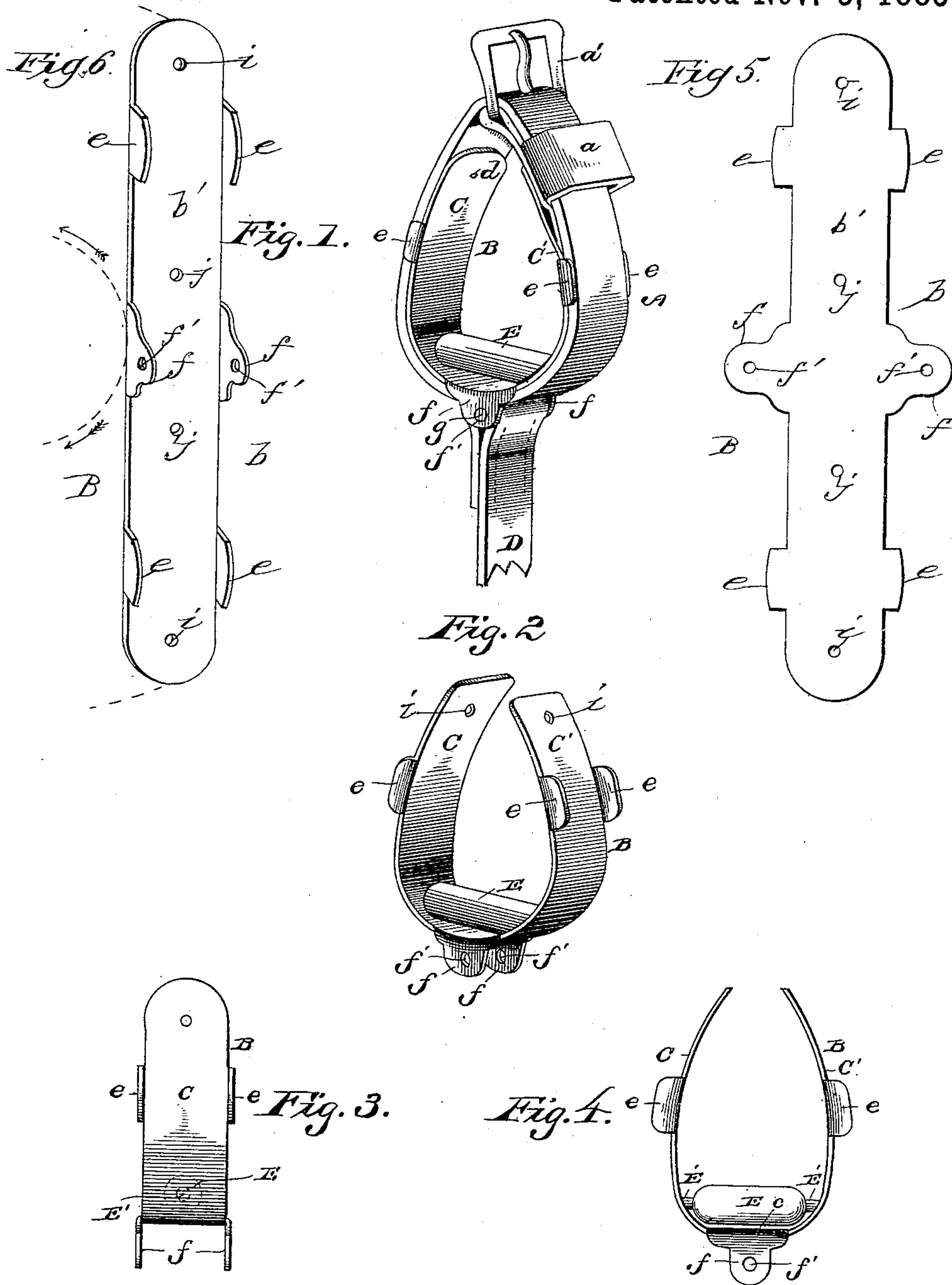


(No Model.)

O. KEEN.  
SHAFT TUG.

No. 329,569.

Patented Nov. 3, 1885.



WITNESSES

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# UNITED STATES PATENT OFFICE.

ORLANDO KEEN, OF ALLENTOWN, PENNSYLVANIA.

## SHAFT-TUG.

SPECIFICATION forming part of Letters Patent No. 329,569, dated November 3, 1885.

Application filed July 25, 1885. Serial No. 172,675. (No model.)

*To all whom it may concern:*

Be it known that I, ORLANDO KEEN, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented a new and useful Improvement in Shaft-Tugs, of which the following is a specification, reference being had to the accompanying drawings.

My invention has relation to improvements in shaft-tugs; and it consists in the construction and combination of parts, substantially as hereinafter fully set forth, and specifically pointed out in the claim. Heretofore in this art it has been proposed to provide a shaft-tug with a metallic wear-plate arranged and held in its inner faces and having a continuous flange around its edges which are bent or formed so as to bear on the edges of the leather strap of the tug, a friction-roller being journaled in the lower edge of the wear-plate within the tug, which is held in place therein by the continuous flange bearing against the edges of the strap and by rivets.

In manufacturing this device the continuous flange around the wear-plate cannot be bent from the piece of metal or blank out of which the wear-plate is formed, either before or after bending the said plate, to provide the two arms which fit in the leather loop thereof, and hence this flange has to be secured to the wear-plate. This construction is objectionable in that the continuous flange is liable to become detached and requires time and material in the construction. When the continuous flange or the arms of the wear-plate are bent, the lateral strain exerted on said flanges breaks or forces them apart laterally, endangering the breakage of the device in its manufacture.

In my present invention I propose to cut or stamp the wear-plate from one piece of metal, and form the securing-lugs at intervals apart, and to then bend the plate to the required semicircular or curved shape, and then bend the attaching-lugs at an angle thereto, the rivet-holes and pivot-bearings for the friction-roller being cut at the same time, all as will be hereinafter fully described.

In the accompanying drawings, Figure 1 is a perspective view of a hame-tug constructed in accordance with my invention. Fig. 2 is a like view of the wear-plate and the attached

friction-roller detached from the leather strap of the tug. Figs. 3 and 4 are end and side elevations, respectively, of the wear-plate and friction-roller; and Figs. 5 and 6 are views of the blank in different stages from which the wear-plate is formed.

Like letters of reference in the several figures of the drawings denote corresponding parts.

Referring to the drawings, A designates a shaft tug or loop of a harness, which may be of any preferred construction or form at present in use, the one herein shown comprising an elliptically-shaped loop or strap of leather one end of which carries a loop, *a*, for the reception of the opposite end of the leather strap, which is passed through and secured by a buckle, *a'*, at the upper end, said buckle also receiving the strap which passes over the shoulder of the horse or other animal.

In Figs. 5 and 6, *b* designates the blank which forms the wear-plate B, said blank being cut or stamped by means of suitable dies from a single strip or sheet of metal, so as to provide a long narrow strip or body, *b'*, having lugs or lateral flanges, *e*, at or near each end thereof, and curved lugs *f* on each side near its middle. The sheet-metal blank *b* in order to provide the wear-plate is bent in the direction indicated by the arrows in Fig. 6, so as to form two arms, *CC'*, and the flanges *e* *f* are then bent at right angles to the plane of the arms with which they are formed, as clearly shown in Figs. 2 and 4; or the flanges may be bent before the blank is bent upon itself, as shown in Fig. 6. It will thus be seen that I first cut or stamp the wear-plate with its attaching lugs or flanges and the rivet and pivot holes *ij*; then bend the flange at an angle to the blank, and then bend the blank itself to provide the arms *CC'*, an operation which can be easily and quickly performed, renders the device light, and effects a saving of metal, whereas in the device hereinbefore referred to it is impossible to bend the blank into proper shape and to provide the continuous securing-flange at an angle thereto. After the blank has been cut or stamped and bent into the proper shape the journal pins or studs of a frictional roller, E, are inserted in the openings or apertures *j* of the plate, and thus serve to support the same. The wear-plate is now



fitted in the leather loop or strap, so that the lugs *ee* of each arm of said plate embraces the side edges of the strap near its middle, and the lugs *f*, having apertures *f'*, are arranged  
 5 to project downwardly from each side edge of the loop or tug A, as clearly shown in Fig. 1, when said flanges or lugs are forced inwardly, so that they tightly bear against the loop A, and the rivets *d* are then passed therethrough,  
 10 thus firmly and rigidly securing the wear-plate and its attached friction-roller in the loop. A pin or bolt, *g*, passes through the apertures *f'* of the lugs *f*, and around this pin or bolt is passed a strap, D, which forms the  
 15 belly-band of the harness. The lugs *f* thus fulfill a double purpose: They first serve to aid in holding the wear-plate in the loop, and provide bearings for the cross-bolt for securing the belly-band strap. The lower bent end  
 20 of the metallic wear-plate is made flat, or nearly so, to enable the friction-roller to be journaled at a low point in the said plate and permit the shaft of the wagon free play therein against the wear plate and friction-roller.  
 25 The rivet-holes *i* and pivot-holes *j f'* are all made or formed when the blank is cut or stamped from the metal, thus effecting a saving in time, and turning the blanks out ready to be put together with the roller E and loop A.

I attach importance to forming or stamping 30 the blank and its lugs or flanges out of one piece of metal; then bending the flanges, and then the blank upon itself to provide the two arms C C', after which it is ready for the in-  
 35 scription of the friction-roller and to be secured in the leather loop, as in such features lie the gist of this invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is— 40

As an article of manufacture, a harness-tug comprising a loop, A, a metallic wear-plate, B, cut or stamped from a single piece of metal with the spaced-apart lateral flanges *e f*, said plate being fitted in the loop A and having 45 the flanges thereof bent at an angle to embrace the side edges of said loop, a friction-roller, E, journaled in the wear-plate, a pin, *g*, passing through the lugs *f*, and a strap, D, connected to said pin *g*, substantially as described. 50

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

ORLANDO KEEN.

Witnesses:

HARVEY L. HOFFMAN,  
 ANDREW MORY.