UNITED STATES PATENT OFFICE.

FELIX FOSSARD, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED PROCESS OF DYEING WOOL.

Specification forming part of Letters Patent No. **702**, dated April 21, 1838.

To all whom it may concern:

Be it known that I, FELIX FOSSARD, of the city of Philadelphia, in the State of Pennsylvania, have invented an improved mode of dyeing wool of a blue color and of any required shade and in a very rapid manner by means of an acid solution of the ferro-cyanuret of potassium or of sodium in connection with an acid solution of a salt of iron; and I do hereby declare that the following is a full and exact description thereof.

I prepare a solution of the ferro-cyanuret of potassium, (prussiate of potash of commerce,) which I use of the strength of 1½° of Baumé's areometer for salts and at a temperature of 212° of Fahrenheit's thermometer, or at the heat of boiling-water. To this I add a portion of sulphuric acid (oil of vitriol) or of some other acid, so as to acidulate the liquid in such degree as may be found necessary, this depending in great measure upon the extent to which the scouring of the wool has been carried, and which must be left to the judgment and experience of the operator. A bath thus made will at once strike a yellow tint, which gradually deepens, and the various degrees of which will bring corresponding tints in the subsequent bath. Some of the other cyanurets which may be used afford a grass-green, olive-green, yellow-green, brown, and other tints.

The wool, having been drained after passing it through a bath of the foregoing description, is passed, according to the cyanuret which has been made use of, either into a solution of a salt of the protoxide of iron—say of that known in commerce under the name of "copperas" or "green vitriol"—or into a solution of the tersulphate of the sesquioxide of iron at 1½° of Baumé and 212° of Fahrenheit, to which has been added such a quantity of an acid as will make it instantly strike a blue as the wool is dipped therein. When the tint ceases to darken the operation is completed. These baths are to be recruited at the rate of one pound of prussiate for every ten pounds of wool dyed of a navy-blue. The acid and the salt of iron are also to be supplied in the same proportion.

By this process the wool acquires a navy-blue at a single dip of five minutes into each of the baths, and thus affords a permanent color at a very small cost—say five cents per pound of clean wool. The principle of this new process of dyeing does not reside in the salt of potash or of iron, but with the acid which is added to each of the solutions, the direct action of which consists in its decomposing the fatty matter of the wool in degrees corresponding with the various tints of blue to be obtained.

What I claim as new in the above-described process for dyeing wool and other similar matters is—

The employment, substantially in the manner herein set forth, of an acid solution of the ferro-cyanuret of potassium, or of sodium in connection with an acid solution of one of the salts of the black oxide, or of the sesquioxide of iron, and also of an acid solution of the ferro-sesquicyanuret of potassium, or of sodium in connection with an acid solution of one of the salts of the protoxide of iron, including in this claim the various combinations and modifications of the above-named salts of potassium, or of sodium with those of the salts of iron, an acid being used before, conjointly with, or subsequent to the employment of the baths containing the respective salts which yield a blue precipitate by the interchange of their elements.

F. FOSSARD.

Witnesses:
WILLIAM MILNORY,
CHARLES DIXEY.