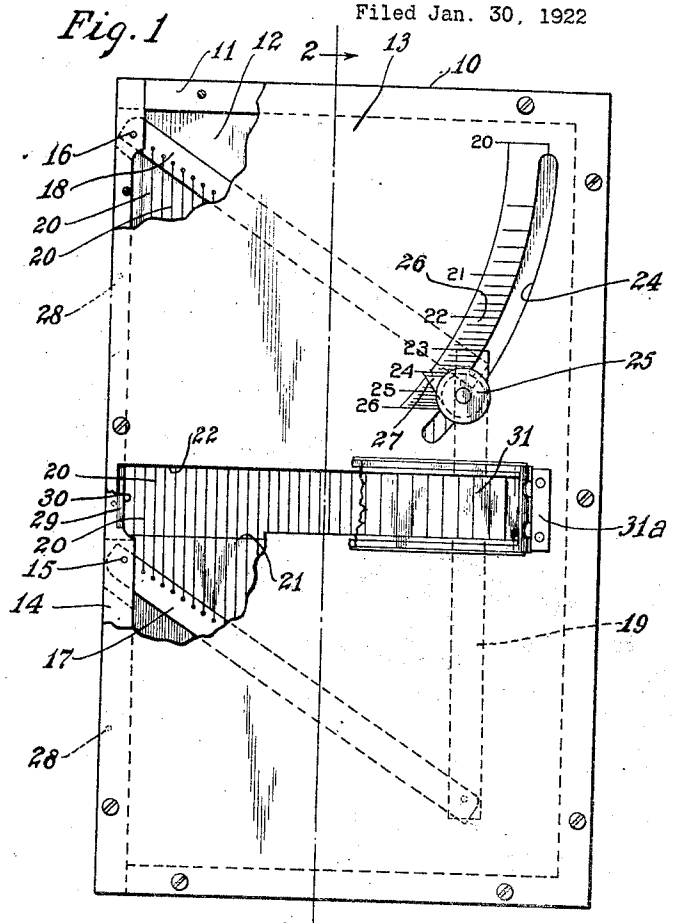
April 6, 1926. 1,579,918

E. O. DIETERICH

APPARATUS FOR GAUGING ASSOCIATED ELEMENTS

Filed Jan. 30, 1922

Fig. 1



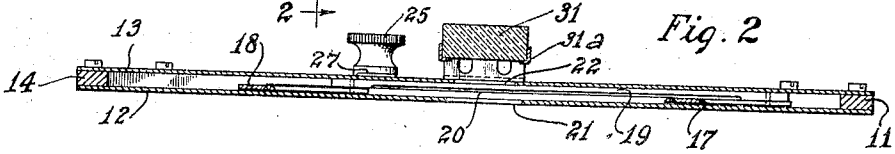


Fig. 2

Fig. 3

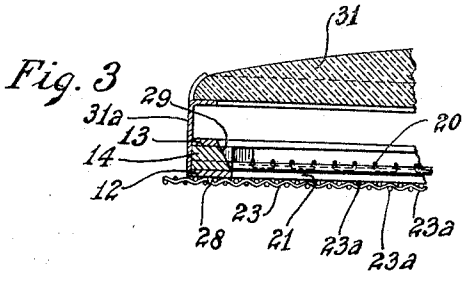
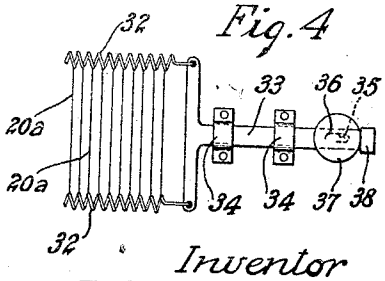


Fig. 4



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR GAUGING ASSOCIATED ELEMENTS.

Application filed January 30, 1922. Serial No. 532,652.

To all whom it may concern:

Be it known that I, ERNEST O. DIETERICH, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Apparatus for Gauging Associated Elements, of which the following is a specification.

This invention relates to methods and apparatus for determining the number of associated elements, such as the threads in woven or other fabric, occurring within a linear unit of measurement.

Its general object is to provide an improved method and an improved device for such purposes. A more specific object is to provide an improved, compact and convenient device giving a direct reading of the number of uniformly spaced elements occurring within a given distance, as in counting the number of threads to the inch in fabrics.

Of the accompanying drawings:

Fig. 1 is a plan view of a fabric gauge embodying and adapted to carry out a preferred form of my invention, with parts broken away.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary, transverse section of the device and a piece of fabric in position thereunder.

Fig. 4 is a diagrammatic fragmentary plan view of a modification.

Referring to the drawings, 10 represents generally a flat, box-like structure comprising a rectangular frame 11 and bottom and top plates 12 and 13, respectively, secured thereto. To one side member 14, of the frame 11, are pivoted, at 15 and 16 respectively, a pair of arms 17, 18, the outer ends of which are connected by a link 19. The frame member 14, arms 17, 18, and link 19 thus form a parallel-motion.

Stretched between the arms 17, 18 are parallel, spaced-apart strands 20, 20, which are preferably of fine wire and may conveniently be secured to said arms in proper parallel, spaced relation by being laced through holes appropriately positioned in said arms, as shown clearly in Figs. 1 and 3.

The lower and upper plates 12 and 13 are formed with registering openings or windows 21, 22, respectively, through which the fabric, shown at 23 (Fig. 3), may be seen from above when the device is laid thereon. The upper plate 22 is also formed with an arcuate slot 24, substantially concentric with the pivot 16 of the arm 18. 25 is a hand knob on the upper face of the device, its stem extending downward through the slot 24 and being secured to the link 19, for moving the latter to actuate the parallel-motion of which said link is a part, and thereby equally to vary the spacing of the wires 20. A scale 26 is provided on the upper face of the plate 22 adjacent the slot 24, and 27 is an indicator therefor, secured to the hand knob 25.

Pins 28, 28, may be provided on the under face of the device for holding it in position upon the work. The frame member 14, at the end of the window 22, preferably is beveled off as shown at 29 to provide a straight-edge 30 (Fig. 1) close to the work, to assist the eye in placing the device accurately thereon. A magnifying glass 31 may be secured in position over the window 22, by means of a frame 31^a, as shown, to facilitate the positioning of the wires 20, as hereinafter described.

In the operation of the device, in determining the number of threads to the inch in fabric, for example, the device is placed upon the fabric, as indicated in Fig. 3, preferably with the straight edge 30 directly over one of the spaces between the threads 23^a, 23^a, the wires 20 then being parallel to the threads. The hand knob 25 is then moved in the slot 24, equally varying the spacing of the parallel wires 20 until each of said wires registers with one of the spaces between the threads 23^a. The number of threads to the inch may then be read directly from the position of the indicator 27 upon the scale 26. Equally accurate results may be obtained by placing the straight edge 30 and wires 20 directly over the threads 23^a, 23^a, but in practice I find it easier to register the wires with the intervening spaces.

The wires 20 may be brought into registry with successive threads or spaces, or with alternate threads or spaces, as shown in Fig. 3, or they may be matched with every third or fourth thread, for example. The scale 26 may be calibrated to correspond with either of these several modes of procedure, and the correct result for the other modes of procedure may be arrived at by multiplying or dividing the reading of the indicator 27 by the proper small integer. The device thus, as well as by reason of its

considerable range of adjustment, may be effectively used for gauging fabrics or other articles having either widely or closely spaced elements.

In the modification shown in Fig. 4, the strands here designated 20^a, 20^a, are stretched in parallel relation between helical springs 32, 32, said springs being fastened at one end to the frame of the device (not here shown) and at the other to the head of a T-shaped member 33 having its stem slidably mounted in brackets 34. 34. The rear end of said stem is slotted at 35 to receive the axle 36 of an eccentric cam 37, the latter being adapted to coact with an off-set lug 38 on the end of said stem to secure said T-shaped member 33 in adjusted positions, against the action of the springs 32. With this modified form of device the spacing of the strands may be equally varied and the strands held in adjusted positions while their parallel relation is preserved.

Other modifications may be resorted to without departing from the scope of my invention, and I do not wholly limit my claims to the specific embodiment shown.

I claim:

1. A device for determining the number of associated elements occurring within a linear unit, said device comprising a set of equally spaced, parallel strands, means for moving said strands apart while maintaining their equally spaced and parallel relation, and an indicating mechanism, reading directly in terms of the numbers of strands per linear unit in their successive adjusted positions, associated with said moving means.

2. A thread counter for fabric comprising a set of elements equally spaced apart, means for so moving said elements as equally to vary their spacing, a mounting for said elements and said moving means, a scale associated with said mounting and said moving means, said scale registering the number of elements occurring within a linear unit at different settings, and a magnifying glass disposed in such position as to magnify objects adjacent said elements.

3. A device for determining the number of associated elements occurring within a linear unit, said device comprising a parallel motion mechanism, a set of equally spaced strands stretched between opposite arms of said mechanism, a scale, and an indicator therefor mounted on a movable arm of said mechanism, said scale being so calibrated and so disposed with respect to the indicator as to show by direct readings the number of strands occurring in a linear unit as the parallel motion mechanism is moved into varying positions.

In witness whereof I have hereunto set my hand this 28 day of January, 1922.

ERNEST O. DIETERICH.