

B. E. CHASS.

Improvement in Adjustable

Elastic Measuring Scale.

No. 120,621.

Patented Nov. 7, 1871.

Fig. 2.

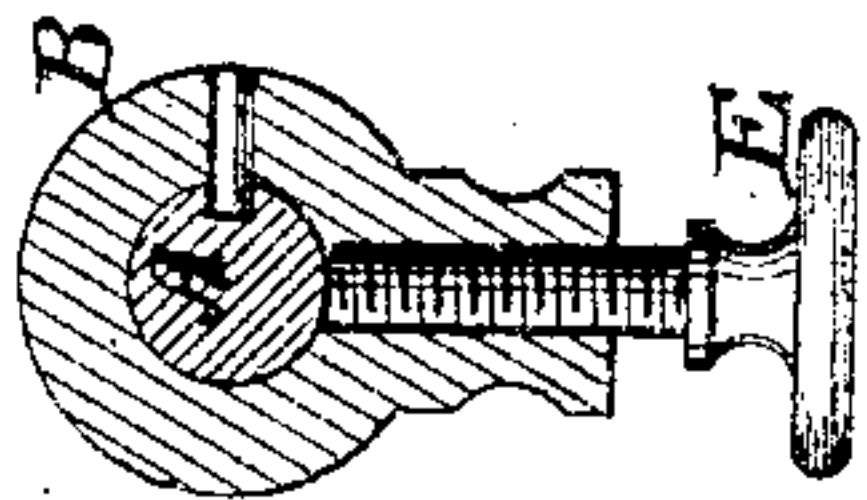


Fig. 3.

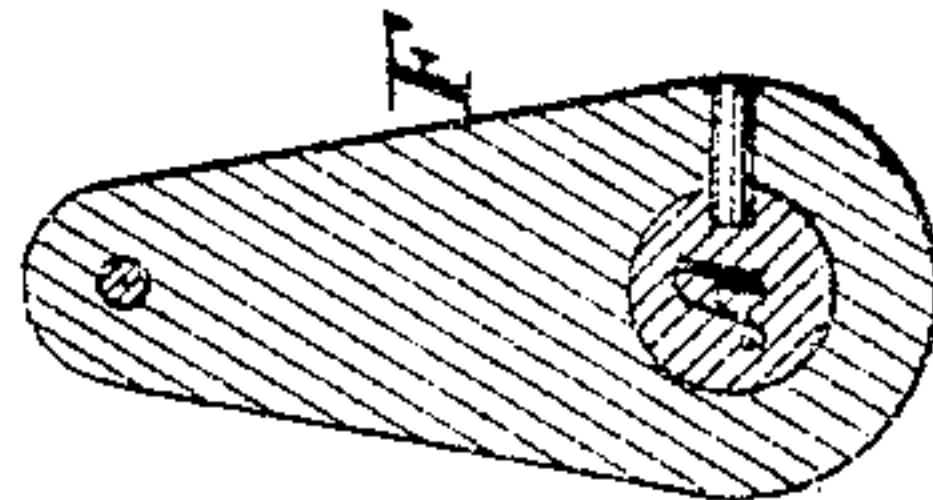
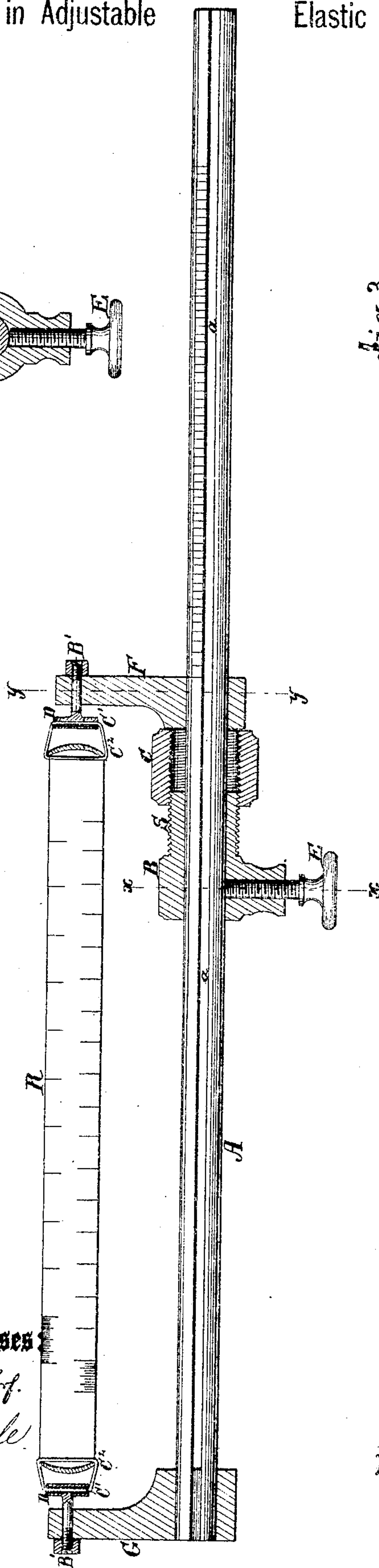


Fig. 1.



Witnesses

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IMPROVEMENT IN ADJUSTABLE ELASTIC MEASURING-SCALES.

Specification forming part of Letters Patent No. 120,621, dated November 7, 1871.

To all whom it may concern:

Be it known that I, BAPTIST EDME CHASSAING, of Buenos Ayres, Argentine Republic, have invented a new and useful Improvement in Adjustable Scale and Equi-Divider; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

The object of this invention is to provide an improved instrument for quickly and accurately constructing a draughting-scale, and for dividing lines within certain limits of length into equal parts, the same being designed and adapted chiefly for use by the draughtsman, civil engineer, and architect. The invention consists in a certain specific construction and arrangement of devices, constituting the complete instrument, as hereinafter fully set forth.

Figure 1 is a longitudinal sectional elevation of the instrument. Fig. 2 is a cross-section on the line $x x$, and Fig. 3 is a section on line $y y$.

Similar letters of reference indicate corresponding parts.

A is a round rod of brass or other suitable metal, having a fixed head or radiating arm, G, at one extremity, and a similar arm, F, movable throughout its length. B is a head provided with a set-screw, E, one portion of which, as shown at S, has cut upon its outer surface a hair thread, upon which thread runs the circular milled nut C. Throughout the length of A there is a small groove, into which pins upon the head B and arm F fit, preventing them from turning. Between the two arms G and F is stretched an elastic rubber band, R, fastened to said arms, as shown in Fig. 2, and hereafter explained. This rubber band is divided upon its four face edges into a certain number of equal parts, which are subdivided into equal minor parts, and is the scale proper. Fig. 1 shows the manner of fastening the bands to the heads. The band R consists of a ring of soft rubber, about two and three-fourth inches external diameter, one-fourth inch wide, and about one twenty-fourth inch thick, being perfectly accurate in its dimensions and homogeneous throughout. B' is a small pin, having a T-shaped head, perforated with a small hole, c' . It works loose in the head G, and is held in place by a washer and rivet or nut. To

secure the band to this head a number of turns of fine silken thread are, by means of a needle, passed through the hole c^1 and around the interior surface of the band, as shown, c^2 being the said thread. The object of the circular form of band is twofold: First, to compensate for any tendency to unequal stretching of the band. Second, to provide a means of attaching the bands to the heads G F, Fig. 1, without forcibly confining any portion of its surface between fixed jaws, or in any way reducing the strength of the band at the points of attachment by piercing or otherwise. The action of the attachment B $c^1 c^2$ is as follows: The depth of c^1 is a trifle less than the extreme width of the band R when the said band is stretched to its full scope, which will be about three twenty-fourths inch; and as the thread c^2 will adjust itself to the width of the band as it is extended or contracted, the edge of the band will always lie in close contact with the surface to which it may be applied, though the ends of the band will be more or less curved and buckled up, as it is extended, which, however, will not in any way disturb its action, as the divisions will begin at a point a short distance in advance of this tendency to buckle.

To use the instrument, let it be desired to provide a scale of one-eighth, one-fourth, one-half, five-eighths, three-fourths, one, one and one-fourth, one and one-half, two inches, &c. Then imagine that one side of the adjustable band R is divided into one hundred equal parts and that its capacity is twelve inches. Then ten inches equals eighty eighths; hence, if we apply the scale to a standard rule, making eighty divisions, equal to ten inches, upon the rule, we have at once an eighth scale. Secondly, ten inches equal forty fourths; hence, if we apply the scale to a rule making forty divisions, equal to ten inches, we have at once one-fourth scale, and so on for the remaining scales enumerated; but no one side of the scale will admit of all of these adjustments; hence the four edges are differently divided, to suit all requirements. Suppose it be required to measure a plan or map having a drawn scale depicted. It is only necessary to adjust the scale to the scale of plan or map and use it accordingly. If it be desired to divide a line of length not greater than twelve inches—though lines of greater length, when required to be divided into equal parts not prime, may be also di-

vided by previous subdivision—it is only necessary to extend or contract the band, using the edge giving the required number of divisions within the scope of the instrument, so that the required number of equal parts will correspond with the length of line to be divided; then point off with pen or pencil the divisions so indicated. This last feature of the instrument renders it essentially useful to the draughtsman, as it avoids the old long and tedious way of stepping off with dividers, which often requires that a line should be frequently gone over, and, unless great care is taken, it is seriously marred. The use of the milled head C is obvious, and therefore needs no explanation. I propose that the band R be made of white rubber, and as soft and pliable as possible. It will, of course, be required to be made for this special purpose, and must be made with perfect accuracy of dimensions throughout. The divisions will of course be made by machinery, and all sides of the scale will be graduated when stretched to its utmost capacity. The figures

will, however, be stamped upon the band when it is extended to half its scope, as they will then be most legible at all points of the extension.

The scale will be divided as follows, though other divisions may be found more suitable than those enumerated: First side, one hundred equal parts, subdivided into halves and fourths. Second side, fifty equal parts, subdivided into sixths. Third side, eighteen equal parts, subdivided into twelfths. Fourth side, eleven equal parts, subdivided into twenty-fourths.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The improved instrument herein described, formed of the graduated rod A, fixed arm G, movable arm F, set-screw E, head B, nut C, and elastic band R, arranged substantially as specified.

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Witnesses:

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