PATTERN GRADING TOOL
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This application pertains to new and useful improvements in pattern grading devices, and it is particularly concerned with a novel tool that is very useful in the grading of patterns in the garment industry. The grading of clothing patterns from one size to another is customarily performed by pencil and rule. In this operation a pattern of a particular size is selected as a standard from which a pattern of another size is graded. The measurements for the new size pattern are ruled off from the standard pattern and are marked in pencil upon the new pattern.

The standard pattern is then shifted in various directions according to the markings and the various edges of the new pattern are drawn off in pencil, using the old pattern as a guide. The measurements used are usually of small rule units, principally in sixteenths, since the overall increase or decrease from one size to the next is very small. Marking sixteenths off in pencil from a rule requires good eyesight and care for accuracy. This is difficult and time consuming, as well as being hard on the eyes. Often accuracy is sacrificed in favor of time and convenience.

Now, I have devised means for grading garment sizes which is simple, affords considerable accuracy, is labor saving and is not hard on the eyes. I accomplish this through a novel and very useful hand tool, whereby a plurality of impressions corresponding to certain rule units may be quickly made as a guide to grading a new pattern. The impressions made are used in lieu of the penciled measurements made under the conventional method. The new size pattern is graded according to the impressions made, and is formed by shifting the standard guide pattern about as under the conventional method of shifting and lining off in pencil the various edges of the new pattern on a sheet of pattern paper.

The hand tool is of simple design and comprises a handle at one end of which is mounted a block carrying plurality of pins in measured spaced relation to one another, whereby the various measurements required in the grading of a pattern may be quickly indicated by simply pressing the pins into the pattern paper. While the invention finds particular use in the garment industry, it is adaptable for use in other industries where similar operations might be required.

An object of the invention is, therefore, a new and improved pattern grading tool.

Another object of the invention is a device for making the grading measurements of a pattern by providing pin prick impressions in the pattern paper.

A further object of the invention is a hand tool having a plurality of projecting pins spaced from one another according to the measurements customarily used in garment pattern grading.

Other objects and advantages of this invention, as well as the structural details thereof, will become apparent as this specification unfolds in greater detail and as it is read in conjunction with the accompanying drawings forming a part of this application.

In the several drawings:
Fig. 1 is an elevational view of a hand grading tool constructed in accordance with my invention;
Fig. 2 is a front elevational view of the block section with a part of the handle cut away;
Fig. 3 is a section taken on the lines 3—3 of Fig. 2;
Fig. 4 is a section taken on the lines 4—4 of Fig. 2;
Fig. 5 is a rear elevational view of the block section with a part of the handle cut away;
Fig. 6 is a view of the pin prick impressions left by the tool in a sheet of pattern paper;
Fig. 7 is a diagrammatic view illustrating the grading of a pattern by means of the invention;
Fig. 8 is a diagrammatic view of a further arrangement which the pins may assume in the pin block.

In the several drawings similar characters serve to identify similar parts.

In describing the invention in greater detail, reference is directed to the several drawings, particularly Figs. 1 to 7, wherein there is shown a rectangular block 1 preferably of metal, projecting from the underside of which is a plurality of sharp ended pins 2 in fixed spaced relation to one another and of equal length. The pins are arranged in two parallel rows, row A and row B. The first pins 3 in each row are in lateral alignment with one another and are characterized as the start pins. The second pin 4 in row B is spaced one-sixteenth of an inch to the rear of the start pin 3, the third pin 5 is spaced one-eighth of an inch to the rear of pin 4, and each succeeding pin is also spaced one-eighth of an inch to the rear of the pin before it, while in row A the second pin 6 is spaced one-eighth of an inch to the rear of its start pin 3, and each succeeding pin is also spaced one-eighth of an inch to the rear of the pin before it. When the block 1 is placed with the pins down on a soft medium, such as a sheet of pattern paper 7 of the type used in making patterns for suits, dresses, coats and the like, and when
pressure is applied to the block the sharp ended pins sink into the paper and leave clearly visible pin prick marks from which it is quite plain a plurality of rule measurements in units of one or more sixteenths may be taken, see Figs. 6 and 7. For example, using the line pins 3 as a starting point, the succeeding pins in row B would respectively correspond to one-sixteenth, three-sixteenths, five-sixteenths and seven-sixteenths of an inch; while the pins succeeding the start pin 3 in row A would respectively correspond to the even sixteenths, two-sixteenths, four-sixteenths, six-sixteenths and eight-sixteenths of an inch (Figs. 6, 7). To facilitate reading, the two rows of pins are spaced in parallel relation about one-fourth of an inch apart. To further aid in reading and readily distinguishing row A from row B the pins 7 and 8 in row A respectively correspond to the four and the eight-sixteenths have sharp wedge shaped ends, which when pressed into pattern paper leave impressions of a small cut line or dash as in Figs. 6 and 7, and all of the pins of row B are sharp pointed.

To avoid difficulty in determining where the start pins are in using the tool a slight recess extends from the front edge of the block between the two start pins.

To facilitate use of the tool, the pin block is secured to the end of a handle. A suitable connecting element joins the handle with the pin block. An end of the connecting element is securely embedded in the handle; the other end is threadedly engaged in the central area of the pin block. The handle is preferably of wood, and it is short and conveniently rounded at its upper end to enable it to be comfortably palmed in the hand when in use.

As previously mentioned, the article finds particular use in the garment industry, principally in the grading of patterns for suits, dresses and coats, and while the pins here are spaced apart according to certain rule units, it is clear that greater or lesser rule units might be used as well as a greater number of pins in each row.

In explaining a convenient way of using the present invention, reference is directed particularly to Fig. 7 wherein there is shown in full line a pattern 16 of a certain size, used here as a guide or standard from which a pattern of the next larger size shown in broken line 17 has been graded. In the grading process, a guide line G—L is drawn on the sheet of pattern paper along one of the longer sides of the guide pattern and continued onto the pattern sheet 8. The grading tool of the present invention is then employed to make one or more sets of pin pricks 20, as indicated at the various edges of the guide pattern. In this operation the start pins of each set are aligned with an edge of the guide pattern preferably so that the other pins face away from the pattern. Pressure is then applied to the handle to make the necessary pin pricks in the pattern sheet. An edge of the guide pattern is selected and, using one or the other of the guide lines 19 or G—L, it is shifted into alignment with a pin prick representing a desired rule unit or measurement. A line is then penciled along the selected edge of the guide pattern to form a corresponding edge of the new pattern. This is repeated at each edge of the guide pattern until all edges of the new pattern have been formed. To insure accuracy along the longer sides, more than one set of pin pricks may be formed, as at the lower side in Fig. 7. A line of the new pattern when once formed may also be used as a guide in shifting the guide pattern to form one or more of the other edges. Some edges, such as the neck portion, usually do not require measurements and are formed simply by using the standard pattern as a guide during the shifting operations. While I have described a simple manner of using the invention and explaining its principle of application, it is understood that the skill of the craftsman may vary the manner of using the tool and may also find other fields for its use.

From the foregoing it is quite clear that a high degree of accuracy is obtainable in making the various grading lines of a pattern because of the sharpness and visibility of the pin pricks and their fixed and unvariable positions. It is also apparent that considerable saving in time, labor and economy is obtained through use of the invention when compared with the conventional tedious method.

Further, to provide ease without straining of the neck or eyes in aligning the start pins with the various edges of the guide pattern, and also to insure greater accuracy, the lower end of the handle is tapered as at 21. Tapering the handle provides greater visibility in securing the ends of the pins. This visibility is further increased by the recess at 10, previously mentioned, as well as by the length of the pins which are preferably about three-fourths of an inch.

It is clear that variations in the rule units used, as well as in the arrangement of the pins in the block, might be made, and in Fig. 6 there is shown a further form which the pins might take in the block. In this form both start pins have wedge shaped ends, and in row B all of the pins have wedge shaped ends and alternate pins differ in lateral length from others in the row.

The invention further consists in the novel arrangement, construction, and combination of its various elements, and while a preferred form of the invention has been shown and described; yet, I do not wish to be limited to such specific form as is my intent to claim all set forth herein as well as all modifications and forms as may be reasonably construed to be within the spirit of the invention and within the scope of the appended claims.

I claim:
1. A pattern grading tool comprising a short tapered handle having a rectangular block secured to the tapered end of the handle, and two parallel rows of sharp ended pins projecting from the underside of the block wherein the first pin of one row is in lateral alignment with the first pin of the other row, and each succeeding pin of the first row is spaced equally apart from the other pins of the row, the second succeeding pin of the second row is spaced to the rear of the first pin a distance equal to one-half of that spacing each pin in the first row, and the pins succeeding the second pin in the second row are spaced equally apart from one another a distance equal to that spacing each of the pins of the first row.
2. A pattern grading tool as in claim 1, wherein the first row of pins is spaced laterally from the second row of pins a distance of about one-fourth of an inch.
3. A pattern grading tool as in claim 1, wherein all of the pins in the block are of the same length.
4. A pattern grading tool as in claim 1, wherein each pin of the block is about three-fourths of an inch long.

5. A pattern grading tool as in claim 1, wherein the first pin in one row is separated from the first pin in the other row laterally by a recess slotted out to the edge of the block.

6. A pattern grading tool as in claim 1, wherein the third and fifth pins of the first row have sharp wedge shaped ends.

7. A pattern grading tool as in claim 1, wherein the first and third pins of the first row have sharp wedge shaped ends of one lateral length, and the second and fourth pins of the same row have sharp wedge shaped ends of another lateral length.

8. A pattern grading tool as in claim 1, wherein the third and fifth pins of the first row have sharp wedge shaped ends, and the remaining pins of the first row and all those of the other row have sharp pointed ends.

9. A pattern grading tool as in claim 1, wherein the first pin in each row has a sharp wedge shaped end.

10. A pattern grading tool comprising a short tapered handle, a comparatively thin rectangular block of metal, a connecting element secured at one end in the handle and at the other end centrally of the block, two parallel spaced rows of sharp ended pins projecting from the underside of the block of equal length, the pins of one row being spaced from one another in certain rule units and the pins of the other row being spaced from one another in other rule units relative to the first pin in each row.

11. In a pattern grading tool a metal block having two parallel spaced rows of sharp ended pins projecting from one face of the block and all of equal length, the pins of one row being spaced from one another according to one set of rule units and the pins of the other row being spaced from one another according to another set of rule units, and the block having a recess at one end separating the first pin of one row from that of the other row.

12. In a pattern grading tool as in claim 11, wherein the grading tool block has in its other face a fixed element adapted for connecting the block to a handle.

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