



(86) **Date de dépôt PCT/PCT Filing Date:** 2016/04/25
(87) **Date publication PCT/PCT Publication Date:** 2016/11/10
(45) **Date de délivrance/Issue Date:** 2019/06/04
(85) **Entrée phase nationale/National Entry:** 2017/10/18
(86) **N° demande PCT/PCT Application No.:** CA 2016/050475
(87) **N° publication PCT/PCT Publication No.:** 2016/176759
(30) **Priorité/Priority:** 2015/05/01 (US62/155,583)

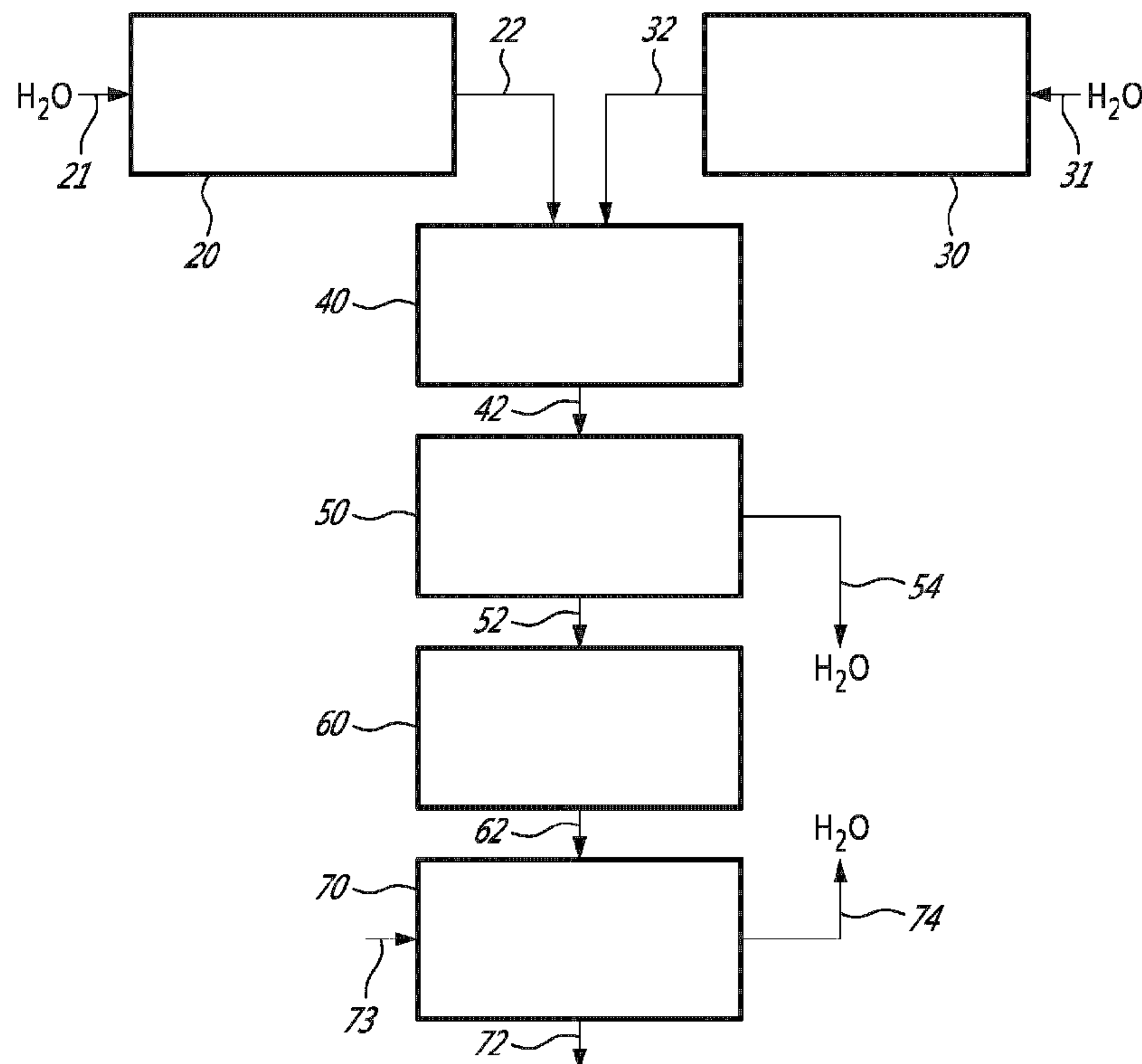
(51) **Cl.Int./Int.Cl.** **C08J 3/05** (2006.01),
C08J 3/20 (2006.01), **C08L 1/02** (2006.01),
D21C 5/02 (2006.01), **D21C 9/00** (2006.01),
D21H 27/00 (2006.01)

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(54) **Titre : PRODUIT MIXTE SEC DE FILAMENT DE CELLULOSE RE-DISPERSIBLE/SUPPORT ET PROCEDE DE FABRICATION CORRESPONDANT**
(54) **Title: A DRY MIXED RE-DISPERSIBLE CELLULOSE FILAMENT/CARRIER PRODUCT AND THE METHOD OF MAKING THE SAME**



(57) **Abrégé/Abstract:**

The present description relates to a process of producing a dry mixed product comprising cellulose filament (CF) and a carrier fibre, and a dry mixed product of re-dispersible cellulose filament and a carrier fibre that permits the CF to retain its dispersibility in water

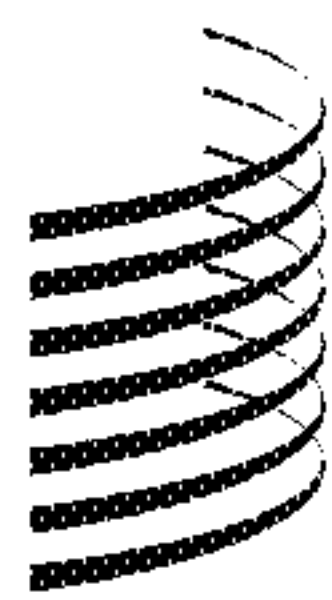
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(57) **Abrégé(suite)/Abstract(continued):**

and hence superior reinforcement ability in papermaking furnishes, composite materials, or other materials where CF is used. The process comprises mixing a water suspension of never-dried CF with a cellulose fibre pulp carrier followed by thickening to a suitable concentration so that it can be further processed and dried in a conventional device such as a dryer can of a pulp machine or a flash dryer.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 November 2016 (10.11.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/176759 A1

(51) International Patent Classification:

C08J 3/05 (2006.01) *D21C 5/02* (2006.01)
C08J 3/20 (2006.01) *D21C 9/00* (2006.01)
C08L 1/02 (2006.01) *D21H 27/00* (2006.01)

(21) International Application Number:

PCT/CA2016/050475

(22) International Filing Date:

25 April 2016 (25.04.2016)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/155,583 1 May 2015 (01.05.2015) US

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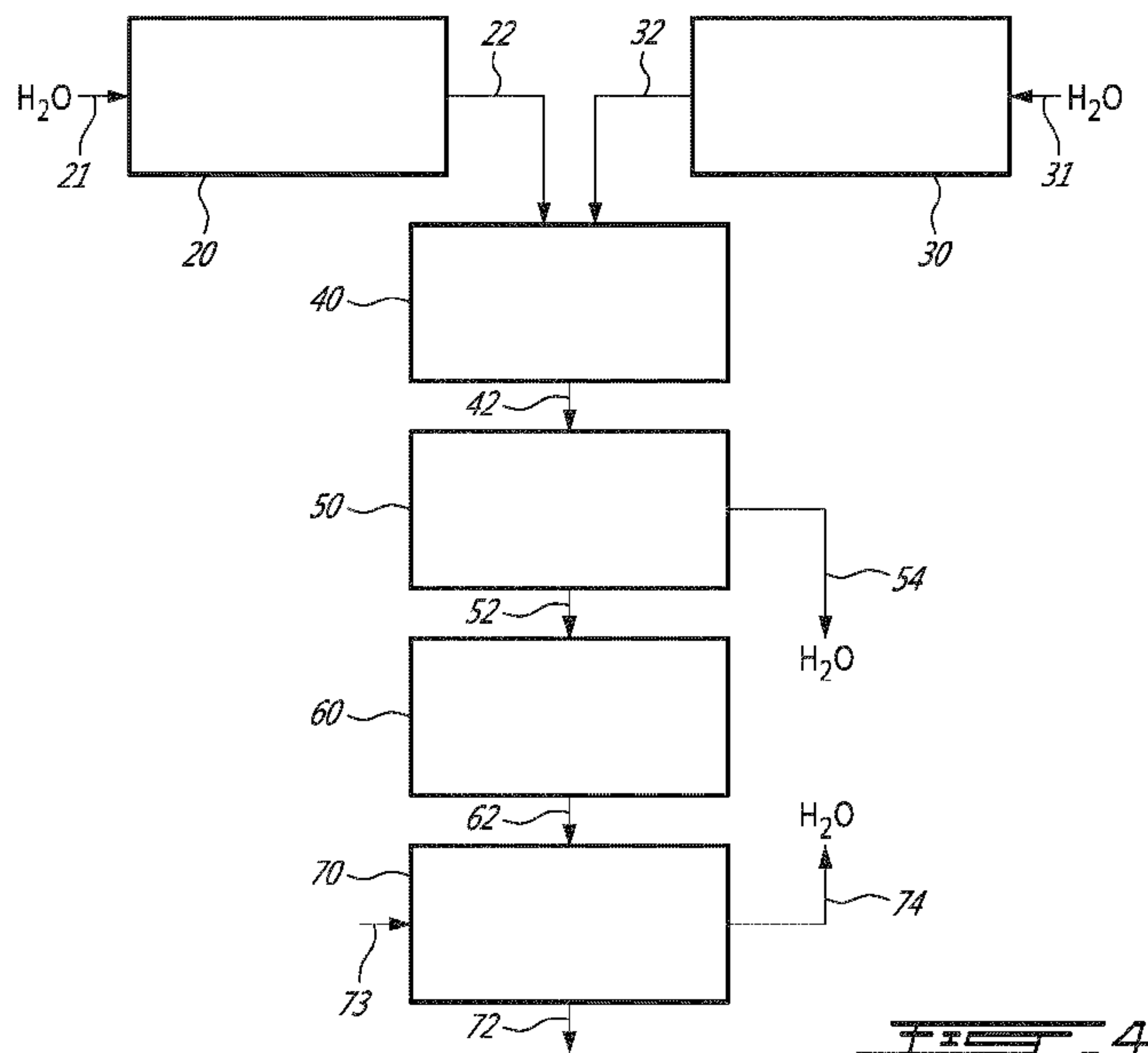
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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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(54) Title: A DRY MIXED RE-DISPERSIBLE CELLULOSE FILAMENT/CARRIER PRODUCT AND THE METHOD OF MAKING THE SAME



(57) Abstract: The present description relates to a process of producing a dry mixed product comprising cellulose filament (CF) and a carrier fibre, and a dry mixed product of re-dispersible cellulose filament and a carrier fibre that permits the CF to retain its dispersibility in water and hence superior reinforcement ability in papermaking furnishes, composite materials, or other materials where CF is used. The process comprises mixing a water suspension of never-dried CF with a cellulose fibre pulp carrier followed by thickening to a suitable concentration so that it can be further processed and dried in a conventional device such as a dryer can of a pulp machine or a flash dryer.

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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
- *with amended claims (Art. 19(1))*

CLAIMS:

1. A dry mixed product comprising:

a re-dispersible cellulose filament of wood or plant fibres, and

a carrier fibre,

the dry mixed product comprising a re-dispersible cellulose filament/carrier fibre weight ratio of about 1/99 to about 99/1,

a humidity of less than 30 weight %, and

wherein the re-dispersible cellulose filaments having an average length of from 200 μm to 2 mm, an average width of from 30 nm to 500 nm and an average aspect ratio of from 200 to 5000 are physically attached and reversibly integrated with the carrier fibre, permitting re-dispersion of the re-dispersible cellulose filaments in aqueous phase.
2. The dry mixed product of claim 1, wherein the weight ratio of the re-dispersible cellulose filaments/carrier is 1/99 to 50/50.
3. The dry mixed product of claim 1, wherein the weight ratio of the re-dispersible cellulose filaments/carrier is 10/90 to 30/70.
4. The dry mixed product of any one of claims 1 to 3, wherein the moisture content is less than 20 weight%.
5. The dry mixed product of any one of claim 1 to 4, wherein the carrier fibre is selected from mechanical pulp, or chemical pulp.
6. The dry mixed product of claim 5, wherein the mechanical pulp is thermomechanical pulp, chemi-thermomechanical pulp, a ground wood pulp or bleached chemi-thermomechanical pulp.
7. The dry mixed product of claim 5, wherein the chemical pulp is bleached softwood or hardwood kraft pulp, un-bleached kraft pulp and/or sulfite pulp.

8. A process for producing a dry mixed product comprising a re-dispersible cellulose filament, and a carrier fibre, comprising:

providing a cellulose filament;

providing a carrier fibre;

mixing the cellulose filament, the carrier and water to produce a mixed cellulose filament/carrier suspension;

thickening the mixed cellulose filament/carrier suspension to produce a mixed cellulose filament/carrier pulp;

fluffing the mixed cellulose filament/carrier pulp to produce a mixed cellulose filament/carrier fluff;

drying the mixed cellulose filament/carrier fluff with a conventional pulp drying process to produce the dry mixed product,

wherein the cellulose filament to the carrier fibre is a weight ratio of 1/99 to 99/1, and the dry mixed product has a moisture content of less than 30 weight %.

9. The process of claim 8, wherein the mixed cellulose filament/carrier pulp as a consistency of 20 to 50 weight % solids after the thickening step.

10. The process of claim 8 or 9, wherein the weight ratio of cellulose filament to the carrier is 1/99 to 50/50.

11. The process of claim 8 or 9, wherein the weight ratio of cellulose filament to the carrier is 10/90 to 30/70.

12. The process of any one of claims 8 to 11, wherein the conventional pulp dryer is selected from the group consisting of a flash dryer, a spray dryer and steam dryer.

13. The process of claim 12, wherein the conventional pulp dryer is a flash dryer.

14. A process of producing a reinforced paper, tissue and/or packaging product comprising providing a dry mixed product of any one of claims 1 to 7;

providing a paper making pulp;

re-dispersing cellulose filaments from the dry mixed product in water to produce a mixed product suspension;

re-pulping the paper making pulp with water to make a pulp suspension;

combining the mixed product suspension with the pulp suspension to make a reinforced paper slurry,

depositing the reinforced paper slurry to produce the reinforced paper, tissue and/or packaging product.

15. The process of claim 14, wherein the mixed product suspension with the pulp suspension are combined at a weight ratio of solids from 1/99 to 99/1.

16. A process for producing a reinforced product comprising providing a dry mixed product of any one of claims 1 to 7, and mixing the dry mixed product with a starting material of the reinforced product.

17. The process of claim 16, wherein the reinforced product is selected from the group consisting of a composite material; a gypsum; a cement; a concrete products; a fibre board; a paint; and a coating.

18. The process of claim 16 or 17, wherein the mixed product is in a suspension with the starting material and combined in a weight ratio of solids from 1/99 to 99/1.