING SKINS, &c.

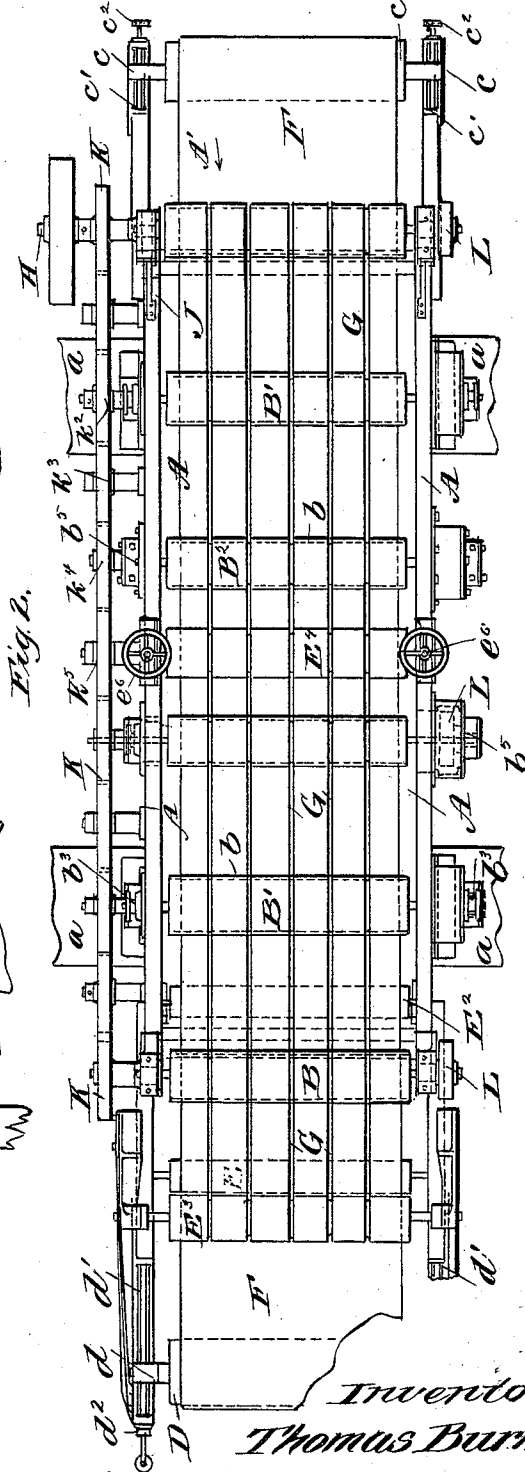
No. 478,499.

Patented July 5, 1892.



Witnesses:

L. C. Hills
 Ellsworth



Inventor:

Thomas Burns

by Meredith Bailey
his Atty.

(No Model.)

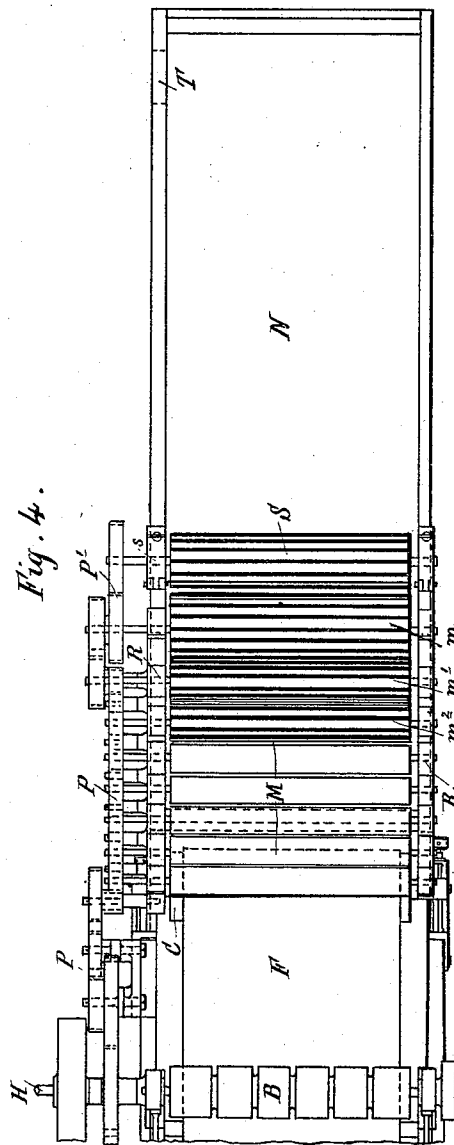
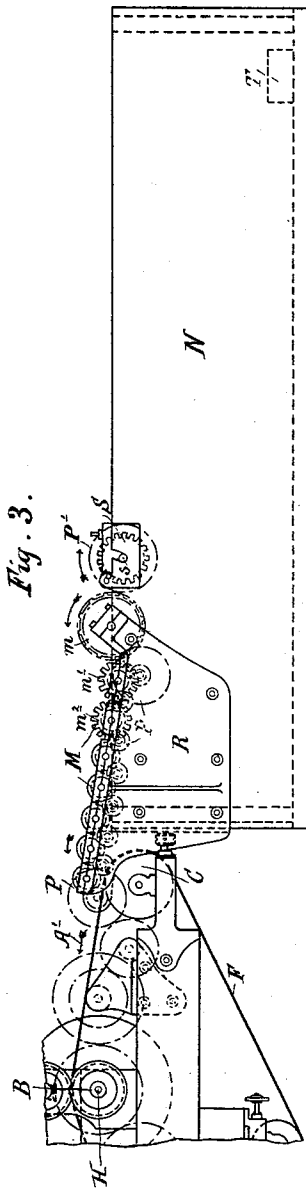
2 Sheets—Sheet 2.

T. BURNS.

APPARATUS FOR SCOURING AND WASHING SKINS, &c.

No. 478,499.

Patented July 5, 1892.



Witnesses:

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J. B. Keefe

Inventor:

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by Marshall Bailey

his Attorney.

UNITED STATES PATENT OFFICE.

THOMAS BURNS, OF EDINBURGH, SCOTLAND.

APPARATUS FOR SCOURING AND WASHING SKINS, &c.

SPECIFICATION forming part of Letters Patent No. 478,499, dated July 5, 1892.

Application filed September 13, 1889. Serial No. 323,886. (No model.) Patented in England February 9, 1889, No. 2,311, and July 10, 1889, No. 11,133; in Victoria August 20, 1889, No. 7,013; in South Australia August 20, 1889, No. 1,397; in New South Wales August 21, 1889, No. 1,639; in Queensland August 22, 1889, No. 826; in New Zealand August 29, 1889, No. 3,918, and in Canada October 27, 1891, No. 37,692.

To all whom it may concern:

Be it known that I, THOMAS BURNS, skinner, tanner, and wool merchant, a subject of the Queen of Great Britain and Ireland, of Messrs. White, Burns & Co., Bonnington Skin Works, and 1 Pilrig Street, Edinburgh, in the county of Mid-Lothian, Scotland, have invented Machinery or Apparatus for Scouring and Washing Skins and Wool and Analogous Materials, (for which I have obtained Letters Patent in the United Kingdom of Great Britain, dated February 9, 1889, No. 2,311, and dated July 10, 1889, No. 11,133, respectively; in New Zealand, dated August 29, 1889, No. 3,918; in New South Wales, dated August 21, 1889, No. 1,639; in Queensland, dated August 22, 1889, No. 826; in Victoria, dated August 20, 1889, No. 7,013; in Australia, dated August 20, 1889, No. 1,397, and in Canada, dated October 27, 1891, No. 37,692;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to machinery or apparatus for scouring and washing skins and wool and analogous materials, and has for its objects to facilitate the said scouring and washing operations, these operations being done in a much more efficient manner, with practically no loss of wool, in less time, and at less expense than is obtainable at present by the hand process.

In carrying out my said invention I employ a large oblong trough, through which I cause a continual flow of water to pass, and having a suitable number of pairs of squeezers mounted at intervals along its length, the said squeezers being preferably a pair of rollers capable of adjustment, so as to regulate the pressure on the material being washed or scoured. This trough also carries the necessary entering, adjusting, and guiding rollers, as also the leading band or rollers and guiding-ropes for the leading through of the material; and, further, I employ another oblong trough, through which a continual flow of water passes, for steeping the skins in, this trough having mounted at its one end a num-

ber of rollers (some of which are formed with spurs or grooves along their length) for feeding the material out of the steeping-trough onto the leading band or rollers of the first-mentioned trough. The said rollers and squeezers which require to be driven are driven by means of spur-gearing, endless band, chain, and chain-wheels or their equivalents from one or more main driving-shafts, these driving-shafts being driven by steam, hand, or horse power.

In cases where skins which have been treated with lime or other substances on their flesh sides are to be washed or scoured I may mount a spurred or grooved roller across the steeping-trough immediately in front of the entering set of rollers, and which I drive in the opposite direction to that of the other rollers, so that the spurs or top edges of grooves scrape the flesh side of the skin as it passes over it. The said troughs and their connections may be built upon suitable foundations and used as fixtures, or they may be mounted on wheels in any suitable manner and therefore made portable and capable of being moved from place to place. The said troughs may also be used jointly with one another or separately, as desired.

In order that my said invention may be more readily carried into effect and more easily understood, I will now proceed to describe it with reference to the annexed drawings.

In the drawings, Figures 1 and 2, Sheet 1, are elevation and plan of that part of my said invention which I term the "washing" and "scouring" machinery as used for skins. Figs. 3 and 4, Sheet 2, are elevation and plan of that part of my said invention which I term my "steeping-trough" and "entering set of rollers," as used for skins and shown in conjunction with the entering end of my washing and scouring machinery.

A, Figs. 1 and 2, Sheet 1, is a large oblong trough or box, made of wood, iron, or other material, for holding water, which is caused to flow continuously in and out by any suitable means. The said trough may be mounted in any suitable manner to foundations α as a fixture, or it may be mounted on wheels, so

as to be portable and therefore capable of being moved from one place to another. This trough carries a number of pairs of squeezers B, B', and B², entering-roller C, discharge-roller D, guide-rollers E, E', E², E³, and E⁴, endless band F, guide-ropes G, driving-shaft H, and gearing K, the said rollers, driving-shaft, and gearing being all carried in suitable bearings either formed on the said trough or attached thereto by any suitable means. For allowing of the said trough being cleaned out, when desired, I may provide one or more openings J in or near its bottom, the said openings being capable of closing by any suitable means.

As shown in the drawings, I preferably employ six pairs of squeezers B, B', and B², (though I may use any other number of pairs of squeezers,) some of them working under, some in, and some above the water and mounted across the trough at intervals along its length, the said squeezers being preferably a pair of wooden or iron rollers packed or covered with yarn, rope, or india-rubber b, so as to form a yielding surface, and so mounted that the desired degree of pressure may be applied on the material passing through them, the said pressure being obtained by mounting the one roller b² in fixed or stationary bearings b³, while the other roller b⁴ is carried in sliding or movable bearings b⁵, which are also provided with spiral or other springs b⁶ and the necessary screw arrangement for adjusting the pressure on the springs, the said squeezers being driven in any suitable manner from the main driving-shaft by means of spur-wheel gearing, endless band, chain and chain-wheels, or their mechanical equivalents, but preferably by keying a spur-wheel k, Fig. 2, onto the driving-shaft H, which carries the bottom roller of the first set of squeezers B. The said spur-wheel transmits its power into an intermediate wheel k', thence into an intermediate k² on top roller of squeezers B', thence into an intermediate k³, thence into a driver k⁴, keyed on the bottom roller of the squeezers B², thence into a central intermediate k⁵, from which it repeats the same routine, only backward, till it expends itself at end squeezers B, the top rollers on the pairs of squeezers B and B² being driven from the under ones by means of spur-wheels L, the said driving-shaft H being driven by steam, hand, or horse power.

For the purpose of carrying or leading the material to be washed through the said squeezers I employ an endless band F, of wire-cloth, cloth, or belting, which is caused to pass over the under rollers of the squeezers B, B', and B² and partly round the entering-roller C, the discharge-roller D, and guide-rollers E and E', the said endless band being tightened or slackened by means of mounting the entering-roller C or the discharge-roller D, or both, as shown, in sliding or movable bearings c d, which are carried in suitably grooved or recessed brackets c' d', which

are either formed on the said trough or attached thereto by suitable means and provided with the necessary screw arrangements c² d², the said band being also adjustable transversely by means of mounting the one end of the guide-roller E' in a movable bearing e, carried in a suitable bracket e' and provided with the necessary screw adjusting arrangement e², the opposite end of said guide-roller working in an oval journal to allow of its movement.

In order to guide the material in passing through the squeezers and so prevent it from getting out of place or winding round any of the top rollers, I employ three, five, or any number of endless ropes G, which I cause to pass under the top rollers of the squeezers and over the grooved guide-rollers E³ and E⁴, the said ropes working in grooves formed in the said top rollers of the squeezers, the said grooves being such that the rope fills up the space of groove, so that an equal surface is always pressing on the material, the said ropes being capable of adjustment—that is, tightened or slackened—by means of the guide-roller E⁴ being carried in movable bearings e⁴, which work in suitable grooved or recessed brackets e⁵, formed on or fixed to the said trough, and provided with the necessary screw adjusting arrangement e⁶. All the rollers hereinbefore mentioned may be made of wood or iron, or both, or any other suitable material. The flow of water into the said trough is preferably such that the clean water on entering the machine falls on top of the small guide-roller E², (which is here mounted to prevent the weight of the falling water from bagging the endless band F,) and thus comes into contact with the material immediately before it passes out of the machine, or when the material is nearly cleaned. The water then passes out of the machine by overflowing in its dirtiest state at the entering end A', where it comes in contact with the material in its dirty state as it enters the machine, though I may use any other arrangement of water supply and outlet. As a modification of my said endless band for carrying or leading the material through the squeezers I may employ in lieu thereof a number of sets of small wooden or iron rollers, each set being so mounted as to occupy the space between each pair of the squeezers, and I also mount another set of these rollers at the entering end of the machine for the purpose of leading the material to the first pair of squeezers, these rollers being all driven by spur-gearing, endless band, or chain and chain-wheels from the main driving-shaft, this modification doing away with the endless band, guide, and adjusting-rollers for same, as hereinbefore described.

N, Figs. 3 and 4, Sheet 2, is the steeping-trough, preferably oblong in shape and made of wood, iron, or other material, through which a continual flow of water is caused to pass, the said flow preferably entering at the

end where the rollers are mounted and passing out at the other. This trough carries a number (preferably eight) of entering-rollers M at its one end. The said rollers may be
 5 made of wood, iron, or other suitable material and mounted in suitable bearings either formed on the trough or on suitable brackets R, which are fixed to the trough by bolts or their equivalents, and preferably driven from
 10 the main driving-shaft H of the washing or scouring machinery by means of spur-gearing P, endless band, chain and chain-wheels, or their equivalents, though I may, if desired, provide a separate driving-shaft for them on
 15 the said trough. These rollers M are preferably arranged as shown, m being a spur or grooved roller of, say, about twelve inches in diameter, m' and m'' being two smaller spur or grooved rollers, and the remainder plain
 20 rollers, so that on the material or skin being lifted from the trough and placed on top of the spur-roller m the spurs tend to pull the material or skin up onto the other rollers, which then lead it on till it falls on the endless leading-band F of the washing or scouring machinery. This band then enters them
 25 into the said machinery.

Where lime or other substances are used for preserving or cleaning the flesh sides of the skins, I mount another spur or grooved
 30 roller S in suitable bearings s , these being so formed as to allow of the roller's removal when not required. This roller is driven in the opposite direction to that of the others by means of spur-gearing P' or its equivalent, so
 35 that as the skins are being drawn up from the trough by the rollers M the spurs on the roller S rub or scrape the lime off the flesh side of the skins before they enter the machinery.
 40 The said trough N may be mounted on suitable foundations as a fixture or it may be mounted on wheels, so as to be portable and capable of being moved from place to place, and for the purpose of cleaning it out or run-

ning off the water I may provide one or more 45 suitable openings T in or near its bottom, the said openings being provided with suitable doors or covers.

If desired, I may use my first-mentioned trough and mountings as machinery or appa- 50 ratus for scouring and washing and dispense with the steeping-trough and its mountings, though when skins are being washed or scoured I prefer to use both troughs jointly.

I claim—

1. In machinery or apparatus for scouring 55 and washing skins, wool, &c., the combination of the tank A, carrying a series of squeezing-rolls and grooved guide-rollers E, E', and E'', an endless band F, passing about said guide- 60 rollers and between the squeezing-rolls, adjustable pulleys C and D for regulating the tension of the endless band, endless ropes G, passing around grooved guide-rollers E³ E⁴ and between the squeezing-rolls, and gearing 65 for connecting together and simultaneously driving the squeezing-rolls, substantially as described.

2. In a machine or apparatus for scouring and washing skins, wool, &c., the combination 70 of a tank of ordinary or suitable construction carrying a series of squeezing-rolls, a steeping-trough N, carrying a series of entering-rollers mounted upon the end of said trough, a spur-gear P, and means for connecting to- 75 gether and driving the gearing of the tank and trough simultaneously, substantially as hereinbefore set forth.

In testimony whereof I have signed my name to this specification in the presence of 80 two subscribing witnesses.

THOMAS BURNS.

Witnesses:

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 JAMES TATE JOHNSON,
115 St. Vincent Street, Glasgow.