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(54) Title: SYSTEMS AND METHODS OF MANAGING TREATMENT OF A CHRONIC CONDITION BY SYMPTOM TRACKING

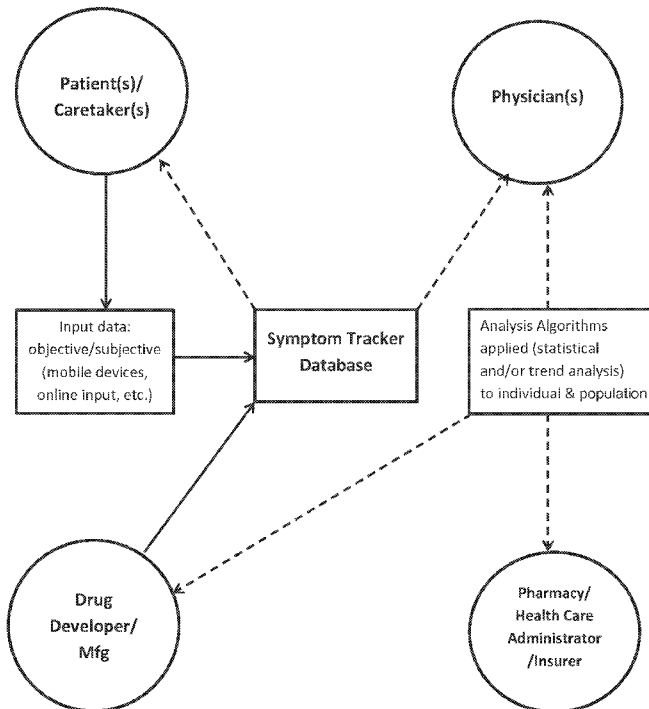


FIG. 1

(57) Abstract: Devices, systems, and methods for use in managing treatment of a chronic disorder with pharmaceutical or therapeutic compounds by tracking symptoms associated with the disorder. Methods include inputting patient attributes, factors and various and other data relating to the patient in conjunction with one or more symptoms into a symptom tracking system and outputting a report of the data tracked over time to any of the patient, a medical professional and a drug developer to improve identification of a relapse of the chronic condition and improve management of the treatment regimen for any and all patients.

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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).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06F 7/06, G06F 17/40, G06G 7/60, G06Q 50/24 (2015.01) CPC - G06F 7/06, G06F 19/30, G06F 19/32, G06F 19/322, G06F 17/40, G06G 7/60, G06Q 50/24 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(8)- G06F 7/06, G06F 17/40, G06G 7/60, G06Q 50/24 (2015.01); CPC- G06F 7/06, G06F 19/30, G06F 19/32, G06F 19/322, G06F 17/40, G06G 7/60, G06Q 50/24		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC- 700/236, 703/11, 705/2, 705/29, 707/999.1 Patents and NPL (classification, keyword; search terms below)		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Pub West (US EP JP WO), Pat Base (AU BE BR CA CH CN DE DK EP ES FI FR GB IN JP KR SE TH TW US WO), Google Patent, Google Scholar, Free Patents Online; search terms: track, manage, trend, record, report, chronic, endocrine, Cushing's, pad, thick, facial, width, skin, discoloration, cohort, group, community, population, mifepristone		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/0169409 A1 (FALLON et al.) 01 July 2010 (01.07.2010), Fig. 8A; para [0090], [0093], [0094], [0099], [0102]-[0104], [0110], [0112], [0113], [0116], [0160], [0166], [0128], [0136], [0144], [0148], [0151], [0164], [0165], [0179]-[0181], [0192]	1-9, 19, 21 ----- 22
Y	US 2011/0224179 A1 (NEWELL-PRICE) 15 September 2011 (15.09.2011), para [0009], [0014], [0021], [0035], [0039], [0082]	22
Y	US 2013/0144676 A1 (O'SULLIVAN et al.) 06 June 2013 (06.06.2013), para [0008]-[0290]	1-9, 19, 21, 22
Y	US 2006/0036619 A1 (FUERST et al.) 16 February 2006 (16.02.2006), para [0019], [0020], [0033], [0043], [0053], [0095], [0143], [0196], [0355], [0404]	1-9, 19, 21, 22
Y	US 2005/0283385 A1 (HUNKELER et al.) 22 December 2005 (22.12.2005), para [0005]-[0112]	1-9, 19, 21, 22
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* Special categories of cited documents:		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search 29 September 2015 (29.09.2015)		Date of mailing of the international search report 30 OCT 2015
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 15/31408

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-9, 19, 21, and 22, drawn to methods of managing treatment of a chronic condition.

Group II: Claims 10-18 and 20, drawn to methods and a system for treating a chronic disease or disorder exhibiting an outwardly visible symptom in a patient.

-- Please See Supplemental Box --

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-9, 19, 21, 22

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

Continued from Box No. III, Observations where unity of invention is lacking.

Special Technical Features

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group II do not require either of: receiving data regarding one or more symptoms associated with the chronic condition over a period of time in a symptom tracking system comprising an information management system; and storing the data regarding the one or more symptoms; and outputting a report tracking the one or more symptoms based on the received data to any of the patient, a treating physician, a pharmacy, a developer of a drug used in treating the chronic condition, or any combination thereof; or receiving data regarding multiple symptoms over time from a patient input; and outputting a report using the data of the multiple symptoms so that the multiple symptoms over time are viewable simultaneously or in rapid succession by a medical professional to allow ready identification of a trend or correlation for use in treatment assessment/adjustment, as required by Group I.

Group I do not require any of: receiving a first image of the patient on a server; receiving a second image of the patient on a server, wherein the second image is captured subsequent to capture of the first image; comparing the first image and second image using a processor to determine a change in the outwardly visible symptom; and determining a course of treatment in response to the determined change of the outwardly visible symptom; or one or more image capture devices adapted for capturing a plurality of images of the patient sequentially during a monitoring period; a server configured for receiving and storing the plurality of images of the patient in an information system; a processor configured for: comparing the plurality of images of the patient to determine a change or a trend of change of the outwardly visible symptom of the patient; and determining a course of treatment in response to the determined change or trend of the outwardly visible symptom; or receiving multiple facial images of a patient diagnosed with the chronic disease or disorder in a symptom tracking information system from a patient input; and outputting the multiple images to a display accessible to a medical professional so that the multiple images are viewable simultaneously or in rapid succession to facilitate identification of a trend in changes between images by the medical professional to assess treatment efficacy; or receiving multiple facial images of a patient diagnosed with the chronic disease or disorder in a symptom tracking information system from a patient input; performing a facial recognition or analysis sequence to determine corresponding facial dimensions in each of the multiple facial images for determination of changes in facial dimensions between images; and outputting a report or alert to a medical professional administering treatment to the patient and/or to the patient regarding the determined change in facial dimensions when indicative of a relapse or increase in symptoms, as required by Group II.

Shared Common Features

The only feature shared by Groups I and II that would otherwise unify the groups is a patient; receiving data; one or more symptoms; a chronic condition; tracking; a trend; outputting a report; and outputting data viewable simultaneously or in rapid succession by a medical professional to allow ready identification of a trend for use in treatment assessment. However, this shared technical feature does not represent a contribution over prior art, because the shared technical feature is anticipated by US 2006/0036619 A1 to Fuerst, et al. (hereinafter 'Fuerst'). Fuerst discloses a patient (para [0043]); receiving data (para [0355]); one or more symptoms (para [0033]); a chronic condition (para [0019]); tracking (para [0020]); a trend (para [0196]); outputting a report (para [0404]); and outputting data viewable simultaneously or in rapid succession by a medical professional to allow ready identification of a trend for use in treatment assessment (para [0095], [0143]).

As the technical features were known in the art at the time of the invention, this cannot be considered a special technical feature that would otherwise unify the groups.