

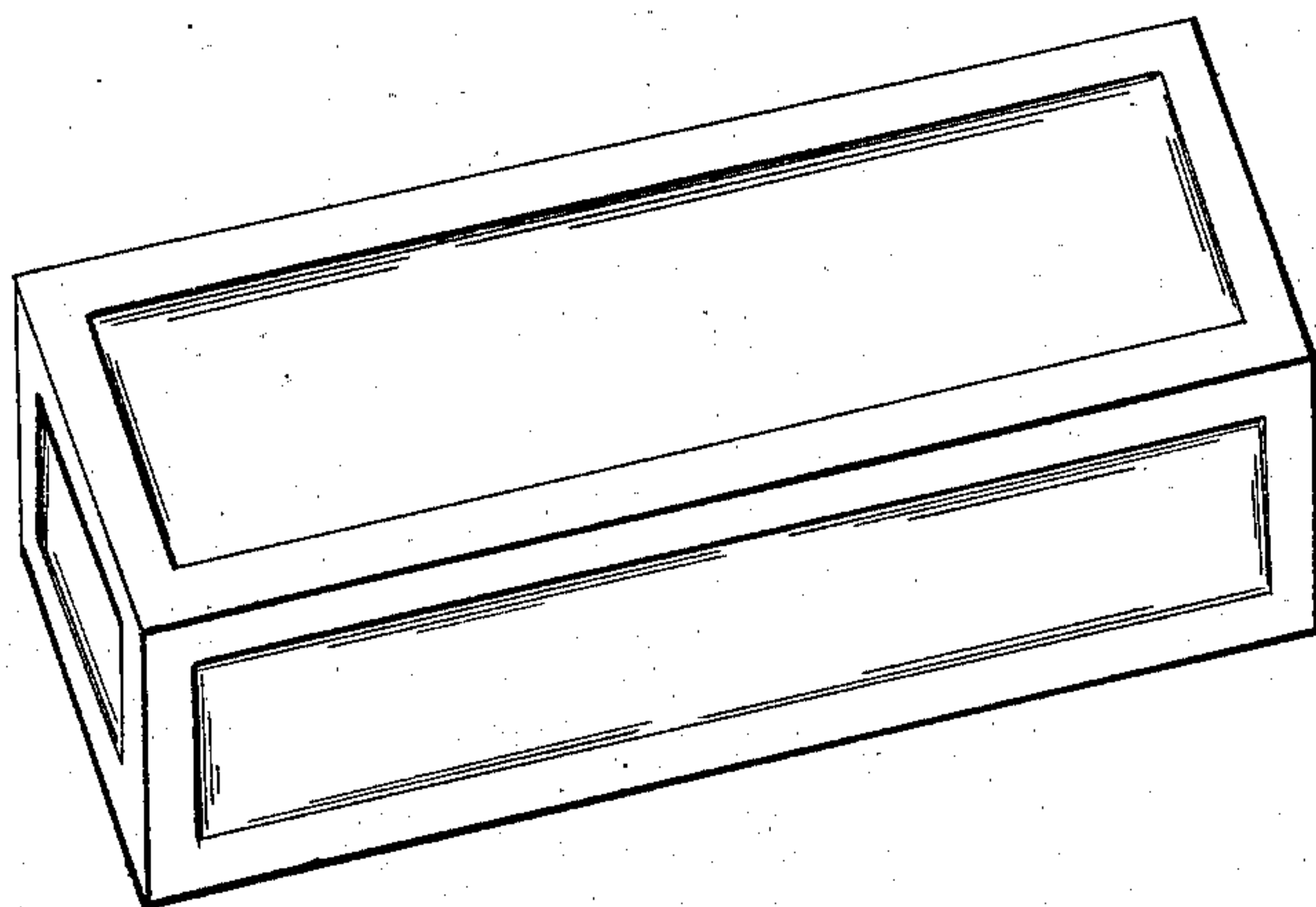
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PATENTED FEB. 23, 1904.

G. ROWLAND.
DYESTUFF.

APPLICATION FILED MAY 25, 1903.

NO MODEL.



WITNESSES—

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UNITED STATES PATENT OFFICE.

GEORGE ROWLAND, OF KNOXVILLE, TENNESSEE, ASSIGNOR TO THE
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DYESTUFF.

SPECIFICATION forming part of Letters Patent No. 752,804, dated February 23, 1904.

Application filed May 25, 1903. Serial No. 158,587. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE ROWLAND, a subject of the King of Great Britain, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Improvement in Dyestuffs, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to anilin dyeing; and the improvement consists in part of a solid compound ready for use, said compound comprising anilin.

The objects of the invention are, first, to produce an anilin-dye compound which will need only the addition of water preparatory to dyeing; second, to produce such a compound in which the anilin is completely and permanently secured against oxidation; third, to produce such a compound from which precise quantities may be taken for the duplication of solutions for producing particular shades of color; fourth, to produce such a compound which may be conveniently handled and transported with cheapest forms of packing and with least danger of waste of the dye or injury to adjacent material; fifth, to produce such a compound which shall be of such quality as to permit the dyeing of cloth and fabrics without staining or dyeing the hands and such vessels as are usually used for such work.

The drawing illustrates a cake or bar of my compound.

My new compound or article of manufacture is produced by the combination of two materials in the manner hereinafter described. A third material may or may not be used. The first of these materials is an anilin dye of the desired color and of that class of anilin dyes known as "neutral" or "sweet" colors, those which are adapted for use in ordinary water substantially without mordant, excepting it be salt, (sodium chlorid.) With the dry anilin I form a water solution, preferably with hot water, and the solution is preferably a saturate solution.

The second constituent of my compound is soap. This should be "white curd" or "settled" soap. Said soap should be approxi-

mately neutral or free from acid or alkali. Salt (sodium chlorid) may or may not be present in the soap. In the use of settled soap a small quantity of salt solution may be added while mixing in the "crutcher," as hereinafter described. I regard its presence as preferable.

In general practice the anilin solution may be combined with the soap by any one of three methods: First, while the semisolid soap is being put through the crutcher the dye solution may be added and completely and evenly mixed with the soap; second, while the solidified soap is being put through the "milling-machine" the dye solution may be added and milled in with the soap in the same manner that perfume has heretofore been added to soap; third, the solid soap may be remelted and the dye solution added to the mass and thoroughly mixed by any suitable means.

The three foregoing methods of combining the dye solution with the soap are given as practical means for carrying on the work on a large scale. On a smaller scale the dye may be incorporated with the soap in other ways.

The compound is formed into bars or blocks of any suitable size, or for transportation in quantity the compound may be allowed to solidify in barrels, boxes, or other receptacles.

By the terms "sweet" and "basic" or "neutral" dyes as used in this specification is meant dyes of those groups of anilin dyes as do not require an acid or alkaline mordant to set them. A convenient example of a sweet or otherwise termed "direct" dye may be found in diamine violet N Cassella, (benzidin,) and another example of such a dye is direct blue, (dioxy-naphthalene-sulfonic acid and alpha naphthol, sulfonic acid.) An example of basic or neutral dye is found in safranin (mixture of tolu-safranins and pheno-tolu-safranins.) Another example of basic or neutral dye is auramin, (hydrochlorid of imido-tetramethyl diamido-diphenyl-methane.) These dyes or any of the groups to which they belong I mix with the soap herein described in substantially the proportion of one part of dye to eight parts of soap. I have found that

any of the dyes in the class of basic or neutral dyes when mixed with hard soap will dye any kind of goods uniformly and that it will also effectually and uniformly dye goods containing fibers of cotton, silk, and other material. I have also found that with a dye compound consisting of basic or neutral dye and soap no acid or other mordant is necessary to perfect the dyeing of the goods.

If necessary to produce certain shades, dyes from the group of sweet or direct dyes may be employed; but in such case a basic or neutral dye of the corresponding color should (in most cases) be mixed with it. An example of such a mixed dye may be found in a mixture including soap, diamine violet N Cassella, (benzidine,) and neutral violet A, (dimethyl diamido phenazine chlorid.)

With a dyestuff comprising soap and a basic or neutral dye or a sweet or direct dye made in the form of a hard cake soiled goods, regardless of the fiber employed in its manufacture, can be cleansed and thoroughly dyed at the same operation, the hard cake being used in the act of dyeing and cleansing by rubbing the same on the goods in the presence of cold water in a manner precisely the same as commonly employed in washing fabric with ordinary soap.

The method of using the compound is as follows: Ordinary cold water being placed into a basin or other receptacle, the fabric to be dyed is immersed in the water and washed therein with a piece or block of the compound in the same manner that a piece of fabric is ordinarily washed with soap and water. If the first "washing" does not produce a sufficiently deep color, the color may be deepened by further washing with more of the compound. In treating fabric or yarns on a large scale a sufficient quantity of the compound may be dissolved in water in a receptacle of desired size and the fabric then immersed and washed in the solution. For the production of ordinary shades on cotton, flax, and silk cold water may be used. For deeper shades hot water should be used. For forming special shades of color two or more pieces of the composition containing different colors may be combined in the treatment of the fabric.

As is well known to the trade, the aniline dyes of commerce deteriorate through oxidation. Such deterioration cannot occur in my compound. With the exception of a few minute particles on the surface of a bar of my compound all the aniline is completely sealed away from the oxygen of the atmosphere, and this sealing is permanent as to duration and theoretically becomes more complete with

lapse of time, for with lapse of time water of crystallization leaves the soap and the latter becomes more compact or dense. Thus my compound is a cheap and effective means for permanently preserving these dyes against deterioration.

As is well known to dealers and users, aniline dyes are inconvenient to transport. There is always danger of leakage, and packages containing these dyes are necessarily expensive. These dyes are shipped in barrels, kegs, tin cans, and bottles. For shipment in small quantities through the mails they are required to be put into glass bottles inclosed in special mailing tubes or boxes. My compound can be handled or transported in any wrapper or receptacle in which ordinary soap might be handled or transported.

A peculiarity of my compound is that in the dyeing operation the dye does not adhere to or stain the hands or the vessel in which the dyeing operation is usually performed. For example, a piece of silk, cotton, or linen cloth may be dyed in an ordinary washbasin or sink without staining or dyeing the hands or the washbasin or sink. This would clearly be impossible with the ordinary aniline dyes.

An important advantage gained by my compound is the possibility of making precise measurements for repeating a dye solution for the obtaining of the same shade of color that was obtained by a solution previously used or for making solutions for producing a chosen shade of color by the blending of compounds containing different colors. It is well known that according to the present method of making the dyeing solution it is practically impossible to so measure or graduate the additions of color as to produce a previous shade of color or combine colors to obtain a desired shade. By weighing portions of my compound the desired amount of color can be accurately taken.

I claim as my invention—

As a new article of manufacture, dyestuff in the form of a hard cake readily soluble in cold water, free from other binding material or mordant and consisting of soap combined with aniline dye of a group requiring no acid or alkaline mordant, in the proportions substantially as specified.

In testimony whereof I have signed my name, in presence of two witnesses, this 22d day of May, in the year 1903.

GEORGE ROWLAND.

Witnesses:

J. A. H. BELL,
CYRUS KEHR.