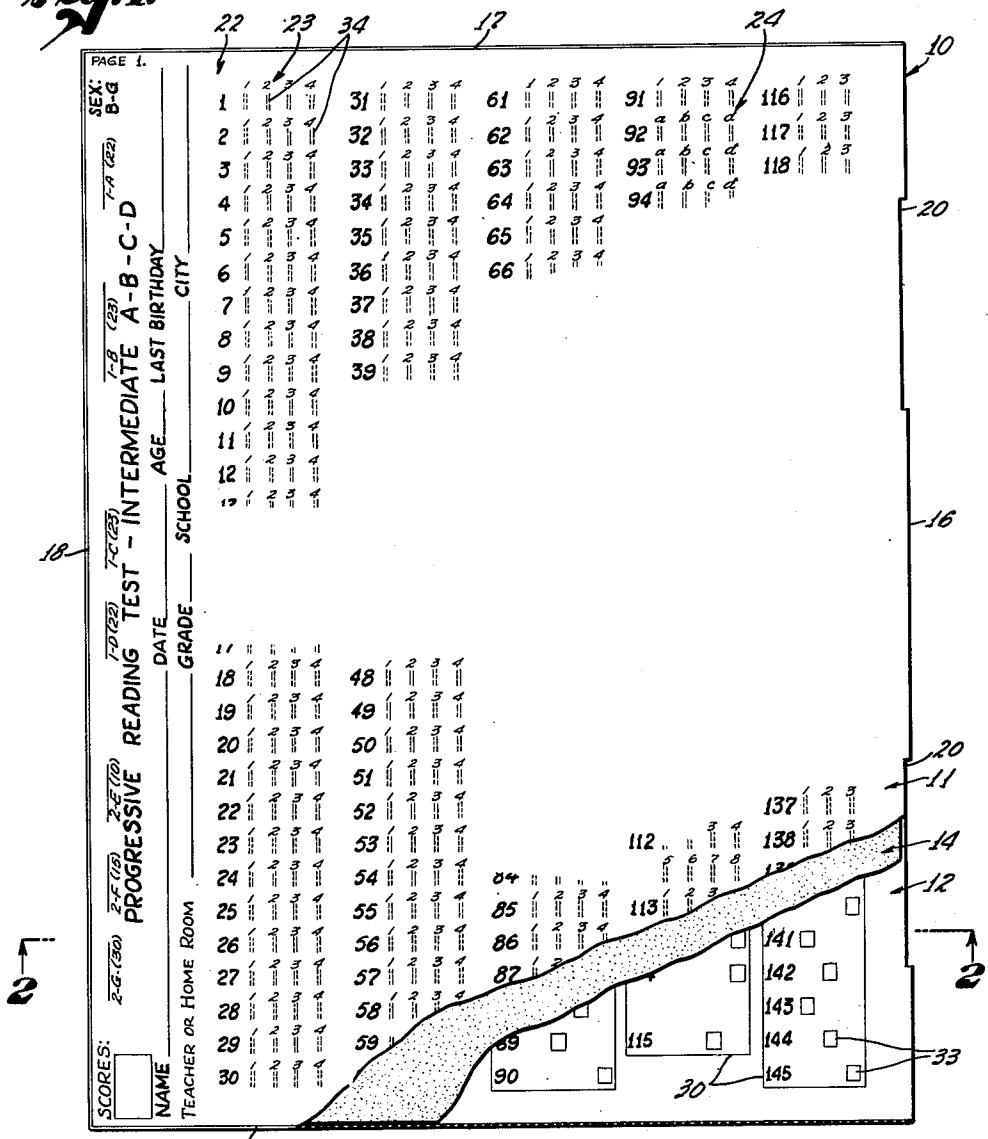
Oct. 21, 1952 E. M. CLARK 2,614,338

SELF-SCORING TEST DEVICE

Filed June 25, 1949 3 Sheets-Sheet 1

Fig. 1.



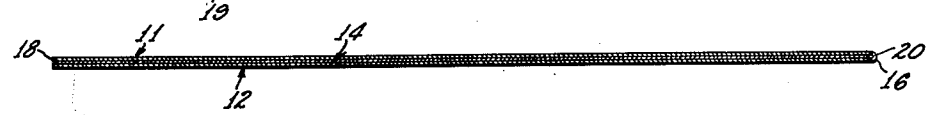


Fig. 2.

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SELF-SCORING TEST DEVICE

Filed June 25, 1949 3 Sheets-Sheet 2

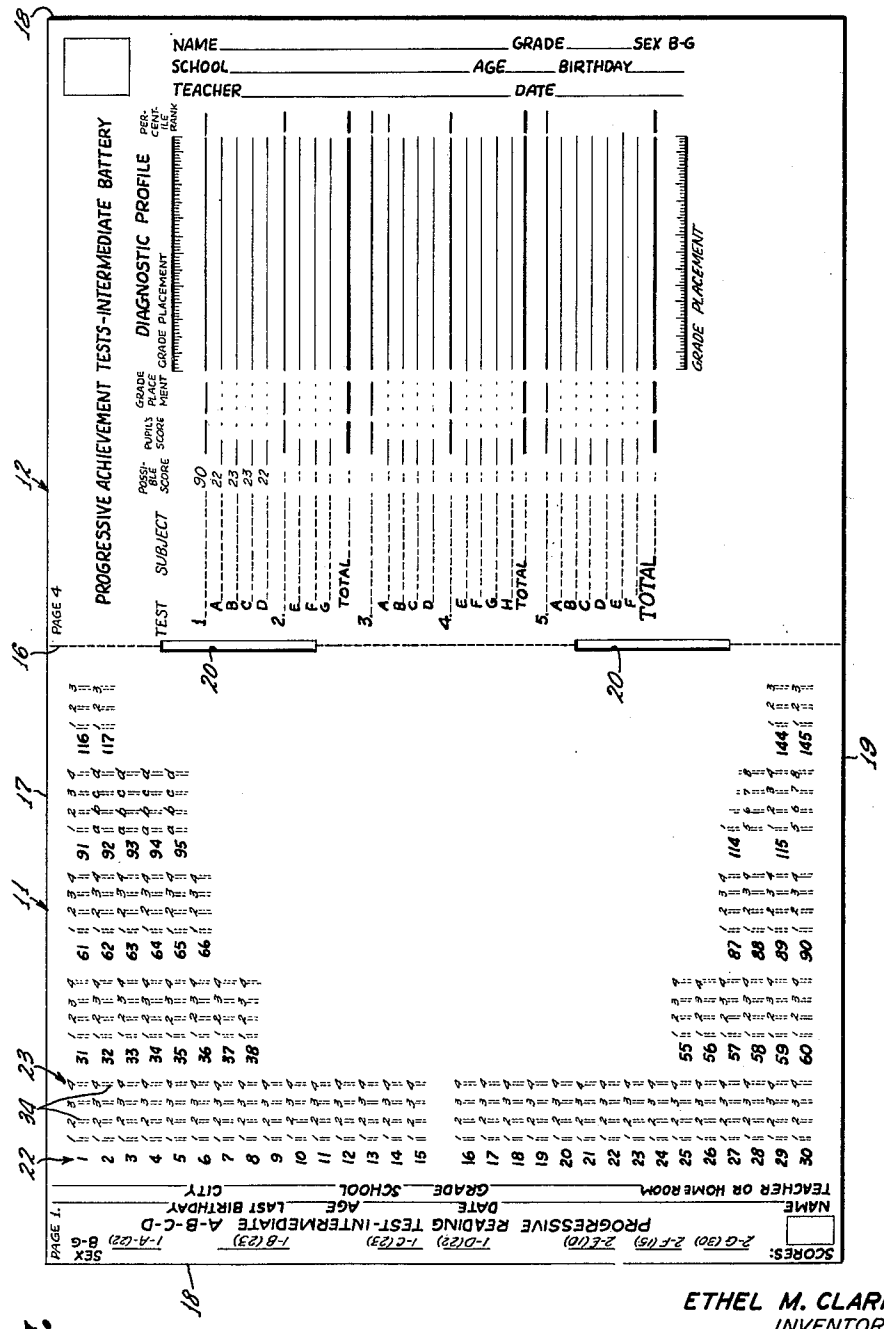


Fig. 3.

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Filed June 25, 1949 3 Sheets-Sheet 3

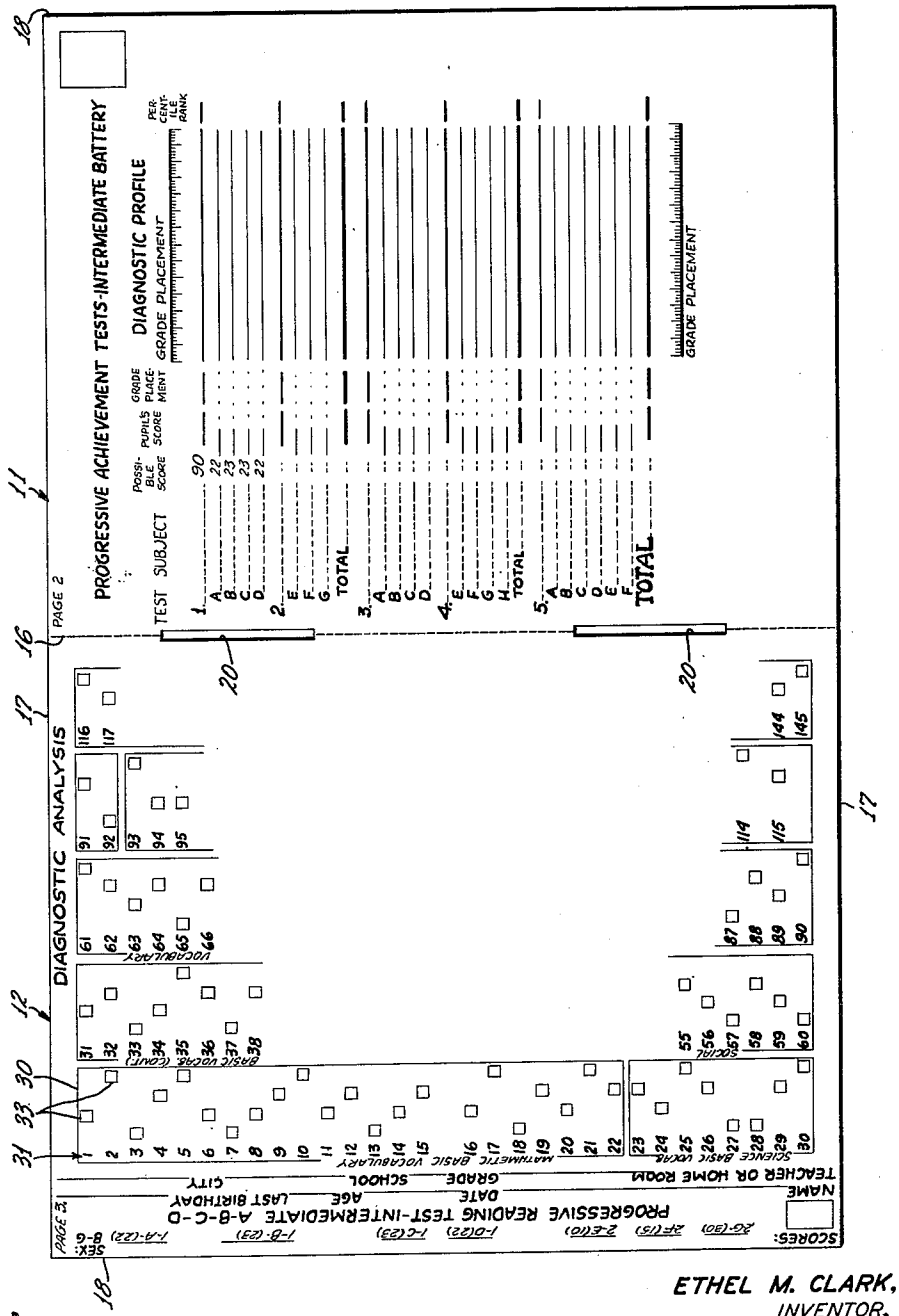


Fig. 1.

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Patented Oct. 21, 1952 2,614,338

UNITED STATES PATENT OFFICE

2,614,338

SELF-SCORING TEST DEVICE

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Application June 25, 1949, Serial No. 101,470

1 Claim. (Cl. 35—48)

1

This invention relates to test devices and more particularly to a combined machine-scoring answer sheet and diagnostic analysis in which the answers and diagnostic analysis are simultaneously obtained together with data for completing the diagnostic profile.

It is among the objects of this invention to provide a new and improved machine-scoring answer sheet for use in electrical scoring machines.

It is another object of the invention to provide a new and improved diagnostic analysis and self-scoring device with automatically indicated correct responses.

Another object of the invention is the provision of a new and improved original and duplicate construction for an answer sheet including a portion which may be machine-scored and including another self-scoring sheet portion for separate retention by the supervisor of a test for manual preparation of a diagnostic profile or the like.

Another further object of the invention is the provision of a new and improved construction and relationship between scoring sheets and discreet diagnostic sheets or portions thereof.

Another general object of the invention is to provide a construction of the desired character described such that one portion of the examination materials may be retained while another part may be transmitted to a central location for machine scoring and preservation.

Also included among the objects is provision of means for assembling several portions of test materials and answers by which automatically indicated correct responses are designated on a separate sheet from corresponding answers adapted for machine scoring.

It is also among the objects of this invention to provide improvements over prior art devices intended to transfer inscribed answers upon duplicate copies automatically indicating correct responses while providing for machine scoring of designated separable portions of the test.

With these and other objects in view, the invention consists in the construction, arrangement and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter set forth, pointed out in the appended claim, and illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a plan view of a self-scoring test device.

Figure 2 is a sectional view taken as on a line 2—2 of Figure 1.

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Figure 3 is a plan view of Pages 1 and 4 of the device.

Figure 4 is a plan view of Pages 2 and 3 of the device.

Referring more particularly to the drawings, a self-scoring test device indicated somewhat in detail for the purpose of exemplifying the invention without thereby limiting the same to the particular test shown, is generally designated by the numeral 10.

The scoring device preferably comprises a top sheet 11 the upper side of which is designated Page 1 (Fig. 1) and (Fig. 4) the bottom side of which is designated Page 2 (Fig. 4); and a bottom sheet 12 the uppermost side of which is designated in a similar manner in the upper left-hand corner Page 3 (Fig. 4), the bottom surface being designated Page 4 (Fig. 3).

A sheet of carbon paper or the like 14 is disposed between the upper and lower sheets 11 and 12 the single carbon side thereof confronting Page 3 in order that answers designated on Page 1 will be transferred to Page 3.

In the construction of the device, a perforated fold line 16 will lie at the right-hand side of Page 1, as the same is used. The upper marginal edge 17, the left marginal edge 13, and the lower marginal edge 19 of the sheets 11 and 12, and optionally also the carbon sheet 14, are secured together as by tipping with glue or a rubber binder in order to render corresponding edges of the upper and lower sheet and the carbon sheet 14 separable from one another. Such construction will indicate whether these edges have previously been separated or tampered with, and normally yieldably holds the sheets and ties the unit together to prevent accidental or intentional separation of the sheets to defeat the objects of the test.

At the right-hand margin 16 any appropriate notches as 20 may be provided in spaced relationship or otherwise as shown in order to match the customary guide mechanism for indexing the device or at least the upper sheet 11 thereof in an electrical machine-scoring apparatus of conventional and well-known construction. It is intended that the sheet 11 be inserted in the scoring machine on a vertical plane the bottom edge 16 being lowermost and the edge 18 opposite thereto being uppermost.

The carbon sheet 14 may be co-extensive with the upper and lower sheets 11 and 12 and may likewise be secured at corresponding marginal edges to such upper and lower sheets by tipping as heretofore noted.

As may be seen by reference to Figure 1, the

carbon sheet 14 is placed inwardly slightly from the marginal edges of the sheets 11 and 12, whereby said carbon transfer sheet may be merely shaken out from between sheets 11 and 12 when these are separated from one another along their marginal edges. The notches 20 are thereby kept clear of said carbon to prevent smudging. Also the messiness associated with removing the same, especially when the same is stapled or otherwise affixed securely to said sheets 11 and 12, is avoided.

Referring more particularly to page 1 of the device, questions contained in any appropriate place as in a booklet, not shown, are represented by corresponding numerals in a vertical column as 22 progressively numbered from the top to the bottom of page 1 and broken up into corresponding columns for a total of 145 questions. Each question is preferably of a multiple choice type, each choice being designated as by horizontally arranged numerals "1," "2," "3," and "4" indicated at 23, or similarly arranged letters *"a," "b," "c," "d,"* etc., as indicated by the reference numeral 24.

Any number of choices may be provided as indicated, for example, by question 116 and following in which three choices are provided, or by the preceding questions in which four choices are indicated. It will be understood that the questions may be numbered in horizontal sequence or in any other desired manner.

At the left side of page 1, space may be provided for appropriate identifying information and for summarizing test results. Such data may include the name of the pupil or individual being tested, his age, birth date, grade, school, city, etc.

Page 3 of the device may have sections, as designated by the reference numeral 30, delineating columns having numerals 31 therein corresponding to the numeral columns 22 on page 1, which may be separated into test sections designated, for example, Mathematic Basic Vocabulary, Science Basic Vocabulary, etc.

Within each rectangular section 30, but in any event corresponding to each reference number in the column 31, are square stations 33 outlined in any appropriate manner as by squares, circles, or the like, and arranged to register with any corresponding station 34 (page 1), the latter being optionally designated by a pair of vertical spaced dotted parallel lines corresponding to a correct choice in any multiple question designated upon page 1.

Thus, when a station 34 is marked or impressed with a graphite pencil or the like by a vertical mark between said parallel lines, such mark will be transferred and impressed by the carbon sheet 14 onto the station 33 upon page 3.

If an incorrect choice, for example, 1, 3, or 4, in the first question on page 1, should be designated, marks made upon page 1 at positions 1, 3, or 4, would fall outside of station 33 thereby clearly designating such answer as incorrect on page 3.

Pages 2 and 4 of the device may be correspondingly provided with a diagnostic profile or the like upon which the test, subject, possible score, pupil's score, and grade placement may be indicated, customarily in the form of a graph, whereby weak and strong fields of achievement, learning or ability may be clearly indicated.

Pages 2 and 4 are also so arranged that when the sheets 11 and 12 are separated at their margins 17, 18, and 19, they may be folded in reverse manner so that a graph marked upon page 2, for example, will automatically by the aid of the carbon sheet 14, be recorded upon page 4, together with other information which may be desired. Sheets 3 and 2, being side by side with another, make it convenient to note on page 2 the answers set forth on page 3.

Thereby duplicate test results are developed separable along the perforated line 16, one comprising the top sheet, pages 1 and 2, being adapted for machine scoring and transmittal to a central headquarters as is customary, and the other sheet 12, comprising pages 3 and 4, being adapted for hand scoring and retention by the leader of a group or class as desired.

By the instant device the time conventionally lost in transmitting test results to a central headquarters, for example, at which a testing machine may be employed for grading and calculating the results, is saved, and the results of the tests are immediately available to the immediate supervisor of the test. Moreover, a check is thus established against mechanical grading errors in the machine as against human error in checking the test results, and vice versa.

In use, the present device is submitted to the individual to be tested, together with a set of multiple choice questions corresponding in number and identified in similar manner to those on the device, including designations of choice on page 1 of the testing device.

Correct answers indicated on page 1 of the testing device are transferred by the separate carbon sheet 14 to corresponding stations upon page 3 where correct choices upon page 1 fall within circumscribed stations 33 upon page 3, and where incorrectly selected choices fall outside of such circumscribed stations. When the tests are completed they may be collected by a supervisor who may separate the sheets 11 and 12 along their tipped margins 18 and 19, either discarding the carbon sheet 14 or inserting it again between the reversed sheets 11 and 12. Scores directly readable on page 3 may be copied and designated upon page 2 and, if desired, may be duplicated upon page 4.

Whether the profile on pages 2 and 4 is completed immediately after the test or not, the sheets 11 and 12 when separated along their perforated line of connection 16, may be respectively forwarded to a central headquarters for electrical machine scoring or retained by the test supervisor or even by the individual tested. He thereby retains not only a clear record of the results of the test in original form but also an analysis preferably on the reverse side thereof by which his strong and weak points may be readily observed and studied.

It is to be understood that while the drawings and description refer to a "one copy" device for purposes of simplicity, the same may be manufactured or assembled with two, three, four, or any other number of sets of pages corresponding with pages 3 and 4 with a sufficient number of carbons to provide a corresponding plurality of copies of pupil responses obtained by one marking by the pupil. These might be distributed to various instructors, such as English, Social Study, Mathematics, and the like, to the counselor, or to the student, ad infinitum.

Questions, instead of being of a multiple choice type, may be subject to answer by means of a designation of truth or falsity or by categorical response, "Yes," or "No."

The spaces within which the answer designations are to be written are not limited to vertical lines, as shown and described, but may be

square, circular, rectangular, or any combination of these, generally depending upon the nature of the apparatus upon which the answers are to be scored. Manifestly, the number or the position of questions and the like for pupil responses on Page 1 may vary within wide limits known to those skilled in the art of testing, both as to the number of responses, and, as above indicated, their character.

This invention features provisions of an appropriate combined machine and hand-scoring testing device wherein answers designated on a first page are transferred through intermediate transfer means to a second page separable from the first page and separately scorable as well as retainable for separate records. It further features provision of a new and improved testing device of the desired character described, one portion at least of which may be machine scored, the other of which may be machine or hand scored. The sheets in question may be separated prior to machine scoring or subsequent thereto. The designations transferred by the intermediate sheet may also be of a nature that can be picked up and utilized by a machine-scoring apparatus.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claim so as to embrace any and all equivalent structures.

The invention having been herein described, what I claim as new and desire to secure by Letters Patent is:

A multiple choice answer recording and scoring device comprising: a rectangular sheet having a transverse perforated score line extending centrally thereacross to define a pair of congruent leaves and being folded upon itself along said score line, a sheet of transfer paper between said leaves, said sheet of transfer paper being smaller than said leaves whereby the marginal portions of said leaves are in direct contact along each side, the said marginal portions being tipped continuously around each side edge of said leaves from one end of said scored line to the other with readily separable adhesive means to hold said portions together, a plurality of marking stations on the outer face of one of said leaves and a plurality of corresponding answer stations on the inner face of the other leaf, said transfer paper being adapted to transfer marks applied on said marking stations to corresponding answer stations, certain portions of said perforations being interrupted by rectangular notches of substantial length and width adapted to index the device in an automatic electric scoring machine and to also provide access from the exterior to the interior portions of said device by insertion of an element into one of said notches to separate an adjacent tipped side whereby said remaining tipped marginal sides may be separated and said device unfolded along the remaining score line, said leaves defining duplicate tests respectively on corresponding fold sides thereof and duplicate summary analysis on the other respective sides thereof for summarizing the test data on said first sides, said front and back corresponding sides being juxtaposable when separated solely along said tipped sides for transferring test information from the marking stations and answer stations to the back side of the respective other leaves, said leaves being reversibly foldable by means of said score line when said tipped sides are separated for duplicating the test summaries by means of said transfer sheet, said transfer sheet upon separation of said tipped sides being freely and integrally removable.

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