J. C. BRYAN.

Weather-Vanes and Pointers.

No. 160,150. Patented Feb. 23, 1875.

Fig. 1.

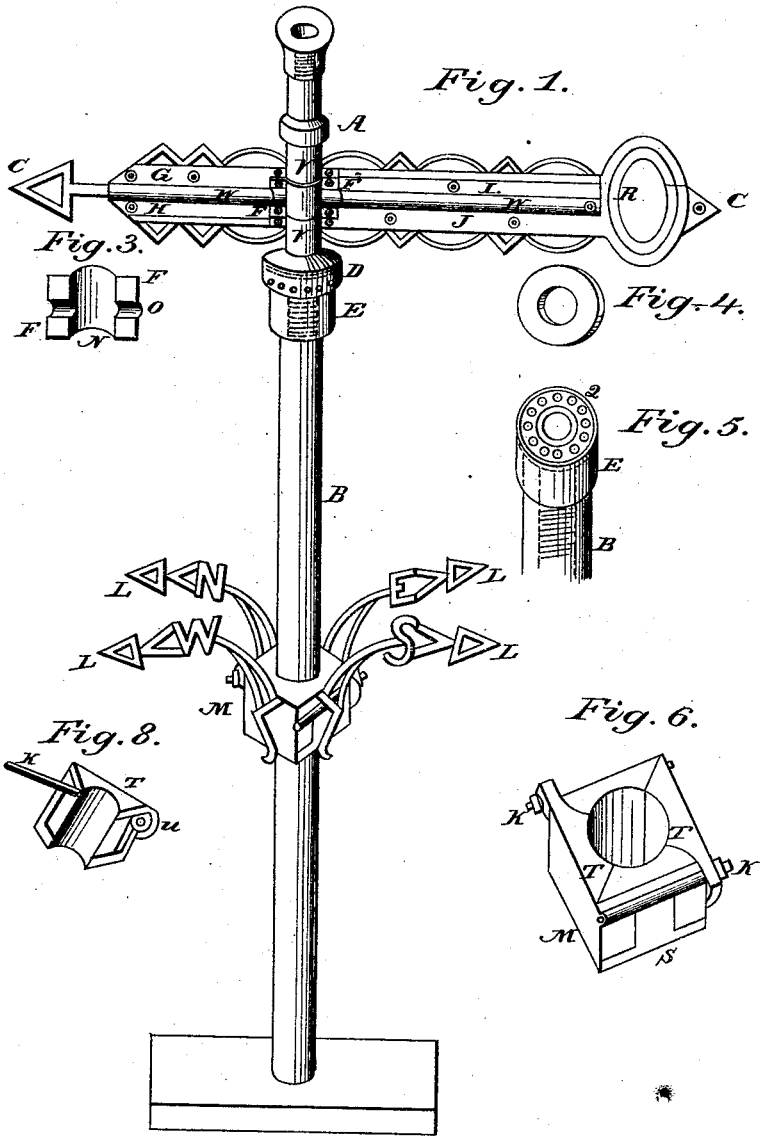

Fig. 2.

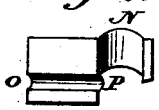

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 7.

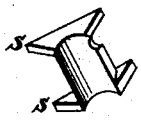

Fig. 8.

Fig. 6.

Witnesses.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN WEATHER-VANES AND POINTERS.

Specification forming part of Letters Patent No. **160,150**, dated February 23, 1875; application filed January 27, 1875.

To all whom it may concern:

Be it known that I, JAMES CHAPMAN BRYAN, of the city of Philadelphia, State of Pennsylvania, have invented a certain Improvement in Weather-Vanes and in Pointers for Indicating the Cardinal Points of the Compass; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The object of my invention is to produce a lighter, cheaper, more durable, and better weather-vane and pointer for the cardinal points of the compass.

The system heretofore employed in the manufacture of vanes is to take a piece of brass or copper tubing, to surround the staff that is to support the vane; then two pieces of smaller brass or copper tubing are soldered to the center of the larger piece of tubing for the backbone of the vane. On the sides of the tubing is soldered whatever design is desired, the design being cut out of sheet metal. A weight being attached to the short end, the vane is completed, excepting paint and gold-leaf for preserving and ornamenting.

The pointers are formed in two pieces, so they cross each other at right angles, with a hole at point of crossing each piece. They are then placed over the staff that sustains them, and are kept in their position by a screw-bolt passing through them and pressing against the staff. With this arrangement they cannot be kept or retained in their true position, while snow and rain freezing in the crevice between the staff and pointers causes the breakage thereof.

The same objection lies against the method described of constructing the vane. These objections I overcome or obviate by means of my invention.

I take four pieces of sheet-iron, brass, or copper—two for the short end and two for the long end of the vane; cut out of these any desired design; leave a space on one side and end for a half-circle or groove to be turned in, and a margin for riveting. I make the end groove a little larger than the staff that sustains the vane, so that the vane may turn easily thereon, and with a margin for riveting. The grooves along the sides are somewhat smaller, with a margin for riveting on either side thereof. The four pieces are then united, forming a tube, which is the bearing of the vane, and also a tube lengthwise of the vane, forming a backbone or stiffener, so as to sustain a weight at the short end. The two pieces of sheet metal are stamped up to fit the grooves on outside, where they cross and unite in the center. One of these is placed on each side, and they and the four sheets of metal are riveted together. By this method a vane is made without any solder, lighter, stronger, cheaper, and more durable than by the system of construction before described. The grooves can be turned in on a forming-up machine used by sheet-iron workers.

The staff that supports the vane has a piece of metal spun up so as to fit tightly around the staff, extending one inch over the top or down that part of the vane that surrounds the staff; also, another tubular piece spun up to fasten a half-inch above the lower part of the vane that surrounds the staff, and extend one inch down on the outside of the support of the vane. By these two protectors no water or snow can interfere with the working of the vane.

The aforesaid mentioned vane rests on a washer made of yellow brass, and it (washer) rests on red brass balls, which revolve in a groove turned in the yellow brass which is the support of the vane. By this arrangement there is less friction in the revolution of the vane.

The pointers are composed of four pieces, to unite in the center by two bolts, and by dovetailing the blocks they are made to join tightly around the staff, preventing the pointers leaving their true directions.

In the drawing, Figure 1 represents the weather-vane and pointers. A designates the spun-up cap that is fastened to standard B, so as to extend over the top of V one inch. D designates the spun-up cap which is placed a half-inch above the lower part of vane C on V, extending over the outside of E one inch. These, A D, one surrounding the upper part of V, and the other fastened to V and extending over E, keep all snow and rain from the bearing of the vane C.

Fig. 3, F designates the cap, which is stamped up of sheet metal to fit the grooves O and N, as Fig. 2, and to extend on one side of vane C for riveting. G H I J, Fig. 1, designate the four sheets of metal after the design is cut out and grooves N and O turned in. The joint P is made to fit the riveted sheets. The four sheets and two caps are riveted together, as represented in Fig. 1. The rivet is marked *o*. N and O having the space for riveting of J extends over on I and H, and N and O with a space for riveting of G extends over on I and H. On the reverse side N and O having the space for riveting of I extends over on G and J, and N and O having the space for riveting of H extends over on G and J.

By the above arrangement the tube V supports the vane C; also the tube W for a stay or backbone for the vane C. To the short end of C, by the tube W, I can arrange a weight to balance the long end of C. R designates a double or reverse groove turned in the long end of the vane C, to be used in the tail and legs of animals cut out of sheet metal, to strengthen them and keep them from bending. The upper part of staff B passes through the vane C, and screwed in support E, by which the vane C is supported.

Fig. 2 represents one of the four sheets of metal of which C is composed. N represents the half-circle or groove that surrounds B, and O designates the half-circle or groove for the tube W, the backbone of vane C.

Fig. 3 represents the cap F, which is stamped up and placed on each side of vane C, and is riveted to the four sheets of metal G, H, I, and J, to make C.

Fig. 4 represents the washer that lies between the tube V and red metal balls Q.

Fig. 5 represents E, which is of yellow brass, with a groove turned in on the upper side. Q designates the red metal balls. The yellow brass washer, Fig. 4, is placed at the base of V, around staff B, resting on balls Q.

By screwing E in B the vane C is allowed to revolve around staff B on Q. They rest in a groove of support E.

By the aforesaid way of construction I procure a weather-vane that will not weigh or cost one-half so much as, and be more durable and better than, those made on the former system.

In Fig. 1, L designates the four brackets or pointers. They extend outward from the base of M at the angle of twenty-three degrees, with a double support from the top and bottom of M, with a hollow spear beyond N S E W, the pointers. By making as aforesaid I gain a strength and style that has not been heretofore used.

Fig. 6 represents the center box of the pointers M. K designates the bolts which fasten two of the sides, passing under the upper support of L, with screw and nuts to close it up tight to staff B.

Fig. 7 represents one of the two sides of M, with flanges S at top and bottom to fit T.

Fig. 8 represents one of the two sides of M, with bolts K, having a hole for bolt at U. The side of T extends over the center of the side of Fig. 7, between S and S. (Shown in drawing, Fig. 6.) By this plan the block M is dovetailed and bolted together, so that the weight of the brackets L L L L helps to clamp them in position, making a close connection to the staff, preventing the entry of snow and water. They are not liable to get out of their true position.

What I claim as my invention is—

1. The improved weather-vane, consisting of four sheets, G, H, I, and J, with metal cap F on each side of center, riveted together to form V and W of the vane, as herein described.

2. The support E, having a circular groove provided with metal balls, in combination with the washer and bearing of weather-vane C, constructed of the four pieces of sheet metal, as herein described.

3. The combination of the staff provided with cap A, extending over the upper bearing of the vane, and the vane provided with cap D, extending over its lower bearing on the staff, as herein described.

4. The block M, consisting of the four pieces S S T T, each having attached a bracket to indicate one of the cardinal points of the compass, held in position and close contact with staff B by the bolts and nuts K K and dovetailing, substantially as and for the purpose herein set forth.

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Witnesses:

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