G. BAILEY.

MEANS FOR SCOURING YARNS OR THREADS OF FIBROUS SUBSTANCES.

APPLICATION FILED JULY 7, 1915.

1,315,698

Patented Sept. 9, 1919.

2 SHEETS—SHEET 1.

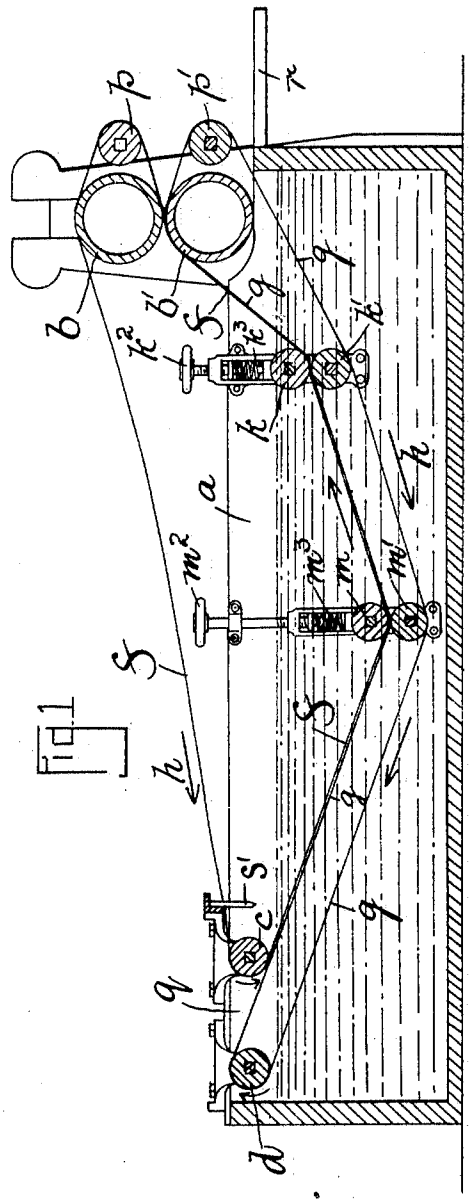

Fig. 1

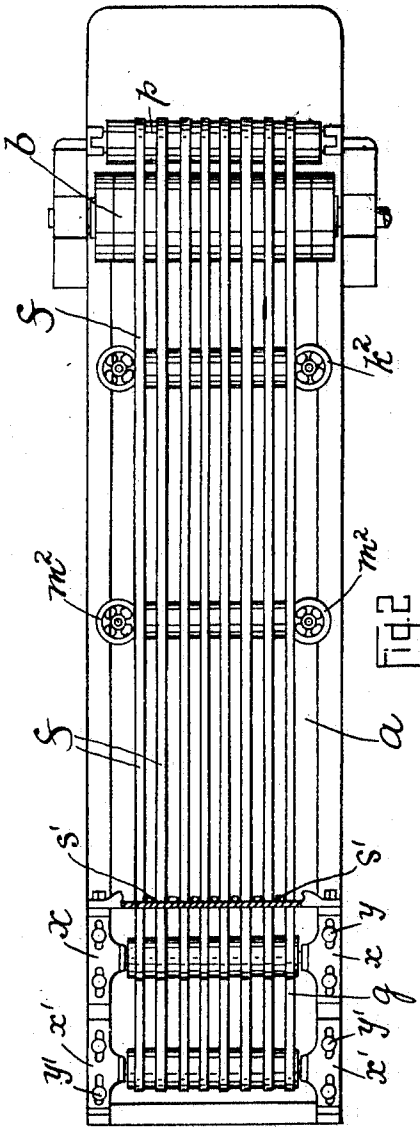

Fig. 2

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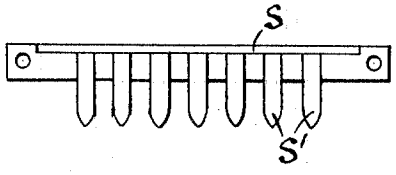

Fig. 3

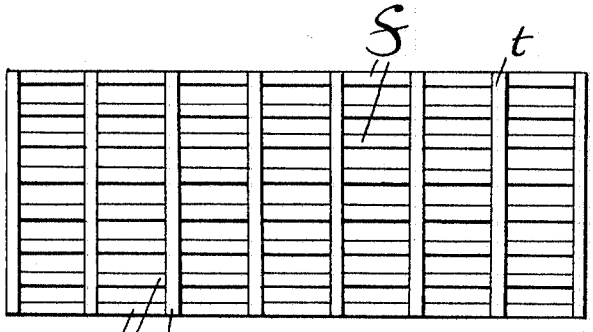

Fig. 4

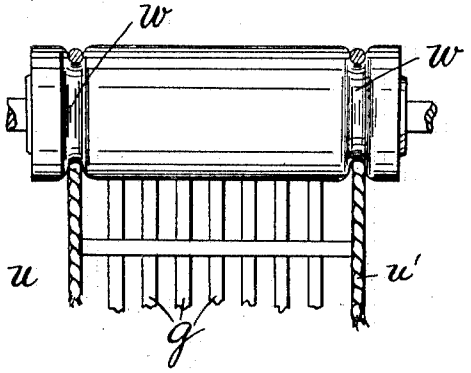

Fig. 5

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UNITED STATES PATENT OFFICE.

GREENWOOD BAILEY, OF BRADFORD, ENGLAND.

MEANS FOR SCOURING YARNS OR THREADS OF FIBROUS SUBSTANCES.

1,315,698. Specification of Letters Patent. Patented Sept. 9, 1919.

Application filed July 7, 1915. Serial No. 38,613.

To all whom it may concern:

Be it known that I, GREENWOOD BAILEY, a subject of the King of Great Britain, and resident of 38 Aireville road, Frizinghall, Bradford, in the county of York, England, have invented a certain new and useful Improvement in the Means for Scouring Yarns or Threads of Fibrous Substances, of which the following description, having reference to the accompanying sheets of drawings, is a specification.

This invention relates to apparatus or mechanism whereby hanks of yarns or other similar forms of material may be scoured and that at a comparatively quick rate of speed and with greater efficiency and with less entanglements than has heretofore been the case.

In the accompanying sheets of drawings which are illustrative of my invention:—

Figure 1 is a longitudinal sectional side elevation of apparatus constructed in accordance with my invention.

Fig. 2 is a plan of my improved apparatus.

Fig. 3 illustrates a guiding part in detail hereinafter described.

Fig. 4 is a plan showing an arrangement of certain of the parts hereinafter explained.

Fig. 5 illustrates a roller constructed so as to keep certain parts in their proper paths while the machine is in operation.

In carrying my invention into effect I make use of a comparatively long washing bowl *a* into which I place the liquids or suds that are used for scouring or washing the yarns. At an appropriate part near one end of this bowl *a* I mount squeezing or pressing rollers *b*, *b'* which are arranged so that pressure may be applied to same to a greater or less extent by weights or springs in manner well known. At or near the opposite end of the wash bowl *a* I mount two rollers *c* and *d* whose centers are approximately in the same horizontal plane, the roller *d* being nearer the end of the bowl *a* than is the roller *c*. Taking around the rollers *b* and *c* is a series of tapes *f*, while taking around the rollers *b'* and *d* is another series of tapes *g*, so that as the rollers *b*, *b'* are rotated the two series of tapes *f* and *g* pass between them and are caused to travel around the rollers *c* and *d* in the directions indicated by the arrows *h*. These two series of tapes are conducted into the liquid within the bowl *a* by passing beneath additional pressing rollers *k*, *k'* and *m*, *m'*, which, by the hand wheels k^2 and m^2 respectively and springs k^3 and m^3 are caused to be pressed together more or less firmly as circumstances may render advisable. The two series of tapes *f* and *g* are also conducted around guiding rollers *p*, *p'* at the end of the machine so that as these tapes travel around in their several paths, these rollers *p*, *p'* separate them for purposes hereinafter described.

The actions of the apparatus are as follows:—The two series of guiding tapes *f* and *g* are conducted by their guiding rollers, as hereinbefore described, so that the lower portion of the series *f* comes into contact with the upper portion of the series *g*, throughout their paths between the roller *b* and the roller *c*, while said upper portion of the tapes *g* between the roller *c* and *d* is free of access to the operator, whereby he is enabled to place his hanks of yarn as at *q* upon said upper parts of the tapes *g*, in order that as these travel forward said hanks of yarn are caused to pass beneath the roller *c* and are carried between the tapes *f* and *g* down to the rollers *m*, *m'* forward between the rollers *k*, *k'* from which they travel forward to the rollers *b*, *b'* in order that they may pass beyond same to be delivered over the edge of the roller *p'* to fall on to the board *r* or other part that may be there mounted to receive them. Thus the hanks of yarn are carried through the liquor in the bowl *a* in a sufficiently free state to permit said liquor to rush or wash through same, while yet they are held from moving so that one thread cannot become entangled with another thread as is the case when the ordinary process of scouring (as agitating by hand in a wash bowl) is carried out.

As the hanks of yarn or the like travel between the series of tapes *f* and *g* through the tank *a* on reaching the pressing rollers *m*, *m'* the liquor is somewhat squeezed out of them, and after this squeezing or pressing operation fresh liquor rushes to take the place of the former both when leaving

the rollers m, m' and the rollers k, k', until finally ascending out of the bowl a and passing between the rollers b, b' where the final pressing or squeezing operation is carried out so that said hanks are delivered beyond the roller p' comparatively free from moisture.

Instead of the board or receptacle at r being made use of it is obvious that I might arrange another series of traveling tapes to receive the hanks as they are passed over the roller p' and arrange said tapes to carry said hanks through an inclosed drying chamber where currents of air might be drawn or forced through them so as to efficiently dry same.

Although I have herein described the employment of my devices in connection with only one bowl, it is obvious that I might make use of same in connection with two or more bowls by arranging the guiding rollers accordingly.

In order to keep each tape f or g separate from its neighboring tapes I make use of a guiding device s, the fingers s' of which extend vertically between the tapes, as shown by Fig. 1, or where I do not wish to use a guiding device of this character the tapes may be kept at the proper distance apart by having cross tapes t, as shown by Figs. 4 and 5 so that by holding the cross tapes in a state of tension laterally the series of tapes are thus kept in their proper paths and at their respective distances apart.

In making use of this arrangement I may have a cord or rope forming the outer edge of the series of tapes somewhat as shown by Fig. 5, in which case the rollers will have grooves w formed in them to receive said guiding ropes u, u'.

In order to be enabled to maintain the two series of tapes f and g at the proper tension, supports x, x' for the rollers c and d respectively are made so that they may be adjusted at a greater or less distance from the rollers b, b', where they may be fixed or secured by their fixing bolts y, y'.

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

1. The herein described apparatus for scouring and treating hanks of yarn comprising a tank, a pair of guide rollers at one end of the tank adjacent to the upper edge thereof, superposed pressure rollers at the other end of the tank and adjacent to the upper edge thereof, an upper and lower series of tapes, each series being passed around a pressure and a guide roller, the lower series of tapes being within the tank, and a pair of pressure rollers submerged within said tank and arranged between said guide rollers and said first pressure rollers, and further having the lower portion of the upper series of tapes and the upper portion of the lower series passing therebetween, said guide rollers being spaced apart and arranged in the same horizontal plane to provide an upwardly open receiving mouth.

2. The herein described apparatus for scouring and treating hanks of yarn comprising a tank, a pair of guide rollers at one end of the tank adjacent to the upper edge thereof, said rollers being spaced apart and arranged in the same horizontal plane, superposed pressure rollers at the other end of the tank and adjacent to the upper edge thereof, two series of tapes, each series being passed around a pressure and a guide roller, other pressure rollers submerged within the tank and arranged between said guide rollers and said first pressure rollers, and further having the lower portion of the upper series of tapes and the upper portion of said lower series passed therebetween, said guide rollers being adjustable relative to said first pressure rollers to vary the tension on said series of tapes.

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Witness:
R. B. NICHOLLS.

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