Sept. 9, 1958 A. MANNHEIMER 2,850,812

BRAILLE WRITING DEVICE

Filed July 29, 1955

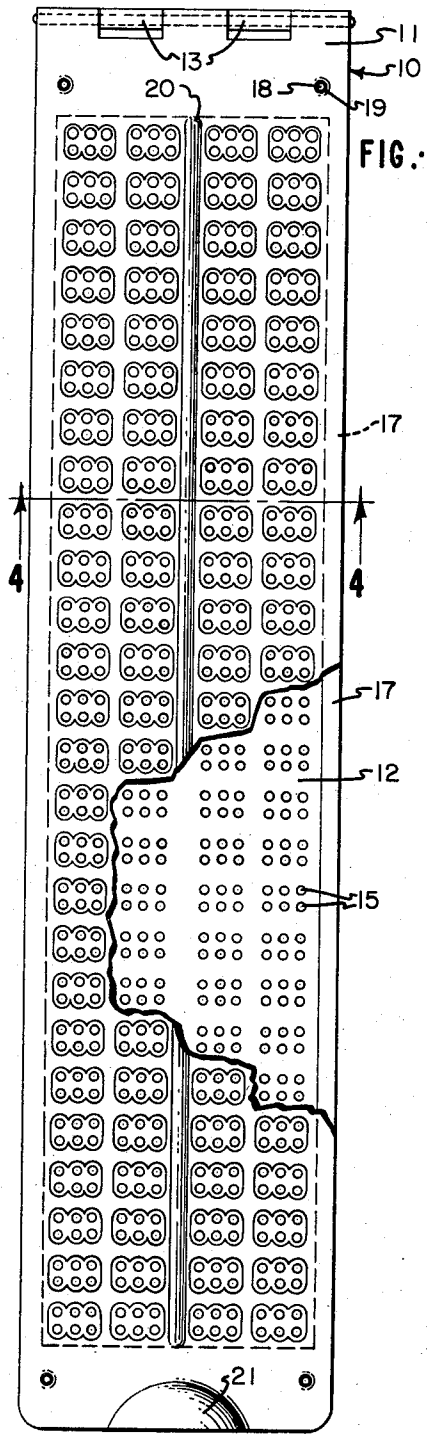


FIG. 1.

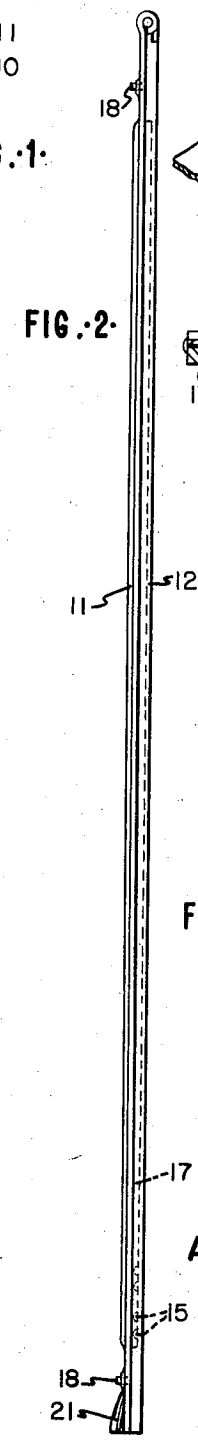


FIG. 2.

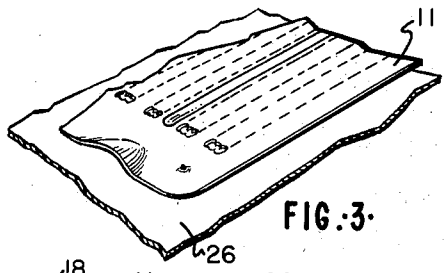


FIG. 3.

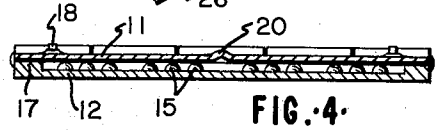


FIG. 4.

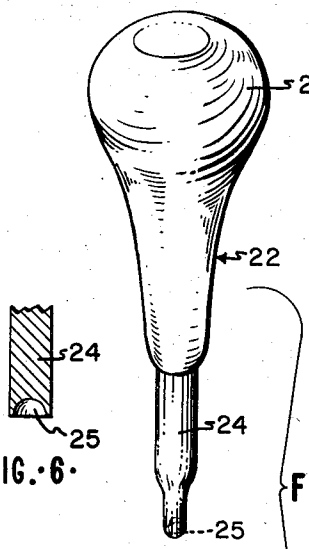


FIG. 5.

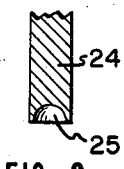
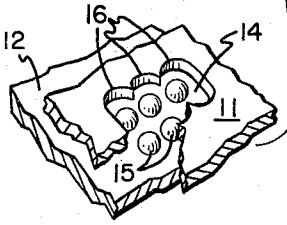


FIG. 6.



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BRAILLE WRITING DEVICE

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2 Claims. (Cl. 35—38)

This invention relates to a braille writing device for use in communicating with persons who are blind.

In the braille writing system, words and arithmetical symbols are all formed as characters comprising various combinations of a basic pattern of raised portions disposed in two parallel rows of three spaced units each.

The conventional simplified device now in use for writing braille characters comprises a metal slate having two elongated layers and a punch. A piece of heavy paper approaching cardboard in thickness is inserted between the layers of the slate. The top layer of the slate is provided with guides indicating the positioning of the characters and the units thereof. The bottom layer of the slate is provided with rounded depressions which are aligned with the guides. The bottom of the punch is rounded in a manner corresponding to the rounded depressions. The punch is used to press the paper into the depressions to form raised portions in the pattern of braille characters.

The principal difficulty with such devices is that the punch forms the raised portions on the opposite side of the paper. When the paper is turned over to read the characters, it is necessarily reversed. It is thus necessary to use the punch completely in reverse, working from right to left instead of from left to right and forming each character completely in reverse. This is extremely difficult to accomplish and makes the learning and use of braille writing considerably more complex, discouraging many persons who are blind or who desire to communicate with the blind from undertaking the task.

It is an object of my invention to overcome these difficulties by providing a braille writing device which is simple to use and in which the characters may be formed from left to right and in their proper order and arrangement. The characters are thus written in exactly the same manner in which they are read and the writing of braille is rendered no more difficult than its reading.

Another advantage of my invention is that it permits the reader to read back or check over the characters which he has written without removing the paper from the slate and without reversing it, both of which have previously been necessary.

In essence, my invention contemplates a braille writing device comprising a slate which is formed of two layers. The top layer is provided with guide means which are considerably enlarged from those previously used. The bottom layer of the slate is provided with a plurality of upwardly directed projections which are substantially hemispherical in shape. A punch is provided, the end of which is hollowed out in a hemispherical shape roughly complementary to that of the projections. In use, the punch is used from left to right, causing the raised characters to be formed on top of the paper rather than on the bottom, as has been done heretofore.

It is also among the objects of my invention to provide such a device which is simple and economical to construct and which may be sold at a low price for widespread use.

My invention also comprises such other objects, advantages and capabilities as will later more fully appear and which are inherently possessed by my invention.

While I have shown in the accompanying drawings a preferred embodiment of my invention, it should be understood that the same is susceptible of modification and change without departing from the spirit of my invention.

With reference to the drawings,

Fig. 1 is a top plan view of my writing slate with the top layer thereof partially broken away;

Fig. 2 is a side view of my writing slate;

Fig. 3 is a top perspective view of one end of my writing slate with a piece of paper inserted therein;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is an enlarged perspective view of my punch and a fragment of my writing slate to indicate their cooperative use; and

Fig. 6 is an enlarged sectional view of the bottom of the shank of the punch, showing the recess formed therein.

A preferred embodiment which has been selected to illustrate my invention comprises an elongated writing slate **10**, which is preferably formed of metal, although other suitable materials may also be used. The slate **10** comprises a top layer **11** and a bottom layer **12**, which are pivotally attached at one end thereof by a pair of hinges **13**.

The top layer **11** is provided with four parallel rows of openings **14**, with the rows extending longitudinally along slate **10**. Each opening **14** is provided with three arcuate portions **16** on each side thereof corresponding to the basic pattern of braille units.

The bottom layer **12** is provided with a plurality of projections **15** which are arranged in the corresponding braille pattern of two parallel rows having three spaced projections each. The projections **15** extend upwardly from the top surface of the bottom layer **12** and are substantially hemispherical in shape, as best seen in Fig. 5 of the drawings. The projections **15** are aligned with openings **14** in such a manner that each arcuate portion **16** is substantially concentric with a projection **15**. The arcuate portions **16** are larger than and surround the projections **15**.

The bottom layer **12** is provided with a substantially rectangular raised portion or land **17**, which extends around the entire area containing projections **15**. The height of land **17** is substantially equal to that of projections **15**. Four studs **18** extend upwardly from land **17** adjacent to the four corners of bottom layer **12**. The top layer **11** is provided with four openings **19** which are aligned with and adapted to receive studs **18** when layers **11** and **12** are brought together.

A reinforcing ridge **20** extends longitudinally along the center of top layer **11** to strengthen it. The end of top layer **11** is provided with a semi-circular raised portion **21**, so that a finger tip may be inserted therebeneath to raise top layer **11** from bottom layer **12**.

A punch **22** which is used with my slate **10** comprises a rounded handle portion **23** and a shank **24**. The end of shank **24** is provided with a rounded recess **25**, which extends inwardly. Recess **25** is hemispherical in contour and corresponds substantially to the shape of projections **15**, being complementary thereto.

In use, a piece of paper **26** of the type ordinarily used in braille writing is inserted between the layers **11** and **12** of writing slate **10**. As the layers are brought together, studs **18** push through the paper **26** and extend through openings **19** in top layer **11**. The paper is thus held so that it cannot move or shift with respect to the slate **10**. The paper rests upon land **17**. Since land **17** is substantially equal in height to projections **15**, the

paper **26** is held closely adjacent to projections **15** but is not punctured or deformed thereby.

The punch **22** is grasped by its handle portion **23** and moved so that its shank **24** is disposed in one of the openings **14** in top layer **11**. The outer circumference of shank **24** is substantially identical in contour with the arcuate portions **16** of openings **14**. If shank **24** is disposed so that its outer circumference bears against the edge of an arcuate portion **16**, the recess **25** in the bottom of shank **24** is aligned with the projection **15** therebeneath. When the punch is moved downwardly, the end of shank **24** forces the paper **26** downwardly around the projection **15**. The recess **25** and projections **15** combine to form a substantially hemispherical raised portion on paper **26**. This process is continued as many times as necessary to form the desired braille characters.

It will be noted that if a mistake occurs, or if the writer wants to check what has been written, he need only lift top player **11** by using raised portion **21**. He can then check visually or by touch what has been written on paper **26**.

The punch or stylus **22** which comprises part of my invention provides an efficient and easy to use method of forming the desired raised portions in the form of braille characters on the upper surface of the paper. It will be noted that the stylus has no moving parts and that the stylus need only be disposed so that its shank engages one of the guide means in the upper layer of the slate. When this is done, the hemispherical recess **25** in the body of the shank **24** is automatically aligned with one of the projections **15**. The punch **22** need then only be moved directly downwardly by manual pressure on the handle portion **23**. This simple and direct motion forms the desired raised portion on the upper surface of the paper.

With my stylus and slate combination, nothing can go out of order because there are no moving parts. It is therefore simple for a blind person to learn to operate and to operate my device.

The simplified and efficient construction of my punch further results in a more economical construction which can be manufactured at a lower cost for more widespread use. It will thus be seen that my braille writing device is simple in construction and operation, and its ease of use is a considerable benefit to the blind and persons desiring to communicate with the blind.

I claim:

1. A braille writing device comprising an elongated substantially rectangular slate, said slate comprising a substantially flat top layer and a substantially flat bottom layer, said layers being pivotally attached to each other at one end thereof, said top layer having a plurality of spaced openings therein, each of said openings having three arcuate portions in each side thereof, said bottom layer having a plurality of integral projections extending upwardly therefrom, each of said projections being substantially hemispherical in contour, one of said projections being aligned with and disposed concentrically beneath each of the arcuate portions of said openings, said bottom layer having a rectangular raised portion extending around the edges thereof surrounding said projections, the height of said raised portion being substantially equal to the height of said projections, a punch having a circular shank with an outer circumference substantially identical with that of said arcuate portions, said shank having a hemispherical recess in the bottom thereof, said recess being substantially complementary in shape to said projections, a plurality of studs extending upwardly from said raised portion, said top layer having a hole therein aligned with each of said studs, said slate adapted to receive and hold a piece of paper, said paper resting upon said raised portion, said punch adapted to be inserted in the openings in said top layer so that the outer circumference of said shank is disposed within one of said arcuate portions, the recess in the end of said shank being thereby aligned with the projection disposed therebeneath, said punch adapted to be moved downwardly to press said paper around said projection to form a raised portion on the upper surface of said paper.

2. A braille writing device comprising an elongated substantially rectangular slate, said slate comprising a substantially flat top layer and a substantially flat bottom layer, said layers being pivotally attached to each other at one end thereof, said top layer having a plurality of spaced openings therein, each of said openings having three arcuate portions in each side thereof, said bottom layer having a plurality of integral projections extending upwardly therefrom, each of said projections being substantially hemispherical in contour, one of said projections being aligned with and disposed concentrically beneath each of the arcuate portions of said openings, said bottom layer having a raised portion, the height of said raised portion being substantially equal to the height of said projections, a punch having a circular shank with an outer circumference substantially identical with that of said arcuate portions, said shank having a hemispherical recess in the bottom thereof, said recess being substantially complementary in shape to said projections, said slate adapted to receive and hold a piece of paper, said paper resting upon said raised portion, said punch adapted to be inserted in the openings in said top layer so that the outer circumference of said shank is disposed within one of said arcuate portions, the recess in the end of said shank being thereby aligned with the projection disposed therebeneath, said punch adapted to be moved downwardly to press said paper around said projection to form a raised portion on the upper surface of said paper.

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