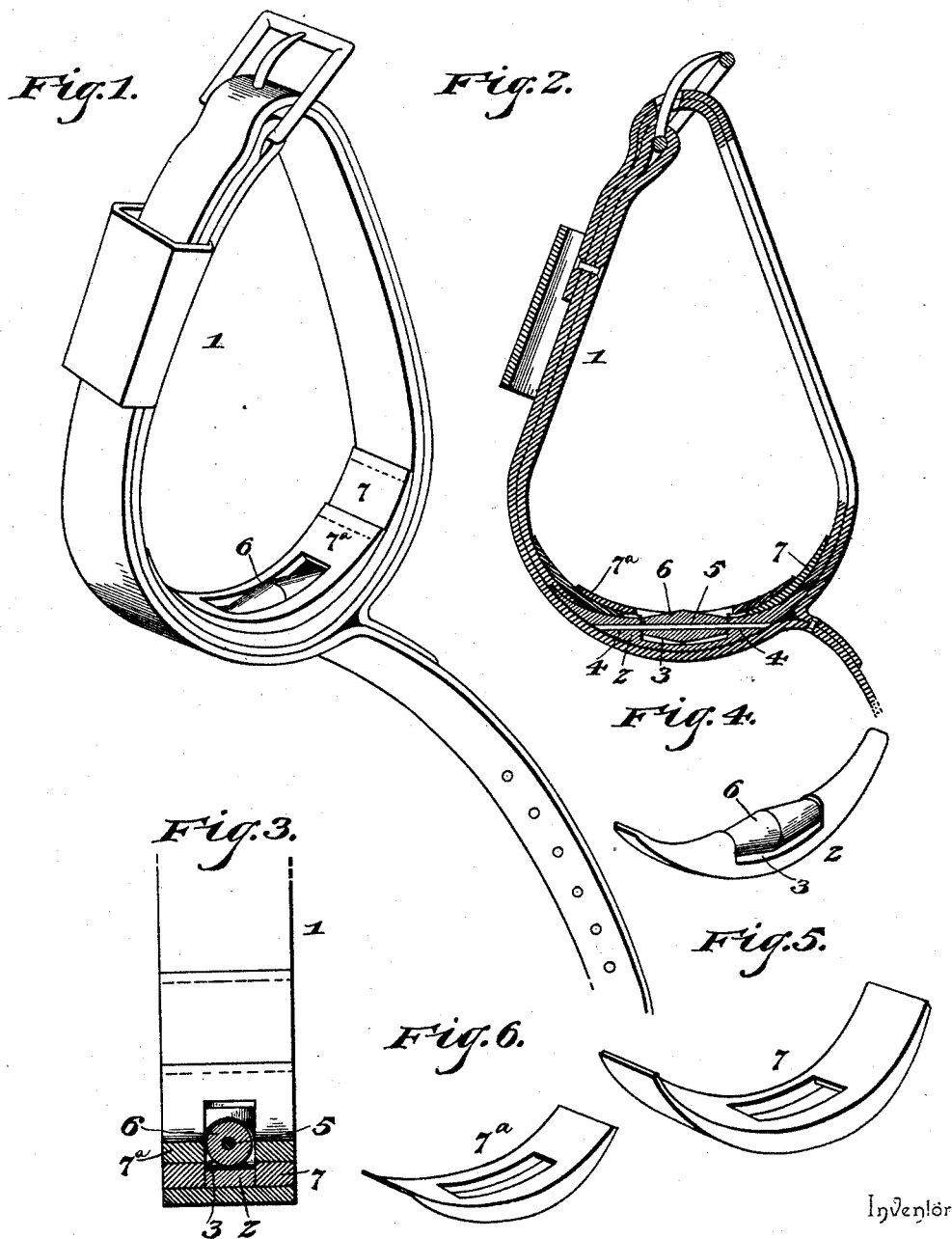


(No Model.)

E. LOGAN.  
SHAFT TUG.

No. 524,529.

Patented Aug. 14, 1894.



Witnesses

B. A. Ober,  
J. H. Riley

By *his* Attorneys.

Edmer Logan,  
C. A. Snow & Co.

# UNITED STATES PATENT OFFICE.

ELMER LOGAN, OF NEW BRUNSWICK, NEW JERSEY.

## SHAFT-TUG.

SPECIFICATION forming part of Letters Patent No. 524,529, dated August 14, 1894.

Application filed May 10, 1894. Serial No. 510,807. (No model.)

*To all whom it may concern:*

Be it known that I, ELMER LOGAN, a citizen of the United States, residing at New Brunswick, in the county of Middlesex and State of New Jersey, have invented a new and useful Shaft-Tug, of which the following is a specification.

The invention relates to improvements in shaft tugs.

The object of the present invention is to improve the construction of shaft tugs, and to provide for the same an anti-friction roller which may be readily applied to the ordinary construction of tugs, and which will present a neat and compact appearance.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings: Figure 1 is a perspective view of a tug provided with my improvements. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a transverse sectional view. Fig. 4 is a detail perspective view of the roller and its bearing-plate. Figs. 5 and 6, are detail perspective views of the attachment layer and the top layer or cover.

Similar numerals of reference indicate corresponding parts in the several figures of the drawings.

1 designates a shaft tug, and arranged within the same, on the bottom thereof, is a curved bearing-plate 2, having its upper face recessed, at 3, and provided at opposite ends of the recess with bearing-perforations 4, receiving a spindle 5, on which is journaled an anti-friction roller 6, tapering toward its ends. The tapering anti-friction roller is adapted to project slightly from the surrounding portion of the tug to engage a shaft or thill to avoid friction, and to enable the tug to move readily on a shaft, for reasons which will be readily understood by those skilled in the art.

The bearing-plate tapers in thickness at its end-portions, it is secured at the bottom of the tug by an attachment plate or layer 7, constructed, preferably, of leather and stitched to the tug at its edges and provided with a longitudinal opening to receive the

roller, and tapering from its center to its ends to provide a neat fit. Upon the upper face of the attachment-plate or layer is arranged a tapering top piece or layer 7<sup>a</sup>, having a longitudinal opening to permit the center or bulged portion of the tapering roller to project slightly through it, to enable the roller to engage the lower face of a shaft and at the same time to cause the tug to present a neat and compact appearance, and to conceal the bearing-plate and a greater portion of the tapering roller.

It will be seen that the anti-friction roller is compactly arranged, that by the particular construction of the attachment layer and the top layer it may be readily applied to the ordinary construction of tug, and that the greater portion of the roller and the bearing-plate of the same are concealed from view.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

The combination with a shaft tug, of a bearing-plate tapering toward its ends and provided intermediate of its ends with a recess and having perforations at opposite sides thereof, said bearing-plate being located within the tug at the bottom thereof, a spindle arranged in the perforations of the bearing-plate and extending along the recess, a tapering anti-friction roller mounted on the spindle, the tapering attachment layer provided with a longitudinal opening and arranged over the bearing-plate, and the tapering upper layer provided with a longitudinal opening receiving the anti-friction roller, said upper layer being secured upon the attachment layer, and the roller projecting slightly above it, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ELMER LOGAN.

Witnesses:

CHARLES W. RUSSELL,  
JOHN H. KING.