(No Model.)

J. H. MILLER.

WINDMILL TOWER.

No. 546,620. Patented Sept. 17, 1895.

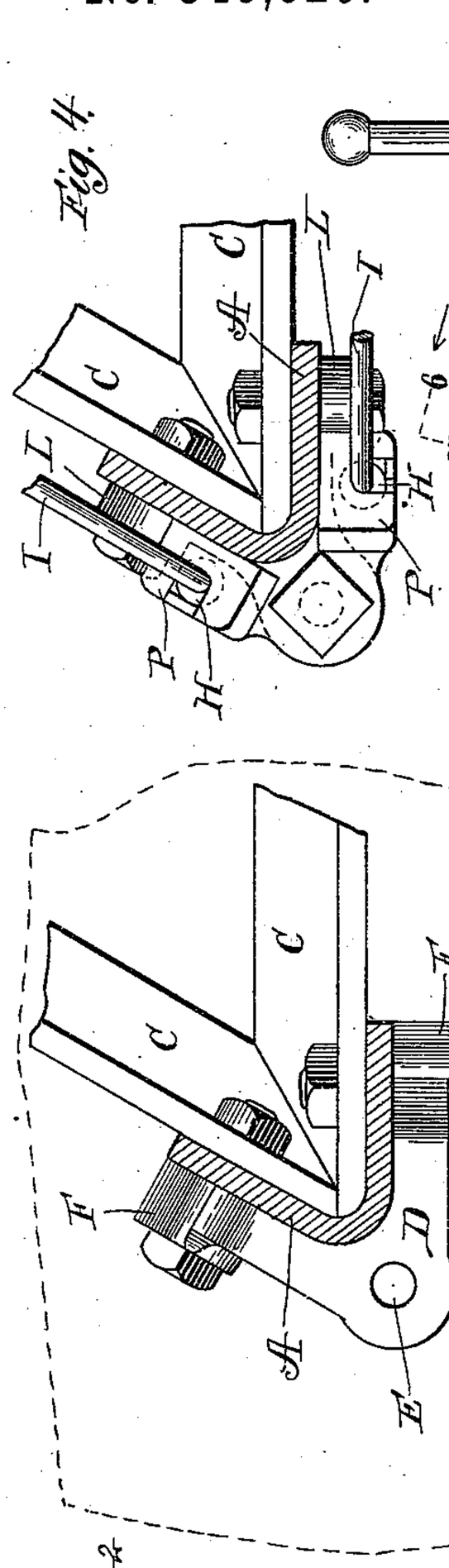

Fig. 2.

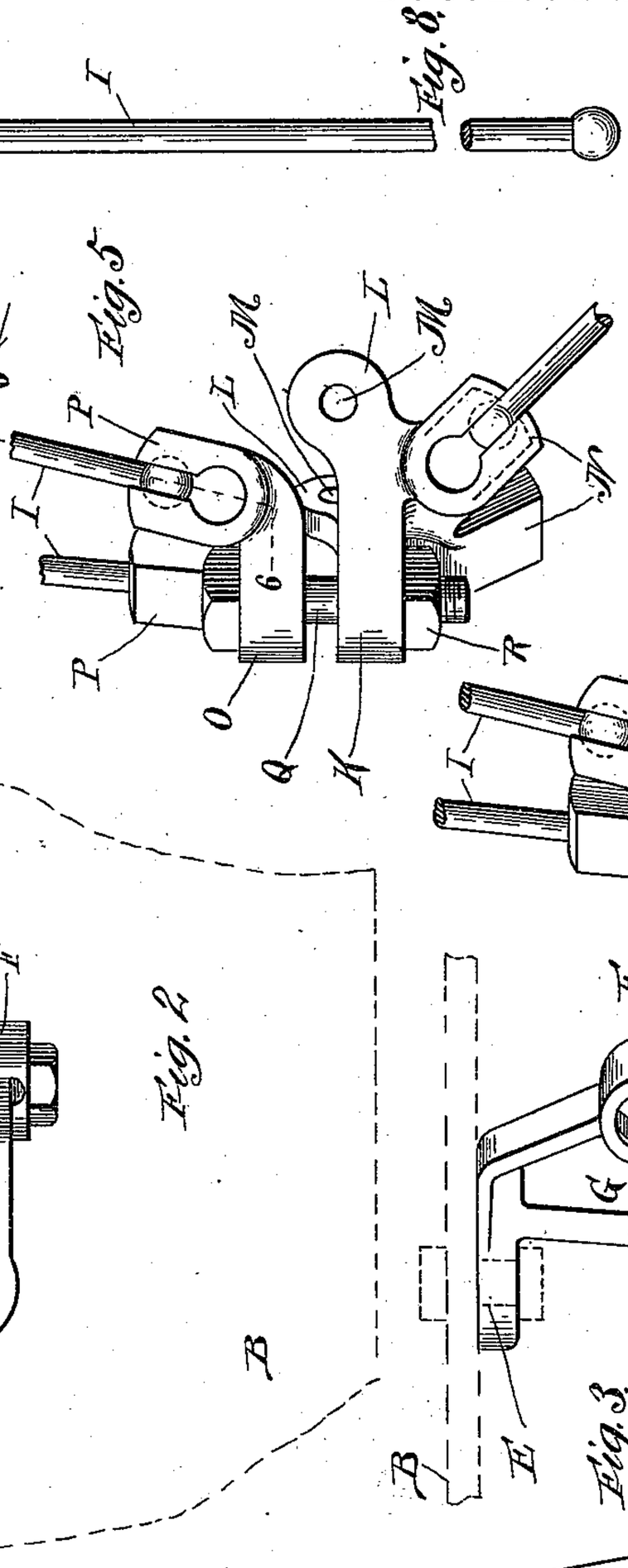

Fig. 5.

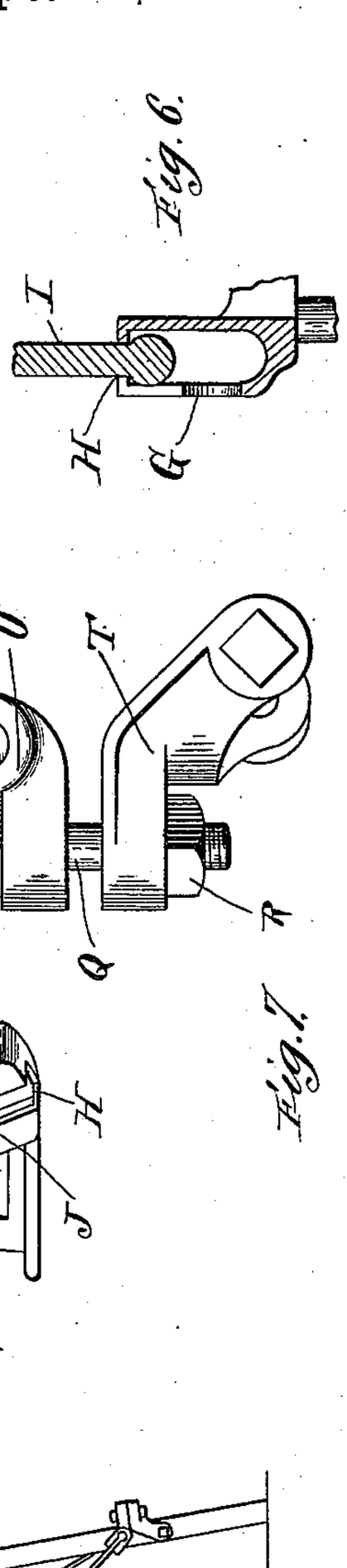

Fig. 6.

Fig. 7.

Fig. 3.

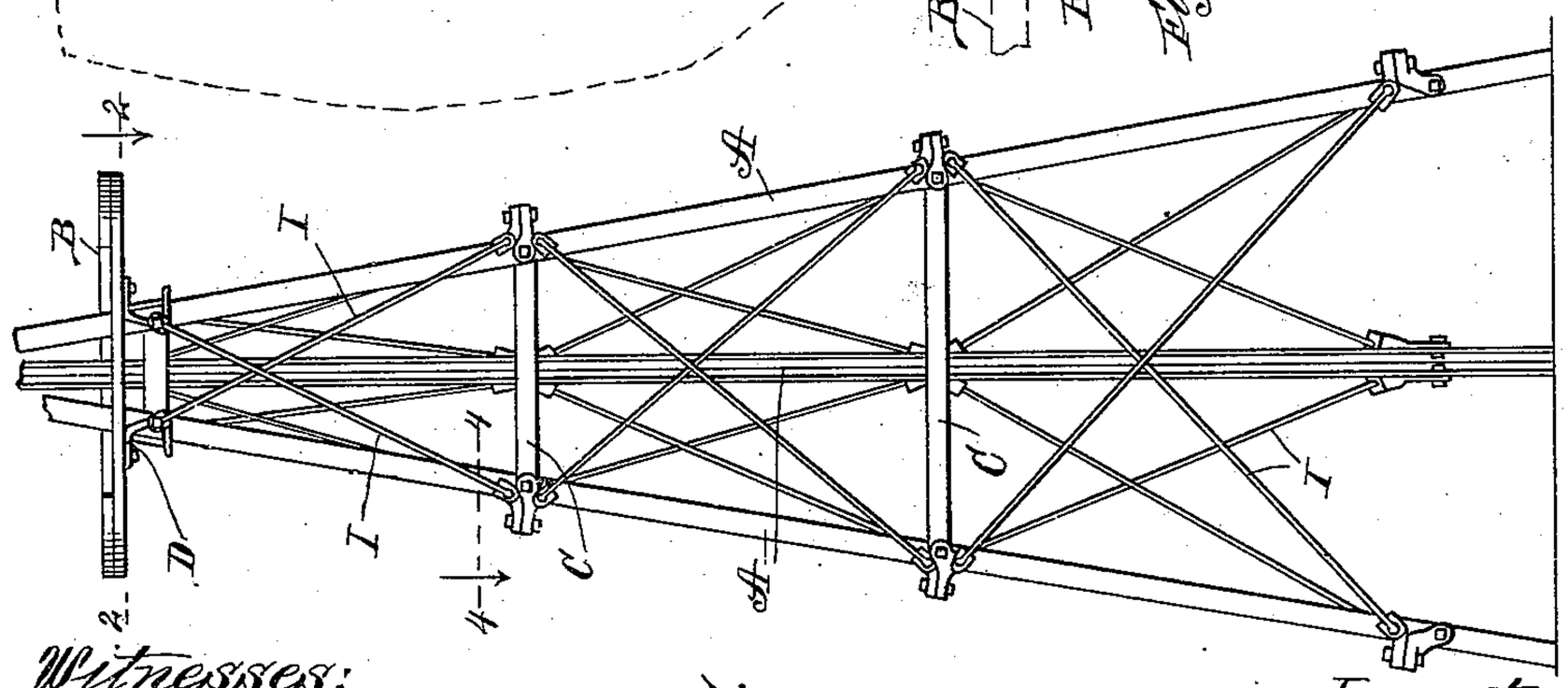

Fig. 1.

Witnesses:
W. C. Coles
Jno. A. Christianson.

Inventor:
John H. Miller:
By Coburn & Thacher
Attys.

UNITED STATES PATENT OFFICE.

JOHN H. MILLER, OF BATAVIA, ILLINOIS.

WINDMILL-TOWER.

SPECIFICATION forming part of Letters Patent No. 546,620, dated September 17, 1895.

Application filed May 11, 1895. Serial No. 548,948. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. MILLER, a citizen of the United States, residing at Batavia, in the county of Kane and State of Illinois, have invented a certain new and useful Improvement in Windmill-Towers, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a windmill-tower containing my invention. Fig. 2 is a sectional view, taken at the line 2 2, Fig. 1, of a detached portion of my tower, looking downward. Fig. 3 is a side elevation of the brace-rod angle-iron attached to the platform of the tower. Fig. 4 is a sectional view of one of the corner-posts of my tower, taken at the line 4 4, Fig. 1, looking down. Fig. 5 is a side elevation of a brace-rod corner-iron detached from the tower. Fig. 6 is a sectional view, taken at the line 6 6, Fig. 5. Fig. 7 is a side elevation of the adjustable bottom corner-iron of my tower, and Fig. 8 is a side view of my brace-rods of the tower.

The object of my invention is to make a metal windmill-tower, and especially a tripod-tower with brace-rods and adjusting-irons for tightening the brace-rods, so that the brace-rods can be made with great facility and applied to the tower and tightened.

My invention consists of the mechanisms and combination of mechanisms hereinafter fully described, and made the subject-matter of the claims hereof.

In the accompanying drawings, A represents the corner-posts of the tripod windmill-tower being made by me.

B is the platform near the top of the tower, and which is secured thereto in any suitable manner.

C represents the ordinary brace-girts, which I make of angle-iron.

D is a corner-bracket, having a flange by which it is bolted at E to the under side of the platform B, the depending flanges of the corner-iron D fitting on the outside of the corner-posts A, and having on each of these flanges a socket F, open at its side with a large opening G, and open at its lower end at H for the body of the brace-rod to pass through it. This socket is clearly shown in Fig. 3. The sockets to receive and hold the ends of the brace-rods are constructed the same in all of the corner angle-irons. The brace-rods I have upon each of their ends a spherical head. These heads can be inserted into the sockets F through the opening G, the body of the brace-rod passing out at the lower end of the socket through the opening H, these two openings being connected, as shown in Fig. 3 of the drawings. The spherical head of the brace-rod cannot pass out of the opening H at the bottom of the sockets, the socket and spherical head of the brace-rod forming a sort of a ball-and-socket joint.

In the upper corner socket-irons D of my tower the socket F has on its side opposite to the opening G a hole, a portion of which can be seen at J, through which a headed bolt passes to secure it to the corner-post. The head of the brace-rod is placed in the socket and brought down to the lower end of the socket, and then the bolt is passed through the socket, firmly securing the corner socket-iron to the post of the tower.

The middle corner socket-irons are composed of two parts. One part K has two flanges L L with bolt-openings M, by which they are firmly bolted to the corner-post of the tower, these bolts also passing through the brace-girts C, as clearly shown in Fig. 4, fastening the socket corner-iron and tower and the brace-girts firmly together. The socket corner-iron K also has two socket-flanges N N, made with open sockets, in which a spherical end of one of the brace-rods can be inserted, as clearly shown in Fig. 5. The other part O of this corner-iron has two socket-flanges P, which are constructed the same as above described and are inverted to receive the lower ends of two of the brace-rods I. The socket-iron O is made adjustable by means of a bolt Q, by which it is bolted to the part of the corner socket-iron K which is firmly attached to the corner-post of the tower. By screwing up the nut R on the bolt Q, the adjustable portion O of the corner-iron is drawn down, thereby tightening the brace-rods I, whose ends are secured in the sockets P of said adjustable portion O of the socket corner-iron. There are as many of these two-part corner-irons as there are separate spans or links of brace-rods in my tower. The upper ends of the brace-rods are held in the

sockets of the corner socket-iron that is permanently attached to the tower, while the lower ends of the brace-rods are held in the sockets of the adjustable part of the corner socket-irons, as shown in the drawings, but it will be readily understood that they may be inverted, so that the brace-rods can be tightened upward as well as downward.

Fig. 7 shows the corner socket-iron, which is attached near the bottom of the tower.

T represents that portion of the corner socket-iron which is firmly bolted to the post of the tower, and U represents the adjustable portion of the corner socket-iron, having two open sockets to receive the spherical lower ends of two of the brace-rods, which are tightened by turning the nut R on the bolt Q.

I am able to make my brace-rods from long lengths of wire or rods, which I cut into the desired lengths and upset their ends, making spherical heads on each end of these brace-rods. The ends of the brace-rods are passed laterally into the corner socket-irons, the spherical heads passing through the large openings G in the sockets, and then drawn down into the socket, where they are held, as clearly shown in the drawings. The brace-rods are tightened by turning the nuts on the bolts by which the adjustable portion of the socket corner-irons are attached to the stationary portions of the corner socket-irons that are firmly bolted to the corner-post of the tower. Each of these bolts tightens two of the brace-rods at the same time. By this construction and arrangement of devices I can readily place my brace-rods in position and tighten them to the desired tension; and the ends of the brace-rods are secured in such manner that the strain on the brace-rods will always be lengthwise of the rods, the ends being secured by a ball-and-socket connection.

My corner socket-irons can be made in quantities, with their flanges adapted to fit on the corner-post of the tower. The flanges are made at an angle of about sixty degrees to each other to fit on the outside of the tower. The brace-rods are formed by machinery, and a person unskilled can readily put together one of my towers by simply having a wrench with which to tighten the nuts on the bolts.

My towers are durable, the brace-rods not being liable to break; but in case one does break it does not affect any of the other brace-rods, as is the case when the brace-rods have a central straining device.

Having described the construction and operation of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The corner socket iron having the horizontal flange to fit under the platform of the tower to which it is secured; vertical socket flanges fitting on the post of the tower, having sockets adapted to receive the spherical ends of the brace-rods; and holes through which bolts pass to secure them to the post of the tower.

2. The two-part corner socket irons of a tower, one part having sockets to receive the spherical ends of the brace-rods and flanges by which it is firmly secured to the post of the tower; the other part having sockets to receive the spherical ends of the brace-rods and made adjustable to the other part of the corner iron to tighten the brace-rods, substantially as specified.

3. The brace-rods of a wind mill tower, having enlarged ends; socket-irons having sockets adapted to receive the enlarged ends of the brace-rods, said socket-irons being adjustable relative to each other to tighten the brace-rods.

JOHN H. MILLER.

Witnesses:
H. N. WADE,
ED. KAVANAUGH.