J. Perkins.

Attaching Yards to Masts.

No. 12,087. Patented Dec. 12, 1854.

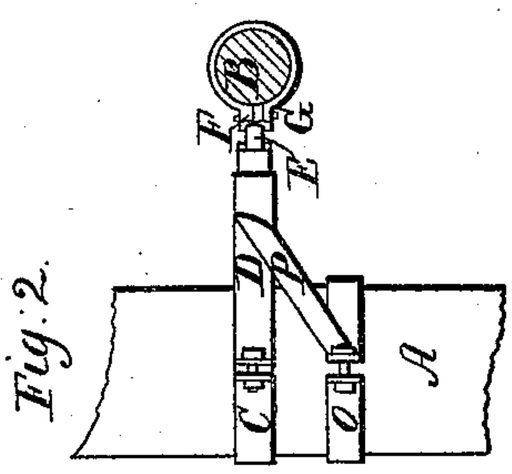

Fig. 2.

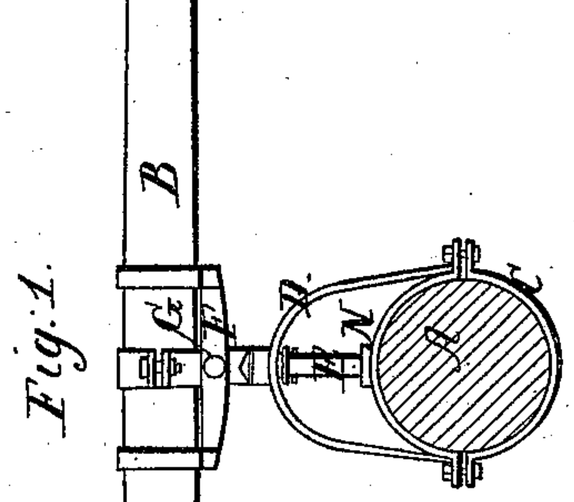

Fig. 1.

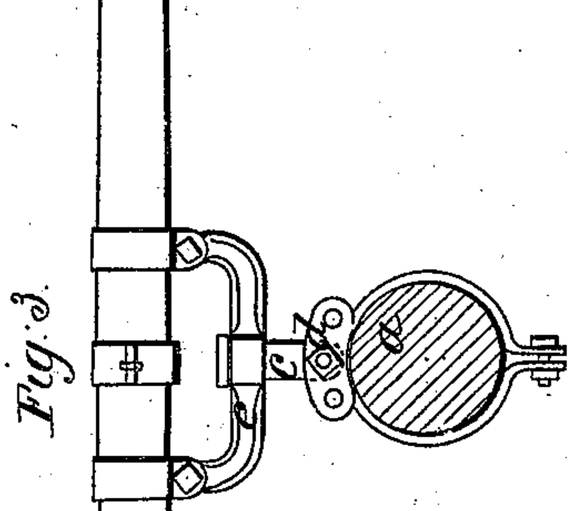

Fig. 3.

UNITED STATES PATENT OFFICE.

JOSEPH PERKINS, OF SALEM, MASSACHUSETTS, ASSIGNOR TO PERKINS & UPTON.

TRUSSING YARDS TO VESSELS' MASTS.

Specification of Letters Patent No. 12,087, dated December 12, 1854.

To all whom it may concern:

Be it known that I, JOSEPH PERKINS, of Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Trussing Yards to Masts of Ships or other Navigable Vessels; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view of my improved truss as applied to a mast and yard. Fig. 2, is a side view of the same. Fig. 3, is a top view of the truss, in common use the same showing its application to a mast and yard.

The improvement as shown in the accompanying drawings consists in arranging the turning bearing of the yard, (or that bearing, which allows the yard to be "cock billed,") and swung (either to the windward or leeward) close to the yard; (instead of close against the mast, as it has been in practice heretofore), in combination with extending the rocker bolt back to and slipping it into the mast, ring, or a projection therefrom.

In Figs. 1 and 2 of the drawings, A denotes the mast, and B, the yard. C, is the iron strap or ring made to clasp around the mast and to have a projector D, made to receive and support a rocker bolt, E. This rocker bolt turns transversely in the projection and extends to the ring and works at its rear end in a bearing or box, N, affixed to the ring. The said ring and its projection may have another ring, O, placed below it and made to encompass the mast and have one or more braces or arms P, extended from it to the front part of the projection, D, as seen in Fig. 2. The front end of the rocker bolt is straddled by the bail, F, and a bolt, G, passes down through both bail and bolt so as to allow of a horizontal movement of the bail on the bolt. This bail is properly made to receive and support the yard, B. During the horizontal movements of the yard it turns on the pin G. During its vertical movements the rocker bolt turns in its bearings.

The old plan of arranging the parts of the truss is shown in Fig. 3. In this the rocker bolt is seen at *d*, close or very nearly up to the mast *a*. This bolt passes vertically through an arm *c*, which turns horizontally on the rocker bolt and has the bail, *e*, so jointed at its front end as to enable it to turn vertically on it.

By my improvement the middle of the yard is always kept close to the plane of the masts, whatever may be the position of the yard, whereas by the old plan, it is allowed to swing some two or three feet or more therefrom. My improvement by thus preventing the yard from going some two or three feet or thereabouts to the leeward as it does by the ordinary plan of trussing, saves much if not all the great amount of labor, which in bracing round the yard, (when the sail is taken aback) is required in order to overcome the extra strain of the sail caused by the swinging of the yard to the leeward. The sail will set better with my truss. By keeping the middle of the yard close to the plane of the masts, the foresail or mainsail when furled in stormy weather at sea, is not likely to chafe against the stays.

With the truss as commonly made and used, the middle of the yard goes so far to the leeward, when the yard is braced up, that it brings the inner quarter hard up against the collars of the stays, such being very liable to chafe the sail unless care is used by dropping the sail down front of the yard.

The arm of the old kind of trusses, when the yard is braced up sharp, stands almost at right angles, with the keel or plane of the masts and this carries something like two cloths of the sail some two to four feet to the leeward of the said plane. The wind acting on this extra canvass operates with so much power, that when the lee braces are all let go, it is necessary to apply an extra number of men, to the weather braces in order to get the middle of the yard up to the plane of the masts before it can be braced round.

The facility of operating a yard provided with my improvement, will enable a vessel to make a considerable gain in distance run in a given time, say twenty-four hours.

I do not claim placing the center of the

fore and aft movement of vessels' yards nearer to the yards than to the masts, except when the so placing of this center of movements is combined with the extension of the rocker bolt or spindle through the projector or gallows brace D, into a fixed bearing upon the mast, in the manner and for the purposes herein set forth.

In testimony whereof I have hereto set my signature this fourth day of April A. D. 1853.

JOSEPH PERKINS.

Witnesses:
JAS. CLOUTMAN,
JOSEPH W. SWAN.