

UNITED STATES PATENT OFFICE.

ROBERT DEMUTH, OF ELBERFELD, GERMANY, ASSIGNOR TO THE FARBEN-FABRIKEN OF ELBERFELD COMPANY, OF NEW YORK.

BROWN COTTON-DYE.

SPECIFICATION forming part of Letters Patent No. 611,610, dated October 4, 1898.

Application filed November 20, 1897. Serial No. 659,330. (Specimens.) Patented in England September 23, 1895, No. 17,738; in France January 15, 1896, No. 253,213, and in Italy March 31, 1896, XXXI, 40,624, LXXIX, 407.

To all whom it may concern:

Be it known that I, ROBERT DEMUTH, chemist, doctor of philosophy, residing at Elberfeld, Prussia, Germany, (assignor to the 5 FARBENFABRIKEN OF ELBERFELD COMPANY, of New York,) have invented a new and useful Improvement in the Manufacture of Brown Cotton-Dyes, (for which the Farbenfabriken, vormals Fr. Bayer & Co., of Elberfeld, Ger- 10 many, has already obtained Letters Patent in England, No. 17,738, dated September 23, 1895; in France, No. 253,213, dated January 15, 1896, and in Italy, Reg. Gen., Vol. XXXI, No. 40,624, Reg. Att., Vol. LXXIX, No. 407, 15 dated March 31, 1896;) and I do hereby declare the following to be an exact and clear description of my invention.

My invention relates to the production of a reddish brown cotton dye by subjecting 1 20 naphthol 4.8 disulfo acid or salts thereof to the action of an alkaline sulfid carrying compound at elevated temperatures.

In carrying out my invention practically I can proceed as follows without limiting my- 25 self to the particulars given. Fifty parts, by weight, of 1 naphthol 4.8 disulfonate of sodium are introduced into a mixture prepared from one hundred and twenty-three parts of dry sodium sulfid, one hundred parts, 30 by weight, of flowers of sulfur, and sixty-two parts, by weight, of boiling water. The resulting mass is slowly heated in an iron vessel advantageously by means of a metallic bath to 200° centigrade (temperature of the 35 bath) taking care that the mixture is well stirred and keeping the mass at the said temperature until it has become solid and can be easily minced to form a powdery mass. The vessel is then closed and the temperature is 40 raised to from 260° to 270° centigrade (temperature of the bath), at which temperature heating is continued for about three hours. The melt thus obtained after pounding is the finished dye. It forms a blackish mass or 45 powder, easily dissolves in water with a reddish-brown color which is not altered by the

addition of alkaline sulfid and is precipitated from its watery solution after the addition of dilute hydrochloric or sulfuric acid as a brown flaky precipitate, sulfureted hydrogen being 50 simultaneously liberated. When dyed in hot or cold baths with or without the addition of alkaline sulfid it yields on unmordanted cotton intense reddish-brown shades fast against the action of alkalies and light. 55

The same result is obtained, if in place of sodium sulfid and sulfur used in the above example other alkaline sulfid carrying com- 60 pounds such as sulfur and potassium sulfid, sulfur and soda, sulfur and potassa, sodium-polysulfid, potassium-polysulfid or the like are used.

Having now described my invention and in what manner the same is to be performed, what I claim as new, and desire to secure by 65 Letters Patent, is—

1. The process for the production of a new reddish-brown cotton dye by subjecting 1 naphthol 4.8 disulfo acid to the action of an 70 alkaline sulfid carrying compound at elevated temperatures, substantially as described.

2. As a new article of manufacture the reddish-brown cotton die obtainable from 1 naphthol 4.8 disulfo acid, forming a blackish 75 mass or powder easily soluble in water with a reddish-brown color unalterable by the addition of sodium sulfid, being precipitated from its watery solution by the addition of dilute hydrochloric or sulfuric acid as a brown flaky precipitate and dyeing unmordanted 80 cotton in hot or cold baths with or without the addition of alkaline sulfid intense reddish-brown shades fast against the action of alkalies and light, substantially as described.

In testimony whereof I have signed my 85 name in the presence of two subscribing witnesses.

ROBERT DEMUTH.

Witnesses:

R. E. JAHN,
OTTO KÖNIG.