



No. 11,047/19.

APPLICATION DATED

8th May, 1919.

<i>Applicant (Actual Inventor)</i>	EADY HART.
<i>Applicant (Assignee of Actual Inventor)</i> ...	ISABELLA JESSIE STEWART.
<i>Application and Provisional Specification</i> ...	Lodged 8th May, 1919.
<i>Application and Provisional Specification</i> ...	Accepted 12th August, 1919.
<i>Complete Specification</i>	Lodged 13th January, 1920.
<i>Complete Specification Accepted 8th May, 1920</i>	Acceptance Advertised (Sec. 50) 18 May, 1920.

Class 09.5.

No drawing.

COMPLETE SPECIFICATION.

"Improvements in dye-stuff producing processes, and products thereof."

We, EADY HART, of Hart Royal, Kline Street, Ballarat East, in the State of Victoria, Commonwealth of Australia, Home Duties, and ISABELLA JESSIE STEWART, of 5 311 Windermere Street South, Ballarat West, in the State of Victoria, aforesaid, Household Duties, hereby declare this invention, and the manner in which it is to be performed, to be fully described and ascer- 10 tained in and by the following statement:—

The object of this invention is to produce new dye-stuffs of high quality at low cost from trees, shrubs, or plants, that is any one or more of the following parts—the wood, 15 root, bark, kino, branches as a whole, or leaves.

A limited amount of vegetation indigenous to Australia is known to be usable for making dye, though it is known that the resin of the "grass tree", and that the banana fruit and stalk are useful for making dye with commercial success. Our claims how- ever do not cover the use of any vegetation in manner already known. Myrticolorin (a 25 glucoside of quercetin) has been isolated from eucalypts, but the dyestuff last named

has not been so produced in a commercial way, so far as we are aware.

As to vegetation of countries outside Australia, a variety of known woods and plants or parts thereof have been used for dye 5 making, but our particular process has not been employed as to such vegetation.

The dye-stuffs we manufacture are applicable to the dyeing of wool, cotton, silk, leather and other materials; and they will 10 not injure persons who make the dye-stuffs or wear the material dyed, nor will that material be injured. On the contrary it will preserve such strength, softness, and lustre, as it had before being dyed. This 15 may be due to the absence of strong acids or the like in carrying out our invention.

Known processes are usable for the application of our dye-stuffs, such as boiling the articles to be dyed in liquid to which the 20 dye-stuff is added, and subsequently rinsing in other suitable liquid; the use of mordant (according to the material to be dyed, and the dye-stuff color) being advisable in some cases—as when other known dyes are used. 25

In carrying out our process we first prepare a vegetable base by reducing it to small parts or pieces. The use of wood which has been converted into sawdust, or into small
5 parts by grinding, yields good results; but the reduction of the vegetation may be effected by making shavings, or cutting, chopping or so on. Such preparation of the vegetation not only causes relatively
10 speedy extraction, but also very thorough extraction, so that the dye-stuffs are produced in relatively large quantities, and therefore economically.

We also prepare an extracting solution.
15 For this purpose a stock solution is preferably prepared, by boiling in water sodium carbonate and unslaked lime or more briefly lime. The proportions we find best are to each gallon of water about 1 lb. of sodium
20 carbonate and about 1 lb. of unslaked lime. The term soda will be used in the claims to indicate any suitable sodium compound, which includes washing soda, or soda crystals. When this compound has been
25 well boiled, say for 20 minutes, the resultant liquid is the stock solution. It is to be noted that sodium hydroxide (caustic soda) is not an equivalent or substitute for any ingredient of our solution, and its use is not
30 claimed.

From this stock solution the extracting solution is made by the addition of water. Thus to 100 gallons of water about 10 to 15 gallons of the stock solution is added.
35 This extracting solution may be made if desired direct from the stated ingredients instead of from a stock solution.

Sediment in the extracting solution or in the stock solution is to be removed before
40 proceeding to use the extracting solution.

To apply the extracting solution the vegetable base to be utilized is boiled, simmered, or heated highly in that solution.

In a case in which with 100 gallons of the
45 extracting solution (containing about 13 lbs. of each ingredient, soda and lime) the vegetable base has been added to the extent of 70 lbs. good results have been obtained by boiling for a short time and then by
50 simmering until the colour the liquid attains is as desired.

The period of extraction depends on the color of dye-stuffs desired, the deeper or stronger the color the longer the period
55 and/or the greater the proportion of the lime and soda to water in the extracting

solution, which, as it boils or simmers, extracts coloring matter from the vegetation. With experience it will be found what strength of extracting solutions will best suit
5 any vegetable base. Altering the proportions of ingredients varies the strength and action of the solution.

An operator will readily find from experience the approximate shade of dye-stuff that will be obtained from a particular
10 vegetable base.

The liquor resulting from the said treatment of vegetation is to be cleared of sediment and solid matter, by filtering or straining,
15 and the filtrate or the like is our dye-stuff in liquid form, but it can be evaporated to a plastic or a solid form for convenient commercial handling.

Vegetable bases which are abundant and cheap, and which have not hitherto been
20 utilized for dye making have been used by us with success. Although vegetation in general not hitherto used for dye-stuff making is suitable for such utilization, and pine wood sawdust yields good pink and brown
25 dye-stuffs by our process, yet we specify in particular our results from the vegetation next enumerated, by the use of our process, the colors of the dye-stuffs obtained being stated. These colors will be obtained in
30 various shades.

Brown dye-stuffs—manufactured by utilizing *Exocarpus cupressiformis* (Native Cherry).

Brown dye-stuffs—manufactured by utilizing
35 *Acacia harpophylla* (Brigalow).

Yellow, and orange dye-stuffs—manufactured by utilizing *Mallotus discolor* (Yellow Kamala Tree).

Pink and fawn dye-stuffs—manufactured
40 by utilizing a *Casuarina* (She Oak), including *Casuarina equisetifolia*, which extends outside Australia.

Pink dye-stuffs—manufactured by utilizing *Acacia polybotrya*.

Grey dye-stuff—manufactured by utilizing
45 *Acacia melanoxylon* (Blackwood).

Yellow, orange, and red dye-stuffs—manufactured by utilizing *Eucalyptus corymbosa* (Bloodwood).
50

Pink, red and brownish dye-stuffs—manufactured by utilizing *Eucalyptus rostrata* (Red Gum).

Black, dark brown, and brown dye-stuffs—manufactured by utilizing *Eucalyptus*
55 *amygdalina* (Black Peppermint).

Flesh and other pink dye-stuffs—manufactured by utilizing *Banksia*, for example *Banksia marginata* (Pink Honeysuckle).

Greenish dye-stuffs—manufactured by utilizing *Aster argophyllus* (Musk Tree).

Yellow and brown dye-stuffs—manufactured by utilizing *Eucalyptus globulus* (Blue Gum).

The *Eucalyptus globulus* vegetation aforesaid yields dye-stuff by simmering in our extracting solution a mixture with the wood of bark, and/or any matter carried by the branches, being optional.

The names appended to the aforesaid botanical designations are vernacular ones commonly employed in Australia.

Having now fully described and ascertained our said invention and the manner in which it is to be performed, we declare that what we claim is:—

1. Improved dye-stuff consisting of the product obtained by the treatment with a solution of soda and lime in water, of vegetation divided into small parts, substantially as described.

2. Improved dye-stuff consisting of the product obtained by immersing wood or other vegetation divided into small parts into a solution containing soda and lime and boiling, simmering, or highly heating the whole, and straining or filtering the resultant liquor.

3. Improved dye-stuff consisting of the strained or filtered resultant obtained by subjecting small portions of wood or other vegetation (reduced to sawdust for example) to a heated solution containing about 9 to 13 lbs. of soda and about 9 to 13 lbs. of lime to each 100 gallons of water.

4. Improved dye-stuff consisting of the strained or filtered product obtained by the treatment with a boiling or simmering solution of soda and lime in water of the vege-

tation botanically known by one or other of the following names:—*Eucalyptus amygdalina*; *Exocarpus cupressiformis*; *Acacia harpophylla*; *Eucalyptus corymbosa*; *Mallotus discolor*; *Eucalyptus globulus*; *Casuarina* (including *Casuarina equisetifolia*); *Acacia polybotrya*; *Acacia melanoxylon*; *Banksia marginata*; *Aster argophyllus*; *Eucalyptus rostrata*, substantially as described.

5. The process of manufacturing dye-stuff which consists in reducing wood or other vegetation to the condition of sawdust or like small parts and treating it in a boiling, simmering, or highly heated solution of soda, and lime, and filtering or straining the resultant liquid, and evaporating it if required.

6. The process of manufacturing dye-stuff which consists in treating wood or other vegetation in a condition of saw-dust or other small parts in a heated solution which contains to every 100 gallons of water about 9 to 13 lbs. of soda and about 9 to 13 lbs. of lime, substantially as described.

7. The process of dye-stuff making consisting of treating vegetation, having any of the following botanical names:—*Eucalyptus rostrata*; *Eucalyptus amygdalina*; *Exocarpus cupressiformis*; *Acacia harpophylla*; *Eucalyptus corymbosa*; *Mallotus discolor*; *Eucalyptus globulus*; *Casuarina* (including *Casuarina equisetifolia*); *Acacia polybotrya*; *Acacia melanoxylon*; *Banksia marginata*; *Aster argophyllus*, by subjecting the same to a heated solution of soda and lime and then filtering or straining the resultant liquor, and when required, evaporating it, substantially as described.

Dated this 13th day of January, 1920.

G. G. TURRI & Co.,
Patent Attorney for Applicant.

Witness—Frances Hilda Sayers.

Letters Patent Sealed.

Applications for enlargement of the time for payment of the renewal fee may be made on Form P. Names of actual inventors, communicators, assignors, &c., who are not grantees, are added in parentheses after the name of the grantee.

1914.

12,267. Bursell, O. H.

1918.

3631. Robinson, H. S. (Parker, G. D.).

1919.

10,438. The Auto Milking Machine Co. Ltd.; 10,747. Dowsing, G. H.; 10,848. Maxfield, G. E.; 10,938. Aktiebolaget

Ljungströms Angturbin (Ljungström, F.); 11,041. Elmore, F. E.; 11,047. Hart, E., & Stewart, Isabella J.; 11,349. Dykes, J. L. G.; 11,530. Rawling, W. J.; 11,604. Benjamin, E. F., & Jacobson, L.; 12,399. Goldberg, S. H.; 12,737. Jackson, B. W.; 12,743. B. K. F. Corporation (Kulick, E. L., & Farrell, A. W.); 12,765. Taylor, A.; 13,222. Van der Meersch, A. E. M.; 13,353. McNeill, H. M.; 13,478. Roberts, O. C.

Assignments Registered.

1910.

18,822. Assignment of whole interest by Wilburn Norris DENNISON to THE GRAMOPHONE COMPANY LIMITED. Registered 30th Aug., 1920.

1911.

2812. Assignment of whole interest by Wilburn Norris DENNISON to THE GRAMOPHONE COMPANY LIMITED. Registered 30th Aug., 1920.

1912.

4713. Assignment of whole interest by Wilburn Norris DENNISON to THE GRAMOPHONE COMPANY LIMITED. Registered 30th Aug., 1920.

7291. Assignment of whole interest by Alfred William SOUTHEY to SOUTHEY GAS PRODUCERS LIMITED. Registered 28th Aug., 1920.

1913.

7788 and 7791. Assignment of whole interest by AKTIEBOLAGET LJUNGSTRÖMS ANGTURBIN to THE BRUSH ELECTRICAL ENGINEERING Co. LTD. Registered 28th Aug., 1920.

7789, 7790, 10,718, 10,719, and 10,720. Assignment of whole interest by AKTIEBOLAGET LJUNGSTRÖMS ANGTURBIN to THE BRUSH ELECTRICAL ENGINEERING Co. LTD. Registered 11th Aug., 1920.

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14,541. Assignment of whole interest by Laurence Henry MARSHALL to Alexander Colin MALCOLM. Registered 31st Aug., 1920.

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573. Assignment of whole interest by Laurence Henry MARSHALL to Alexander Colin MALCOLM. Registered 31st Aug., 1920.

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3428. Assignment of whole interest by Laurence Henry MARSHALL to Alexander Colin MALCOLM. Registered 31st Aug., 1920.

3884. Assignment of whole interest by Alfred William SOUTHEY to SOUTHEY GAS PRODUCERS LTD. Registered 30th Aug., 1920.

1918.

9455. Assignment of whole interest by Patrik Samuel RYDBECK to AKTIEBOLAGET SVENSKA KULLAGERFABRIKEN. Registered 30th Aug., 1920.

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9890. Assignment of whole interest by Cecil Woods LE PLASTRIER to ROSE, DOWNS & THOMPSON LTD. Registered 30th Aug., 1920.

10,704. Assignment of whole interests of Stanley Smith Cook and Louis Mortimer DOUGLAS by the said Stanley Smith Cook and Louis Mortimer DOUGLAS to The Hon Sir Charles Algernon PARSONS, K.C.B. Registered 28th Aug., 1920.

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12,764. Assignment of whole interest by Godfrey Herbert SWANTON to SWANTON'S PRODUCTS PTY. LTD. Registered 28th Aug., 1920.

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Cubitt. Cognate sheets 52 and 13,429.

1920.

Electric Co. Ltd. (John-; 13,888. Sansa; 13,984. Goodwin; 14,049. Automa- (Seymour); 14,091. Bow- ne Westlake-European Ma- w); 14,195. The Westlake- ne Co. (Kadow); 14,292. Bosworth); 14,408. Portass, ss; 14,426. Ramén; 14,427. 608. Scammell & Lemon; Manufacturing Co. (Woock 30. Winston; 14,731. Dever- fall; 14,787. Ohlenschlager 63. Tennant; 15,021. Hor- Tulley; 15,108. Muench; Brothers & Co. Ltd., & 92. James Stedman-Hender- l. (Stedman); 15,313. San- torony & Garling; 15,392. sheets Nos. 14,095, 14,224, 4, 73, 14,576, and 14,903. otana Verkstads Nya Aktie-