

No. 121,848. *Fig. 1* Patented Dec. 12, 1871.  
*Front View*

Fig. 1 Pat  
Front View.

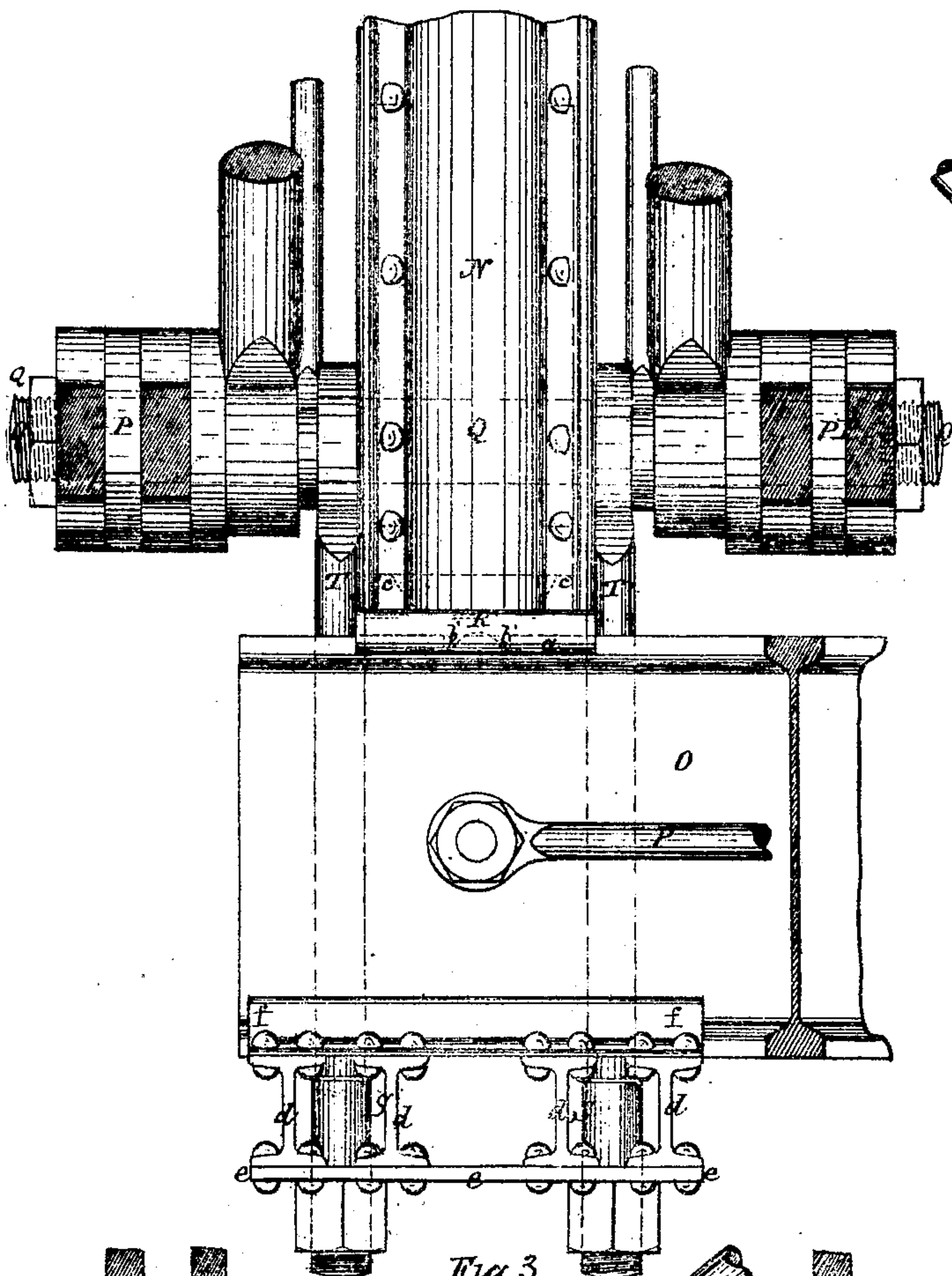


Fig. 3.  
Plan

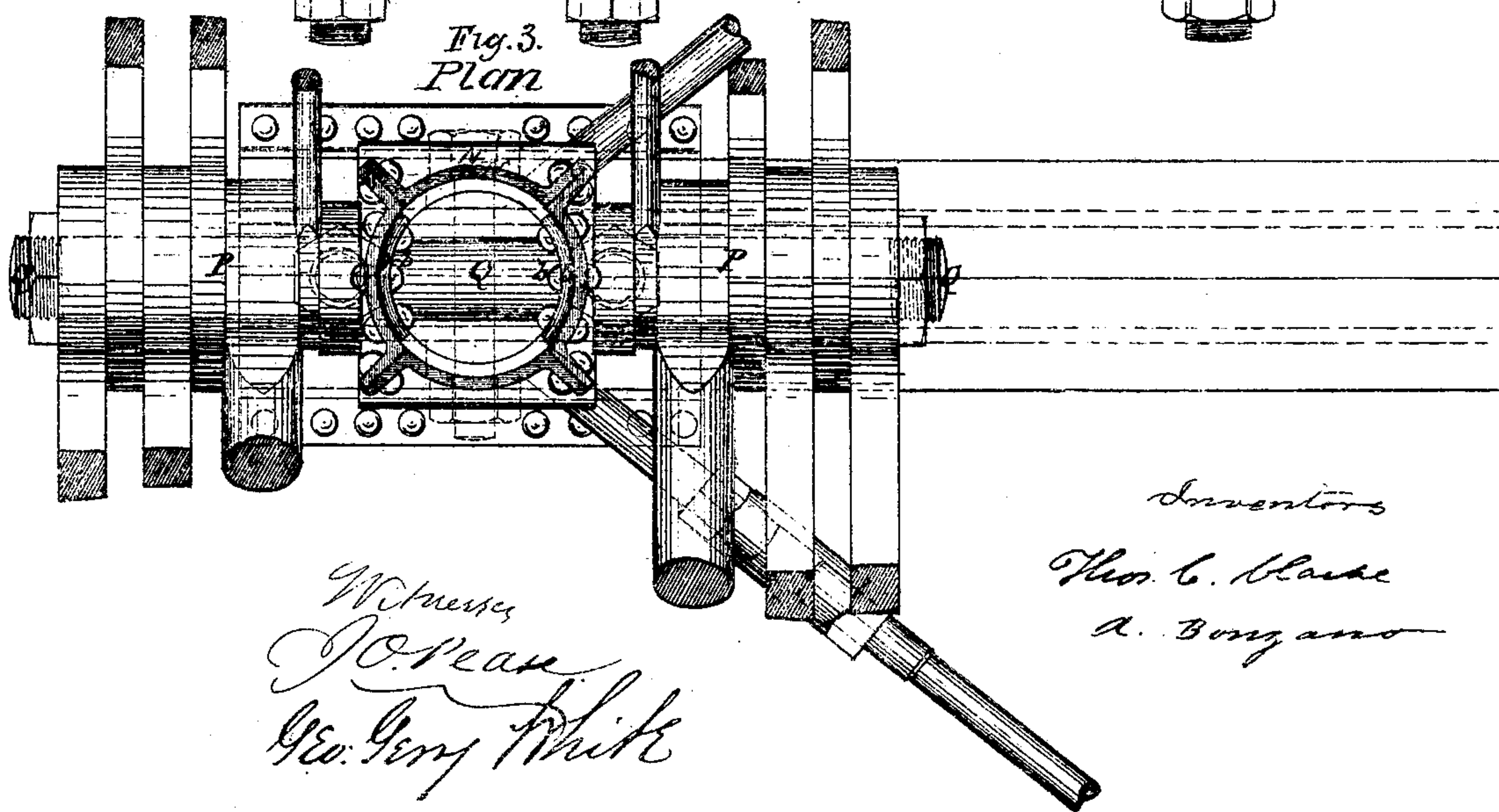
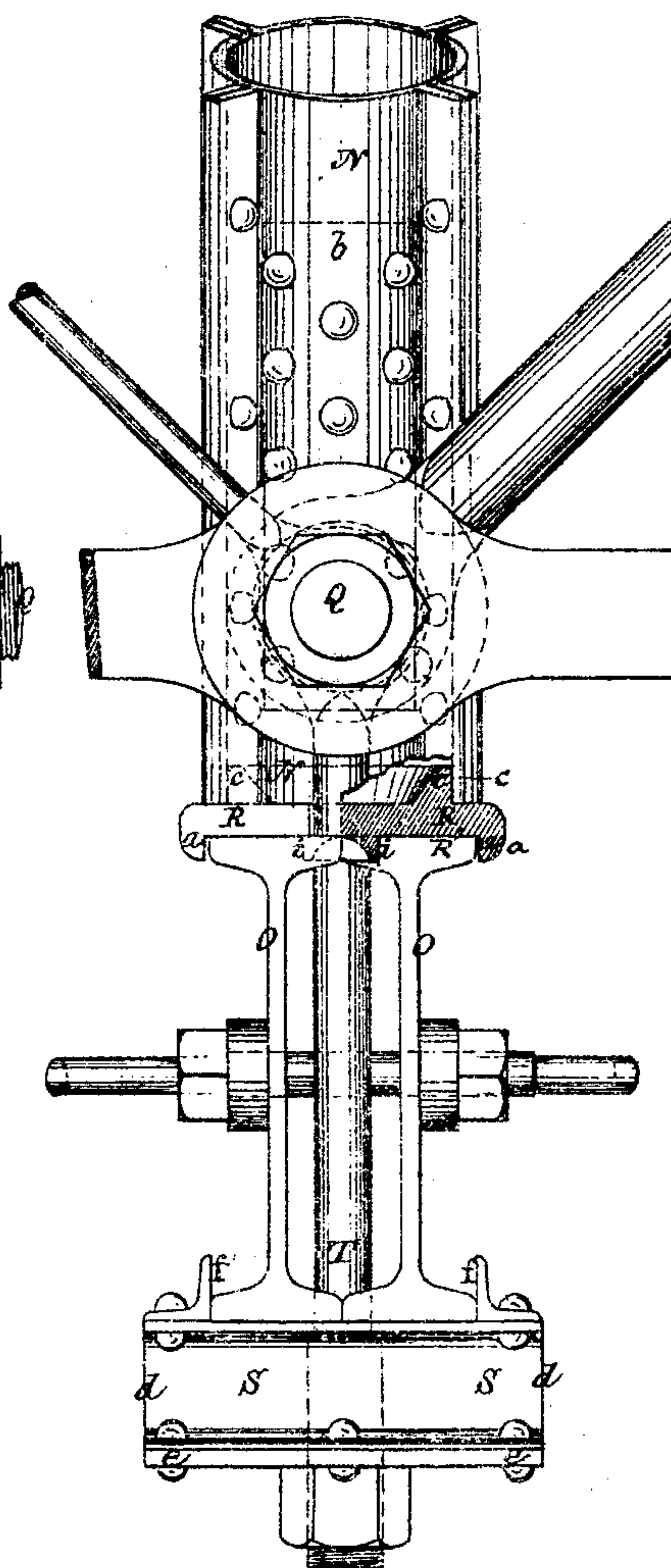


Fig. 2.  
Elevation.



Druckers

Thos. C. Clarke  
A. Bongano

Witnesses  
J. O. Pease  
Geo. Henry White



# UNITED STATES PATENT OFFICE.

THOMAS C. CLARKE AND ADOLPHUS BONZANO, OF PHILADELPHIA, PA.

## IMPROVEMENT IN CONNECTIONS FOR IRON AND STEEL BRIDGES.

Specification forming part of Letters Patent No. 121,848, dated December 12, 1871.

*To all whom it may concern:*

Be it known that we, THOMAS C. CLARKE and ADOLPHUS BONZANO, of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Connections for Iron or Steel Bridges; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figures 1, 2, and 3 represent, respectively, a front view, elevation, and plan of a wrought-iron column, post-foot, and lower chord, floor, and tie systems, as will be explained.

This invention consists in forming a wrought-iron post-foot for cylindrical, segmental, or square-sided wrought-iron columns by passing the connecting-pins of the lower chord directly through the body of the columns without the use, as heretofore, of any wrought-iron brackets, angle-irons, or plates, or the use of cast-iron, and, at the same time, so to connect this foot with the floor-beams, by means of a lower plate, as to hermetically seal the lower part of the post, and, by a cylindrical projection on the lower part of said lower plate, so to attach the floor-beams that they will be rigidly held to the foot of the post and at any angle with the axis of the bridge; and it further consists in the construction of the suspension-washers under the floor-beams, made of wrought-iron beams, angle-iron, and plates, riveted or otherwise united together, as will be explained.

To enable others skilled in the art to make and use our invention, we will proceed to describe the same with reference to the drawing.

N represents a vertical post of an iron bridge-truss with the lower-chord system O and tie system P connected therewith or thereto by means of a pin, Q, passing through the body of the column. The foot of the post N sits or rests upon a plate, R, that has a sleeve or flange, c, upon it for receiving said post, and turned-down flanges aa for taking over and holding together the lower chords O O. A wrought-iron washer, S, is suspended by and drawn up against the under side of the chords O by the suspension-rods T, which take over the pin Q. The washer S is made of the beams d and plates e riveted thereto; and on the top of the washer is riveted the angle-iron f, which embraces and retains the bottom chords O. On the under side of the plate R there is a cylindrical projection, i, which passes between, in-

to, or through the heads of the chords O, which admits of the floor-beams being fastened to the foot of the post at any desired angle with the axis of the bridge. This plate R, further, seals the lower part of the post and prevents any water or moisture from entering there. The floor-beams are supported on or by the washers S, and may have any desired angle of skew. The column N, where the pin Q passes through it, may be re-enforced, as at b.

We are aware that lower-chord pins have been made to pass through the body of open posts made of channel, angle, or of T-iron. We are also aware that a thrust-piece on a lower plate at the bottom of the post has also been used. Our invention differs from these in this: That in our case the lower chord-pin passes through a segmental wrought-iron column in connection with a lower plate, which closes the post hermetically, preventing thereby oxidation of the interior of the post; and the cylindrical projection i on the under part of the plate forms a radial thrust-piece for the floor-beams. The suspending of the floor-beams of a bridge-truss by means of the compound wrought-iron suspension-washer, made of channel or I-shaped beams and a plate, is far preferable, because much more reliable than cast-iron plates or wrought-iron straps, as heretofore used.

Having thus fully described our invention, what we claim herein as new, and desire to secure by Letters Patent, is—

1. The combination of the lower chord-pins of a bridge-truss with a segmental wrought-iron column, the lower plate and its cylindrical thrust-piece, and the compound suspension-washer, substantially as and for the purpose described and represented.

2. In combination with the post and lower chord, an interposed plate, R, with a projection, i, for a thrust-piece for the floor-beams and for holding the floor-beams at any desired angle, substantially as described.

3. The washer S, composed of the beams d d, plate e, and angle-irons f, riveted or bolted together, substantially as and for the purpose described.

THOMAS C. CLARKE.  
A. BONZANO.

Witnesses:

A. B. STOUGHTON,  
EDMUND MASSON.

(21)