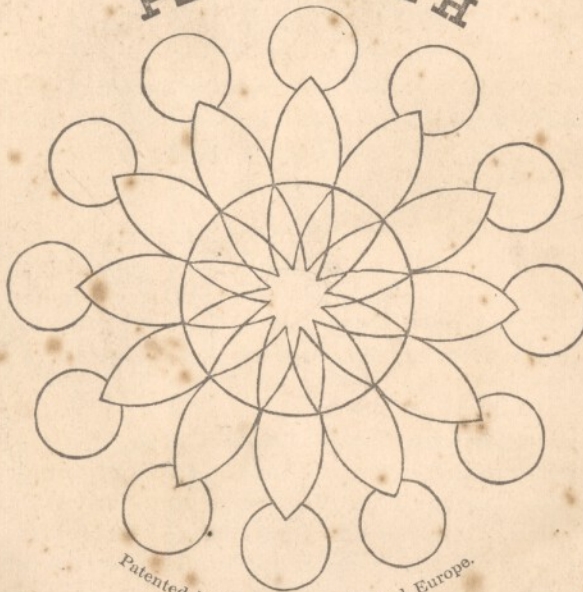


A FEW HINTS CONCERNING THE USE OF THE

POLYGRAPH

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Patented in the United States and Europe.

Manufactured only by The Polygraph Co., E. M. Goldsmith & Co., Props.
PHILADELPHIA, PA.

✦ The Polygraph ✦

Is a new and ingenious invention, by the aid of which a *CHILD* of a few years can produce drawings, which formerly required long months of study and preparation.

At the same time, its accuracy and convenience render it of

PRACTICAL BENEFIT TO

✦ ————— ✦
✦ ————— ✦
Designers, Decorators, Draughtsmen,
Architects, Engineers and Artisans
✦ ————— ✦
✦ ————— ✦

employed in every *MANUFACTURING BUSINESS*.

For school children, it is *INVALUABLE*, as it combines in itself the qualities of Straight and Curved Rules, Dividers, Protractor and Scale, besides other auxiliary figures, which enable one to produce many results, which could hitherto only be brought about by the use of complicated instruments.

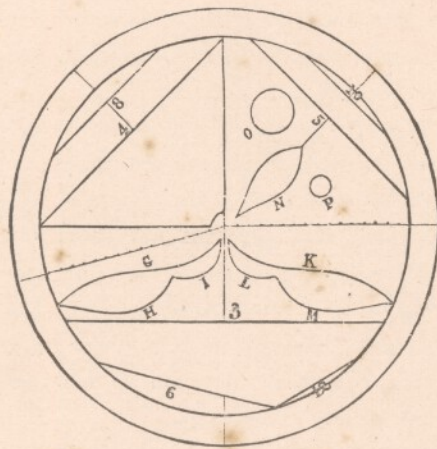
Its greatest advantage is the phenomenally short time in which designs may be drawn, thus suggesting and encouraging ideas of art.

After a design has once been made, it can be easily and quickly reproduced by the Polygraph, while for purposes of demonstration, it has been pronounced most excellent by *PROFESSORS AND TEACHERS OF DRAWING*.

After following the intricate rules for constructing regular polygons of 3, 4, 5, 6, 8, 10 and 12 sides, the student finds great difficulty in obtaining correct results, while with the Polygraph they can be accurately made, and in an incredibly short time.

As a *SCIENTIFIC TOY*, it is without precedent, for with the exercise of a little ingenuity, free-hand drawings of animate and inanimate objects can easily be produced. It is especially recommended for *KINDERGARTENS*.

THE POLYGRAPH HAS RECEIVED THE HIGHEST AWARDS
AT VARIOUS EXHIBITIONS.



DIRECTIONS FOR USE.

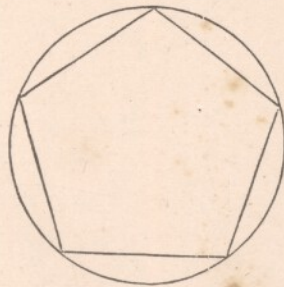
Having obtained a hard, smooth and level surface, lay a sheet of paper upon the same and the Polygraph upon the paper, pivoting the instrument in the centre by means of a pin.

Use a sharply pointed and hard pencil, that the drawing may not become soiled or rubbed, and be very careful to lay off the exact distances required, otherwise the results will not be accurate.

A triangle is produced by laying off the distance marked 3, three times, revolving the instrument so that the ends of the lines so produced

may join exactly. In the same manner a square is made by drawing the line 4, four times; a pentagon, or five-sided figure, the line 5, five times, and so on with the remaining figures; so that polygons having 3, 4, 5, 6, 8, 10 and 12 sides can be correctly drawn.

To explain the operation more fully, the mode of drawing a pentagon is shown in detail, and although a regular five-sided figure is most difficult to describe by the ordinary methods, the following directions will enable anyone to draw it quickly and accurately.



Pivot the Polygraph as before, draw the pencil along the line marked 5, being very careful to lay off the exact length. Revolve the instrument to the end of the line just produced, and again lay off the same distance, care being taken that the second line exactly joins the line first made. Repeat this operation until the figure is complete.

The circle around the pentagon is made by inserting the pencil in hole No. 31, and revolving the Polygraph completely around its centre, this circle encloses all of the regular polygons. By inserting the pencil in any of the other holes, circles of various sizes may be drawn, and, there being 35 holes in all, each at a different distance from the centre, as many distinct circles, can be made, $\frac{1}{8}$ of an inch apart.

Should any additional larger circles be desired, pivot the instrument at hole No. 35, which allows circles of 9 inches diameter to be drawn.

By means of the curves G, H, I, K, L, M, the lozenge-shaped

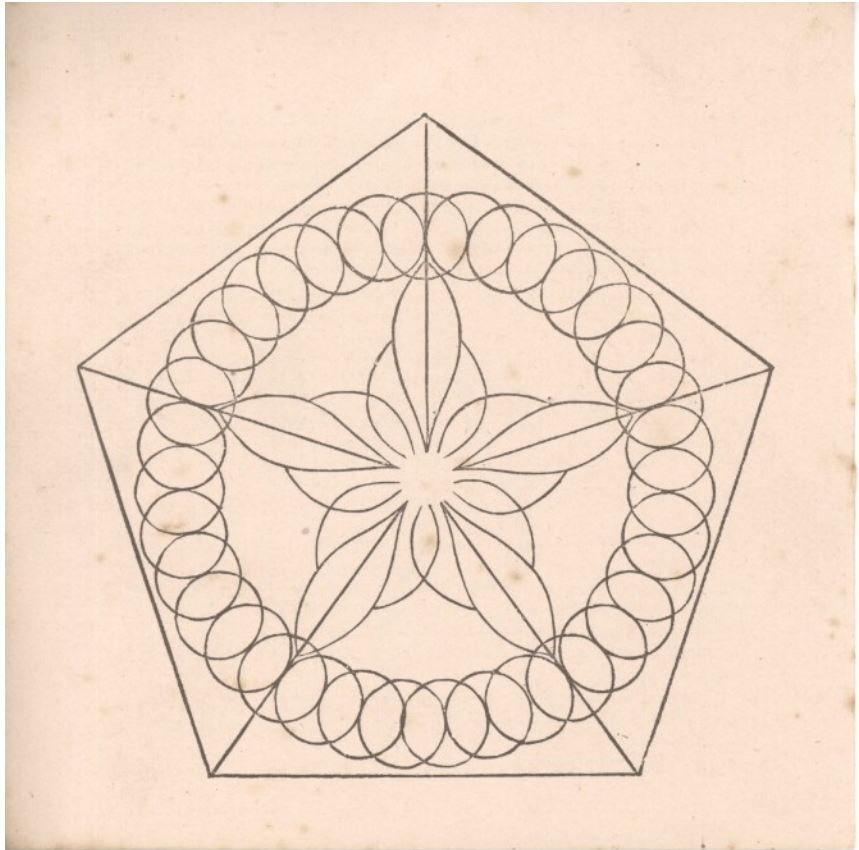


figure N and the circles O and P, a variety of the most beautiful drawings can be made, limited only by the skill and ingenuity of the student. The scale of degrees recommends itself to all who have any occasion to use a protractor, and by the aid of this alone any angle from 0° to 360° may be laid off.

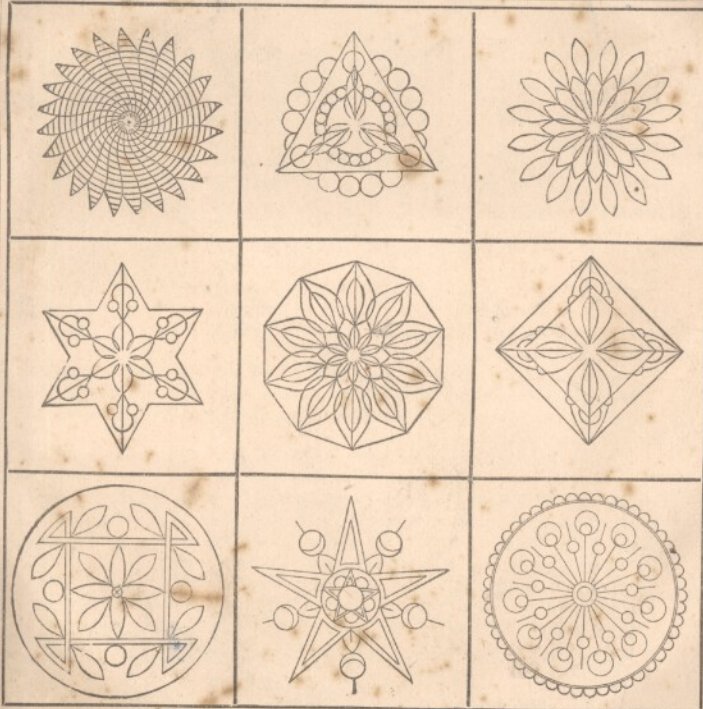
Figures may be reduced in size by drawing lines from the points of the original figures to the centre, and describing a smaller circle; the points where the lines cross this circle, giving the angles of the reduced figure. In the same manner, proportionate enlargements may be made by extending radiating lines from the centre, through the point of the original figure to a larger circle, giving absolute and correct results. A circle of any *desired* diameter can be made by consulting the scale of inches; the circles drawn by means of holes No. 17 and No. 20 respectively, cutting the small circles marked O and P exactly at their centres.

The centres of the lines 3, 4, 5, 8 and 10, are indicated by marks. There are many other features connected with the Polygraph too numerous to mention, but which will quickly suggest themselves to any one using the instrument.

In order to draw the figure opposite, construct a pentagon as before explained; then draw lines from the centre to the points or angles of the same. With these as guides, lay off the lozenge-shaped figure N on each, thus producing a five-pointed star. Draw the curves, I and L, in the same manner from the centre to the sides of the star just formed; the ring of circles being made by drawing the circle O, revolving the Polygraph slightly, until a second circle can be drawn cutting the first at the centre, and so on until the ring is complete.

A very slight practice will enable anyone to improve and invent similar designs, the effect of which will be greatly enhanced by suitable coloring.

A REVOLUTION IN DRAWING.



A few reduced copies of drawings made with the Polygraph.