July 24, 1934. O. R. SCHOENROCK 1,967,540

METHOD OF MAKING A TRACTION WHEEL LUG

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Fig. 1.

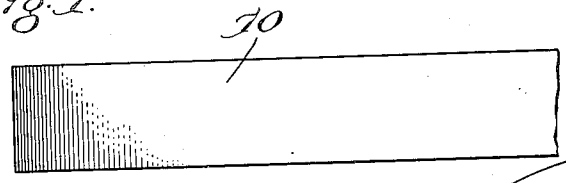


Fig. 1a.

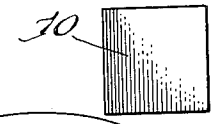


Fig. 1b

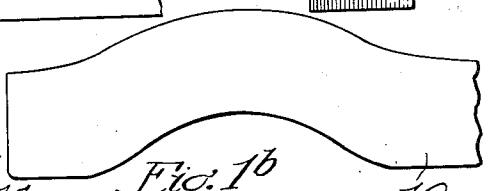


Fig. 2.

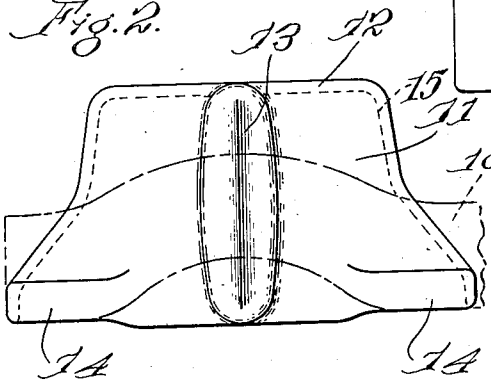


Fig. 2a

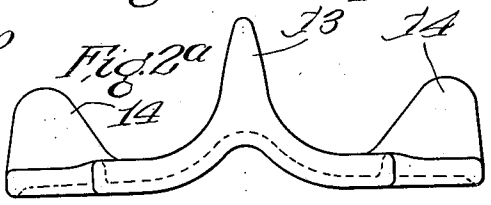


Fig. 3.

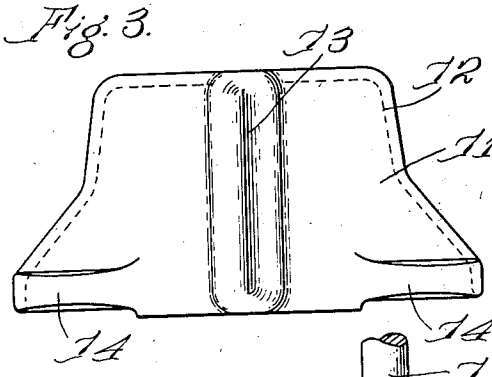


Fig. 3a.

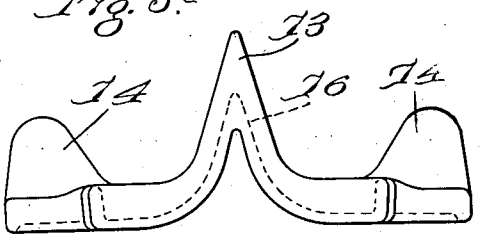
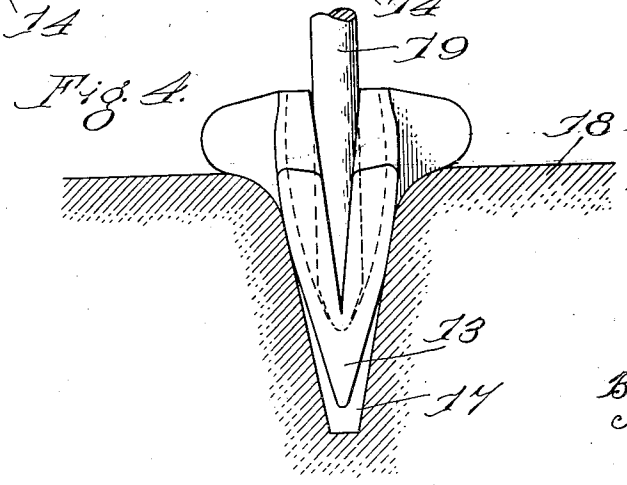


Fig. 4.



Inventor:
Otto R. Schoenrock.
By John P. Smith
Atty.

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Fig. 5.

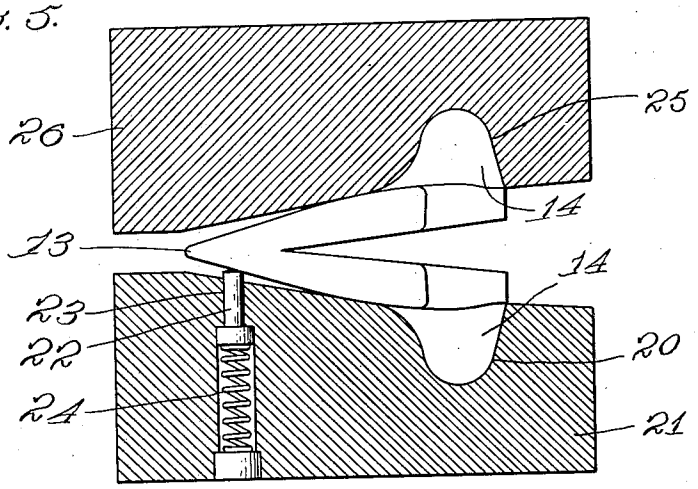


Fig. 6.

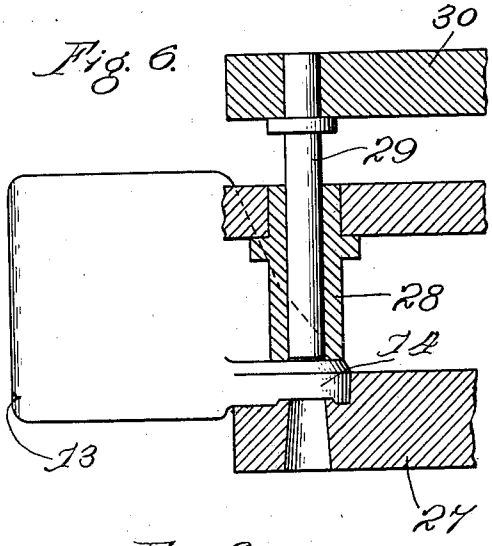


Fig. 7.

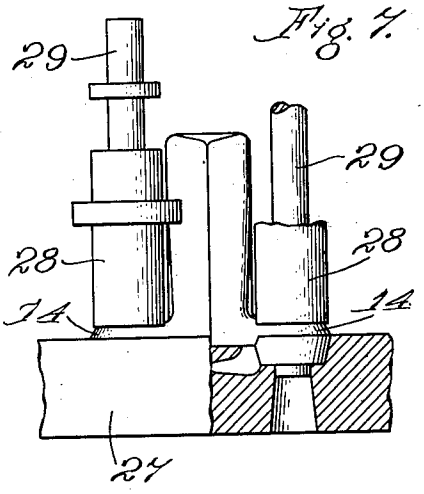
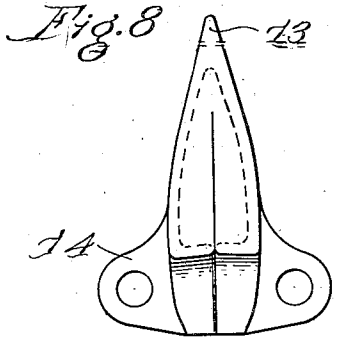


Fig. 8



Inventor:
Otto R. Schoenrock.
By John P. Smith
Atty.

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METHOD OF MAKING A TRACTION WHEEL LUG

Otto R. Schoenrock, Chicago, Ill., assignor to Oliver Farm Equipment Company, a corporation of Delaware

Application November 20, 1931, Serial No. 576,257

6 Claims. (Cl. 29—148.3)

The present invention relates generally to a traction wheel lug, but more particularly to a method of making a hollow forged traction lug by means of which the cost of manufacturing is reduced to a minimum and at the same time the amount of material necessary to produce the lug is reduced to a minimum, thereby reducing the cost and the weight of this type of lug for traction purposes.

These and other objects are accomplished by providing a novel and improved method of making a forged traction wheel lug in the manner hereinafter described and particularly pointed out in the appended claims.

Referring to the drawings:

Fig. 1 is a top plan view of the blank from which my improved lug is made;

Fig. 1[a] is an end elevational view of the same;

Fig. 1[b] is a side elevational view of the blank at the conclusion of the first operation;

Fig. 2 is a top plan view in which the dotted line portion shows the position of the blank after the first operation while the full line thereof shows the configuration of the lug after the second operation;

Fig. 2[a] is a front elevational view showing the configuration of the lug illustrated in the second operation in Fig. 2;

Fig. 3 is a top plan view of the lug at the conclusion of the third operation;

Fig. 3[a] is a front elevational view of the lug in the form shown in Fig. 3;

Fig. 4 shows the fourth operation in which the pointed end of the lug is pushed down by a punch into a V-shaped die;

Fig. 5 shows the fifth operation in which the inner part of the lug is closed between two dies and supported in the lower die by resilient pins;

Fig. 6 is a side elevational view of the lug positioned in a double action die by means of which the bosses are flattened and perforated;

Fig. 7 is a bottom elevational view of the lug shown in Fig. 6 at the conclusion of the operating stroke of the double action die; and

Fig. 8 is an end elevational view of the complete or finished lug.

Considerable difficulty has been experienced in the past in an effort to secure a traction wheel lug which is light in weight and sufficiently strong to withstand the tremendous strain which is placed upon the same under extreme conditions. This has been especially true in connection with the development of a lug which is especially adapted to be used with and secured to a narrow rim traction wheel, because in the use of such a wheel, a relatively large lug is required as well as a relatively large number of them, in which case if the lugs are made of solid steel, the cost is increased as well as the weight. It is therefore the primary object of this invention to provide a novel and improved method of making a forged lug which is hollow in construction and which at the same time, is relatively light in weight.

In carrying out my improved method of manufacturing a forged hollow steel lug, I prefer to use conventional form of steel stock from which blanks as indicated at 10 in Fig. 1 of the drawings, may be cut preferably from stock of square cross section. The blank is then raised or offset in the center as indicated in Fig. 1[b] of the drawings by the reference character 10. This comprises the first operation and is performed by suitable dies for forming the blank to this configuration. This blank 11 is then placed in another die in the position shown in Fig. 2 of the drawings in which the die is actuated at right angles with respect to the offset portion of the blank. At the conclusion of the second operation, the metal of the form shown at 11 in Fig. 2 is distributed so as to assume the configuration shown in full lines and generally indicated by the reference character 12. A side elevational view of the same may be clearly seen in Fig. 2[a] of the drawings. In the second operation, the dies are so formed as to properly distribute the metal and to form the lug in a substantially flat form in which a center transverse rib as shown at 13 is beginning to assume the form of a pointed end or apex of the finished lug, while the outer ends are upset or raised as shown at 14 to form the bosses for securing the finished lug to the traction rim of the wheel. At the same time it will be noted that this second operation of forming my improved traction wheel lug, a downwardly projecting peripheral rib, as indicated at 15 extends substantially around the whole lower surface of the lug, shown in Figs. 2 and 2[a].

In the third operation of forming my improved traction wheel lug, dies similar to the dies used in the second operation are used which give the lug a more definite form. For example, the pointed portion, as shown at 13 which forms the apex of the lug, assumes a sharper apex and the hollow portion as indicated at 16 protrudes more deeply towards the apex of the lug as clearly shown in Fig. 3[a] of the drawings. At the same time the flange 15 which surrounds the periphery of the lug on the bottom side

thereof is increased in depth while the side walls of the lug proper are decreased. In this operation, the parts of the lug assume more nearly their correct thicknesses as clearly shown in Fig. 3 and Fig. 3ª of the drawings.

The fourth operation of forming my improved lug, consists in the insertion of the pointed end 13 into a V-shaped cavity 17 formed in a die 18, after which a punch 19 is inserted into the hollow portion of the lug and pressed downwardly so as to fold or bend the opposite sides or ends of the lug to the position clearly shown in Fig. 4 of the drawings.

The fifth operation or step in making my improved lug consists of inserting one of the bosses 14 in a cavity 20 which conforms to the shape of the boss and formed in the lower die 21 and supporting the pointed end or apex 13 on two yielding pins 22 mounted in suitable sockets 23 formed in the die 21. The pins 22 are pushed upwardly by springs 24 mounted in the die 21. These pins 22 support the lug on its side as shown in Fig. 5 of the drawings so that the complementary recess 25 of the complementary die 26 is in proper position to receive the upper bar 14 of the lug. In this position the die 26 is moved downwardly with respect to the die 21 completely closing the lug so as to assume the shape or configuration shown in Fig. 8 of the drawings.

The sixth operation flattens the bosses 14 as well as straightening them and at the same time punches the apertures in the bosses in the manner clearly disclosed in Figs. 6 and 7 of the drawings.

The operation performed by the double action die which includes a stationary die member 27 and a reciprocable boss straightening member in the form of sleeve 28 which has reciprocally mounted therein movable with respect thereto, a punch member 29 operatively driven by reciprocable member 30 of the punching machine. These punching members 29 are adapted to punch the apertures in each of the ears 14 of the lug. At the conclusion of this operation, the completed lug assumes the form shown in Fig. 8 in which the lug is in the form of a shell having a hollow portion therein which is completely encased as indicated by the broken lines in Fig. 8 of the drawings.

While in the above description it will be readily seen that I have provided a novel and improved method of making a traction wheel lug of hollow form and one in which the amount of material is reduced to a minimum, thereby reducing its weight without detracting from its durability and strength.

While in the above specification I have described one method by which my invention may be made, it will of course be understood that various modifications may be made without departing from the spirit and scope of the invention as expressed in the following claims:

What I claim is my invention and desire to secure by Letters Patent is:

1. The herein described method of making a traction wheel lug consisting first, of offsetting a steel blank at an intermediate portion thereof, second, of raising the center portion at right angles to the offset portion to form the apex of the lug and the outer ends to form the bosses, third, of folding the outer ends toward each other to complete the lug.

2. The herein described method of making a traction wheel lug consisting first, of offsetting a steel blank at the center portion thereof, second, of raising the center portion to form the apex of the lug in a direction at right angles to the offset portion and simultaneously forming the sides or ground engaging portions of the lug and raising the outer ends of the blank so as to form the bosses thereof, third, of folding the outer ends toward each other to complete the lug.

3. The herein described method of making a completely enclosed traction wheel lug of hollow construction consisting of distributing the metal of steel blanks so as to form raised portions at the center and outer ends thereof and relatively thin metal portions therebetween and folding the outer end portions in contacting relation to complete the lug.

4. The herein described method of making a traction wheel lug of hollow construction consisting of raising on one side the center and outer ends of a blank of steel bar and forming a flange on the periphery of the opposite side thereof, then folding the outer ends toward each other to bring the flanges in contacting relation to form the lug.

5. The herein described method of making a traction wheel lug of hollow construction from a blank of steel bar consisting of distributing the metal thereof so as to form a central transverse rib and outer end bosses on one side thereof and vertically depending peripheral flange on the other side thereof, then folding the outer ends thereof so that the flanges contact to form the complete lug.

6. The herein described method of making a traction wheel lug of hollow construction consisting first, of offsetting a blank of steel bar at an intermediate portion thereof then of raising a center portion in a direction at right angles to the offset portion simultaneously forming bosses on the outer ends and on one side thereof and flanges on the other side thereof, then folding the outer ends thereof toward each other in contacting relation to complete the lug.

OTTO R. SCHOENROCK.