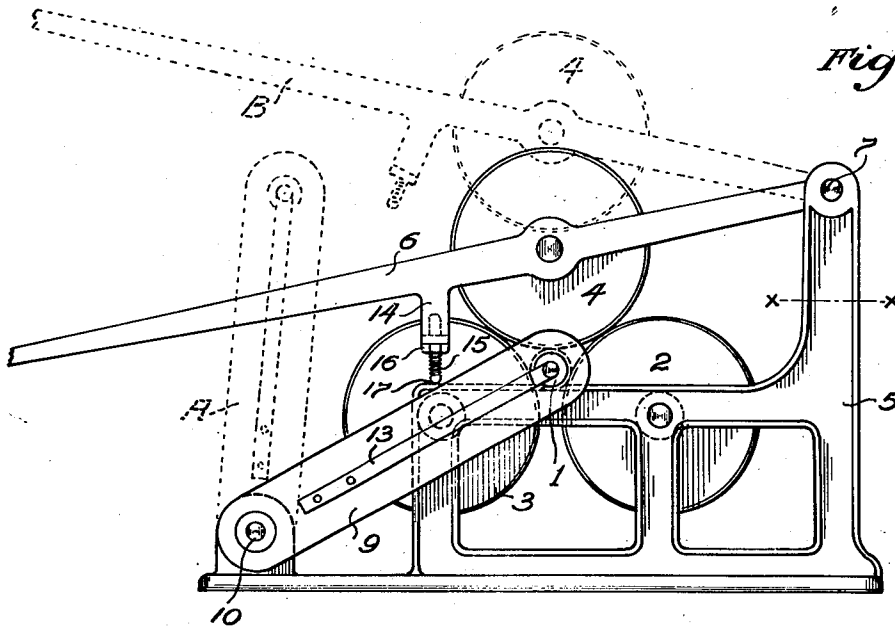
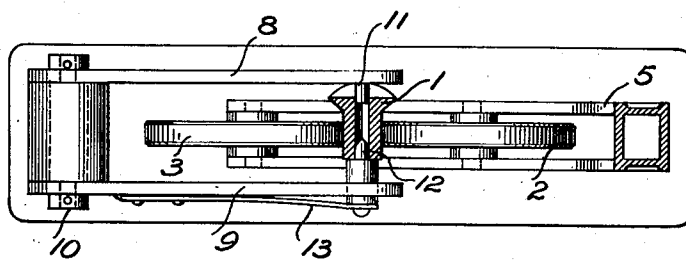


**1,353,395.**

*Fig. 3.*



*Fig. 1.*



*Fig. 2.*

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*By his Attorney.*  
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# UNITED STATES PATENT OFFICE.

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## METHOD OF FORMING WIRE-SPOKE NIPPLES.

1,353,395.

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*To all whom it may concern:*

Be it known that I, HENRY A. HOUSE, Jr., a citizen of the United States, residing in Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Methods of Forming Wire-Spoke Nipples; and I do hereby declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form part of this specification.

Like figures of reference refer to like parts.

This invention relates to methods of forming nipples for wire spokes of wire wheels.

One object of this invention is to provide a method of forming wire spoke nipples, which shall obviate two of the three drillings through which the nipples are now put before being threaded.

Another object is to provide a method of forming wire spoke nipples, which shall in some measure increase the strength of the metal thereof, which forms the threads.

With these and other objects, my invention consists in carrying out certain operations in forming the said nipples, which shall fulfil the above objects.

Inasmuch as it is customary to have part of the length of the bore of the nipple threaded, I desire to produce a finished nipple much in construction like those now in use. By my method I produce a nipple having the middle third of its bore threaded, and the ends of the bore fitting, or larger in diameter than the outer diameter of the thread of the spoke.

My method consists in congesting the middle third of the length of the shank of the nipple by some compressing means, acting on the outside of the shank, after centrally boring a hole, which is greater in diameter, or a fit with, the outside diameter of the thread of the spoke. By compressing the middle third of the nipple shank sufficiently to reduce the bore, to have stock, in which to tap a fitting thread for the spoke, my process differs materially from the ordinary one of drilling. A small hole is first drilled through the center of the shank, the hole

being of a diameter equal to or greater than the outside diameter of the thread of the spoke.

Some kind of compressing device is then required to reduce the diameter of the middle third of the shank of the nipple.

One form of compressing device suited for this purpose, is illustrated in the drawings, wherein rollers are used to contract the shank of the nipple.

In the drawings:

Figure 1 is a side elevation of the compressing device.

Fig. 2 is a cross sectional elevation of the device shown in Fig. 1.

Fig. 3 is a section of a finished nipple.

In the figures, 1 is a nipple in contact with the rollers 2, 3, and 4. The rollers 2 and 3 have relatively fixed axes in a frame 5, while the roller 4 has an axis movable transverse to itself. The roller 4 is journaled in a lever 6, fulcrumed at 7. Any suitable means may be used to turn the roller 4, such as a flexible shaft, and any other suitable means can be used to force the roller 4 against the nipple 1, than the lever 6. One form of holder is shown for positioning the nipple 1, wherein 8 and 9 are parallel arms pivoted at 10, to the frame 5. A pin 11, on the arm 8, loosely engages one end of the nipple 1, while the pin 12, fixed to one end of a leaf spring 13, holds the other end of the nipple 1. The dotted position A, of the arms 8 and 9, shows them swung up out from the rollers for fixing or removing a nipple. The dotted position B, of the lever 6, and its roller 4, is that for removing or setting a nipple. The edges of the rollers are beveled or may be rounded so as not to produce a shearing action.

The nipple is shown reduced at C, in Fig. 3. On the lever 6, is a leg 14, engaged by a threaded pin 15, locked with a nut 16. The pin 15, is adapted to shoulder against the point, 17, of the frame 5.

In thus rolling in the middle third of the nipple, the metal is thereby compressed and attains a higher tensile strength, than it had before being compressed, and therefore a stronger thread can be made thereon.

Other suitable devices than that herein shown and described, may be used to compress the middle third of the nipple shank, which does not involve rollers. I therefore

do not wish to be confined to this rolling step of compression, in my process, hence I claim:

5 1. The method of forming wire spoke nipples, which consists of taking a blank nipple as formed by the usual devices, of concentrically boring a hole therethrough, of a diameter, practically equal to that of the outside diameter of the thread of wire spoke, 10 which it is intended to engage, then compressing circumferentially, a part of the shank of the nipple, until part of the bore of the metal inside of the nipple, has been reduced to a diameter of practically that of 15 the root of the thread of the said spoke and of subsequently threading this reduced section of the nipple, to fit the said spoke.

2. The method of forming wire spoke nipples, which consists of taking a blank nipple, as formed by the usual devices, of concentrically boring a hole therethrough, of a diameter practically equal to that of the outside of the thread of the wire spoke, which it is intended to engage, then compressing, circumferentially, by rolling in under pressure, a part of the shank of the nipple until the bore of the metal inside the nipple has been reduced to a diameter of practically that of the root of the thread of the said spoke, and of subsequently threading this reduced section of the nipple to fit the said spoke. 20 25 30

HENRY A. HOUSE, JR.