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| APPLICATION<br>NUMBER | FILING or<br>371(c) DATE | GRP ART<br>UNIT | FIL FEE REC'D | ATTY. DOCKET NO. | TOT CLAIMS | IND CLAIMS |
|-----------------------|--------------------------|-----------------|---------------|------------------|------------|------------|
| 61/908,122            | 11/24/2013               |                 | 130           | 2104-052-C45-USP |            |            |

CONFIRMATION NO. 3361

FILING RECEIPT



32964  
DEKEL PATENT LTD., DAVID KLEIN  
BEIT HAROF'IM  
18 MENUHA VENAHALA STREET, ROOM 27  
REHOVOT, 76209  
ISRAEL

Date Mailed: 01/17/2014

Receipt is acknowledged of this provisional patent application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Benjamin Firooz Ghassabian, Jerusalem, ISRAEL;

Applicant(s)

Benjamin Firooz Ghassabian, Jerusalem, ISRAEL;

Power of Attorney:

David Klein--41118

If Required, Foreign Filing License Granted: 01/16/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 61/908,122**

**Projected Publication Date:** None, application is not eligible for pre-grant publication

**Non-Publication Request:** No

**Early Publication Request:** No

**\*\* SMALL ENTITY \*\***

Title

DATA ENTRY SYSTEMS

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:** No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international

page 1 of 3

application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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### **Title 37, Code of Federal Regulations, 5.11 & 5.15**

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Doc Code: **TR.PROV**

Document Description: Provisional Cover Sheet (SB16)

PTO/SB/16 (04-07)

Approved for use through 06/30/2010 OMB 0651-0032

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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| <b>Provisional Application for Patent Cover Sheet</b>                                                                                       |             |                             |                                               |       |                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------|-----------------------------------------------|-------|---------------------------------------|
| This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)                                                      |             |                             |                                               |       |                                       |
| <b>Inventor(s)</b>                                                                                                                          |             |                             |                                               |       |                                       |
| Inventor 1                                                                                                                                  |             |                             |                                               |       | <input type="button" value="Remove"/> |
| Given Name                                                                                                                                  | Middle Name | Family Name                 | City                                          | State | Country i                             |
| Benjamin                                                                                                                                    | Firooz      | Ghassabian                  | Jerusalem                                     |       | IL                                    |
| All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the <b>Add</b> button. |             |                             |                                               |       | <input type="button" value="Add"/>    |
| <b>Title of Invention</b>                                                                                                                   |             | IMPROVED DATA ENTRY SYSTEMS |                                               |       |                                       |
| Attorney Docket Number (if applicable)                                                                                                      |             | 2104-052-C45-USP            |                                               |       |                                       |
| <b>Correspondence Address</b>                                                                                                               |             |                             |                                               |       |                                       |
| Direct all correspondence to (select one):                                                                                                  |             |                             |                                               |       |                                       |
| <input checked="" type="radio"/> The address corresponding to Customer Number                                                               |             |                             | <input type="radio"/> Firm or Individual Name |       |                                       |
| Customer Number                                                                                                                             |             |                             | 32964                                         |       |                                       |

|                                                                                                                                         |  |
|-----------------------------------------------------------------------------------------------------------------------------------------|--|
| The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government. |  |
| <input checked="" type="radio"/> No.                                                                                                    |  |
| <input type="radio"/> Yes, the name of the U.S. Government agency and the Government contract number are:                               |  |

**Entity Status**

Applicant claims small entity status under 37 CFR 1.27

☒ Yes, applicant qualifies for small entity status under 37 CFR 1.27☐ No**Warning**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

**Signature**

Please see 37 CFR 1.4(d) for the form of the signature.

|            |               |           |       |                                         |            |
|------------|---------------|-----------|-------|-----------------------------------------|------------|
| Signature  | /David Klein/ |           |       | Date (YYYY-MM-DD)                       | 2013-11-24 |
| First Name | David         | Last Name | Klein | Registration Number<br>(If appropriate) | 41118      |

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **This form can only be used when in conjunction with EFS-Web. If this form is mailed to the USPTO, it may cause delays in handling the provisional application.**

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

| Electronic Patent Application Fee Transmittal |          |                             |        |                      |
|-----------------------------------------------|----------|-----------------------------|--------|----------------------|
| Application Number:                           |          |                             |        |                      |
| Filing Date:                                  |          |                             |        |                      |
| Title of Invention:                           |          | IMPROVED DATA ENTRY SYSTEMS |        |                      |
| First Named Inventor/Applicant Name:          |          | Benjamin Firooz Ghassabian  |        |                      |
| Filer:                                        |          | David L. Klein              |        |                      |
| Attorney Docket Number:                       |          | 2104-052-C45-USP            |        |                      |
| Filed as Small Entity                         |          |                             |        |                      |
| Provisional Filing Fees                       |          |                             |        |                      |
| Description                                   | Fee Code | Quantity                    | Amount | Sub-Total in USD(\$) |
| Basic Filing:                                 |          |                             |        |                      |
| Provisional Application Filing Fee            | 2005     | 1                           | 130    | 130                  |
| Pages:                                        |          |                             |        |                      |
| Claims:                                       |          |                             |        |                      |
| Miscellaneous-Filing:                         |          |                             |        |                      |
| Petition:                                     |          |                             |        |                      |
| Patent-Appeals-and-Interference:              |          |                             |        |                      |
| Post-Allowance-and-Post-Issuance:             |          |                             |        |                      |
| Extension-of-Time:                            |          |                             |        |                      |

| Description              | Fee Code | Quantity | Amount | Sub-Total in<br>USD(\$) |
|--------------------------|----------|----------|--------|-------------------------|
| <b>Miscellaneous:</b>    |          |          |        |                         |
| <b>Total in USD (\$)</b> |          |          |        | <b>130</b>              |

| Electronic Acknowledgement Receipt          |                             |
|---------------------------------------------|-----------------------------|
| <b>EFS ID:</b>                              | 17487591                    |
| <b>Application Number:</b>                  | 61908122                    |
| <b>International Application Number:</b>    |                             |
| <b>Confirmation Number:</b>                 | 3361                        |
| <b>Title of Invention:</b>                  | IMPROVED DATA ENTRY SYSTEMS |
| <b>First Named Inventor/Applicant Name:</b> | Benjamin Firooz Ghassabian  |
| <b>Customer Number:</b>                     | 32964                       |
| <b>Filer:</b>                               | David L. Klein              |
| <b>Filer Authorized By:</b>                 |                             |
| <b>Attorney Docket Number:</b>              | 2104-052-C45-USP            |
| <b>Receipt Date:</b>                        | 24-NOV-2013                 |
| <b>Filing Date:</b>                         |                             |
| <b>Time Stamp:</b>                          | 11:20:52                    |
| <b>Application Type:</b>                    | Provisional                 |

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| Payment was successfully received in RAM | \$ 130      |
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**File Listing:**

| Document Number | Document Description | File Name | File Size(Bytes)/<br>Message Digest | Multi Part /.zip | Pages (if appl.) |
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|              |                                             |                                                        |                                                    |    |   |
|--------------|---------------------------------------------|--------------------------------------------------------|----------------------------------------------------|----|---|
| 1            | Specification                               | 2104-052-C45-desc-clean.pdf                            | 79929<br>f09b3d805ef18b72f0ac659837c53e7c25618dc   | no | 8 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 2            | Drawings-only black and white line drawings | 2104-052-C45-figs-490K-490P-vert.pdf                   | 43053<br>59d6b460f1c80a532a35fa016b8ff955335b33c3  | no | 1 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 3            | Drawings-only black and white line drawings | 2104-052-C45-figs-490Q-490R-moving-full-kb-re-used.pdf | 51393<br>8de9164d3f03af6369b73f4b2b1031ffa8d2cfbb  | no | 1 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 4            | Drawings-only black and white line drawings | 2104-052-C45-Figs-499A-F-zone0-modified-re-used.pdf    | 70754<br>cdb27a9f28ffc600aee7e55d4b03520955184c0f  | no | 1 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 5            | Drawings-only black and white line drawings | 2104-052-C45-figs-500A-H-swiping-on-kb-re-used.pdf     | 71477<br>9d3be532a8b3813cb0a28e472bdfc4e87aaecfab  | no | 1 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 6            | Drawings-only black and white line drawings | 2104-052-C45-figs-500I-K-swiping-re-used.pdf           | 68001<br>c79023ddac9a28abacf443fd02bd18470314b610  | no | 1 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 7            | Drawings-only black and white line drawings | 2104-052-C45-figs-501-precise-and-or-amb.pdf           | 29463<br>a33f20ce9081efe4831ff76f6299c682e8db6451  | no | 1 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 8            | Transmittal of New Application              | 2104-052-C45-transmit.pdf                              | 881012<br>6d894459a3398c85ac41392d8bc9bb13f897e9e0 | no | 3 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |
| 9            | Fee Worksheet (SB06)                        | fee-info.pdf                                           | 29747<br>cc380df0b776c34c2d313e124c295e52e327e5e4  | no | 2 |
| Warnings:    |                                             |                                                        |                                                    |    |   |
| Information: |                                             |                                                        |                                                    |    |   |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**Date: 24/November/2013**

**US Provisional Patent Application**

**Our ref: 052-c45**

**Title: IMPROVED DATA ENTRY SYSTEMS**

**Inventor: BENJAMIN FIROOZ GHASSABIAN**

This application is part of the previous US Provisional Patent Applications:

The present application claims priority from US patent applications:

- application number 61599000 filed on February-15<sup>th</sup>, 2012
- application number 61601143 filed on February-21<sup>st</sup>, 2012;
- application number 61603390 filed on February-26<sup>th</sup>, 2012;
- application number 61608181 filed on March-8<sup>th</sup>, 2012;
- application number 61612509 filed on March-19<sup>th</sup>, 2012;
- application number 61613580 filed on March-21<sup>th</sup>, 2012;
- application number 61617224 filed on March-29<sup>th</sup>, 2012;
- application number 61620525 filed on April-5<sup>th</sup>, 2012 ;
- application number 61637384 filed on April-24<sup>th</sup>, 2012;
- application number 61641378 filed on May 2<sup>nd</sup>, 2012;
- application number 61647611 filed on May 16<sup>th</sup>, 2012;
- application number 61649322 filed on May 20<sup>th</sup>, 2012;
- application number 61651089 filed on May 24<sup>th</sup>, 2012;
- application number 61652950 filed on May 30<sup>th</sup>, 2012;
- application number 61656091 filed on June 06<sup>th</sup>, 2012;
- application number 61659536 filed on June 14<sup>th</sup>, 2012;
- application number 61660755 filed on June 17<sup>th</sup>, 2012;
- application number 61661390 filed on June 19<sup>th</sup>, 2012;
- application number 61663582 filed on June 24<sup>th</sup>, 2012;
- application number 61669152 filed on July 09<sup>th</sup>, 2012;
- application number 61671741 filed on July 15<sup>th</sup>, 2012;
- application number 61674358 filed on July 22<sup>th</sup>, 2012;
- application number 61679858 filed on August 06<sup>th</sup>, 2012;
- application number 61683219 filed on August 15<sup>th</sup>, 2012;
- application number 61697414 filed on September 6<sup>th</sup>, 2012;
- application number 61699408 filed on September 11<sup>th</sup>, 2012;
- application number 61704682 filed on September 24<sup>th</sup>, 2012;
- application number 61705164 filed on September 25<sup>th</sup>, 2012;
- application number 61711798 filed on October 10<sup>th</sup>, 2012;
- application number 61714842 filed on October 17<sup>th</sup>, 2012;
- application number 61718297 filed on October 25<sup>th</sup>, 2012;
- application number 61723860 filed on November 08<sup>th</sup>, 2012;

- application number 61730130 filed on November 27<sup>th</sup>, 2012 ;
- application number 61730584 filed on November 28<sup>th</sup>, 2012;
- application number 61737951 filed on December 17<sup>th</sup>, 2012;
- application number 61746581 filed on December 28<sup>th</sup>, 2012;
- application number 61749338 filed on January 06<sup>th</sup>, 2013;
- application number 61754707 filed on January 21<sup>th</sup>, 2013;
- application number 61760770 filed on February 5<sup>th</sup>, 2013;
- application number 61761321 filed on February 6<sup>th</sup>, 2013;
- application number 61764078 filed on February 13<sup>th</sup>, 2013;
- application number 61765751 filed on February 17<sup>th</sup>, 2013;
- application number 61766747 filed on February 19<sup>th</sup>, 2013;
- application number 61769285 filed on February 26<sup>th</sup>, 2013;
- application number 61772066 filed on March 4<sup>th</sup>, 2013;
- application number 61774605 filed on March 8<sup>th</sup>, 2013;
- application number 61777102 filed on March 12<sup>th</sup>, 2013;
- application number 61778888 filed on March 13<sup>th</sup>, 2013;
- application number 61802690 filed on March 17<sup>th</sup>, 2013;
- application number 61803456 filed on March 20<sup>th</sup>, 2013;
- application number 61804681 filed on March 24<sup>th</sup>, 2013;
- application number 61810805 filed on April 11<sup>th</sup>, 2013;
- application number 61811756 filed on April 14<sup>th</sup>, 2013;
- application number 61813271 filed on April 18<sup>th</sup>, 2013;
- application number 61814290 filed on April 21<sup>st</sup> 2013;
- application number 61819598 filed on May 5<sup>th</sup> 2013;
- application number 61821331 filed on May 9<sup>th</sup> 2013;
- application number 61822934 filed on May 14<sup>th</sup> 2013;
- application number 61823971 filed on May 16<sup>th</sup> 2013;
- application number 61825049 filed on May 17<sup>th</sup> 2013;
- application number 61827020 filed on May 24<sup>th</sup> 2013;
- application number 61830114 filed on June 02<sup>nd</sup> 2013;
- application number 61833512 filed on June 11<sup>th</sup> 2013;
- application number 61833991 filed on June 12<sup>th</sup> 2013 ;
- application number 61834889 filed on June 14<sup>th</sup> 2013;
- application number 61835704 filed on June 17<sup>th</sup> 2013;
- application number 61837662 filed on June 21<sup>th</sup> 2013;
- application number 61838288 filed on June 23<sup>th</sup> 2013;
- application number 61838403 filed on June 24<sup>th</sup> 2013;
- application number 61841360 filed on June 30<sup>th</sup> 2013;
- application number 61843391 filed on July 07<sup>th</sup> 2013;
- application number 61846030 filed on July 14<sup>th</sup> 2013;
- application number 61858210 filed on July 25<sup>th</sup> 2013;
- application number 61860396 filed on July 31<sup>st</sup> 2013;
- application number 61865254 filed on August 13<sup>th</sup> 2013;
- application number 61866119 filed on August 15<sup>th</sup> 2013;
- application number 61868172 filed on August 21<sup>st</sup> 2013;
- application number 61869722 filed on August 25<sup>th</sup> 2013;
- application number 61875192 filed on September 09<sup>th</sup> 2013;
- application number 61878695 filed on September 17<sup>th</sup> 2013;
- application number 61879152 filed on September 18<sup>th</sup> 2013;
- application number 61882160 filed on September 25<sup>th</sup> 2013;

- application number 61893291 filed on October 21<sup>st</sup> 2013;
- application number 61899240 filed on November 03<sup>rd</sup> 2013; and
- application number 61902242 filed on November 10<sup>th</sup> 2013.

The drawings and text of the above applications are entirely incorporated herein by reference.

The titles used in this application and in the related applications may preferably not be considered as part of the descriptions.

## **Swipe**

### **Direction on a key**

#### **And an ambiguous zone**

### **Glides ending outside do not relate to swiping input method**

#### **Correspond to entering precise chars/functions**

#### **Letters, special chars, functions (e.g. SpellHelp)**

### **tapping direction on a K**

Preferably, a substantially straight gliding action (e.g. 500011 of Fig. 500I) traversing at least 2 keys may correspond to interacting with source and destination keys/zones (e.g. keys/zone 500002 and 500007, e.g. of a keypad of the invention in split mode). If a user desires to also interact with any of the others keys in addition to source and destination keys/zones (e.g. said other keys/zones may herein be referred to as middle keys/zones), the user may change a feature of a gliding action for each of said middle keys/zones, for example, change of speed, direction, pressures, etc. For example, the gliding action 500012 of Fig. 500I may correspond to interacting with the keys/zones 500002, 500004, and 500007. Fig. 500J shows the same interactions on a keypad of the invention in a non-split mode. Accordingly, the gliding actions 500051 and 500052 respectively correspond to interacting with the keys/zones 500003, 500004, and the keys/zones 500003, 500007, 500004 of the minimal keypad of Fig. 500M.

Providing a gliding action on a single key/zone may preferably correspond to two interactions (e.g. two tapping actions) on with said key/zone. Preferably, the order of presentation of the corresponding letters on the key/zone corresponds to the direction of the gliding action. For example, as shown in Fig. 500K, the gliding 500031 provided on the key 500002 may preferably correspond to the word “up” and the gliding action 500032, provided on the same key, may correspond to the word “it”. Note that, such a gliding action may correspond to a portion of a word. In this case, in addition to considering to ambiguous interactions with the corresponding key, the direction of such gliding action preferably restricts the number of choices. For example, a tapping action on the key/zone 500003 and providing the gliding action 500031, may preferably correspond to the word “ail”, while the tapping 500003 and the gliding action 500032 may preferably correspond to the word “fit”. Note that the direction defined by two or more predefined actions (e.g. tapping actions) on an identical key/zone may correspond to a gliding action (e.g. simple or complex) on said key in the corresponding direction.

A gliding action ending outside the letters keys/zones of a keypad may correspond to entering a precise character and/or a function. For example, the gliding action 500041 starting and ending on two letter keys/zones 500001, 500003 may correspond to interacting with said two keys, and a gliding action 500042 provided from the key 500001 traversing the key 500003 and ending outside the keypad of the invention, may correspond to the Spelling Help feature/function of the invention.

### **-Prediction based on user's typing behaviors (e.g. considering x, y, on touch)**

- If typing on a approximately same Y, considers as typing (e.g. fully) ambiguous (Method1)
- If typing on different Y, considers as typing (e.g. at least partially) precisely (Method2).
  - o Considers all of typing precisely (e.g. N precise)
  - o Considers at least one of them precise (e.g. N-1 to 1)
  - o If does not find a word may consider the neighboring letters of at least one of the touched area.\
  - o 2 different Y on the right zones and/or 2 different Y on left zones, or on the 5<sup>th</sup> zone

-First predicts based on the detected method of typing, then if needed, the other method.

-Can be used with Spell-Help too

-Can combine methods1 and method2

The prediction of the words using the data entry system may dynamically vary based on some parameters. According to one embodiment of the invention, based on users' interaction with the keyboard during the entry of a chain of characters such as a word, the system may automatically use various methods of prediction.

According to a first procedure, during the entry of a word if two impact point(s) on a predefined area (e.g. the right side or the left side of the keyboard, preferably defined by a line that separates the right and left keys/zone) of a keyboard are located within the same (e.g. preferably vertical) axis, where said axis has a predefined width, may preferably inform the system that each of the input signals, of a corresponding impact, ambiguously corresponds to any of the characters assigned to the corresponding key/zone (e.g. herein may be referred to an ambiguous input signal). As an example, in Fig. 501A, tapping on twice on the letter 't' 501011 may ambiguously correspond to several words, such as, 'it' and 'up'. As another example, tapping on the letter 't' 501001, 'g' 501012, 'g' 501012, may ambiguously correspond to several words, such as 'too' and 'log'.

According to a second procedure, during the entry of a word if two impact point(s) on a predefined area of a keyboard are not located within the same (e.g. preferably vertical) axis, may preferably inform the system that each of the input signals, of a corresponding impact, precisely corresponds to an identified character on and/or near which the impact was provided (e.g. herein may be referred to an unambiguous input signal). As an example, in Fig 501A, tapping on the letter 'u' 501021 and the letter 'p' 501022 may precisely correspond to the word 'up'. According to another example, tapping the letter 'h' 501031 and the letter 'i' 501032 may precisely correspond to the word 'hi'. Note that the system may use a word completion software to (e.g. also) predict longer words including one or more identified characters. Note that, preferably, one of the words predicted as such, may be entered by providing a preferred interaction, such as pressing the space key.

Note that in the first procedure, preferably, in addition to relating the impacts to ambiguous input signals, the system may also relate said interactions to unambiguous input signals and propose a corresponding chain of unambiguous characters. Note that in the second procedure, preferably, in addition to relating the impacts to unambiguous input signals, the system may also relate said interactions to ambiguous input signals and propose one or more corresponding words.

According to one method, upon determining a procedure, the system may preferably first propose one or more words based on said procedure. If needed, the system may (e.g. further) propose one or more words based on another procedure (e.g. the other procedure).

Note that the first and second procedures may be combined to predict one or more words. As an example, during the entry of a word, one or more impacts may be related by the system to

ambiguous input signal(s) and one or more impacts may be related to unambiguous input signal(s). As an example, during the entry of a word, if the majority of impacts are provided within the same (e.g. vertical) axis, and one or more other impacts are provided outside said axis, the system may preferably relate the impacts inside said axis to ambiguous input signals and may preferably relate those impacts outside said axis to unambiguous input signals. The system may propose one or more words accordingly.

The procedures described above/herein, may be used with any of the other methods of the word/text prediction systems. As an example, said procedures may be used/combined with the Spell Help methods of the invention.

Note that the procedures described above, are exemplary procedures. More procedures based on user interaction/behavior may be considered by those skilled in the art. As an example, during the entry of a word, (e.g. preferably, if one or more of the impacts is provided outside an axis in which a number of impacts are provided), the system may propose one or more words based on the following considerations: (1) the system considers all of said impacts (e.g. N impacts) as unambiguous input signals, (2) the system considers at least one of the impacts as being an ambiguous input signal (e.g. from 1 to N impacts). A such ambiguous input signal may preferably be related either to the key/zone on which the impact is provided or it may be preferably related to one or more character(s) on or located nearby said corresponding impact. Optionally, said ambiguous input signal may be related by the system to any character.

Note that based on user behavior such as typing with one or two hands the system may or may not relate the impacts to corresponding to ambiguous and/or unambiguous input signals. As an example, in Fig. 501B, the impacts 501111, 501112, and 501113 the system may not be able to relate said impacts to a first or a second procedure because if said impacts are provided by one finger they preferably should be related precise characters (e.g. only to the word 'can'), while if the impacts are provided by two hands then the user may have been related to ambiguous input signals. In this case, preferably, the system may consider each of the corresponding procedures to predict one or more words. In Fig. 501C, in addition to the impacts 501111, 501112, and 501113, the user has provided two more impacts 501114 and 501115. In this case, the system may preferably, at first, relate said impacts to unambiguous input signals because the left impacts 501112 and 501114 are provided on different vertical axis.

Note that, according to one method the system may use various means of recognition to recognize the intention of the user regarding typing precisely or ambiguously. Such means of recognition may be defined regardless of the consideration for the axis of typing as described above.

**if monekey is a/bigng-of-a w =>**

**- prediction based on it**

**- spell help**

**if monkey is in dic.**

**-monkey <-> current**

**- from N (eg 3)**

As mentioned before, during an instance of the data entry corresponding to a word, the system may relate/correspond the interactions such as tapping actions on a zone/key to both precise and/or to ambiguous input signal(s) (e.g. precise/identified and/or ambiguous characters). According to one embodiment, if a sequence of such input signals related by the system to precise characters correspond to a word and/or a stem (e.g. preferably corresponding to the beginning characters of a

(e.g. one or more) word/s of a database of words used by the system), then said said identified chain of characters may be considered as having the highest priority for that instance and may be considered as the current word being entered. Accordingly, preferably, said word may be entered and/or presented as the first choice. According to one method, more words (e.g. word candidates) beginning with said chain of characters may be presented to the user. Optionally, (e.g. preferably, if none of the proposed words is the desired word), the system may also propose words relating/corresponding to (e.g. considered) ambiguous input signals. If such input signals are not related to a word and /or a stem of the dictionary, the system may propose words based on ambiguous input signals.

As an example, by considering the keyboard of fig. 501A, if the user taps anywhere on the keys 501001, 501004, 501003, and 501002, and the corresponding precise chain of characters (e.g. EHDY) the system may propose ambiguous words 'what', 'whale', 'rofl' and 'whatsoever'. On the other hand, if said pressing actions correspond to tapping precisely on the letters W, H, A, T the system may relate said chain of characters WHAT which is a worked of the database and also corresponds longer words that begin with said chain of characters. As an example, in this case, the system may relate said interaction to the words WHAT, WHAT'S , WHATSOEVER, WHATEVER, WHAT'D, etc.

Note that, according to one method, the user interactions corresponding to entry of information corresponding to a word may be considered by the system to include ambiguous and/or precise input signals. As an example, an auto-correction system such as the ones described herein may be used with the system to propose a word(s) that may be considered by the system to include some (e.g. one or more) of the input signals as precise characters and one of more of the input signals as ambiguous (e.g. in case the system does not find a word in the word database if the system relates all the input signals to precise characters). The system may propose one or more words (e.g. short and/or long words) accordingly.

Preferably, the principles just described may be applied to the words having at least a predefined number of characters (e.g. preferably at least 3 or at least 4 characters).

The principles described above may be used with any technology such as those described in this and related applications. As an example, these principles may be used with the Spelling Help system (e.g. relating the precise and ambiguous interactions to the beginning and ending characters of a word) of the invention.

#### **spell help**

##### **1st type, then another type**

**tap left + tap right**

##### **tap (precisely) big. + tap (precisely) end**

Methods of Spelling Help by typing one or more beginning characters of a word and/or typing one or more ending characters of a word have been described before by this inventor. According to one method, the beginning characters of a word may be entered by using a first type of interaction and the ending characters may be entered by using a second type of interaction. Said types of interaction may vary. As an example, the first type of interaction may be tapping on a location other than the right side of the corresponding keys/zones (e.g. zones/keys 501001 to 501004, and 501007 of the keypad of Fig. 501A) for the beginning characters, and the second type of interaction may be tapping on the right side of said corresponding keys/zones.

According to another method, during the entry of a word, (e.g. in addition to relating said interactions to a sequence of characters) the system (e.g. automatically) may relate a first number of key/zone interactions to beginning characters of a word, and may relate the rest of the key/zone interactions to the ending characters of said word.

**wl includes spchars**

Note that, for the word list of the invention has been described in detailed before, preferably upon display of said word list, a group of one or more keys/zones (e.g. herein referred to as word list keys/zones) may be displayed (e.g. next to and/or immediately underneath the word list). Upon actuating (e.g. tapping, gliding, etc.) a key/zone of said group of keys/zones, word(s) in said word list may be modified, preferably adding an additional character corresponding to a key/zone of said group of keys/zones to the end of at least one word in said word list. Preferably, when the word list is not displayed, the word list keys/zones are not displayed.

**on/from bs    move for small/large keys**  
**long-press and mode for split/unsplit**

The description regarding positioning and resizing (e.g. splitting, changing the size of the keys, moving the keys) of a keyboard have been described herein. According to one embodiment, providing a predefined interaction such as a gliding action including the press-and-hold action from a key such as a backspace key may correspond to a function such as splitting or unsplitting the keyboard of the invention such as described throughout Figs. 490K to 490S. Preferably, similar gliding actions not including the press-and-hold action may correspond to changing the size of the keys of the keyboard (e.g. increasing and decreasing the size of the keyboard). As an example, providing a gliding action without including a press-and-hold action from the backspace key leftwards may correspond to increasing the width of the keys of the keyboard, providing a gliding action without including a press-and-hold action from the backspace upwards may correspond to increasing the height of the keys of the keyboard, and providing a gliding action without including a press-and-hold action from the backspace key diagonally towards the upper-left may increase the both the width and height of the keys of the keyboard. Preferably, a predefined action such as a press-and-hold action (e.g. and removing the finger) without providing a gliding action may correspond to resizing and/or repositioning the keyboard in a predefined/default instance.

Note that, the interaction corresponding to splitting and/or resizing the keys of the keyboard may be interchanged.

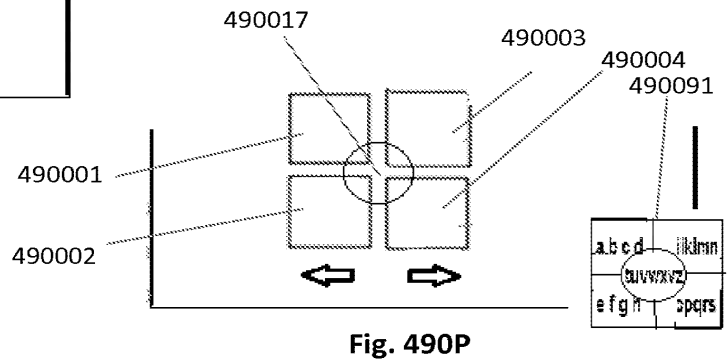
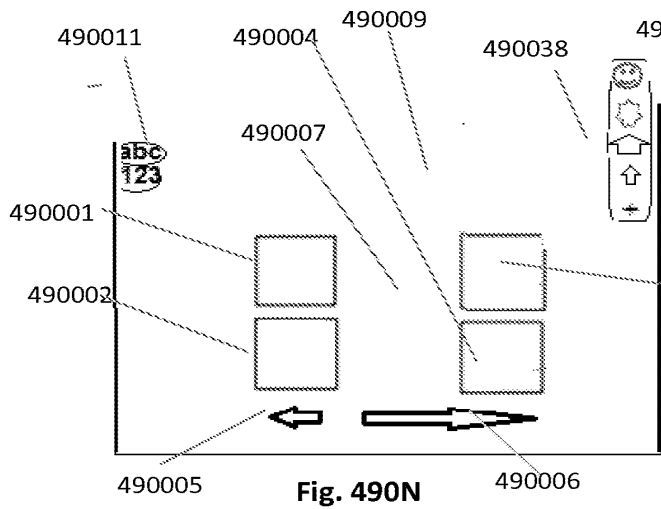
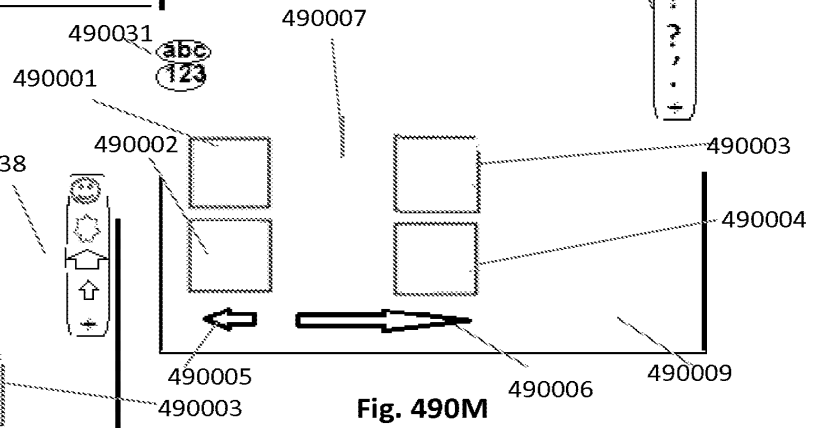
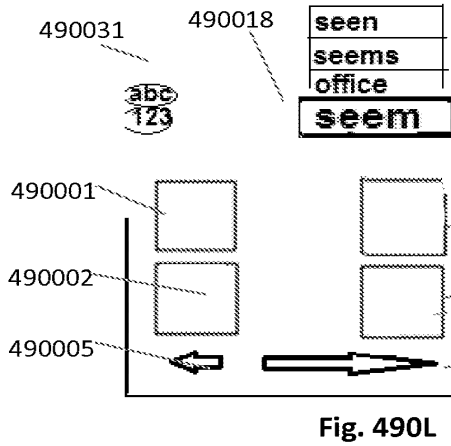
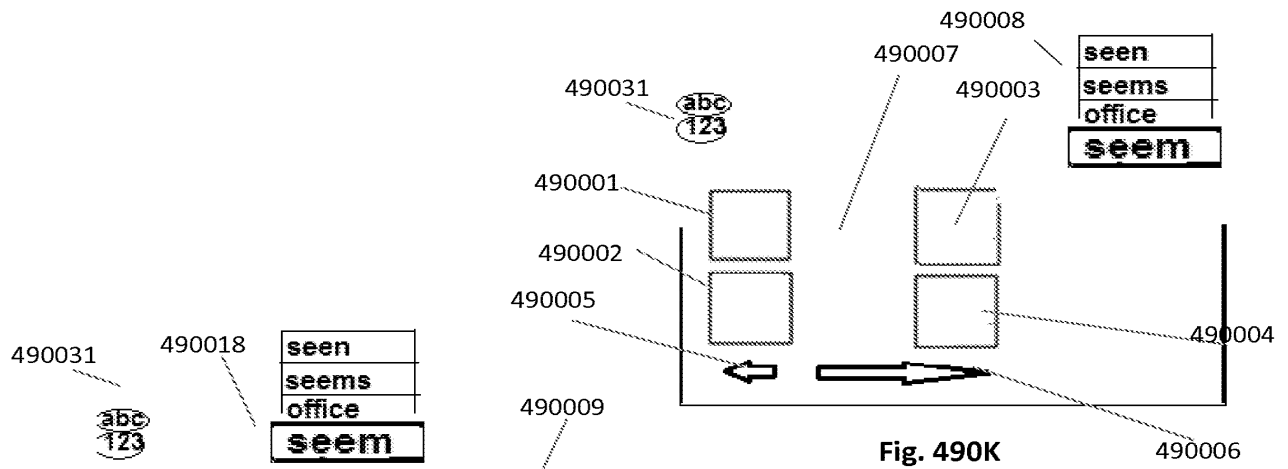
**Slide up from a key for shift. Slide and hold for capslock**

**Enters the letter too**

**In precise: a) enters amb. letter and precise for monkey b) enters precise for all words**

According to one embodiment, a predefined interaction with a key such as a gliding action in a predefined direction such as upward from a key (e.g. of an ambiguous or precise keyboard) may be related to a Shift function. Preferably such interaction may also be related to typing/entering a corresponding character in the corresponding Shifted Mode. Preferably, if said gliding action includes a press-and-holding action it may activate the capslock function.





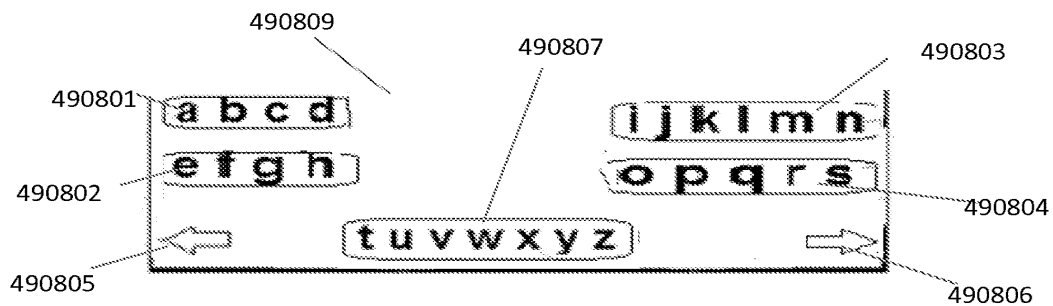


Fig. 490Q

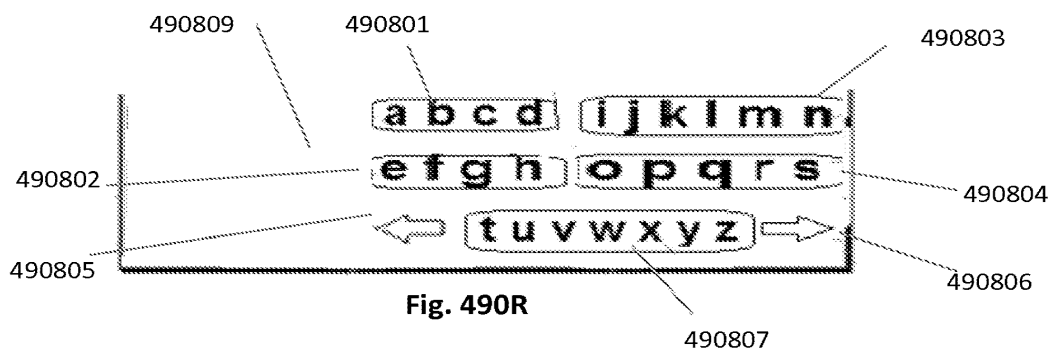


Fig. 490R

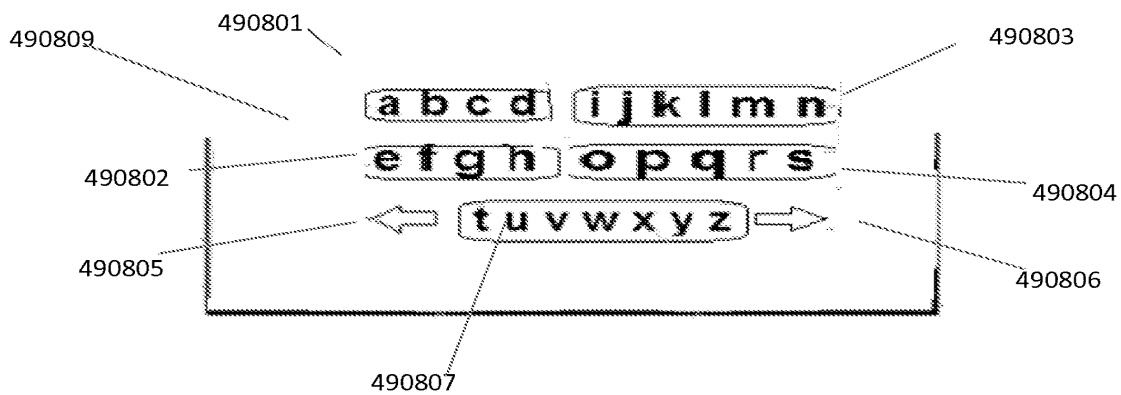
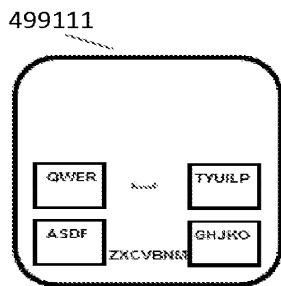
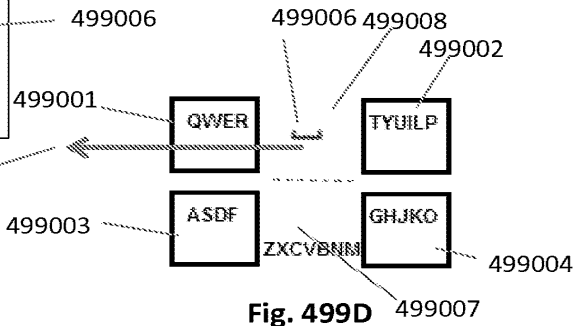
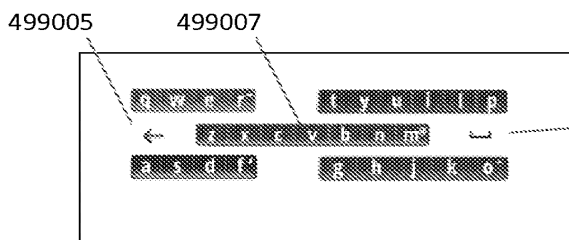
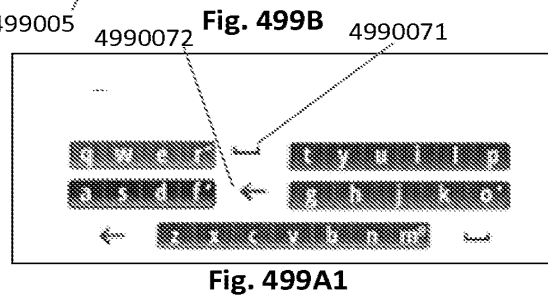
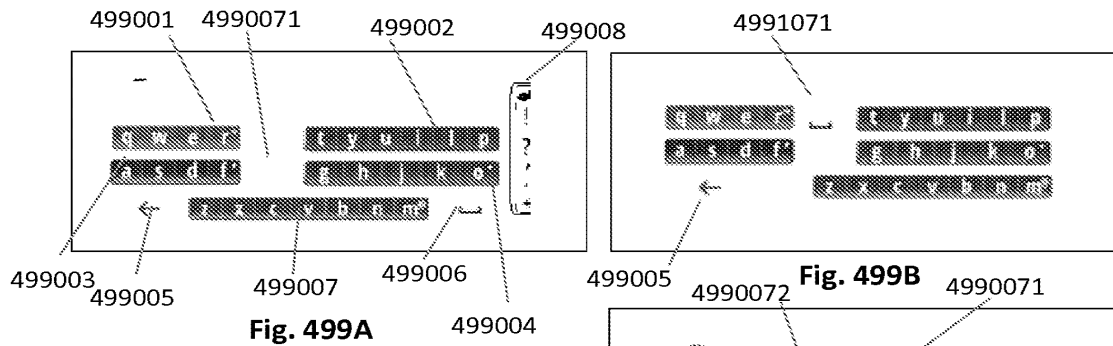


Fig. 490S



This demonstrates the benefits of having the data entry system of the invention installed on a smart watch-and-phone.

