

# The Scouring of Wool

By Prof. Everett Hinckley, New Bedford Textile School

## Importance of Controlled Temperatures.

It is my intention in this article to illustrate the absolute necessity of a properly controlled temperature in wool scouring. It is a well recognized fact that excessive temperatures in this process set the dirt, discolor the wool, make the fiber hard and destroy its luster.

Experience over a number of years has taught us that the temperature of the scouring liquors should at no time ex-

ceed 150° F. In the case of the more lustrous fibers, this limit may be dropped as low as 100° F. Practice varies somewhat, but the majority of the scouring is done between 120° and 130° F. Hence the need for a reliable automatic device to control the temperature of the wool scouring liquor, is apparent. Such devices as mercurial thermostats have been used many years in chemical laboratories with considerable success, but constructed as they were of glass, they were fragile and liable to damage. For this reason they were not suitable in wool scouring.

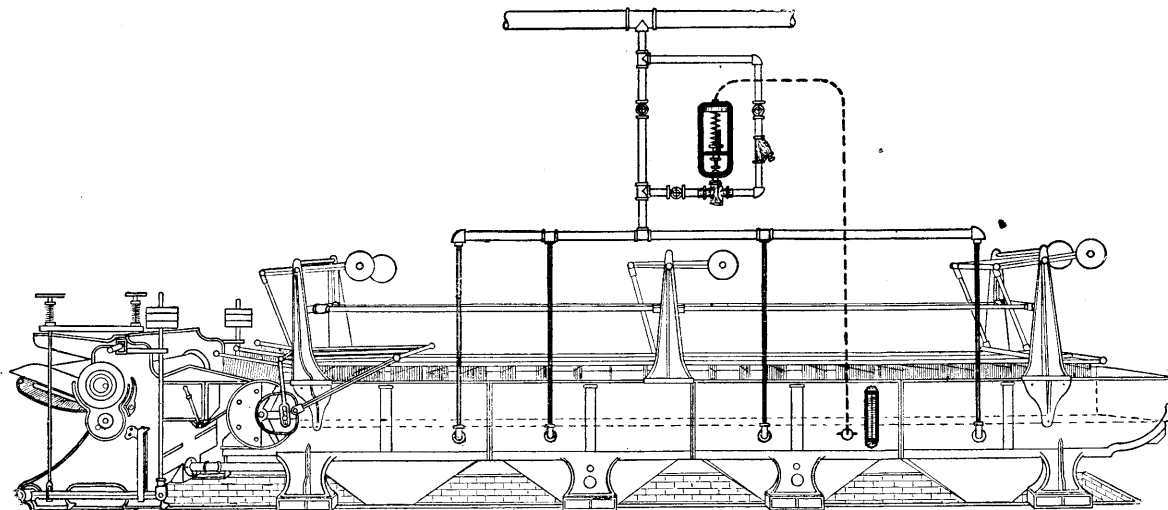


Fig. 1. Typical application of a Self-Operating Temperature Controller applied to a Sargent Wool Scouring bowl, showing method of installation.

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The methods used are based on a particular kind of wool, certain types of scouring material and the personal equation of the operator. The control of these first two points are easily within the management of the plant, but the control of the operator is at all times a difficult point. Aside from neglect, the question of judgment arises, which, with the

Within recent years, however, metal thermostats have been developed, which act upon the same general principle as the familiar laboratory apparatus. These regulators are simple in operation, durable in construction, and, compared with labor, very inexpensive. When the temperature in the scouring bowl reaches the point for which the controller has been set, the steam valve is closed automatically. On the other hand, when the temperature falls below this pre-determined setting point, the controller automatically opens the steam valve.

In actual applications, these fluctuating demands occur constantly, and the rise and fall of the temperature is kept within very narrow limits. Fig. 1 shows a typical application of a self-operating temperature controller. Many mills, recognizing the value of such a device, have had them installed and are now obtaining results that are highly satisfactory to the practical man.

To determine exactly what the actual performance of such a device is after being in service over a period of time, several tests were made. These tests indicated that heat conditions in the several mills were similar, and the following data was selected as typical.

On one range, the temperature was regulated by an ordinary steam valve on the handle of which a weight was hung to prevent it from turning. On the other range, the temperature was controlled by a "Tagliabue" self-operating temperature controller. Fig. 2 is a photographic reproduction of the actual installation used.

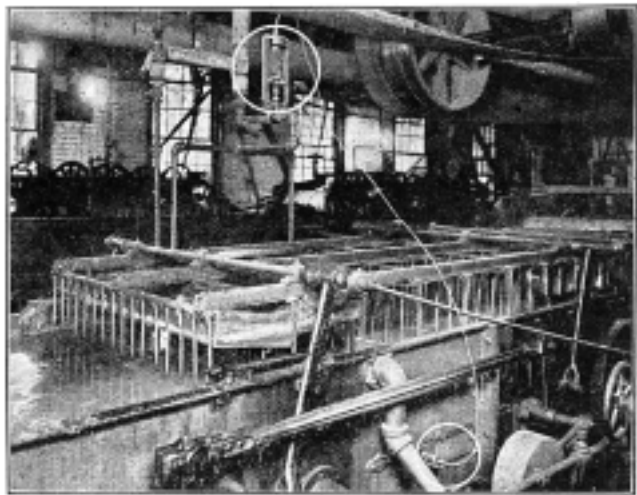


Fig. 2. Photographic reproduction of the wool scouring bowl equipped with a self-operating temperature controller taken at the mill in which the test under discussion was conducted.

best of intentions, may result in temperature conditions that are unfavorable to efficient scouring.

Of course, with constant vigilance the operator can keep the temperature of a scouring bowl fairly constant, but,

The steam for each train was obtained from the same main, and the quality of wool handled was the same, so that conditions were identical. By means of recording thermometers installed on the first bowl of each range, charts were obtained showing the actual temperatures of operation. These charts are shown in Fig. 3 and 4 respectively, the records on which need little explanation.

The chart obtained on a hand control, Fig. 3, shows a fre-

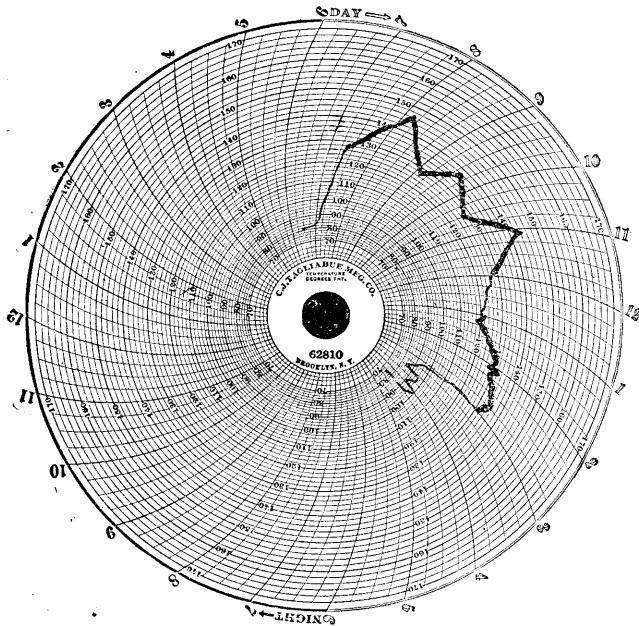


Fig. 3. Reduced reproduction of chart used to record the actual temperature conditions of the scouring liquor when the steam supply was regulated by hand. Note the wide fluctuations.

quent rise and fall of the temperature, twice reaching as high as 146° F., once 144° F., and 137° F., and also running as low as 118° in the course of a day, the actual variation amounted to 28° F.

On the other hand the chart from the bowl fitted with the

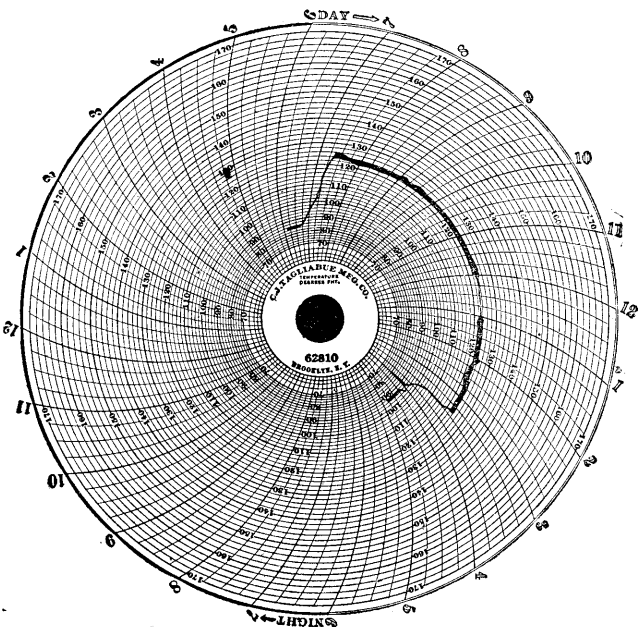


Fig. 4. Reduced reproduction of chart used to record the actual temperature conditions of the scouring liquor, when the steam supply was regulated with a self-operating temperature controller. Note the practical uniformity of control.

self-operating controller, Fig. 4, shows that the temperature was maintained practically at 123° F.

By hand regulation an actual temperature variation of 28° F. is shown, while the controller kept it within 1° of the point desired.

The self-operating controller automatically maintained the scouring liquor at 123° under most difficult conditions. It is evident, therefore, that hand control is unreliable, and results in fluctuations in temperature that produce dirty, discolored and unevenly scoured wool. There can be no doubt but that these conditions are being duplicated in other mills to a greater or less extent.

This conclusion is certain: By the use of a self-operating temperature regulator of the type named, the temperature in the scouring bowl is maintained automatically within limits so narrow that absolutely no danger of overheating of scouring liquor can occur, and all necessity for close attention on the part of the operator is avoided. The fact that the self-operating regulator used in these tests has been in operation day after day under usual mill conditions over an extended period of time proves conclusively that the instrument is absolutely reliable and practical.

The above tests demonstrate that in the self-operating controller a practical solution of control of temperature in wool scouring has been reached; that the danger of overheating wool scouring liquors is avoidable, and, therefore, that the damage done to the wool fiber by high temperature is wholly inexcusable.

### HOW THE "FLAPPER" WORKS.

In England they apply the expressive name of "flappers" to the superfluous employees who draw their breath and their pay in the Government departments. The species, however, is not confined to the British Government. When the armistice was signed it was confidently expected that the army of employees on the Government payroll in Washington would be reduced one-half without delay. Eight months later the host in the departments was actually on the increase. How the American "flapper" manages to put in his time was recently told by Senator Jones of Washington in a Senate discussion of a resolution calling for information as to the duplication of work by Government bureaus in the promotion of foreign commerce:

On yesterday morning two employees from the Adjutant General's office came to my office. It seems, from their statement, that the Secretary of War has issued an order requiring the clerks there to work half an hour overtime, the ostensible reason given being that the necessities of the Adjutant General's office and the different bureaus require the clerks to give this extra time. Those clerks told me very positively that they did not do more than an hour or at the outside more than two hours of real genuine work a day, and that frequently their chiefs would come around and tell them to make a showing of being busy. They further stated that they were satisfied that this order requiring extra time, and so forth, has really been issued for the purpose of impressing Congress with the necessity of extra appropriations. I have not any doubt that these persons were telling the truth. It discloses a condition of things that we ought to try to get at if we can possibly do so.

Mr. Smoot. The Senator from Washington is a member of the Appropriations Committee, and he knows that no matter how much money Congress appropriates for any department of this Government—perhaps with a single, solitary exception—all of it is spent, and the heads of the departments will see that it is spent. If they cannot spend it legitimately, they will employ people enough to require the expenditure of every dollar of the appropriation. One reason for that is that they think if they should happen to turn any unexpected balance back into the treasury at the end of the fiscal year the Congress of the United States would take that as an indication that the money they had asked for was unnecessary. The departments of our Government have now gotten into a position where they not only ask for the amounts they know they have to have, but they ask for all they think they can get, with the idea that Congress is going to cut some of it out anyhow, and they will be on the safe side. That practice must be stopped."

A strong man is needed, strong mentally, morally and physically, to take charge of affairs at Washington, get rid of the "flappers" and establish the Government service on a basis of economy and efficiency.