No. 622,286. Patented Apr. 4, 1899.

J. A. STEINMETZ.

TURNBUCKLE.

(Application filed Nov. 10, 1898. Renewed Feb. 17, 1899.)

(No Model.)

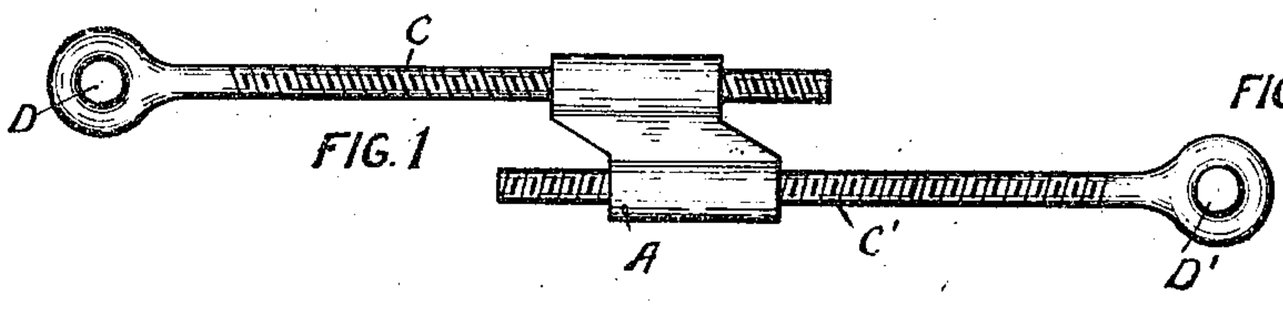

FIG. 1

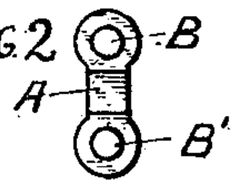

FIG. 2

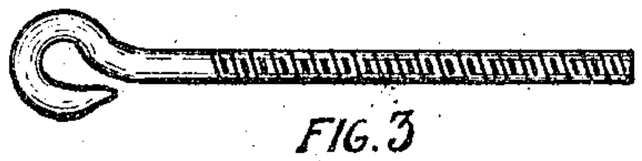

FIG. 3

FIG. 4

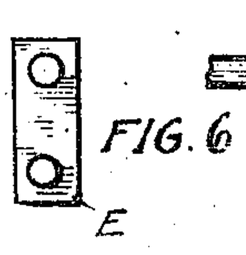

FIG. 6

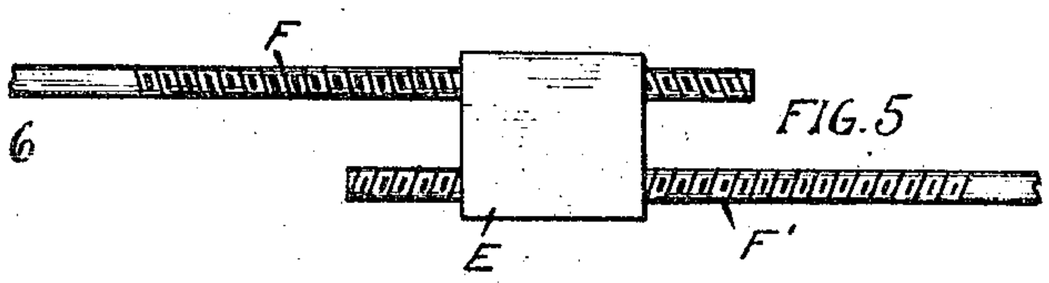

FIG. 5

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TURNBUCKLE.

SPECIFICATION forming part of Letters Patent No. 622,286, dated April 4, 1899.

Application filed November 10, 1896. Renewed February 17, 1899. Serial No. 705,859. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ALLISON STEINMETZ, a citizen of the United States, residing in the city of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Turnbuckles, of which the following is a full, clear, and exact description.

In turnbuckle as heretofore used the tension-bolts move in the same straight line, and the usefulness of the buckle ends when the bolts abutting reach the limit of their movements. This is a comparatively short distance, wholly inadequate for taking up the increasing slack and providing the necessary tension in many forms of tension members, such as span-wires on trolley-lines, ship-riggings, guy-lines, truss-rods, and generally wherever it is necessary to take up slack or regulate the tension or length of either rods or ropes. Turnbuckles as heretofore used are, moreover, expensive and clumsy and are liable to be twisted and distorted or broken owing to their shapes and the welds employed in their construction.

The object of my invention is to provide a turnbuckle which avoids the foregoing defects. Its novel and useful features are as follows, viz: It is light, strong, and compact without weld or jointed parts. It is cheap and easy of construction, being readily drop-forged, forged, cast, or cut from a rolled bar of such section as may be available or desirable. It provides a firm and true wrench-hold, and to this end its section may be varied in accordance with the circumstances under which the buckle is to be used. It affords unlimited "take-up" for the tension-bolts are arranged to move in parallel lines and cannot interfere. These ends are attained by the mechanism illustrated in the accompanying drawings, of which—

Figure 1 is a side elevation of one form of the invention. Fig. 2 is an end elevation of the device illustrated in Fig. 1. Fig. 3 illustrates a form of screw that may be employed. Fig. 4 is an end elevation of a buckle of convenient section. Fig. 5 is a side elevation of a second form of the turnbuckle, and Fig. 6 is an end elevation of the buckle shown in Fig. 5.

The buckle A, which may be formed conveniently from a blank cut from a rolled bar, is provided with two parallel screw-tapped openings B and B′, which extend entirely through the buckle and have their threads tapped right and left, respectively. Screws C and C′ are adapted to run through these openings and are provided, respectively, with the eyes D and D′, which serve to attach the lines, wires, or rods which are to be connected. These screws may be made of any desired length and as they cannot interfere may be run in to any desired degree, effecting any desired degree of tension and taking up any amount of slack by wrenching the buckle A.

The form of buckle shown in side elevation in Fig. 1 is advantageous as tending to eliminate the gyratory action and shearing stress induced when the buckle is in tension. The section illustrated in Fig. 2 affords a good gripping contour for the wrench and economy of material and is a form that may readily be rolled.

It will frequently be found advantageous to use a screw having a hook, as shown in Fig. 3, instead of a closed eye, and the buckle-section shown in Fig. 4 may be adopted as affording both an economical construction and a good wrenching contour.

The buckle E (shown in Figs. 5 and 6) may be struck from rolled iron of rectangular cross-section, and where the tension-rods F and F′ are screw-threaded and adapted to run through the buckle the length of the threads will be proportionate to the work to be done.

To reduce the gyratory action to a minimum, the screw-threaded openings through the buckle should be placed as close together as circumstances will permit.

It is evident that any shape or section of buckle may be adopted and minor changes may be made without departing from the spirit of my invention.

I claim—

1. As an article of manufacture, a turnbuckle comprising a solid blank having two parallel, oppositely-screw-tapped openings

extending therethrough, and screw-threaded rods adapted to run in the said openings, as specified.

2. In a turnbuckle, a solid blank having a section adapted to afford a wrench-hold and provided with two parallel, oppositely-screw-tapped openings extending therethrough, in combination with screw-threaded tension-rods adapted to run in the said openings, as specified.

In testimony whereof I have hereunto affixed my hand this 9th day of November, 1896.

JOSEPH ALLISON STEINMETZ.

In presence of—

THOMAS S. GATES,

CHARLES N. BUTLER.