

Patented May 4, 1886.

A diagram showing a chain of five triangles. The vertices are labeled as follows: the top vertices are C, B, C; the bottom vertices are E, D, C, B, C, D, E. The interior angles are labeled A, B, C, A, B, C, A. The triangles are arranged in a zig-zag pattern, sharing common sides.

A diagram of a chain with seven links. The links are labeled from left to right as follows: E, D, C, B, C, D, E. The links are connected in a continuous loop, with the first and last links (E) meeting at a point on the right side. The links are arranged in a slightly wavy horizontal line.

The diagram shows a cross-section of a ship's hull floating in water. A horizontal dashed line represents the waterline. The center of buoyancy is marked as K (top left), the center of gravity as G (bottom left), and the metacenter as M (top right). The hull is tilted such that K , G , and M are vertically aligned, indicating equilibrium.

A technical drawing of a mechanical component, possibly a valve or a plug, shown in a cross-sectional view. The component has a central cylindrical body with a flange on the left and a smaller circular feature on the right. Various points and dimensions are labeled with letters and numbers. The central body is labeled with 'c' and 'c'' at the top and 'c' and 'c'' at the bottom. The flange on the left is labeled with 'h' and 'h'' at the top and 'd' and 'd'' at the bottom. The smaller circular feature on the right is labeled with 'w' and 'w'' at the bottom. The overall shape is defined by dashed lines, and the central body is shaded with diagonal lines. The drawing is oriented horizontally, with a dashed line 'b-b' indicating the axis of symmetry.

A detailed diagram of a gun barrel with two ports. The barrel is shown in cross-section, revealing internal components. Labels include 'E' at the breech end, 'D' for the breech cover, 'y' for the breech cover hinge, 'x' for the breech cover hinge pin, 'C' for the breech cover hinge, 'B' for the breech cover hinge, 'a' for the breech cover hinge, 'c' for the breech cover hinge, and 'y' for the breech cover hinge.



A diagram showing a V-shaped notch. Two rays originate from a common vertex on the right and extend to the left. The upper ray is labeled with the letter E , and the lower ray is also labeled with the letter E .

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PEN.

SPECIFICATION forming part of Letters Patent No. 341,390, dated May 4, 1886.

Application filed October 22, 1884. Serial No. 146,182. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN ROHN, of Providence, in the county of Providence and State of Rhode Island, have invented a new and Improved Pen, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved writing-pen, which writes the same as an ordinary steel pen, and can hold a comparatively large quantity of ink, and the points of which can be restored when worn off, by sharpening the pen on an oil-stone.

The invention consists in a pen formed of a strip of sheet metal doubled over at the center and having an arrow-head point at each end, the blades formed facing each other and having inwardly-projecting flanges at their inner parts.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a face view of the steel blank from which the pen is made. Fig. 2 is a face view of the blank, parts being bent over. Fig. 3 is a side view of the same. Fig. 4 is a side view of the pen. Fig. 5 is a side view of the pen and holder, parts being in section. Fig. 6 is an enlarged face view of the point of the pen. Fig. 7 is an enlarged edge view of the points. Fig. 8 is a diagram or enlarged view of the letter R, showing the manner in which the points of my improved pen trace the outlines of characters. Fig. 9 is a cross-sectional elevation of the pen on the line *xx*, Fig. 4. Figs. 10, 11, and 12 are diagrams which illustrate the action of the pen.

The blank A is punched out of a plate of steel or other spring metal, and consists of a strip in the middle of each side edge of which a curved recess, B, is made, forming a short tongue, C, at each end of each recess, and at each end of the strip is a tongue, D, having an arrow-head, E. The tongues D are bent slightly at the base, as shown at *a'* in Fig. 3, and the tongues C are then bent over, so that all project from the same side of the strip or blank, as shown in Figs. 2, 3, and 9, whereby the upper part of each blade is made semicircular in cross-section. The strip or blank A is then doubled over at the middle, so that the two blades E face each other. The points are

then sharpened, ground, and tempered, and can then be placed in a pen-holder, as shown in Fig. 5, consisting of a tube held on a stick. The points or blades E are brought together and pressed slightly against each other, which pressure can be increased by pressing the pen farther into the tube in the holder; or a space of about one two-hundredths of an inch may be left between the points of the pen, if very fine work is required. The blades *a* and points E of the pen should be of precisely the same size and thickness, and the points should be rounded in the same manner as a drawing-pen, thus permitting of using either side of the pen. The blades *a* of the point must be elastic, so as to recover rapidly, and to give immediately under pressure, each blade bending independently of the other, according to the position of the pen in relation to the sheet or writing-surface. The distance between the blades *a* at the line *yy* should be as large as possible.

The above-described pen is cheap, can be manufactured easily, and it works more smoothly and with greater ease than an ordinary pen. It distributes ink better and gives a more steady flow of ink than the ordinary pen—that is, with my improved pen more characters can be made with a certain quantity of ink than with an ordinary pen. It does not splatter, and lays only a thin layer of ink on the paper, which dries rapidly. The ink used may be thick or thin and the paper rough or smooth, and my pen can be used on paper, wood, cloth, &c., better than any other pen, as the rounded points will not catch on the rough surface, as the point of an ordinary pen will. In case the points wear off, fresh points can easily be formed by means of an oil-stone or other abrading-surface, in the same manner as a drawing-pen is sharpened. As the pen can be reversed easily, it is ground automatically by reversing it at suitable intervals.

In Figs. 10, 11, and 12 the dotted lines *c c* and *d d* represent how the point of each blade moves and produces a thin or heavy line as the point of the pen is moved or pressed to each side of the normal position *a' b*. Take a pair of compasses and from the point *c'* on the top blade, which is about the center of the movements of the blade *p''*, with *c'* as center and *r* as radius, trace or draw the line *c c* from the point of the pen in its normal position, and

that line cc will be very near the line on which the blade p'' will move. From the point c^2 , as center with the radius R , draw the line $d d$, which line represents the line on which the point on the blade p''' will move on each side of its normal position. If the point of the pen is moved a distance, h , Fig. 11, from the line $a^2 b$, as will be seen by the diagram, the point of the blade p'' will move outward, and the point of p''' will move inward or be shortened, and the greater the distance h is the greater the distance between the two points will be. The greater the distance between the centers c' and c^2 the greater the distance between the two points of the pen will be at a certain distance from $a^2 b$. To still increase the opening between the two points of the pen at the distance h from $a^2 b$, the bend at $c' c^2$ is made. Any small distance it will move at that point, as can be seen by the lines g and f and g' and f' , will tend to increase the distance between the two points of the pen so much more. The easier that distance is increased with the smallest movement of the point on each side of $a^2 b$ the easier the pen will write. The spring n at the butt-end of the pen serves also to press the cylindrical part of the body of the pen to the side of the tube of the holder and keep it firmly in position. The opening U between the two cylindrical halves of the pen is to allow a little play when the pen is pressed together. When writing with the pen, the upper cylindrical half will press hard against the upper side of the tube of the holder, and also at point o , Fig. 11. As the pen is pressed downward to produce heavy lines, the under cylindrical half of the pen will bend a little inward and leave a small opening, W , between the pen and the holder, so that the lower half is quite loose and will allow a little movement sidewise, as represented in Fig. 12.

p' is the point of the lower blade when the pen is moved in the direction of the arrow, and the reverse if moved the other way. The friction between the points and the paper or the surface written on will produce that side movement, and the center for the movement of the point of the under blade will be the butt-end spring or n . As the top blade is fast or held in a certain position by being pressed against the upper part of the tube of the holder, it is only the lower part that is allowed to move sidewise, and the spring at the butt-end n will make it recover rapidly, as the pressure on the pen varies. This is an important point, as it improves the pen wonderfully. The narrow part at m , Fig. 12, serves for the same purpose, and the broad part or arrow-head is to make the pen hold as much ink as possible.

I claim all the features represented in Figs.

10, 11, and 12 as new, and all alike important to produce a good and easy fountain writing-pen, the points of which will produce the same result or trace characters in the same way as an ordinary steel pen.

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

1. A pen comprising the spring n , the body C , having its side edges bent over or flanged so as to assume a semicircular form in cross-section, the tongues D , facing and bent inwardly toward each other, and the arrow-heads E , formed on the ends of the tongues, said arrow-heads having rounded points, for the purpose set forth.

2. The combination, with a pen-holder having the receiving tube or socket, of the herein-described pen, formed of two spring-blades held apart by the spring action of the blades, the inner ends of the latter being adapted to be inserted into the tube or socket of the pen-holder, as set forth.

3. A pen comprising the spring n , the sectional body C , each portion of which is formed substantially semicircular in cross-section, and the tongues D , extending or curved inward from the body toward each other, so that their writing-points will come together, or nearly so, as set forth.

4. A pen formed of two spring-blades united at their rear or butt ends, and having the inner ends of the blades made substantially semicircular in cross-section, in combination with the receiving tube or socket of the pen-holder to receive the inner ends of the blades and force them together, as set forth.

5. The herein-described pen, formed of two spring-blades, each of the blades having rounded points, so that the pen may be reversed to use either side of the pen, as set forth.

6. A pen formed of two spring-blades arranged above each other and provided with a spring-connection at their rear or butt ends, and coming together, or nearly so, at their front ends, as set forth.

7. The combination, with a pen-holder, of the herein-described pen, formed of two spring-blades united at their inner ends within the pen-holder, said blades at or about the point where they issue from the pen-holder being bent inwardly so as to come together at their front ends, each blade having an independent movement, the center of which will be the point where the blades commence to bend inwardly, as set forth.

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Witnesses:

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