No. 752,699. PATENTED FEB. 23, 1904.

P. NEUKIRCHEN.

COMBINATION DRAWING TOOL.

APPLICATION FILED FEB. 13, 1901. RENEWED JULY 16, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

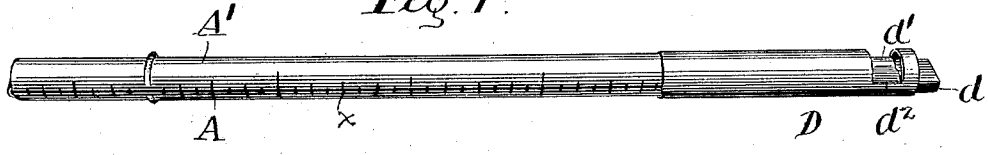


Fig. 4.

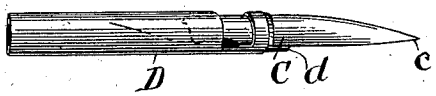


Fig. 2.

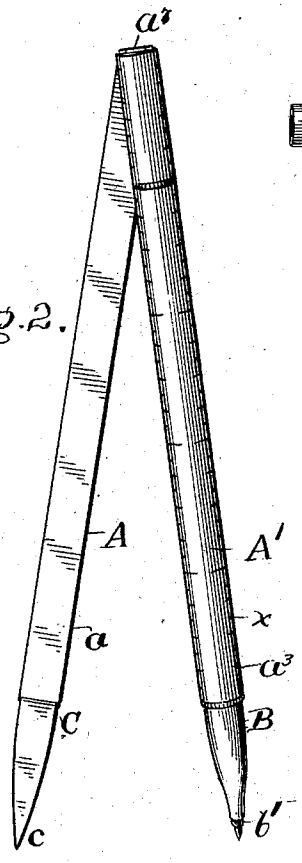


Fig. 3.

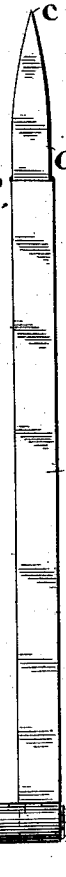


Fig. 5.

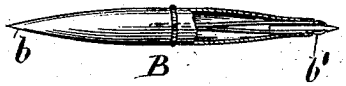
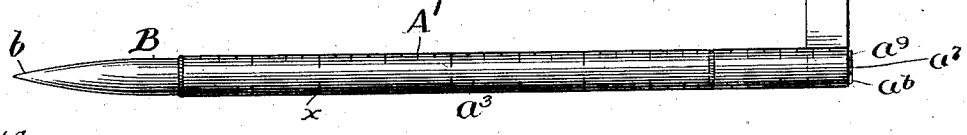


Fig. 6.





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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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APPLICATION FILED FEB. 13, 1901. RENEWED JULY 16, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

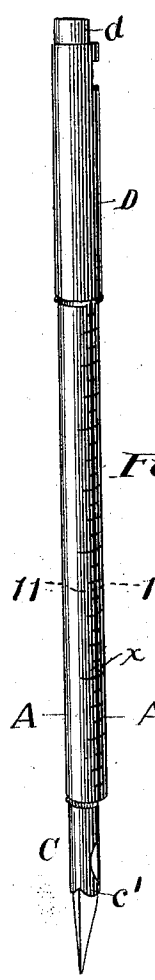


Fig. 7.

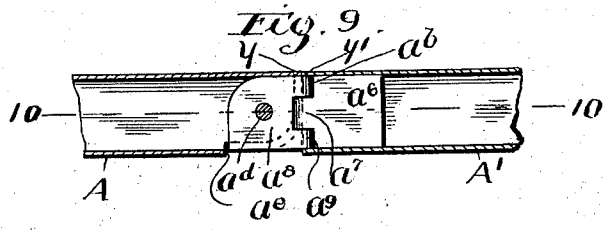


Fig. 9.



Fig. 10.

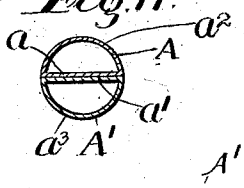


Fig. 11.

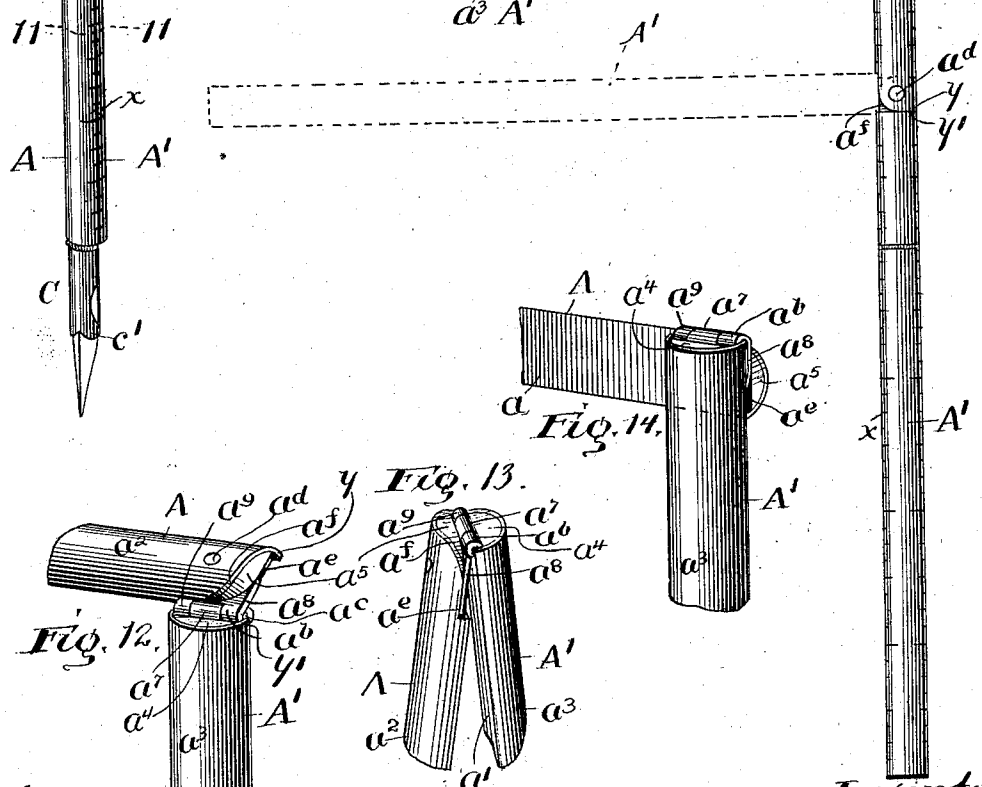


Fig. 8.

Fig. 14.

Fig. 12.

Fig. 13.

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No. 752,699. Patented February 23, 1904.

UNITED STATES PATENT OFFICE.

PETER NEUKIRCHEN, OF CHICAGO, ILLINOIS.

COMBINATION DRAWING-TOOL.

SPECIFICATION forming part of Letters Patent No. 752,699, dated February 23, 1904.

Application filed February 13, 1901. Renewed July 16, 1903. Serial No. 165,869. (No model.)

To all whom it may concern:

Be it known that I, PETER NEUKIRCHEN, a subject of the Emperor of Germany, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combination Drawing-Tools, of which the following is a specification.

My invention relates to certain improvements in a combination drawing-tool, the purpose of which is to produce an article inclosed within the outlines of an ordinary pen or pencil and yet made up of a series of parts so constructed, arranged, and united as to be capable of transformation into a variety of drawing and writing tools.

To such end the invention consists in certain novel characteristics comprising in the preferred form a structure which will be made the subject of a complete description below, and the essential features of which will be clearly pointed out in the claims at the end of the description.

In the drawings illustrating the invention, Figure 1 is a view of the article closed and in position for carrying in the pocket. Fig. 2 is a view illustrating the use of the device as a pair of compasses or dividers. Fig. 3 is a view showing the dividers extended as far as possible and in position for use as a try-square. Fig. 4 shows one of the removable points applied to the erasing end of the device, in which position it becomes a convenient eraser or envelop-opener. Fig. 5 is a view, partly in section, showing the pencil-point. Fig. 6 is a similar view showing the pen-point. Fig. 7 is a view of the complete device arranged as a pen. Fig. 8 is a view of the device arranged as a measuring or drawing rule, said figure showing in dotted lines the use of the device as a drawing-square. Fig. 9 is a longitudinal section of the hinge portion of the device in line 9 9 of Fig. 10. Fig. 10 is a similar section in line 10 10 of Fig. 9. Fig. 11 is a transverse section in line 11 11 of Fig. 7. Fig. 12 is a perspective showing the operation of the double hinge. Fig. 13 is a similar view showing the hinge in a position assumed in opening the device from a closed position to that seen in Fig. 8, and Fig. 14 is an enlarged view of the corner when the tool is adjusted for use as a try-square.

Referring to the drawings, A A′ are two hollow members having flat sides a a' and semicircular sides a^2 a^3, the two making when the flat sides are brought together a preferably cylindrical body. The end of the member A′, Fig. 10, is preferably strengthened by means of a block a^4, and the end of the member A is strengthened by a similar block a^5. Between the flat side of the member A′ and the block is secured a hinge-plate a^6, provided with a knuckle a^7, and a second hinge-plate a^8, provided with knuckles a^9 a^b, is hinged to the first plate by means of a pintle a^c. The plate a^8 is pivoted between the block a^5 and the flat side of the member A by means of a pin a^d, transverse both to the member A and to the pintle a^c of the hinge. The member A is notched at a^e to permit the plate a^8 to swing around at right angles to the position shown in Figs. 9 and 10, and the corner a^f is cut away to permit of this movement when the parts are in the position seen in Fig. 8. The hinge and the transverse pivot make a double joint, so that the two members may be moved angularly with respect to each other upon either of the two axes represented by the pintle and by the pin.

The portions of the device thus far described are shown in Fig. 8 extended to form an ordinary rule or straight-edge, and they are preferably graduated, as shown at x, to enable them to be used as a measuring-rule. The corners y y' stop the two members to bring the same into a straight line. The dotted line in Fig. 8 shows one of the members turned at right angles to the other in the same plane. The bottom of the notch a^e furnishes a stop to limit the movement of the parts in this direction to a position exactly at right angles to each other. This provides a convenient ruling-square, which may be laid flat upon any drawing-surface. Starting with the parts shown in the position represented by the dotted lines, the member A may be swung upon the hinge-pintle, as seen in Fig. 12, until it reaches the position seen in Fig. 14, in which the two members are exactly at right angles

to each other, but in different planes, fitting the device for use somewhat in the manner of a T-square, one of the members lying flat upon the drawing-surface and the other resting against the straight-edge along the side of the drawing-board. In this position the device can also be used as a try-square.

Referring to Figs. 5 and 6, a pencil-point B is shown in Fig. 5 and a pen-point C in Fig. 6, each being provided with a sharp end *b c*, respectively. The pencil-point is provided with a lead-holder *b'* and the pen-point with the pen-holder *c'* upon the end opposite the sharp point. Both ends of these points are fitted to slide within the members A A', which are open at their free ends for this purpose, and Fig. 2 shows how the device may be arranged for use as a compass, the position of the double hinge being the same as in Fig. 14 and the arms of the compasses being extended or brought together by movement upon the pin a^4. The sharp points may be used upon both arms or either the pen or pencil point upon one of them, as may be desired.

Fig. 4 shows a cylindrical slide D, fitted to slide over either end of the members. Fig. 1 shows the same slipped over the free ends of the members to hold them together in convenient position for carrying, and Fig. 7 shows the slide upon the hinged end holding the two members together and leaving the opposite ends free for the use of the pen or pencil point. A half-cylindrical eraser *d* is placed in one end of this slide and the sides of the same turned in upon the eraser at d' d^2 to hold the latter in place. This leaves room for either the pen or pencil point to be slipped into the slide, as shown in Fig. 4, and by leaving one of the sharp points projecting, as seen in Fig. 4, a convenient eraser or envelop-opener is obtained.

The various features of my invention are more or less independent of each other, and for that reason my invention is not limited to the specific devices shown or to the combination of all or any of the portions thereof except as clearly set forth in the following claims.

I claim as new and desire to secure by Letters Patent—

1. In a device of the class described, the combination of the two members, A, A', hinged together at one end upon two axes, one of which is substantially in the plane of one side of the members, and the other of which is transverse to said plane, and suitable stops for limiting the angular movement about the transverse axis between positions in which the two members lie in the same straight line and at right angles to each other; substantially as described.

2. In a device of the class described, the combination of the two contiguous members A, A', and means for hinging them together at their adjacent ends upon two axes, one of which is substantially in the plane of the flat sides and the other of which is transverse thereto; substantially as described.

3. In a device of the class described, the combination of the two contiguous members, A, A', semicircular in cross-section and a connecting part hinged to the adjacent ends respectively in the line of the flat side thereof, and transverse thereto; substantially as described.

4. The combination with the members, A, A', hinged together at one end, and one of them hollow at the other end, of a sharp point fitted to slide into said open end and a hollow slide, D, adapted to slip over either end of the two members when the same are brought together, said slide being provided with the eraser, *d*, secured in and occupying a portion of the interior of one end of the slide and leaving sufficient room therein to receive and hold the said point in position; substantially as described.

In witness whereof I have hereunto set my hand, at Chicago, in the county of Cook and State of Illinois, this 2d day of February, A. D. 1901.

PETER NEUKIRCHEN.

Witnesses:
CHAS. O. SHERVEY,
S. BLISS.