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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 September 2010 (16.09.2010)

PCT

(10) International Publication Number
WO 2010/102334 A1

(51) International Patent Classification:
G06F 15/02 (2006.01) *G06M 1/22* (2006.01)

(21) International Application Number:
PCT/AU2010/000272

(22) International Filing Date:
10 March 2010 (10.03.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2009900952 10 March 2009 (10.03.2009) AU

(72) Inventors; and
(71) Applicants : **HORSNELL, Nicole, Jane** [AU/AU]; 1a Talbot Avenue, North Plympton, S.A. 5037 (AU). **BRETAG, Warren, John** [AU/AU]; Unit 24, 288 Casuarina Drive, Nightcliff, N.T. 0810 (AU).

(74) Agent: **COLLISON & CO**; 117 King William Street, Adelaide, S.A. 5000 (AU).

(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, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, 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.

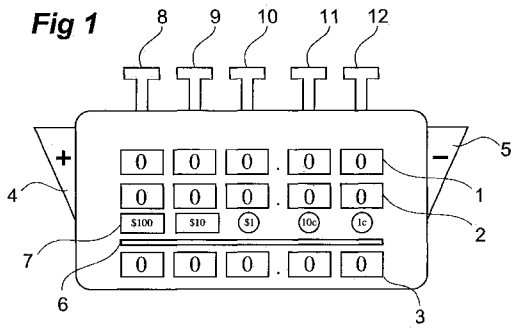
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS,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

Published:
— *with international search report (Art. 21(3))*

WO 2010/102334 A1

(54) Title: EXPENDITURE ASSESSMENT AID

Fig 1



(57) Abstract: An expenditure assessment aid where there are manually operable inputs (8) through (12) into each of number locations of a cost of product display line (1) and an available funds value is electronically calculated and displayed in an available funds line (3) with each cost of product being input into the aid to enable a warning if more than available funds is projected in costs.

EXPENDITURE ASSESSMENT AID

SPECIFICATION

This invention relates to an expenditure assessment aid and has particular application to those who may have difficulties identifying numbers or computing even simple summing or subtractions.

BACKGROUND OF THE INVENTION

It is known that some people have difficulties either or both identifying numbers or adding or subtracting numbers.

The problem has particular application where persons may be in receipt of payments and in order to purchase products for instance at a supermarket or other self-service facility, require to firstly after selecting products, assess whether they will either individually or collectively result in more than a value of funds that might exist to pay for these products.

In some current situations, a person who has attempted but wrongly chosen products that will exceed their budget, may and often will be totally embarrassed when presenting for instance at a check-out and having to return articles into the store.

The problem is maybe two fold one of which is a difficulty in recognising numerals.

A second problem is an ability to be able to assess a running total of costs of goods being selected and then being able to extract that from a given sum which may be a budget figure or an allowable allowance.

SUMMARY OF THE INVENTION

Our proposal is to have an apparatus which might in one instance be held discreetly by a person wishing to have its assistance but which can provide electronic computations but in such a way and having inputs so that a person of limited skills can be assisted usefully.

BRIEF DESCRIPTION OF THE INVENTION

In one form of this invention, there is proposed an expenditure assessment aid

comprising or including

a body having a face with visually discernable separate number locations,

and these in lines or rows of displayable numbers representing money amounts,

the separate numbers in each line being also aligned with the separate numbers of the same significance in value in each of the other lines,

a first of the lines being "a cost" line,

a second of the lines being a "running total expenditure" line

and a third line being a "remaining available funds" line,

a manually activatable member visually associated with each number in each line of the same value significance,

electronic means providing interconnections between the respective number locations and each manually activatable member so that when a line is active, its number in each number location is a result of the separate activating of the manually activatable member for that number where the number of activations

will effect a corresponding number being shown in a respective location in accordance with the number of activations,

an activation member electronically connected through said electronic means such that when operated, the value displayed in the "remaining available funds" line is reduced by the value immediately previously in the "cost" line, and the "running total expenditure" is increased by the same amount.

Whereas I have referred to a first line as a "cost" line, this can also be referred to as a "product input price" line.

Other aspects of this invention can be gained by reference to the attached claims and also to the following descriptions.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of this invention it will now be described with relation to a preferred embodiment which should be described with the assistance of a drawing wherein

Figure 1 is a visual display of the active components but not including the electronic elements which effect the operation according to very conventional techniques.

BRIEF DESCRIPTION OF THE EMBODIMENT

Referring to the drawing there are some mechanically operated parts which are in the form of buttons or tabs which electronically can be activated either by manual pressure or by some form of manual activation and there are five lines, four of which are visual representations of numbers in accordance with conventional level of significance the example having an upper limit therefore of

$999.99. This of course is arbitrary but would represent a reasonable upper limit for many persons to whom this equipment would be useful.

However the invention is not intended to be limited to such an upper limit.

Nor is the invention intended to be limited to any particular alignment of the lines themselves except that there is value in having the relative significance of numerals in one level being aligned with the same level of significance of numerals in another.

Accordingly however, in this case there is a top numeric line which is for an input cost or in other words a product input price 1.

The middle numeric line in this case is a running total of purchased items 2 and the bottom numeric line is a balance of funds line 3.

On the left hand side of the apparatus, there is a plus triangle showing a tab 4 and on the opposite side a minus triangle which is tab 5.

Above the balance of funds line 3 there is a bar which is electronically arranged so that it will represent an extent of funds expended and by implication therefore the funds remaining by its extent from one of the selected sides of the line.

In this case, a right hand is used for a zero level and a left hand full bar is used for a full total.

To assist persons assessing the significance of the particular number columns there is included in this case representations of currency to the value of one unit in such a line. Appropriately then, there is on the furthest left hand side a $100 bill next in is a $10 bill, next in is a $1 coin, next in is a 10 cent piece and finally a 1 cent piece.

Above the bottom line of numerals, there is an electronic "green bar" 6.

Along the top edge of the top casing are 5 push down buttons, now referred to as from left to right 8,9,10,11, and 12 each of which is arranged to effect the numbers only in that line. A simplification is that by continuing to add by extra pushes one of these then in this embodiment this will not then simply add the total increasing the significant numbers eg if one button is pressed 11 times the number will simply revert to a 1 in that line and column.

WORK FLOW

At any time that a total reset of all numerical input needs to be done, the 4 and 5 tabs must both be pushed in, concurrently at their furthest most apex, and must be held in, for a period of selected period which is as an example 3 seconds.

At the point of release of triangular tab 4 and triangular tab 5, the balance of funds line 3, under the green bar 6, becomes active, and in referencing active, it is back lit.

As an example now if we use tabs through 8 to 12 to enter the full amount of the persons budget, for example $250.00.

That number will be entered into the balance of funds line 3 line by pushing the buttons firstly the button 8 twice then button 9 five times in succession.

After a 3 second (this can be selected as desired) period of no activity from push down buttons 8 to 12, the cost of product line or row 1 becomes active (in referencing active, they are back lit).

At the same time the green bar 6 becomes active, in referencing active, they are back lit.

As a product cost is entered via tabs through 8 to 12, the cost of product 1 responds with the number of tab compressions which is to say column by column.

As an example of this, a product costing $4.25 equates to 4 compressions of button 10 followed by 2 compressions of button 11 and 5 compressions of button 12 showing only in cost of product line1.

By compressing triangular tab 4 on the left hand side of the casing, four things will occur

1 - cost of product 1 will clear
2 - running total line 2 will propagate cost of product 1's figures and therefore running total line 2 will be made active (backlit)
3 - green bar 6 will reduce by cost of product 1's figures (green bar 6 is a visual interpretation of balance of funds line3, in other words, a reducing bar graph which visually indicates how much money the user has left to spend)
4 - balance of funds line 3 will indicate the balance of funds which are balance of funds line 3 minus cost of product 1.

The balance of funds line 3 tally that started at $250.00 - $4.25 = will now appear as $245.75.

As a product cost is entered via tabs through 8 to 12, the cost of product 1 responds with the number of tab compressions.
As an example of this, a second product costing $16.99 equates to 1 compression of button 9, 6 compressions of button 10 followed by 9 compressions of button 11 and 9 compressions of button 12.

This again will show only in cost of product line 1.

By compressing triangular tab 4 on the left hand side of the casing, four things will occur

1 - cost of product 1 will clear
2 - running total line 2 will propagate cost of product 1's figures and therefore running total line 2 will be made active (backlit)
3 - green bar 6 will reduce by cost of product 1's figures (green bar 6 is a visual interpretation of balance of funds line 3.
in other words a reducing bar graph which visually indicates how much money the user has left to spend)
4 - balance of funds line 3 will indicate the balance of funds which are balance of funds line 3 minus cost of product 1.

The balance of funds line 3 tally that started at $250.00 - $4.25 = that then appeared as $245.75 will now reduce to $228.76.

If a mistake is made or an item needs to be removed from the unit this is when the triangular tab 5 is used

Enter the price / cost of the item to be removed and then press triangular tab 5

By compressing triangular tab 5 on the right hand side of the casing, four things will occur

1 - cost of product 1 will clear
2 - running total line 2 will deduct cost of product 1's figures and therefore running total line 2 will be made active (backlit)

3 - green bar 6 will increase by cost of product 1's figures (green bar 6 is a visual interpretation of balance of funds line 3, in other words a reducing bar graph which visually indicates how much money the user has left to spend)
4 - balance of funds line 3 will indicate the balance of funds which are balance of funds in line 3 plus cost of product 1.

SOUND EFFECTS

When the balance of funds line 3 reduces to the numerical value of $10.00 in one embodiment or 10% of the original budget number, an auditory sound is used to act as an indication of the approaching completion of available funds.

The apparatus of this type is constructed as a small computer with a microprocessor, read only memory and read and addressable memory, a screen and appropriate programming to effect the outputs described.
It is intended to be a portable device for a person to be able to discretely use and it is therefore battery driven and has an off-on switch which is not specifically shown but which allows the apparatus to be switched off entirely at any time with the result that entries in the RAM will be cleared and on being switched "on" the settings will be reset for a fresh operation.

When switched "on" the device is programmed to be activated by jointly pressing both tab 4 and tab 5 whereupon the budget line 3 is activated. A budget available value is then input location by location and after three seconds after any last operation the apparatus is programmed to change the activation row to the cost of product row 1.

If the cost of a product exceeds the available budget as entered into the budget line 3 an error signal will sound. This can be cleared by re-entering a value in the cost of product line 1 which is lower than the available funds in line 3.

The apparatus by having a simple input arrangement where the user need only recognize individual numbers and be able to count to 9 and will be able to feel the manual controls even when in a pocket or handbag means that this will be of greater value to those needing such assistance.

It will be seen that from the description thus far that the apparatus can be useful and provide a person with lesser numeric skills a simple aid that can be discreetly used and which hopefully will both save embarrassment and facilitate better budgeting or other control of funds.

CLAIMS

1 An expenditure assessment aid

comprising or including

a body having a face with visually discernable separate number locations,

and these in lines or rows of displayable numbers representing money amounts,

the separate numbers in each line being also aligned with the separate numbers of the same significance in value in each of the other lines,

a first of the lines being "a cost" line,

a second of the lines being a "running total expenditure" line,

and a third line being a "remaining available funds" line,

a manually activatable member visually associated with each number in each line of the same value significance,

electronic means providing interconnections between the respective number locations and each manually activatable member so that when a line is active, its number in each number location is a result of the separate activating of the manually activatable member for that number where the number of activations will effect a corresponding number being shown in a respective location in accordance with the number of activations,

an activation member electronically connected through said electronic means such that when operated, the value displayed in the "remaining available funds"

line is reduced by the value immediately previously in the "cost" line, and the "running total expenditure" is increased by the same amount.

2 An expenditure assessment aid including

a body having a face with visually discernable separate number locations, for each number location there being means to effect a display of for each any one of a single numeral,

and these in separate rows of displayable numbers representing money amounts in each row,

the separate numbers in each row being also aligned with the separate numbers of the same significance in value in each of the other rows,

a first of the lines being "a cost" line,

a second of the lines being a "running total expenditure" line,

and a third line being a "remaining available funds" line,

a manually activatable member visually associated uniquely with each numeral location in each column of the same value significance,

and electronic means providing interconnections between the respective number locations and each manually activatable member so that when a row is active, its displayed number in each number location is a result of the separate activating of the manually activatable member for that number where selected number of activations up to 9 will effect a corresponding number being shown in the respective location in accordance with the number of activations,

and there being an application member electronically connected through said electronic means such that when operated, the value displayed in the "remaining available funds" row is reduced by the value immediately previously in the "cost" row, and the value displayed in the "running total expenditure" is increased by the same amount.

3 An expenditure assessment aid

as in claim 2 further characterised in that

there is a further manually operable member connected electronically through the electronic means such that upon operation of this member it will effect when the cost line is active a transfer of the value in that line to be added to any value in the running total expenditure line and reduce by that value displayed in the remaining available funds line.

4 An expenditure assessment aid

as in claim 3 further characterised in that

there is a second manually operable member connected electronically through the electronic means such that upon operation of this member it will effect when the cost line is active a reduction of that value from the running total expenditure line and add by that value a value displayed in the remaining available funds line.

5 A expenditure assessment aid as in claim 4 further characterised in that the said further manually operable member and the second manually operable member are connected electronically to electronic means such that when pressed at the same time for a minimum time period there will be effected an activation of the remaining funds available line and there after once a further

time has passed from a last action in relation to that line the cost of product line is uniquely activated.

6 An expenditure assessment aid

as in any one of the preceding claims further characterised in that

there is a light associated with each line and each said light is connected electronically through the electronic means such that upon activation of a respective line the associated light is lit to indicate that active status of that line.

7 An expenditure assessment aid

as in any one of the preceding claims further characterised in that

there is a lighted bar associated with the remaining funds available line where the length of the lighted portion of the bar is proportional to the remaining funds available line value.

8 An expenditure assessment aid

as in any one of the preceding claims further characterised in that

the manually activatable members are for each number location are associated by being aligned with such locations.

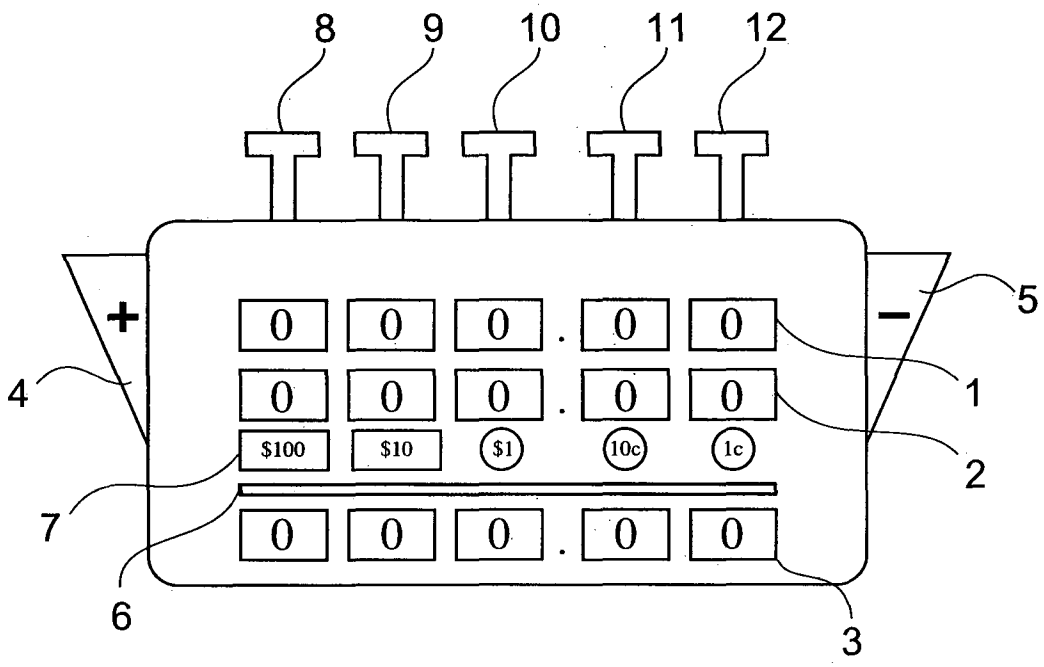


Fig 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2010/000272

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

G06F 15/02 (2006.01) *G06M 1/22* (2006.01)

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)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, EPODOC, Google, Patent Lens: Keywords (expenditure?, expense?, spend?, control+, manag+, limit+, display+, amount?, value?, cost?, fund?, remain+, balance, tally, counter+, shopping, purchas+, budget)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4528638 A (HATTA ET AL.) 9 July 1985 See whole document; in particular, abstract, col. 1 lines 13-23, col. 2 line 64 – col. 3 line 3, col. 3 lines 11-14,38-65, col. 4 lines 27-30; claim 1; figures 2,5-7	1-8
A	US 4961158 A (SUSSMAN) 2 October 1990 See whole document; in particular, abstract, col. 2 lines 30-59, col. 6 lines 26-68	
A	GB 2263862 A (STEVEN LAWRENCE KIRK) 11 August 1993 The whole document	
A	US 4910696 A (GROSSMAN ET AL.) 20 March 1990 The whole document	

☐ Further documents are listed in the continuation of Box C ☒ See patent family annex

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"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)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"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
"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
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 April 2010	21 APR 2010
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized officer **Olutope Omogbenigun** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : +61 2 6283 2876

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU2010/000272

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
US	4528638	JP	58058670	JP	58048165
US	4961158	NONE			
GB	2263862	NONE			
US	4910696	NONE			

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX