

UNITED STATES PATENT OFFICE.

JULES DOUX, OF UTICA, NEW YORK.

PROCESS OF DRY CLEANING.

No. 828,644.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed April 1, 1905. Serial No. 253,356.

To all whom it may concern:

Be it known that I, JULES DOUX, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Dry Cleaning; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same.

This invention relates to the process of cleaning and renovating all kinds of raw stock—such as hair, furs, feathers, leather, and fiber, and textile fabrics—either in the piece or in the form of apparel.

The object of my invention is to provide for rapidly, effectively, and economically cleaning and renovating raw stock or manufactured fabric or other material without spreading dirt through the same or leaving a dirty stain thereon, due to dissolving and diffusing the dirt in the presence of water or moisture, as heretofore practiced, without eradicating it from the material under treatment and removing it with the cleansing fluid.

In conducting the operation of cleaning and renovating raw stock and manufactured goods I have found it important and essential that the cleansing fluid be practically free from water in order to obtain satisfactory results. Even a teaspoonful of water in a large quantity of fluid will mix with a quantity of dirt and diffuse it through a large batch of goods in the cleansing-machine, reapplying and distributing the soil to every article under treatment, especially silk and cotton goods. The dirt thus diffused by the presence of water imparts a dull cloudy appearance to the goods, so that none are thoroughly renovated and given the bright new appearance so much desired. I have also discovered that commercial naphtha or benzin contains a small percentage of water, amounting sometimes to three or four ounces in a barrel. If the benzin when drawn from a tank presents a "foggy" condition, I know that water is present, and in order to remove it I move a dry towel through

the fluid, thereby absorbing the water. The water may also be removed by filtering the benzin or gasoline through chamois-skin.

In cleaning materials I treat the same with petroleum benzin, and by the term "benzin" I mean all derivatives from crude petroleum known as "benzin," "naphtha," "gasoline," &c.

In carrying out the cleaning operation the desired quantity of benzin is run into a cleaning-machine and is therein impregnated with anhydrous ammonia, which is preferably admitted at the bottom of the machine through a perforated pipe. It is important that the ammonia be anhydrous, (NH_3), so as to avoid the admixture of water with the cleaning fluid. Any moisture or water remaining in the benzin is immediately absorbed by the ammonia. The material to be cleansed is now placed in the prepared bath and subjected to agitation and washing either by hand or power machinery. The addition of anhydrous ammonia renders the benzin strongly alkaline and greatly facilitates the cleaning and renovating operation, so that it is shortened to one-quarter the time formerly required. The materials or goods having been cleaned are treated in a centrifugal machine to remove liquid and then dried.

Fresh benzin is occasionally added to the bath to replenish it and compensate for loss by evaporation and that which is removed with the goods.

As before explained, the goods come out of the treatment perfectly bright and fresh in appearance. This is due to the fact that the benzin is practically free from water and to the use of anhydrous ammonia with the benzin.

The soiled benzin is occasionally drawn off and distilled to exclude the dirt, after which the condensed product may again be used in a cleaning operation.

My ammoniated benzin or benzin rendered alkaline by anhydrous ammonia is a valuable solvent for various articles used in the arts and is also very useful in my dyeing process, which will be made the subject of a separate application for patent.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The process of cleaning and renovating stock material and fabric, which consists in subjecting it to a washing operation in a bath composed of benzin impregnated with anhydrous ammonia.
2. The process of cleaning and renovating stock material and fabric which consists in

subjecting it to a washing operation, in an alkaline bath, practically free from water and composed of benzin and anhydrous ammonia.

In testimony whereof I affix my signature in presence of two witnesses.

JULES DOUX.

Witnesses:

W. H. WESTON,

C. W. BUSHINGER.