(No Model.)

W. S. HALE.

TIRE TIGHTENER.

No. 551,675. Patented Dec. 17, 1895.

Fig. 5.

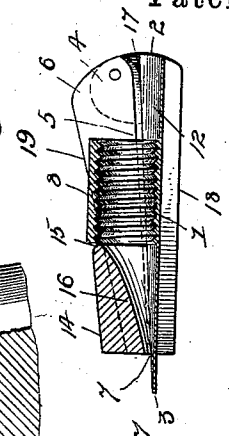


Fig. 2.

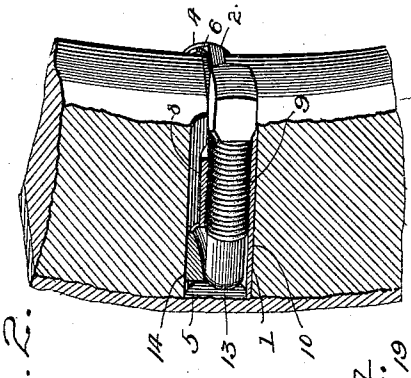


Fig. 4.

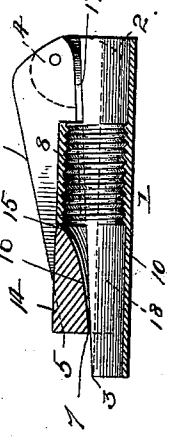


Fig. 6.

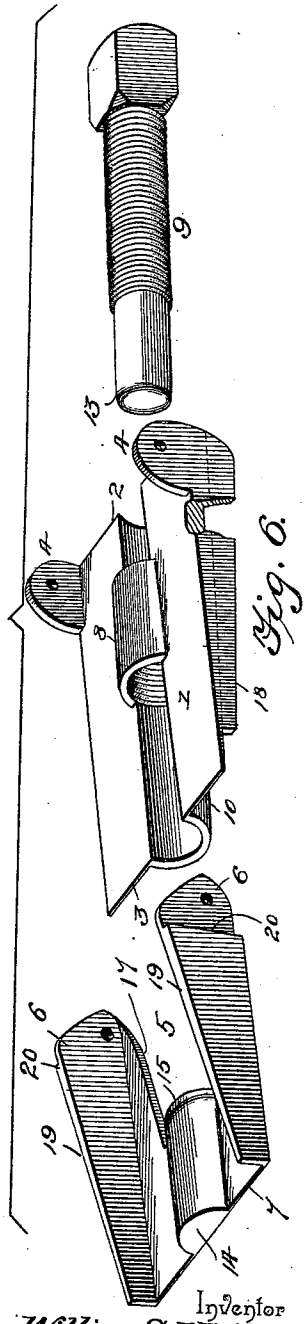


Fig. 7.

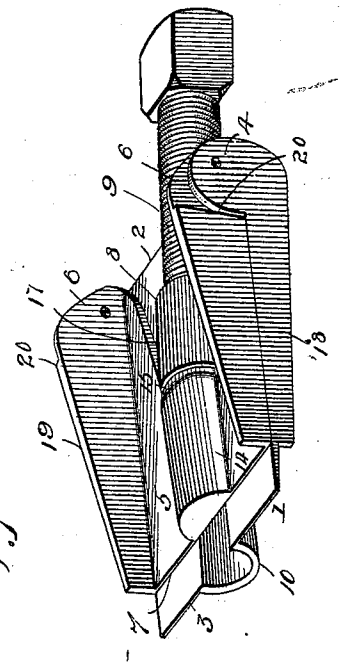
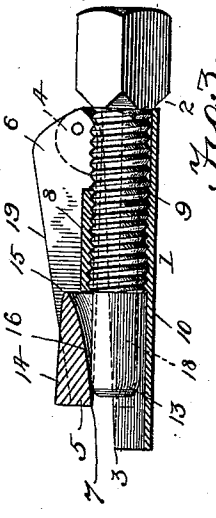


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM S. HALE, OF HINDSBOROUGH, ILLINOIS.

TIRE-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 551,675, dated December 17, 1895.

Application filed August 24, 1895. Serial No. 560,402. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. HALE, a citizen of the United States, residing at Hindsborough, in the county of Douglas and State of Illinois, have invented a new and useful Tire-Tightener, of which the following is a specification.

My invention relates to tire-tighteners for vehicle-wheels, and my object is to provide a cheap, simple, compact, expansible wedge which may be readily inserted between the felly-sections of a wheel whose tire has become loosened, for the purpose of expanding said felly so as to avoid the necessity to reset the tire.

With these objects in view my invention consists in the improvements hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my tightener. Fig. 2 is a perspective view of the same in operative position in a wheel with parts broken away. Fig. 3 is a longitudinal section of the tightener. Fig. 4 is a longitudinal section of my preferred form of tightener. Fig. 5 is a similar view of a modified form thereof. Fig. 6 shows details in perspective of the separated parts.

Referring to the drawings, numeral 1 designates the back or body portion of my improved tire-tightener, which is slightly wedge-shaped, tapering from a thickened rear end or butt portion 2 to a thin forward edge 3. Ears 4 are provided at the butt, one on either side projecting inwardly, and to said ears is suitably hinged the expansion plate or leaf 5 by means of ears 6, which project longitudinally to the rear into facial contact with ears 4. Ears 6 are rounded on their under sides to permit of limited outward swing of the expansion-plate 5. Plate 5 lies normally in close contact with the face of body portion 1 and is provided with a sharp edge 7 for wedging purposes. Centrally located near the upper end of the body portion and extending longitudinally thereof is bolt-socket 8 threaded internally to receive spreading-bolt 9. This socket is of sufficient length to give abundant gripping-surface for the threads and may be located wholly above the plane of the rear side of body portion 1, as shown in Fig. 5, or it may be formed so as to extend on either side of said body portion, as shown in Fig. 4, the latter being my preferred construction. In this form the rear surface of the body portion is curved outwardly to form a directing and bearing surface 10 for bolt 9, and in the former case, Fig. 5, a groove 12 is provided in the body portion in order that bolt 9 may travel more directly against expansion-plate 5.

For the purpose of receiving the rounded wedging end 13 of spreading-bolt 9, expansion-plate 5 is provided with a thickened portion 14 whose outer surface aligns with the outside of socket 8 and whose inner surface aligns at its abutting end 15 with the inside of said socket and is thence tapered downwardly to edge 7, thus forming wedging-arch or crown-piece 16. Plate 5 is suitably cut away at 17 to receive socket 8, so that the forward end of said socket abuts against the rear wall of said wedging arch.

On the respective side edges of body portion 1 and of expansion-plate 5 suitable flanges 18 and 19 are formed perpendicularly thereto. These flanges are separated the width of the wheel-felly and are for the purpose of directing the tightener and of keeping the felly-sections in longitudinal alignment as said tightener is forced between the same. Flanges 19 of the expansion-plate are suitably cut away adjacent to ears 6 to form shoulders 20, which are provided to relieve the pivots of strain when the tightener is driven in place.

The manner of using my tire-tightener is as follows: A suitable hole is bored into the felly from the inside of the wheel whose tire is loose and needs tightening. Said hole is bored so that half thereof will come in the end of one section of the felly and half in the adjacent section, if my preferred form (Fig. 4) of tightener is used, or it is bored entirely in one section of felly and flush with the end thereof if the modified form (Fig. 5) of tightener is used. Having bored said hole, the thin edge 3 of the wedge-shaped tightener is inserted between said felly-sections and the thin wedge is driven home against the tire, the bolt-socket and wedging-arch occupying said bored hole. Spreading-bolt 9 is then inserted in bolt-socket 8 and screwed inwardly against wedging-arch 16 until the expansion-plate 5 is spread sufficiently thereby to sep-

arate said felly-sections tightly against the tire. By this means all the looseness of the tire is taken up quickly by the expansion of the felly or rim of the wheel.

What I claim is—

1. In a tire tightener, the combination with a wedge shaped body portion, of an expansion plate hinged thereto at its inner butt end, and a spreading bolt adapted to enter between said body portion and expansion plate to separate the outer ends of the same, substantially as described.

2. In a tire tightener, the combination with a wedge shaped body portion provided with a bolt socket and with lateral side flanges, of an expansion plate hinged to said body portion at its inner butt end and provided with a wedging arch in line with said bolt socket and also provided with lateral side flanges, and a bolt adapted to enter said bolt socket and to bear with its end against said wedging arch, said end being rounded, whereby said body portion and said expansion plate are separated at their outer ends, substantially as described.

3. In a tire tightener, the combination with a body portion tapered to a thin edge at its outer end, and provided centrally with a longitudinal bolt socket extending axially substantially in line with the plane of said body portion, said body portion being also provided with lateral side flanges and with oppositely extending ears at its inner end, of an expansion plate provided at its inner end with suitable ears pivoted to the said ears of the body portion, and provided with a wedging arch suitably aligned with said bolt socket and also provided with lateral side flanges, said flanges being cut away at their inner ends so as to form abutting shoulders for the ears of the body portion, and a bolt rounded at its outer end and adapted to enter said bolt socket and to bear against said wedging arch, whereby said body portion and said expansion plate are separated at their outer ends, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM S. HALE.

Witnesses:
OLER LANGLEY,
ROBERT W. CRAIG.