R. D. NESMITH.

MACHINE FOR FULLING AND SCOURING CLOTH.

No. 186,363. Patented Jan. 16, 1877.

Fig. 1.

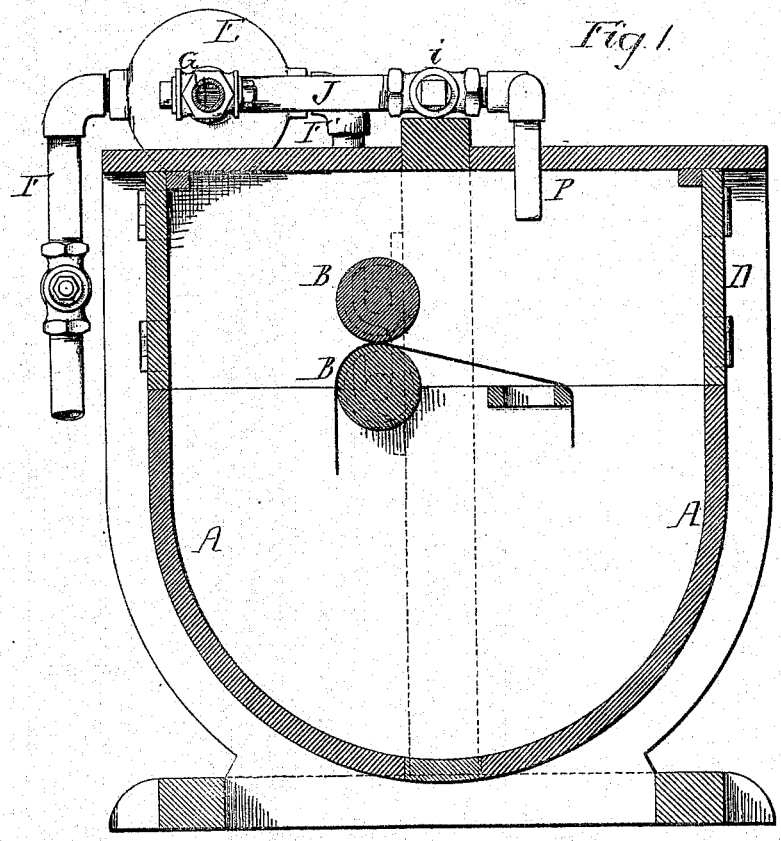
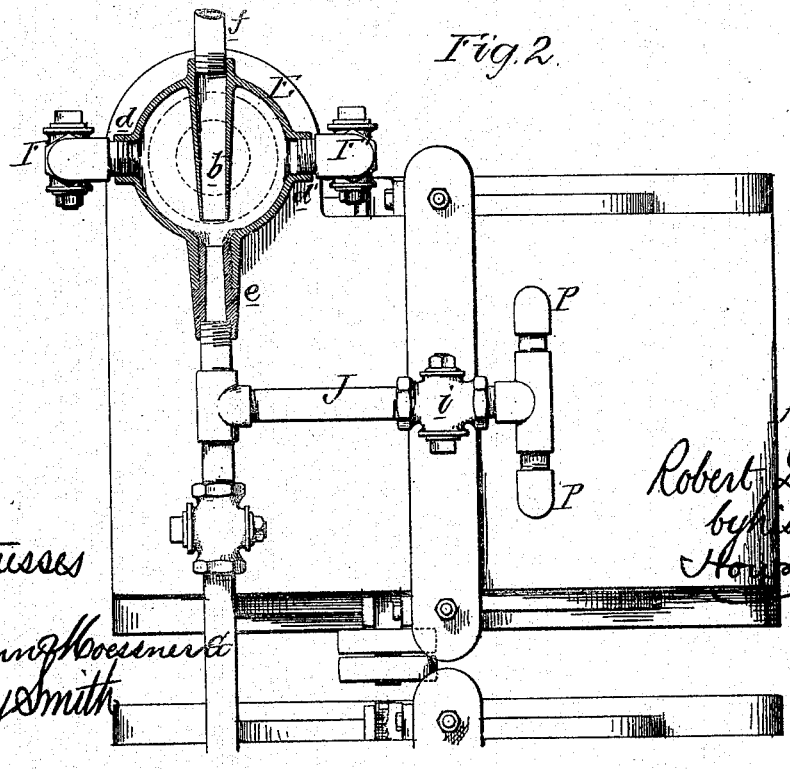


Fig. 2.



Witnesses
Hermann Boessneck
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UNITED STATES PATENT OFFICE.

ROBERT D. NESMITH, OF JOHNSTOWN, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR FULLING AND SCOURING CLOTH.

Specification forming part of Letters Patent No. **186,363**, dated January 16, 1877; application filed December 18, 1876.

To all whom it may concern:

Be it known that I, ROBERT D. NESMITH, of Johnstown, Cambria county, Pennsylvania, have invented certain Improvements in Machines for Fulling and Scouring Cloth, of which the following is a specification:

The object of my invention is to construct a fulling or scouring machine of a more cleanly and effective character than those now in use; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical sectional view of a scouring-tub with my improvement; and Fig. 2, a plan view, partly in section.

A represents one of a number of scouring-tubs arranged side by side in a suitable apartment, each tub consisting of a casing, in which is arranged a pair of pressure-rollers, B, the scouring of the fabric being effected by first coating it with a solution having an affinity for the oil in the fabric, and then passing it between these rolls.

The usual method of applying the scouring solution to the fabric is to pour it in upon the same through the door D from a bucket or other receptacle in which it has been carried from the principal reservoir. Not only is this plan objectionable on account of its uncleanliness and the expense of labor and time which it incurs, but also because the solution, when applied in this way, impregnates the fabric unevenly, and interferes with the proper scouring of the same.

To overcome these objections I arrange at one end of the row of scouring-tubs, or at some other suitable point, an injector, E, consisting of a spherical casing, having an internal nozzle, *b*, and two inlets, *d* and *d'*, one at each side, these inlets communicating through valved pipes F and F', the former with a reservoir containing the scouring solution, and the latter with a reservoir of water. The injector is supplied with steam from any adjacent generator, the steam being conveyed to the nozzle *b* through a valved pipe, *f*, and the outlet-tube *e* of the injector is connected to a distributing-pipe, G, which extends along the entire row of scouring-tubs, and is provided with a number of branches, J, one over each tub, each of these branches being furnished with a stop-valve, *i*. In the present instance each of the branches J communicates at the end with two nozzles, P, which extend downward through the cover of the scouring-tub, and terminate preferably directly over the fabric at a point before the latter reaches the rollers.

The operation is as follows: Supposing the tubs to be properly supplied with fabric, the valve in the pipe F to be opened, and that in the pipe F' closed, steam issuing from the nozzle *b* acts as a jet, and causes a partial vacuum within the chamber of the injector, thus inducing the scouring solution to rise in the pipe F, enter the chamber of the injector, and pass from the same, through the pipe G and branches J, into any desired number of the scouring-tubs A, the entrance of the solution into any tub which it is not desired to use being prevented by closing the valve *i* of the branch J corresponding with that tub. The solution passes from the nozzles P, and falls in an even and steady stream onto the fabric just before it passes between the rolls, so that every portion of the fabric is evenly and thoroughly impregnated with the solution, and the scouring operation thereby facilitated and rendered more effective. After a sufficient quantity of the solution has been injected, its flow is stopped by closing the valve in the pipe F, and the passage of the cloth between the rolls is continued until the grease has been thoroughly removed therefrom by the action of the solution. The valve in the pipe F' is then opened, so that a stream of water, warmed by its admixture with the steam, is thrown onto the cloth, in order to wash away the suds and oily matter extracted during the previous operation, the scouring process being concluded by closing the steam-jet, and allowing the cold water under its normal pressure to flow, through the pipe G, branches J, and nozzles P, onto the cloth.

It will be evident that the device above described may be applied to machines for fulling as well as for scouring cloth, by connecting the pipe F to a reservoir containing fulling instead of scouring solution, the advantages of the invention, as regards its labor-saving qualities, its perfect cleanliness, and

rapidity and effectiveness of operation, being equally prominent in either case.

I claim as my invention—

1. The combination of a fulling or scouring tub with a nozzle or nozzles, P, and devices, substantially as described, whereby a steady and even flow of the fulling or scouring solution through said nozzle or nozzles is insured, as set forth.

2. The combination of the injector E, its nozzle *b*, and inlets *d* and *d'*, and the fulling or scouring tubs A with connecting-pipes, substantially as described.

3. The combination of the fulling or scouring tubs A and injector E with the distributing-pipe G, valved branches J, and their nozzles P, as set forth.

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

ROBERT D. NESMITH.

Witnesses:
C. T. FRAZER,
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