

April 23, 1935.

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1,998,509

SPOKE TIGHTENING AND UPSETTING DEVICE

Filed June 13, 1932

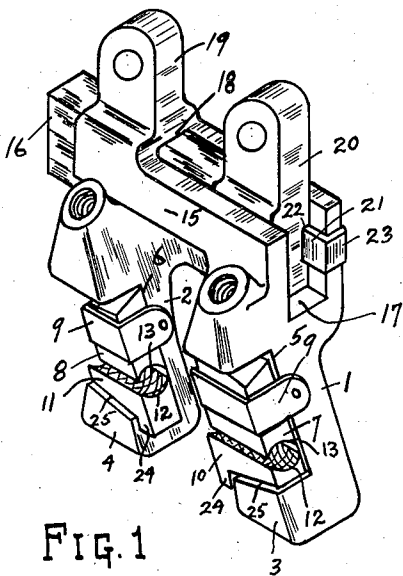


FIG. 1

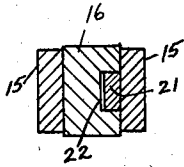


Fig 3

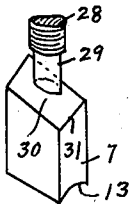


FIG. 4

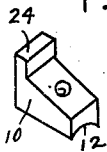


FIG 5

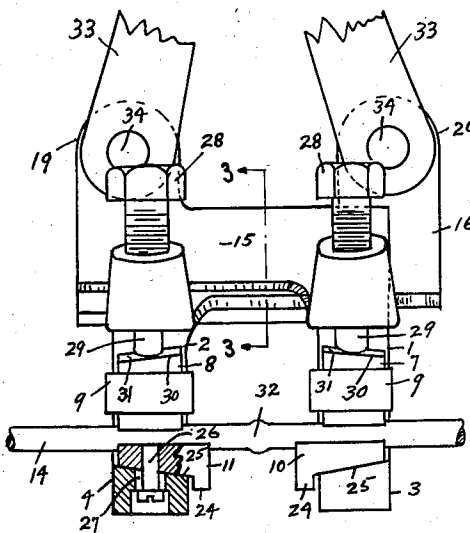


FIG 2

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1,998,509

SPOKE TIGHTENING AND UPSETTING
DEVICE

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Application June 13, 1932, Serial No. 616,782

4 Claims. (Cl. 78—17)

This invention relates to spoke tightening devices.

The principal object of this invention is to provide a device for tightening steel spokes for wheels.

A further object of the invention is to provide a device that may be conveniently and inexpensively used in tightening steel spokes in wheels without removing the spokes from the wheels.

A still further object is to provide a device for shortening a metal rod or spoke by heating the same and then upsetting or causing a portion to become thickened in order to reduce the length of the spoke or metal rod.

Many automobile wheels are now on the market which are of the wire wheel type. Many of these wire wheels are so constructed that the spokes cannot be easily removed or replaced. It often happens that a wheel may be trued up by the adjusting of the lengths of the spokes. With my device it is an easy matter to tighten spokes without removing the same from the wheel.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:—

Figure 1 is a perspective view of the device with clamping screws removed.

Figure 2 is a top plan view of the device.

Figure 3 is a cross section taken on line 3—3 of Figure 2.

Figure 4 is a detail view in perspective of an upper clamping member.

Figure 5 is a detail perspective view of a lower jaw plate member showing bottom side up.

By referring to Figure 1 of the drawing it will be seen that there is provided a pair of oppositely disposed depended arms 1 and 2. These depended arms 1 and 2 are provided with jaw members 3 and 4. It will also be seen that the oppositely disposed depended arms 1 and 2 are provided with recesses 5 and 6 on their front faces for the reception of upper clamping members 7 and 8. These upper clamping members 7 and 8 are held loosely in position by means of shackles 9. It will also be seen that there is provided lower jaw plate members 10 and 11 which also function within the recesses 5 and 6. It will be seen that

the lower jaw plate members 10 and 11 are provided with concave inner surfaces 12 which are serrated in order to form a sure clamping means when functioning upon a spoke or rod in the process of upsetting the same. It will be seen that the upper clamping members 7 and 8 are also provided with concave inner surfaces 13 which are serrated. It will also be seen that these upper clamping members 7 and 8 are directly above the lower jaw plate members 10 and 11 in order to grip a spoke or rod 14. (See Figs. 1 and 2.)

By referring to Figure 1 it will be seen that the oppositely disposed depended arms 1 and 2 are provided with horizontal frame members 15 and 16, respectively. These frame members 15 and 16 are also formed at right angles to the oppositely disposed depended arms 1 and 2. By referring to Figure 1 it will be seen that the frame member 15 is provided with a channel 17 and a bridge portion 18. Secured to the upper surface of the bridge portion 18 there is provided a manipulating lug 19. It will also be seen that the frame member 16 is formed so as to be slidably maintained within the channel 17 and is provided with an upwardly extending manipulating lug 20 which is oppositely disposed to the manipulating lug 19. It will also be seen that in order to hold the frame member 16 in slidable relation to the channel 17 there is provided a key 21 which is positioned in a key slot 22 formed on the frame member 16. This key 21 has its outer ends 23 bent outwardly against a surface of the outer ends of the frame member 15.

By referring to Figure 2 it will be seen that the spoke or rod 14 is held in a gripped position in the device. It will also be seen that the lower jaw plate members 10 and 11 are wedge shaped and each are provided with a depended shoulder 24 in order that the lower jaw plate members 10 and 11 may not be carried outwardly on inclined surfaces 25 formed on the upper surface of the jaw members 3 and 4. It will also be seen that these lower jaw plate members 10 and 11 are held in a movable and detachable relation to the jaw members 3 and 4 by means of a screw 26, the outer end of which functions in an elongated opening 27 in the jaw members 3 and 4.

It will also be seen by referring to Figures 2 and 4 that the upper clamping members 7 and 8 are held in a desirable gripping relation to the spoke or rod 14 due to set screws 28 so that thrust ends 29 contact with wedge shaped upper ends 30 and inclined end surfaces 31 of the upper clamping members 7 and 8. The wedge shaped

upper ends 30 hold the upper clamping members 7 and 8 from being carried outwardly when the spoke or rod 14 is being shortened by applying heat at a point 32 while the oppositely disposed 5 depended arms 1 and 2 and connecting parts are caused to be moved inwardly towards each other.

It will also be seen by referring to Figure 4 that due to the inclined end surfaces 31 the thrust ends 10 29 of the set screws 28 hold the upper clamping members 7 and 8 firmly against the bottoms of the recesses 5 and 6. This is important due to the fact that the shackles 9 are not substantially strong enough to hold the upper clamping mem- 15 bers 7 and 8 in a desired position nor is it desirable to have the shackles 9 fitting tightly as it would make it difficult to set the device easily to the spoke or rod 14 in the upsetting or shorten- ing of the same.

In order to operate the device there may be provided manipulating levers 33 which are at- 20 tached to the manipulating lugs 19 and 20 by means of pivot pins 23. It is understood that the manipulating levers 33 may be of simple or com- pound lever construction in order to carry the 25 manipulating lugs 19 and 20 outwardly from each other in order to bring the oppositely disposed depended arms 1 and 2 inwardly towards each other in order to cause a shortening of the spoke 30 or rod 14.

What I claim is:—

1. In a spoke tightening and upsetting device, the combination of two frame members, a chan- 35 nel formed in one frame member in order to slidably maintain the other frame member therein, a manipulating lug formed at one end of each frame member, said manipulating lugs being posi- tioned in opposite relation to each other and at right angles to said frame member, a downwardly 40 extending arm formed on each of said frame members at the opposite end from said manipu- lating lug, a jaw positioned at the lower end of each depended arm, said downwardly extending arms being positioned in opposite relation to each 45 other and at right angles to said frame members and to the path of relative movement of said frame members and a line passing through said jaws, a pair of manipulating levers functioning with said manipulating lugs, said depended arms 50 carrying said jaws being in alignment with said manipulating lugs in order that the downwardly extending arms carrying said jaws may be inserted into a wheel for the purpose of tightening and upsetting spokes therein.

2. In a spoke tightening and upsetting device, the combination of two frame members, a chan- 55 nel formed in one frame member in order to slidably maintain the other frame member therein, a manipulating lug formed at one end of each frame member, said manipulating lugs being posi- 60 tioned in opposite relation to each other and at right angles to said frame member, manipu- lating levers secured to said manipulating lugs in a pivoted manner, a downwardly extending 65 arm formed on each of said frame members at the opposite end from said manipulating lug, an adjustable jaw positioned at the lower end of

each depended arm, said downwardly extending arms being positioned in opposite relation to each other and at right angles to said frame members and to the path of relative movement of said frame members and a line passing through said 5 jaws, said depended arms carrying said jaws being in alignment with said manipulating lugs in order that the downwardly extending arms carrying said jaws may be inserted into a wheel for the purpose of tightening and upsetting spokes 10 therein.

3. In a non-electrical spoke tightening and up- setting device, the combination of two frame members, a channel formed in one frame mem- 15 ber in order to slidably maintain the other frame member therein, a manipulating lug formed at one end of each frame member, said manipulating lugs being positioned in opposite relation to each other and at right angles to said frame member, manipulating levers secured to said manipulating 20 lugs in a pivoted manner, a downwardly extend- ing arm formed on each of said frame members at the opposite end from said manipulating lug, a jaw positioned at the lower end of each de- 25 pended arm, said downwardly extending arms being positioned in opposite relation to each other and on the side of the frame member opposite from the side upon which the manipulating lugs are positioned and at right angles to said frame members and to the path of relative movement 30 of said frame members and a line passing through said jaws, said depended arms carrying said jaws being in alignment with said manipulating lugs in order that the downwardly extending arms carry- 35 ing said jaws may be inserted into a wheel for the purpose of tightening and upsetting spokes therein.

4. In a non-electrical spoke tightening and up- setting device, the combination of two frame mem- 40 bers, a channel formed in one frame member in order to slidably maintain the other frame mem- ber therein, a key formed on one frame member and a key slot formed in the other frame member for the purpose of holding said frame members in an aligned slidable relation to each other, a man- 45 ipulating lug formed at one end of each frame member, said manipulating lugs being positioned in opposite relation to each other and at right angles to said frame member, manipulating levers secured to said manipulating lugs in a pivoted 50 manner, a downwardly extending arm formed on each of said frame members at the opposite end from said manipulating lug, a jaw positioned at the lower end of each depended arm, said down- 55 wardly extending arms being positioned in op- posite relation to each other and on the side of the frame member opposite from the side upon which the manipulating lugs are positioned and at right angles to said frame members and to the path of relative movement of said frame members 60 and a line passing through said jaws, said de- pended arms carrying said jaws being in align- ment with said manipulating lugs in order that the downwardly extending arms carrying said jaws may be inserted into a wheel for the purpose 65 of tightening and upsetting spokes therein.

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