

W. MOREHOUSE.
Ships' Knees.

No. 151,309.

Patented May 26, 1874.

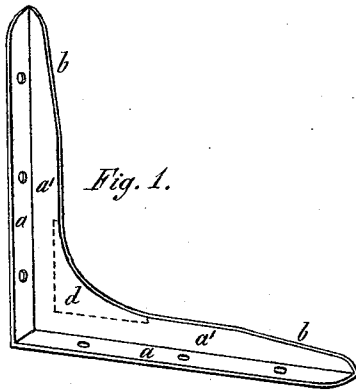


Fig. 1.

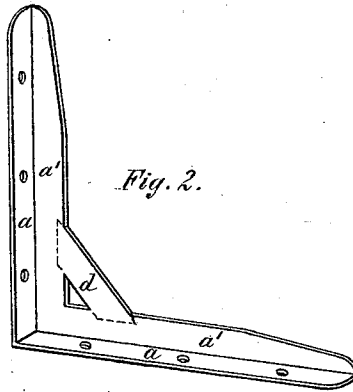


Fig. 2.

Fig. 3.

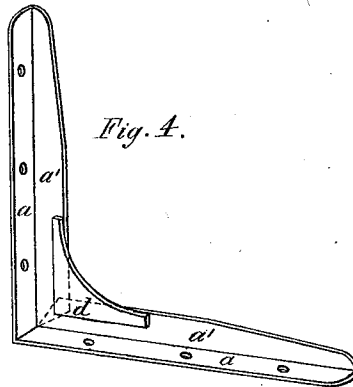
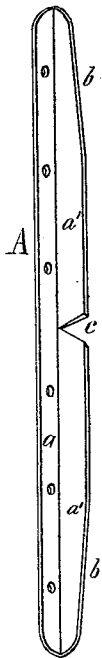


Fig. 4.

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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM MOREHOUSE, OF BUFFALO, NEW YORK.

IMPROVEMENT IN SHIPS' KNEES.

Specification forming part of Letters Patent No. **151,309**, dated May 26, 1874; application filed February 5, 1874.

To all whom it may concern :

Be it known that I, WILLIAM MOREHOUSE, of the city of Buffalo, in the county of Erie and State of New York, have invented an Improved Ship-Knee, as a new article of manufacture, of which the following is a specification :

Previous to my invention ship knees have generally been constructed either entirely of wood, or of a wooden body provided with iron side plates, or of an iron bar bent into the proper shape. The ship-knees constructed of wood or partly of wood, in order to be sufficiently strong must be made comparatively large and take up much space, thereby reducing the storage-capacity of the vessel, while the iron knees constructed as heretofore are very liable to break at the angle at which the strains are concentrated, and are therefore required to be made very heavy, which is objectionable in ship-building.

The object of my invention is to produce a strong and light knee, suitable for wooden as well as iron vessels, boats, &c.; and it consists of a ship-knee made of wrought angle-iron, and provided with a corner-brace welded to the body of the knee, as hereinafter fully described.

In the accompanying drawing, Figure 1 is a perspective view of my improved ship-knee. Fig. 2 is a similar view, showing a slightly-modified form of the corner-brace. Fig. 3 represents a bar of wrought angle-iron, ready to be bent into the angular shape of the knee. Fig. 4 represents the corner-brace placed upon the body of the knee previous to welding it thereto.

Like letters designate like parts in each of the figures.

The body of the knee is formed of a straight bar, A, of wrought angle-iron, of the required length. The flange portion *a* of the same is provided with holes for the passage of the fastening bolts or rivets, by which the knee is secured to the beams and side posts of the vessel. The web portion *a'* is sheared off toward the ends, as shown at *b*, in order to render the knee as light as possible. The web *a'* is notched in the middle, as shown at *c* in Fig. 3, so that when the bar is bent to the angular form of the knee the edges of the notch *c* will overlap each other, as shown by dotted lines in Fig. 4, when they are firmly welded together. *d* represents the brace of iron, arranged across the corner of the knee, and welded to the web *a'* thereof, so as to strengthen the same. This brace may be made in the form of a triangular plate, as shown in Figs. 1 and 4, where its inner edges are welded to the web *a'*, while its outer edge is preferably made curved, so as to join the edges of the web without break; or it may consist of a straight bar having its ends welded to the web *a'* of the knee, as represented in Fig. 2.

My improved ship-knee, constructed as above described, possesses the following advantages over others, as heretofore constructed: It is much lighter, stronger, and cheaper, and obstructs less of the storage-room of the ship.

I claim as my invention—

A ship-knee, consisting of the wrought angle-iron A, strengthened by the corner-brace *d*, as herein shown and described, as a new article of manufacture.

WILLIAM MOREHOUSE.

Witnesses:

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