

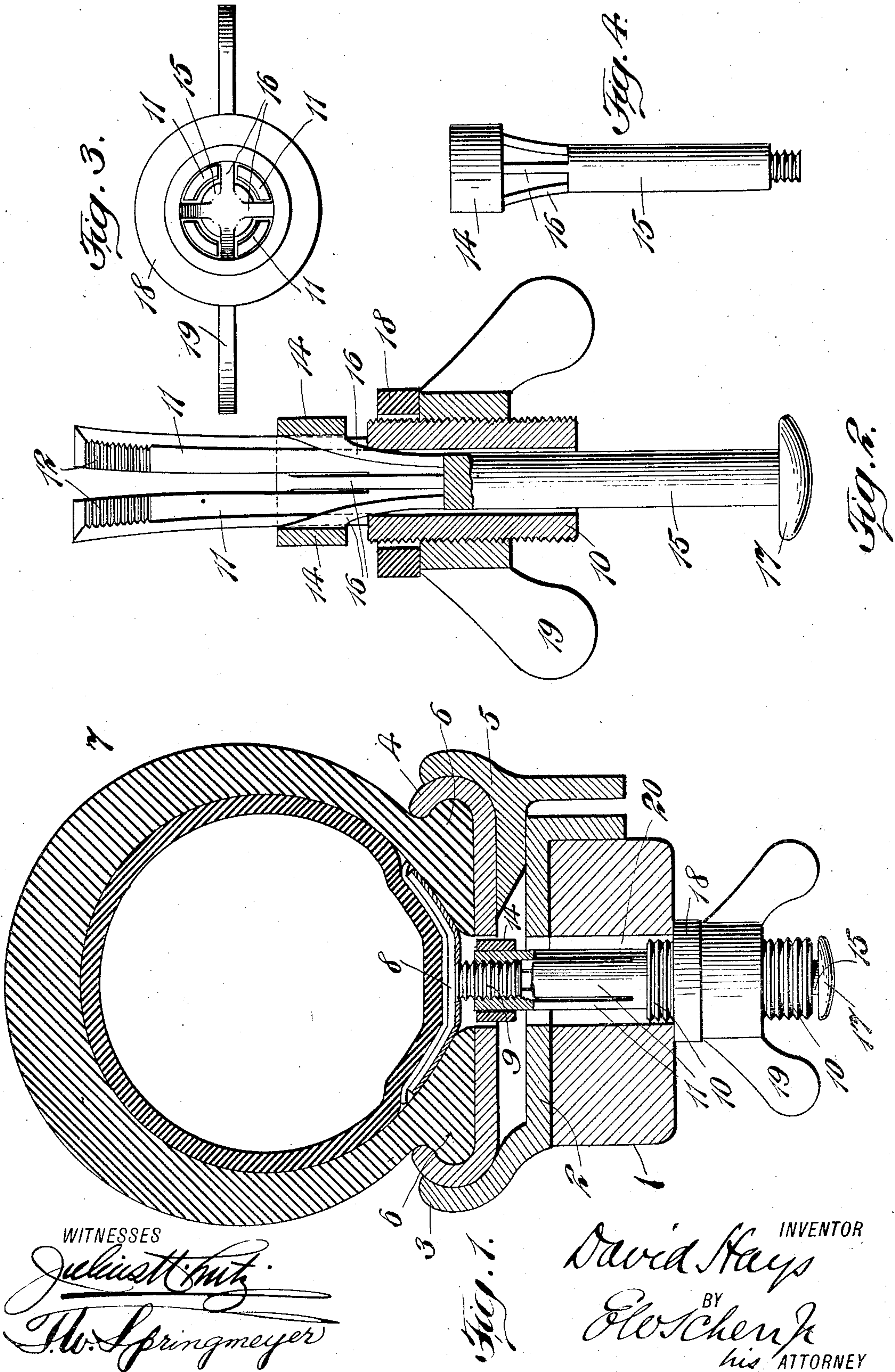
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TIRE,

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945,037.

Patented Jan. 4, 1910.



WITNESSES

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Fig. 1.

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TIRE.

945,037.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DAVID HAYS, a citizen of the United States, and a resident of the city, county, and State of New York, have
5 invented certain new and useful Improvements in Tires, of which the following is a specification.

My present invention relates to improvements in tires and more particularly to
10 means for readily attaching and detaching the clencher-shoe in connection with the rim.

The advantages of the invention will appear from an understanding of the following description and drawings.

15 In the drawings which show only one of the forms which my improvements may take, Figure 1 is a cross-section partly in elevation of a felly and tire, showing my device in combination therewith; Fig. 2 is
20 a view partly in vertical section and partly in elevation of said device detached and shown on an enlarged scale from that in Fig. 1, with its parts also shown in different positions of adjustment; Fig. 3 is a plan view
25 looking on top of the devices in Fig. 2 with band 14 elevated; and Fig. 4 is a view of a detail.

Describing now my invention with particular reference to the devices of the drawings and reserving it to the claims to point
30 out the novel features, Fig. 1 shows the section of a felly 1 carrying a band 2 flanged only at one side 3 to permit the removal and insertion of the rim 4 into surrounding position over the band from its non-flanged or
35 open side. To secure the rim in position on the band, clamping devices of any well known form can be provided suitably spaced about the wheel, of which one is indicated at
40 5 in Fig. 1. The connecting means between said clamping device and the band or felly may be of any well known sort and is not indicated in the drawing.

The sides of the rim 4 may be upturned
45 as usual to act as seats for the clencher flanges 6 of the shoe 7.

The means for spreading apart the clencher-flanges against the sides of the rim and at the same time for securing the tire
50 and rim rigidly to the felly comprises in part the well known device, conveniently called a spreader, which may consist of a plate 8 of more or less wedge or trough-like contour resting inside the clencher-shoe between and in contact with its sides, said plate
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supporting a depending screw-threaded stem 9 which passes through an opening in the rim. Of these spreaders there are a plurality spaced about the wheel. Moreover the usual arrangement comprises nuts 60 on the stems 9 next the inside of the rim, whereby taking up on said nuts draws the stems and consequently the plates 8 toward the rim with resultant forcing apart of the clencher flanges 6 against the sides of the rim. 65

My present improvements do away with the nuts on the threaded stems and substitute devices similar to that shown in Fig. 2. Said devices comprise in the particular
70 form shown, an externally threaded sleeve 10 having spring arms 11 extending longitudinally therefrom, said arms at their ends being internally screw-threaded at 12 to engage, when together, the threads on the
75 stem 9. The spring arms 11 normally occupy the expanded position indicated in Fig. 2 in which their screw-threads will not engage the threads on the stem 9. A band 14 is provided slidable along and inclosing the arms
80 11, whereby when the band is slid into a position toward or over the threaded portions of the arms, said portions will be brought together into engaging position relative to the threads on the stem 9. The means for
85 thus operating the band 14 may comprise a rod 15 movable axially within the sleeve 10, said rod having radiating fingers 16 which come out through spaces between the arms and are attached to the band 14. The rod
90 may be provided with a head 17, which for convenience in assembling the devices in Fig. 2 may screw-connect with said rod somewhat as indicated in Fig. 4.

A washer 18 is provided loosely surrounding the sleeve, also a wing nut 19 engaging the threads on said sleeve for a purpose hereinafter described.

The device is used as follows, the described manipulation being repeated in connection
100 with each of the similar devices, of which it will be understood there are a plurality, spaced about the wheel. Thus registering with the openings in the rim for the threaded stems 9 are openings 20 through the band
105 and felly, said openings being suitably large to permit the ends of the arms 11, when in the expanded position shown in Fig. 2, to be passed up through said openings into surrounding position about the particular
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threaded stem 9, whereupon the rod 15 governing the sliding band 14 is pushed inwardly to compress the arms and bring their threaded portions into engagement with the threaded stem 9, thereby securely uniting my attachment to said stem. This being accomplished, the wing nut 19 is operated to force the washer against the felly and then to draw my device and along with it the interlocked spreader toward the felly with the combined result, first of spreading the clencher flanges inseparably into the sides of the rim, and secondly, of rigidly securing the tire and rim to the felly.

The great advantage in among other respects of the aforesaid device comes in when assembling or making repairs, as for example in replacing a shoe or inner tube or both, especially when on the road. Such a contingency, with the old style nut-secured stems 9, necessitated a removal of all the clamps 5, since the rim must be taken off the wheel in order to get at and remove the nuts. These same steps had to be duplicated in reverse order in replacing the tire and rim and therefore the operation was both a lengthy and troublesome one, much simplified by my improvement as follows. Thus to replace a tire it is not necessary at all to remove the clamps 5 to get at the rim, on the contrary these parts are all left intact. The only manipulation required is to loosen the wing-nuts 19 sufficiently to permit the spreaders to be pushed back into the tire to release the clencher flanges and allow their withdrawal from the rim. Similarly after the shoe is replaced, it is only necessary to take up on wing-nuts 19 to draw the spreaders toward the felly to wedge the clencher flanges securely within the rim. Thus it will be noted that neither operation requires the manipulation of the rods 15 to release the gripping jaws from the spreaders; much less do they require the removal of the clamps 5 or of the rim 4. However should for any

reason it be desired to remove both the tire and rim from the felly, it is only necessary in addition to pull out the rods 15 to release the gripping jaws from the spreaders, whereupon the tire and rim can be slid off the felly, the clamps 5 having been also removed.

Having thus described my invention, what I claim is:

1. A device adapted to be used in connection with a clencher-shoe spreader and a felly, comprising in combination a sleeve having arms projecting from one end insertible through an opening in the felly, said arms being adapted to grip the spreader when brought together, a band inclosing said arms and slidable thereon, a rod working in the sleeve and having operative connection with the band, and means adjustable on the sleeve for delivering thrust against the felly to draw the spreader, gripped by the arms, toward the felly.

2. A device adapted to be used in connection with a clencher-shoe spreader and a felly comprising in combination an externally threaded sleeve having spring arms projecting from one end of the sleeve insertible through an opening in the felly, and adapted to grip the spreader when the arms are brought together, a band inclosing said arms and slidable toward their extremities to bring said arms together into gripping position, a rod working in the sleeve having integral connection with the band by fingers which extend between the spring arms, and a nut engaging the threads on the sleeve and adjustable to exert thrust against the felly.

In witness whereof, I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

DAVID HAYS.

Witnesses:

E. W. SCHERR, Jr.,
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