No. 832,382. PATENTED OCT. 2, 1906.

G. HAY, JR.

RULER.

APPLICATION FILED FEB. 23, 1906.

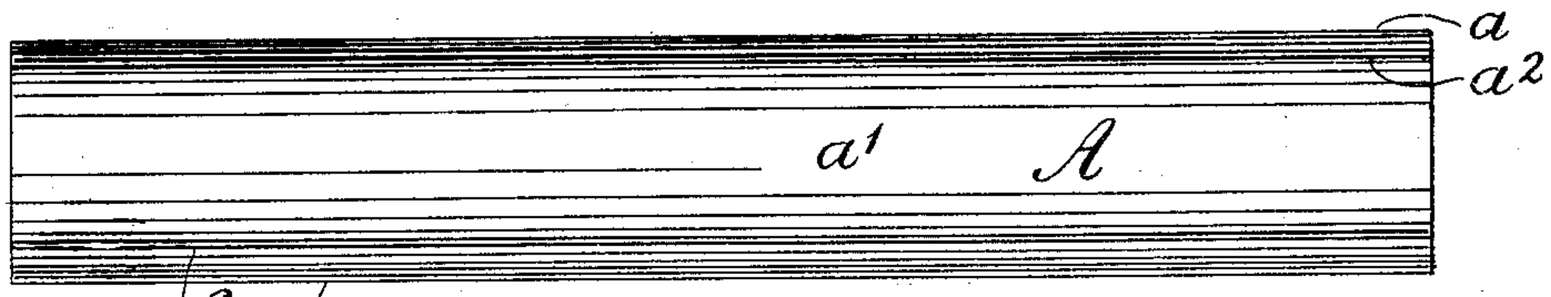

Fig. 1.

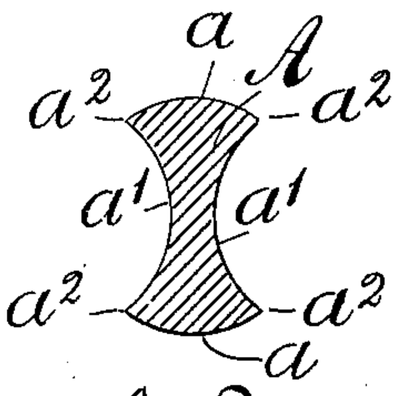

Fig. 2.

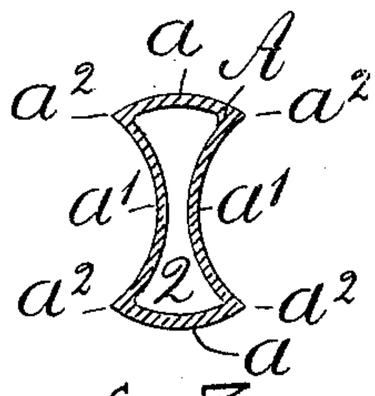

Fig. 3.

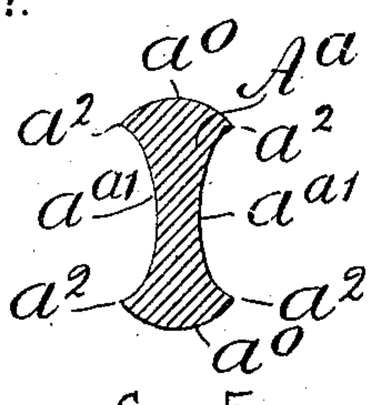

Fig. 5.

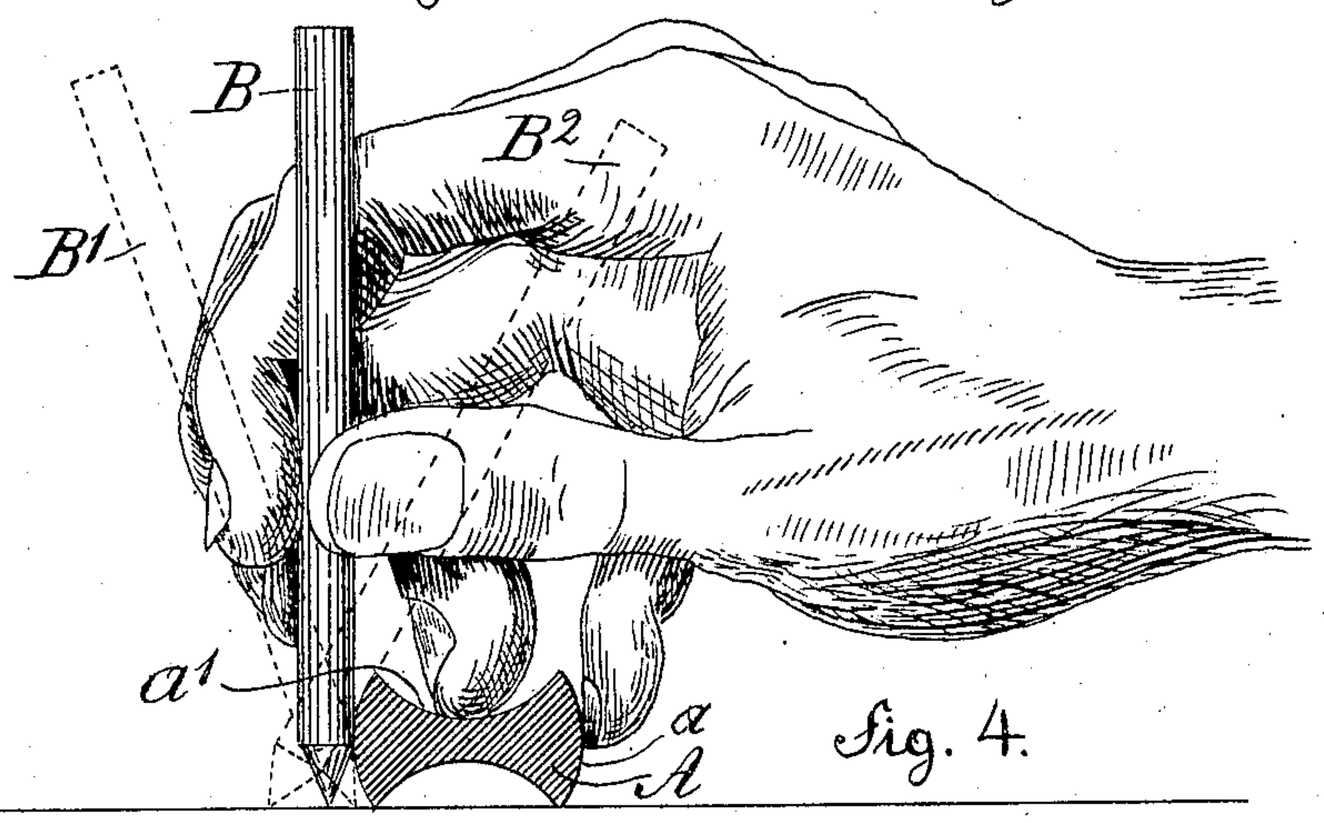

Fig. 4.

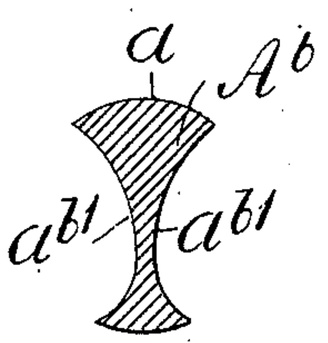

Fig. 6.

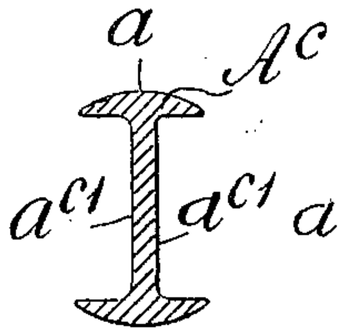

Fig. 7.

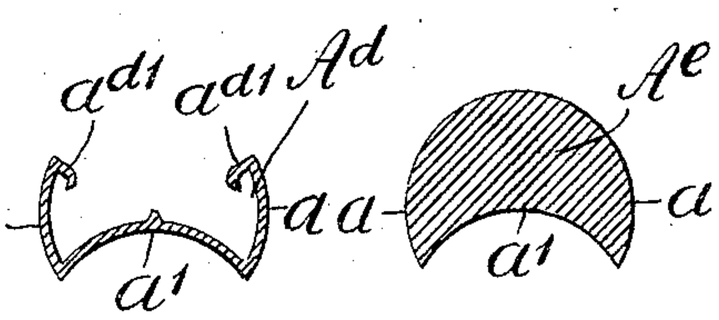

Fig. 8.

Fig. 9.

Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE HAY, JR., OF OTTAWA, ONTARIO, CANADA.

RULER.

No. 832,382. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed February 23, 1906. Serial No. 302,626.

To all whom it may concern:

Be it known that I, GEORGE HAY, Jr., residing at Ottawa, in the county of Carleton, Province of Ontario, and Dominion of Canada, have invented new and useful Improvements in Rulers, of which the following is a specification.

My invention, which will be hereinafter fully set forth and claimed, relates to straight-edges, commonly called "rulers."

The object of my invention is a ruler that (I) is capable of being easily steadied upon the paper or other surface to be ruled; (II) presents a guiding-bearing for the scriber or pen capable of variation by varying the inclination of the scriber or pen; (III) prevents the soiling of the paper through the guiding-bearing coming in contact therewith; (IV) approximates the girder or **I** shape, presenting the greatest resistance to a bending strain in a direction approximately at right angles to the guiding-bearing, and (V) affords a guide or bearing to a finger-tip of the hand that holds the scriber or pen.

Figure 1 is a view of my improved ruler as it appears lying on the surface to be ruled. Fig. 2 is a transverse section or profile of the same. Fig. 3 is a similar section to Fig. 2, but hollow. Fig. 4 is a similar section to Fig. 2, illustrating the bearing of the finger holding the scriber and the variations of the angles of the latter. Figs. 5, 6, 7, 8, and 9 are modifications of the same.

Round rulers or rollers, while possessing in the fullest degree the quality set out under object II, utterly lack that described under I, as only a small segment of the same is in practical contact with the surface to be ruled. They are also deficient in the object indicated under III, answer but partly that under head IV, and lack utterly that under head V. Flat rulers and rulers having a combination of flat and other parts partly or entirely lack the quality I—the frictional contact being distributed over a large surface—are deficient in quality II and III, usually lack quality V, while possessing the quality IV in the fullest degree. Rulers having a square or rectangular profile lack the points I, II, III, and partly that of IV, while similar sections with recessed or concaved sides possess the quality I and V, but not II and III, and but partly that enumerated under IV.

My improved ruler A, Figs. 1, 2, 3, and 4, has a profile consisting, essentially, of one or two parts of a circle or roller, forming heads with facets a, with two sides a' a' concaved or recessed to form, so to say, "biting" edges a^2 upon the surface to be ruled. The facets or parts of the circular surface a provide the qualities II and III, while the edges a^2 furnish the quality I and the concaved sides the quality V. At the same time the facets or round parts a and the concaved sides a' yield a girder shape approximating an **I**-section, the web of which offers the greatest resistance to a bending strain at right angles to its plane and to the guiding-surface a.

In Fig. 4, B represents a scriber or pencil, and B′ B² show two of the variations of angles at which it may be held on the guiding-bearing. It also illustrates how one of the fingers may slide along in the groove formed by the concaved side a' and steady the hand to maintain the angle of the scriber. When the ruler is made of hard rubber or metal and economy of material and lightness becomes a consideration, the section may be made hollow or with an internal space 2, as shown in Fig. 3.

In Figs. 5, 6, 7, 8, and 9 A^a, A^b, A^c, A^d, and A^e, respectively, are the equivalents of A in Figs. 1, 2, 3, and 4. While I prefer to have the facets or guiding-surfaces a conform in profile to segments of a true circle, this is not essential, as the surfaces a may in profile be those of more or less irregular curves or segments of smaller circles producing convex surfaces—in other words, the said facets or surfaces may be more rounded toward the edges a^2, as a° in Fig. 5, and the sides a' more sharply curved or recessed near said edges, as $a^{a'}$ in Fig. 5, so as to compensate somewhat for the loss of angularity which is caused by the sharper outer curve. The profile or outline of the sides a' may be of any desired shape. Segments of circles are shown in Figs. 2, 3, 4, and 9 and one side of Fig. 8, while in Figs. 5 and 6 the shapes are irregular curves $a^{a'}$ and $a^{b'}$; in Fig. 7, straight lines $a^{c'}$, and in Fig. 8, being a skeleton section, one of the sides is practically wanting and the edges curled back for strength, forming the abbreviated sides $a^{d'}$. Each facet must of course be uniform throughout and have parallel edges, and all edges must be parallel with each other. It will be observed, first, that the edges a^2 cause a more localized impingement upon the paper or

other surface upon which it is placed for use and is thus held in a more secure position by a moderate pressure upon it; second, that the rounded facet *a* presents the same facility for varying the angle at which the scriber is held thereon, so that a line may be drawn nearer to or farther away from it; third, that as it is not rolled, as a round ruler or roller, the place with which the inked part of a pen may have been in contact will not touch the paper; fourth, that its greatest resistance to bending is in the direction at a right angle to the line to be drawn; fifth, that it affords a guide for the finger of the hand holding the scriber by the groove formed by the concave side *a'*, except in the case of the form shown in Fig. 9, also by the edge *a'* bearing between the finger-nail and the skin of the finger-tip. Incidentally this groove will also retain a round pen, pencil, or other implement when the ruler is placed on a surface having an incline not greater than to retain the ruler itself, which not being round will not roll off. Being flat, it is also convenient to be carried in a breast-pocket.

I am aware that rulers have heretofore been made that have a substantially flat cross-section with a rounded facet, impinging edges, and grooved surfaces, and such I do not claim, broadly; but

I claim as my invention—

1. A ruler having a cross-section consisting of two convexedly-rounded facets connected by a web formed by concavedly-shaped sides, the facets and sides at their intersections forming angular edges, substantially as set forth.

2. A ruler having a cross-section consisting of two rounded (convex) opposite facets separated by recessed sides terminating in edges formed by the intersection of their concaved surface with the convex surfaces of the facets, substantially as set forth.

3. A ruler having a cross-section consisting of two opposite heads with rounded (convex) facets connected by a web formed of recessed sides, the junctures of the sides and facets forming angular edges, substantially as set forth.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

GEORGE HAY, JUNIOR.

Witnesses:
A. HARVEY,
G. A. PIOTRZKOWSKY.