

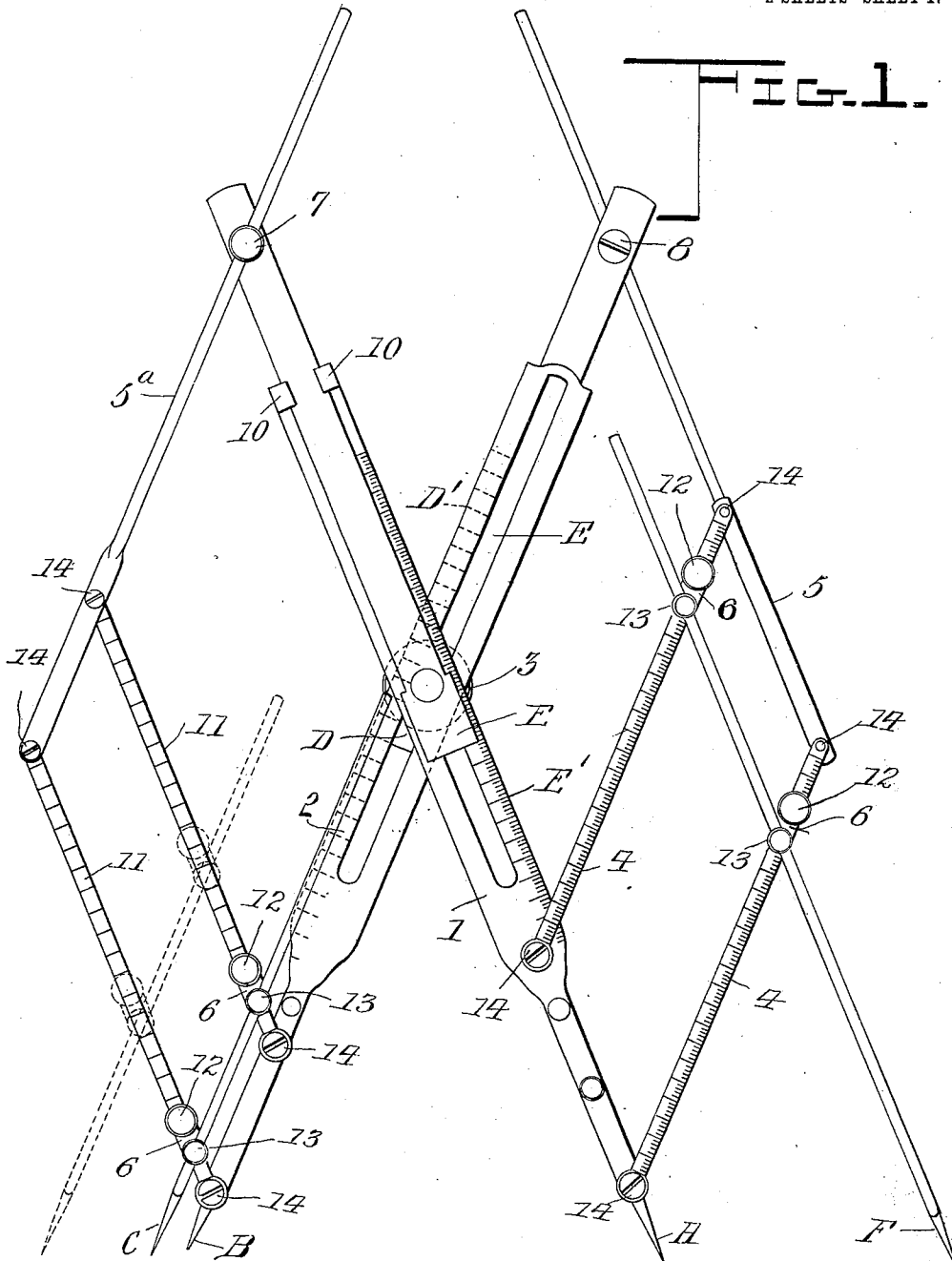
No. 829,938.

PATENTED AUG. 28, 1906.

L. COTE.
PROPORTIONAL DIVIDERS.

APPLICATION FILED OCT. 29, 1904.

2 SHEETS—SHEET 1.



Witnesses:

John T. Deufferin
J. H. Gibbs

Louis Cote, Inventor,

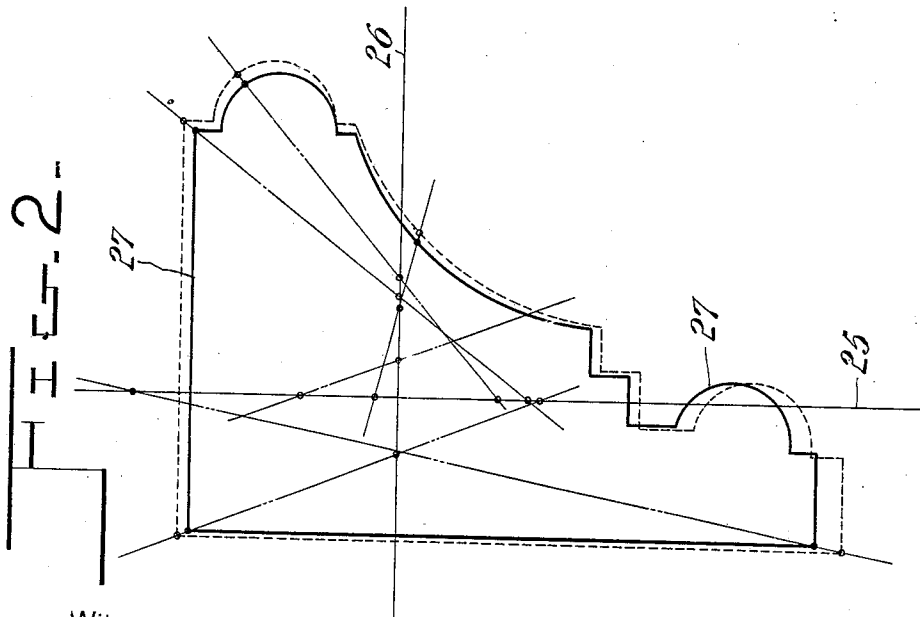
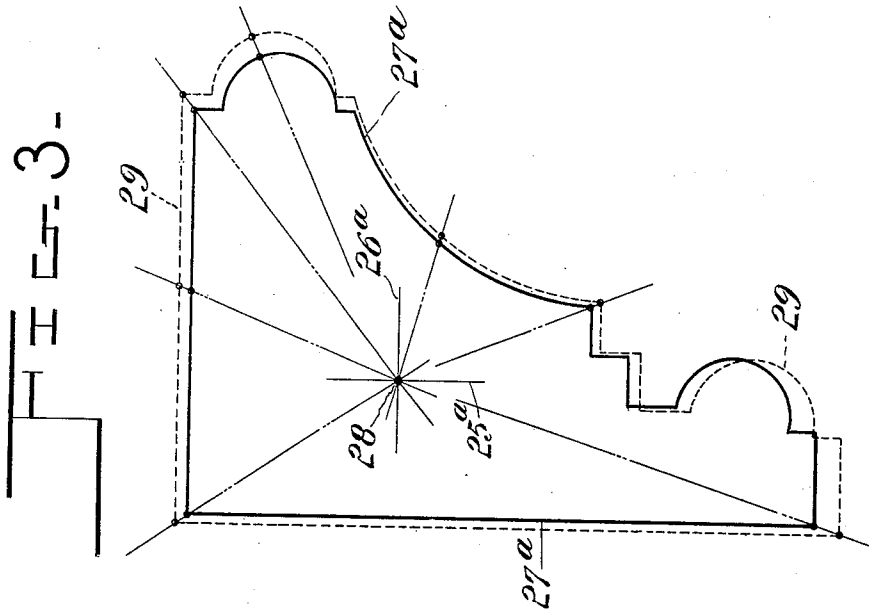
By *Marion Marion*
Attorneys

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UNITED STATES PATENT OFFICE.

LOUIS COTE, OF ST. HYACINTHE, CANADA.

PROPORTIONAL DIVIDERS.

No. 829,938.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed October 29, 1904. Serial No. 230,472.

To all whom it may concern:

Be it known that I, LOUIS COTE, a subject of the King of Great Britain, residing at St. Hyacinthe, county of St. Hyacinthe, in the Province of Quebec, Dominion of Canada, have invented certain new and useful Improvements in Proportional Dividers; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in proportional dividers; and it consists in certain features of novelty in the construction and operation thereof, all as hereinafter more fully described, and pointed out in the claims.

The object of the invention is to provide a device of the character described in which the dividing-points are placed upon one side of the pivotal connections of the parts thereof, so that said points may simultaneously contact with a sheet of paper or other plane surface and proportions be established without lifting and reversing the instrument, as is commonly done while using the proportional dividers in common use.

Referring to the drawings, Figure 1 is an elevational view of the instrument herein-after described as it is held while in use. Fig. 2 is a chart showing diagrammatically one manner in which the device may be used, and Fig. 3 is another diagrammatical illustration for the same purpose.

Referring to the parts, A and B are pointers at the end portions of the divider-arms 1 and 2, which arms are formed approximately after the style of the conventional proportional divider now in common use. Said arms are longitudinally slotted, as shown, and in their longitudinal slots are supported the slides D and E, respectively, which are connected by means of the thumb-nut 3, common in proportional dividers.

Parallel arms 4 are pivotally connected with the arm 1 and with the guide-bar 5. Slides 6 are adjustably mounted upon the arms 4 and carry the pointer F, which pointer is slidable longitudinally of said arms 4 to regulate the adjustment of said pointer F with relation to the pointer A, and the guide-bars 5 and 5^a are slidably mounted in pivoted sockets 7, which are secured, by means of the screw 8, upon the slides D E, respectively.

The slides D E are slidable longitudinally in guides 10, located, preferably, at the ex-

tremities of the arms 1 and 2. Supported by the arm 2 are pivoted arms 11, which are connected with a guide-bar 5^a at their opposite ends, and slidably mounted upon the arms 11 is a pointer C, carried by similar slides 6.

By means of set-screws 12 the slides 6 referred to may be secured in any desired position upon the arms 4 and 11, so that the pointers C and F may be moved to a greater or less distance from their companion pointers B and A, where they should be held parallel with the arms 1 and 2. Set-screws 13 secure the pointers C F as to longitudinal adjustment thereof. The arms 4 and 11 are pivoted at 14 to the members 1 5 and 2 5^a, respectively, so that the members 1, 5, and 11 are always held parallel, while the members 2, 4, and 5^a are likewise held parallel.

Any desired uniform scale may be provided upon the arms of the device; but it is preferred to subdivide said scale into decimal divisions or graduations.

The proportionate distances between the pointers A, B, and C are regulated by the position of the two slides D E upon the scales D' and E', respectively. Thus if the slides D E are set at 30 and the slides 6, carrying the arms C, are set at 1 on its scale the space between B and C will equal one-thirtieth of the distance between A and B. For example, if the slides D E are set at 30 and the pointers A B are separated thirty inches the distance between B and C will be one inch. If the slides are set at 40, the distance between B and C will be one-fortieth of the distance between A and B. When the slides 6 are adjusted to carry C to the second space away from the pointer B and the slides D E are set at 20, the distance between B and C will be one-tenth of the distance between A and B, and if the slides are adjusted to carry the pointer C to 10 on the scale of the arms 11 the distance between B and C will be one-half of the distance between A B if the slides D E are set at 20. When the pointer F is used, it preserves these proportions, but decreases the ratio by a composition of ratios. For example, the slides D E being set at 30, the pointer C set at 1 on its scale, and the slide 6 of pointer F being set at 20 the distance between B C is one-thirtieth of that between B and A and one-fiftieth of the distance between B and F, and its ratio is decreased as F is moved farther from A.

To increase or decrease the length of an ir-

regular figure in one proportion and increase or decrease the width in another proportion and blend the proportions, the pointers A, B, C, and F are used in conjunction with "blending-lines" 25 and 26. (See Fig. 2.) These lines should be set at substantially right angles, as shown, and in passing around the border-line 27 pointer B should rest upon said line, A should follow the line 26, and F should follow line 25 if it is desired to form a figure wherein the increase in area is greater along line 25 than along line 26. If the figure is to be increased more in width than in length, the positions of the pointers A F should be reversed—that is to say, the pointer F should follow line 26 and A should follow line 25.

Assuming that it is desired to increase the area of a figure in length one-thirtieth and in width one-fortieth of the original size and blend the boundary-lines, the slides D E should be set at 30 and the pointer F set at 10 on its scale, and the instruments should be manipulated as just described with reference to Fig. 2.

If it is desired to increase the size of a figure proportionately in all directions, as in Fig. 3, the right-angle lines 25^a and 26^a should be provided within said figure, as shown in Fig. 3, and the pointers A, B, and C should be used with B following the original pattern 27^a, the pointer A resting at 28 at the intersection of the lines 25^a and 26^a, and the outer line 29 will be indicated by the pointer C.

If it is desired to form a pattern of a reduced area, the same scheme of operation is followed, but the pointer C is used to follow the original pattern, and B indicates the reduced pattern.

All the pointers A, B, C, and F extend in one general direction from their central pivotal point 3, so that they may project to the same plane. Thus proportions may be determined without lifting and reversing the instrument, as is now necessary with the proportional dividers in common use.

The members 1 and 2 are preferably graduated decimally, as indicated, and proper numerals should be placed in convenient relation to the graduations, so that the required graduation may be easily found for adjusting the slides thereupon.

The numerals 1 10 20 30 40, &c., referred to hereinbefore as indicating graduations, are not placed on the drawings because of the small space provided therefor.

The distinguishing feature of this invention consists in having the indicating-pointers, as A B C, &c., projecting to one side of the pivot of the arms 1 and 2, so as to permit said pointers to extend to substantially the same plane, which plane would be intersected by imaginary lines extending parallel with or approximately parallel with the longitudinal axes of said arms 1, 2, and C when the

instrument is in use, two of the pointer-carrying arms working on a pivot and the other pointer member or members being slidable laterally with respect to 1 or 2, or both 1 and 2, and all of said members terminating in pointers projecting substantially parallel with the longitudinal axis of the members of which they form a part, in which particular the instrument differs from the pantograph having a relatively fixed pivot-arm with lazy-tongs connected therewith and pointers extending at substantially right angles to arms of said lazy-tongs.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a proportional divider, a pair of pivotally-connected pointers, slides movable longitudinally thereof, a guide-arm pivotally connected with one of said slides, arms pivotally connected with said guide-arm and with one of said pointers, and a pointer mounted on said arms.

2. In a proportional divider, a pair of pivotally-connected pointers, slides movable longitudinally thereof, a guide-arm pivotally connected with one of said slides, arms pivotally connected with said guide-arm and with one of said pointers, and a longitudinally-slidable pointer mounted on said arms.

3. In a proportional divider, a pair of pivotally-connected pointers, a guide-arm slidably connected with one of said pointers, parallel arms pivotally connected with said guide-arm and with one of said pointers, and a pointer mounted on said parallel arms and slidable longitudinally thereof, all of said pointers being adapted to extend to a given plane.

4. In a proportional divider, a pair of pivotally-connected pointers, slides movable longitudinally thereof, a guide-arm pivotally connected with one of said slides, means for locking said guide-arm, arms pivotally connected with said guide arm and with one of said pointers, and a pointer slidably mounted on said arms.

5. In a device adapted to determine differential proportions, three members pivotally connected, a longitudinally-slidable guide-arm connected with two of said members, means for locking said arm, a pointer pivotally connected with said three graduated members, and a second pointer mounted on two of such members.

6. In a device adapted to determine differential proportions, a guide-arm, three graduated members, two of which are pivotally connected with said guide-arm, a pointer pivotally connected with one of said three graduated members and a second pointer slidably mounted on two of such members.

7. In a proportional divider, a pair of pivotally-connected pointers, a guide-arm slidably connected with one of said pointers,

arms pivotally connected with said guide-arm and with one of said pointers, and a pointer mounted on said arms, said pointer being slidable longitudinally of said arms and in the line of its longitudinal axis, all of said pointers projecting to the same plane.

8. In a proportional divider, a pair of pivotally-connected longitudinally-slotted pointers, slides movable longitudinally thereof, a guide-arm pivotally connected with one of said slides, said arm being held parallel with one of said pointers, arms pivotally connected with said guide-arm and with one of said pointers, and a pointer mounted on said arms.

9. In a proportional divider, a pair of pivotally-connected longitudinally-slotted pointers, slides movable longitudinally thereof, a guide-arm pivotally connected with one of said slides, said arm being held parallel with one of said pointers, arms pivotally connected with said guide-arm and with one of said pointers, and a pointer slidably mounted on said arms.

10. In a proportional divider, a pair of longitudinally-slotted pointers, slides movable longitudinally thereof, means for pivotally connecting said slides, guide-arms pivotally connected with said slides, a pair of arms pivotally connected with each of said guide-arms and with each of said pointers, and a pointer mounted on each of said pairs of arms.

11. In a proportional divider, a pair of adjustable pointers, a pivot connecting said pointers, a pair of arms pivotally connected with one of said pointers at one side of said pivot, a guide-arm connected with said arms and with one of said pointers, and a slidable pointer mounted on said arms.

12. In a proportional divider, a pair of longitudinally-slotted and graduated pointers, slides movable longitudinally thereof, a pivot member connecting said slides, a guide-arm pivotally connected with each of said slides, a pair of graduated arms connected with each of said guide-arms and with each of said pointers, and a pointer mounted on each pair of said graduated arms.

13. In a proportional divider, a pair of pivotally-connected pointers, a pair of arms pivotally connected with one of said pointers, at one side of the pivotal point thereof, a guide-arm connected with said arms, and with one pointer, and a pointer carried on said arms, all of said pointers projecting to one side of the pivotal point of said pair of pivotally-connected pointers.

14. In a device adapted to determine differential proportions, a pair of pivotally-connected pointer members, a third pointer member, and parallel arms connected with one pointer member for holding said third

pointer member substantially parallel with one of said first-mentioned pointer members, all of said pointer members terminating in indicating-pointers projecting substantially parallel with the longitudinal axes of said pointer members.

15. In a proportional divider, a pair of pivotally-connected pointer members, a third pointer member, and parallel arms connected with one pointer member for holding said third pointer member, which is laterally slidable, substantially parallel with one of said first-mentioned pointer members, all of said pointer members terminating in indicating-pointers projecting substantially parallel with the longitudinal axes of said pointer members.

16. In a proportional divider, a pair of pivotally-connected pointer members, a third pointer member, and parallel arms connected with one pointer member for holding said third pointer member substantially parallel with one of said first-mentioned pointer members, all of said pointer members terminating in indicating-pointers projecting to substantially the same plane and substantially parallel with the longitudinal axes of said pointer members.

17. In a proportional divider, a pair of pivotally-connected pointer members, a third pointer member, and parallel arms connected with one pointer member for holding said third pointer member, which is laterally slidable, substantially parallel with one of said first-mentioned pointer members, all of said pointer members terminating in indicating-pointers projecting to substantially the same plane and substantially parallel with the longitudinal axes of said pointer members.

18. In a device adapted to determine differential proportions, a pair of pivotally-connected members, supporting means connected with said pivotally-connected members, slides on said supporting members, and a pointer member carried by said slides, said pivotally-connected members and said pointer member terminating in pointers which project substantially parallel with the longitudinal axes of said members.

19. In a device adapted to determine differential proportions, the combination with a pair of pivotally-connected pointer members, of supporting-arms pivotally connected with both of said pointer members, slidable retaining members and a pair of longitudinally-movable pointers carried by said slidable retaining members.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

LOUIS COTE.

Witnesses:

F. H. GIBBS,
G. P. C. MACNEILL.