

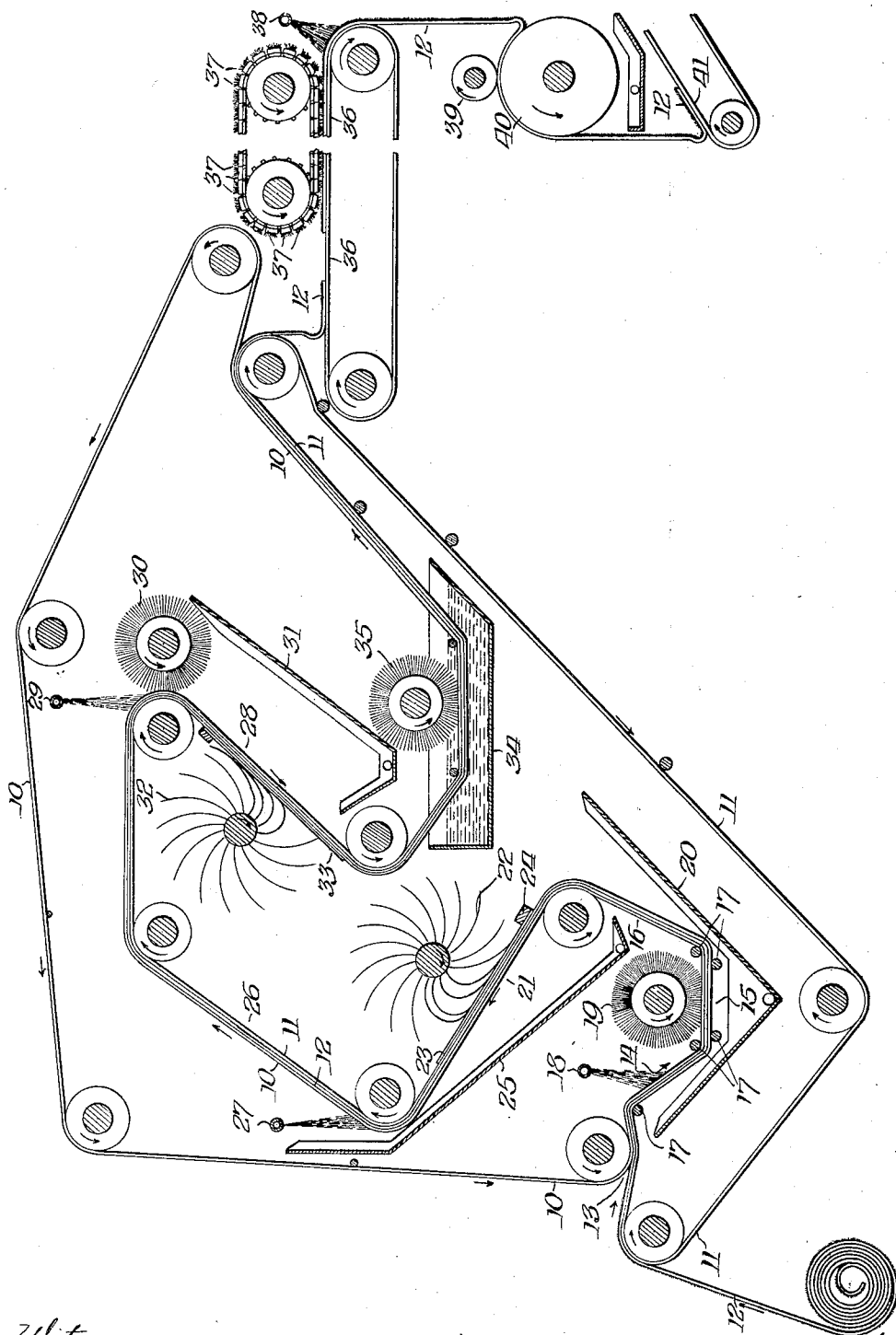
Aug. 25, 1931.

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1,820,048

METHOD OF CLEANING PILE FABRICS

Filed March 18, 1926



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METHOD OF CLEANING PILE FABRICS

Application filed March 18, 1926. Serial No. 95,506.

This invention has to do with the cleaning of carpets, rugs and analagous pile fabrics, and contemplates in particular a wet as distinguished from a dry treatment in the initial stages to remove the dirt and dust bodily imprisoned within the fabric, coupled with a later cleansing operation to remove discoloration.

In cleaning pile fabrics of the character described, it has been the practice to beat the dirty fabric before washing it, whereby to remove a substantial part of the loose dirt in the form of dust. The beating operation has always been unsanitary owing to the difficulty experienced in attempting to control the dust when leaving the fabric, but has been employed because it was thought to be the only effective way in which the sand and other grit present in the dirt in the fabric could be removed before the washing operation.

The object of the invention is to provide an improved method of cleaning pile fabrics, in accordance with which the fabric is beaten or vibrated in a wet condition prior to the washing operation.

While the foregoing statement is indicative in a general way of the nature of the invention, other objects and advantages will be evident to those skilled in the art upon a full understanding of the method.

In the accompanying drawing is shown rather schematically in a single view a form of apparatus which may be employed in practicing the method. It will be understood, however, that the method is not limited to use only in connection with the form of apparatus shown, but is susceptible of employment with other quite different forms. It will also be understood that the method is not restricted to the inclusion of all of the intermediate steps hereinafter described in the presentation of the exemplifying embodiment.

The apparatus illustrated in the drawing includes two sets 10 and 11 of continuously moving endless chains, and the carpet 12 or other pile fabric to be cleaned is fed in between the chains at 13, the carpet as-

suming an outspread position between the chains with the pile side up.

The chains carry the carpet first downwardly at an inclination at 14, then horizontally a short distance at 15 and then upwardly again at an inclination at 16; suitably arranged rollers 17 being used to guide the chains and carpet in such movement. As the carpet moves downwardly at 14, water or other suitable liquid is directed onto the same from a conduit 18, and the water thus applied to the carpet forms in a puddle thereon at 15, where it is thoroughly worked into the pile by a revolving brush 19. The grit and dust embedded in and encrusted about the pile is as a consequence loosened and converted into the form of mud, but remains in and on the pile as the carpet moves upwardly at 16. A suitably drained pan 20 is located below and about the depression through which the carpet moves at 15, and serves to catch the overflow of water from the puddle on the carpet at that point.

After leaving the zone of the brush 19, the carpet is carried around a roller and upwardly again at a reversed inclination, at 21, and, during such movement, a rapidly rotating beater 22 acts against the back of the carpet, preferably through an interposed protective sheet 23, which sheet is fastened along one edge to a support 24 and is maintained in an outspread position under the beater and against the back of the carpet by the movement of the latter. The carpet is thus vigorously beaten and vibrated, and a good part of the mud on and in the pile is thrown out. A suitable drain pan 25 is located opposite the beater 22, and serves to catch the material discharged from the carpet. After leaving the zone of the beater 22, the carpet is carried around a roller and upwardly again at a reversed inclination, at 26, and, while the pile of the carpet is spread apart in passing around the roller, water or other liquid is directed into the same from a conduit 27, which water, after rinsing off the pile, is discharged into the pan 25.

At a point further along the carpet is car-

ried around a roller and downwardly at an inclination, at 28, and, while the pile is again spread apart in passing around the roller, more water or other liquid is directed into the pile from a conduit 29. As the water flows downwardly in the spread pile, it is thoroughly worked into and about the base of the same by a second revolving brush 30, and is thereafter discharged into a suitably drained pan 31.

During the downward movement of the carpet at 28, a second rapidly rotating beater 32 acts against the back of the same, preferably through a sheet 33 similar to the sheet 23, and the carpet is again beaten and vibrated, which treatment causes practically all of the remaining mud in the pile to be thrown out into the pan 31.

After the second beating operation, the carpet is carried through a tank 34 which is filled with a cleaning solution, such as liquid soap. While the carpet is immersed in the solution, the pile is gently worked by a slowly rotating brush 35, and the solution is as a consequence brought into contact with all portions of the pile.

From the tank 34 the carpet is carried upwardly at an inclination and deposited by the chains 10 and 11 onto a moving table 36, where a washing operation is performed on the carpet by an endless series of brushes 37, which brushes move in the same direction as the table at a slightly greater speed with adjoining brushes reciprocating transversely in opposite directions. The brushes 37 not only serve to massage the pile thoroughly, but act with the table 36 to feed the carpet forwardly, thus eliminating the necessity of clamps in connection with the table, and permitting carpets of irregular shape to be handled with the same facility as those of rectangular shape.

A washing apparatus such as described forms the subject matter of the copending application of George H. Palm, Serial No. 55,434, filed Sept. 10, 1925. Only the end portions of the table 36 and the series of brushes 37 are shown, the interposed portions and the brush operating mechanisms being omitted. The particular washing apparatus shown and described does not form any part of the present invention, and many other forms of apparatus might instead be used for effecting the washing operation.

In leaving the table 36, the carpet passes around a roller of the table, and water is directed into the spread pile from a conduit 38, as a result of which the lather from the soap is thoroughly rinsed out of the pile. The carpet is then fed between two wringer rolls 39 and 40, where most of the residual water in the pile is pressed out of the same. From the wringer rolls 39 and 40, the carpet may, if desired, be fed onto a conveyor

41 which leads to a suitable drying apparatus.

When a carpet or other pile fabric to be cleaned is treated in accordance with the method of the invention as above described, the dusty preliminary step of beating out the loose particles of dirt is eliminated, and the entire cleaning treatment is materially expedited and simplified.

It will be appreciated that the method of the invention is not limited in its application to the inclusion of all of the details and intermediate steps necessarily described in connection with the exemplification above given—the invention, in its final analysis, residing primarily in the removal of the first of the dirt from the fabric by a preliminary beating operation when the fabric is wet instead of dry.

I claim:

1. A method of cleaning pile fabrics which comprises first wetting the dust and dirt in the pile of the fabric to prevent its floating in air when removed, beating the fabric on the back subsequent to the wetting to disengage wetted dust and dirt therefrom, and subsequently washing the fabric to remove remaining dirt.

2. A method of cleaning pile fabrics which comprises first wetting the fabric to prevent escape of dry dust therefrom, then working wetting fluid into the pile side of the fabric to wet the dust and dirt, then beating the fabric to remove dirt in its wetted condition, and subsequently washing the fabric to remove remaining dirt.

3. A method of cleaning pile fabrics which comprises first wetting the dirt in the fabric to prevent its release therefrom in the form of dry dust, then vibrating the wet fabric to dislodge wet dirt therefrom, and subsequently washing the fabric to remove remaining dirt.

4. A method of cleaning pile fabrics which comprises wetting the dirt in the fabric to prevent its escape therefrom in the form of dry dust, then vibrating the fabric to dislodge wet dirt therefrom, then separating the pile of the fabric and brushing it while separated, and subsequently washing the fabric to remove remaining dirt.

5. A method of cleaning pile fabric which consists in progressively advancing the outspread fabric while guiding it in directions to shape portions in trough-like form, flooding the pile side in the trough-like area with liquid, and then vibrating the fabric after it has passed beyond the flooding zone, to dislodge wetted dirt.

6. A method of cleaning pile fabric which comprises progressively advancing the outspread fabric, guiding it in a trough-like form in a portion of its course, applying liquid to the fabric at a point where the liquid will collect on the fabric in the trough-

like area, scrubbing the fabric where the liquid is collected, and vibrating the wetted fabric in the course of its movement beyond the trough-like area.

5 In testimony whereof I have hereunto subscribed my name.

STEPHEN CHASE, IV.

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