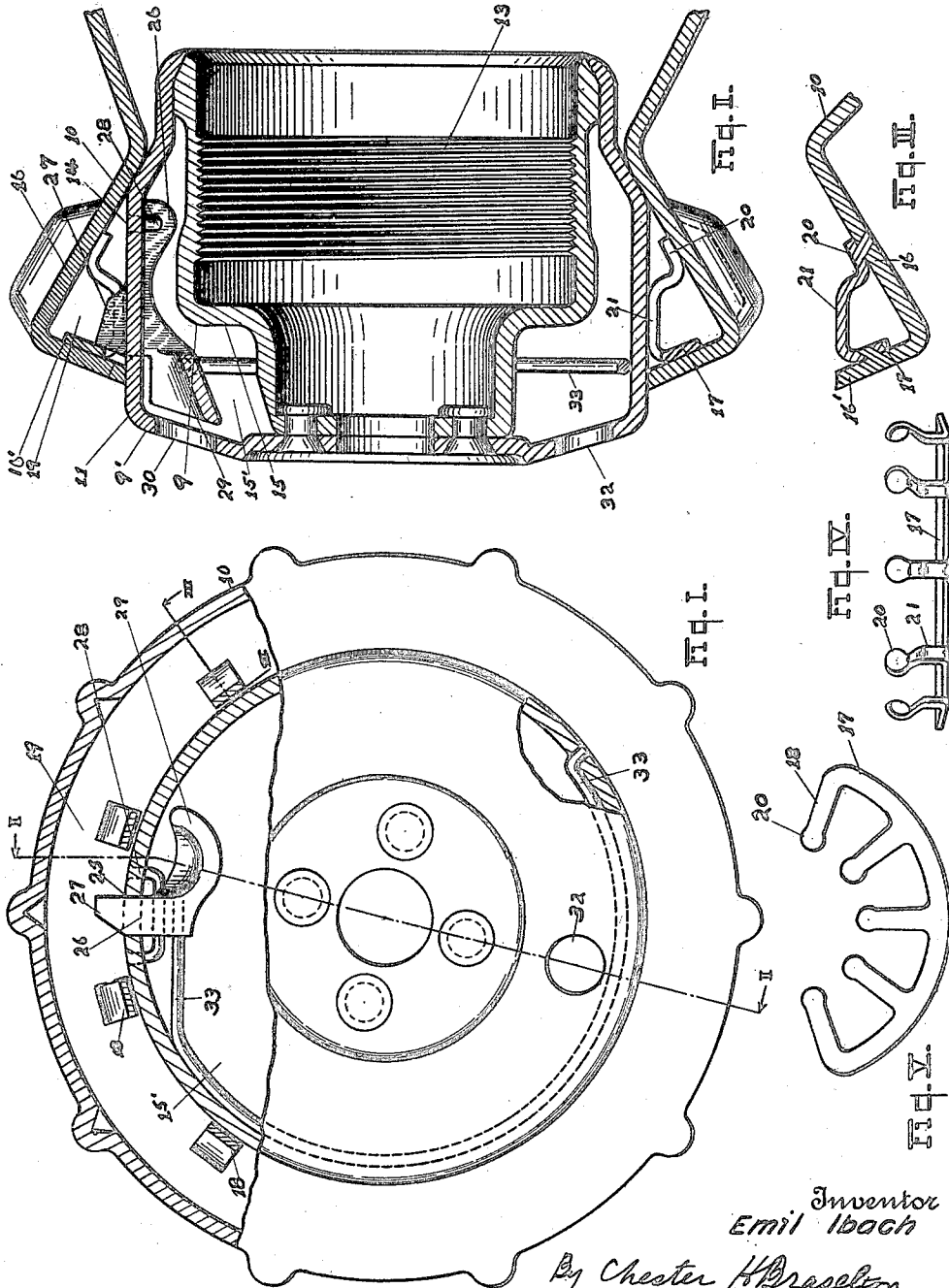


E. IBACH.
HUB STRUCTURE.
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HUB STRUCTURE.

1,302,040.

Specification of Letters Patent.

Patented Apr. 29, 1919.

Application filed June 7, 1918. Serial No. 233,394.

To all whom it may concern:

Be it known that I, EMIL IBACH, a subject of the Emperor of Germany, who have declared my intention to become a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hub Structures, of which I declare the following to be a full, clear, and exact description.

This invention relates to hub structures and more particularly to improvements in locking means for the hub structure of detachable wire spoked wheels of the type shown and described in my co-pending application for hub structure, filed September 1st, 1917, Serial No. 189,274.

In the aforesaid application, the wire spoked wheel is detachably mounted on an inner hub which is mounted on the driving axle or steering spindle. A cap is screwed on the inner hub and coöperates with the outer or wheel hub to retain the wheel in its mounted position on the inner hub. The cap carries a latch to coöperate with projections on a stop plate mounted in the wheel hub. The projections at one end are integral with the plate and their other ends are free.

It is the principal object of the present invention to improve the form and attachment of the stop plate and projections to make a stronger construction, one in which the projections are not liable to be bent and broken by the latch due to the strain exerted thereon. The projections in the present invention are therefore enlarged at their ends remote from the plate and are secured to the hub wheel at their enlarged ends.

Further objects, and objects relating to economies of manufacture and details of construction, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specifications. My invention is clearly defined and pointed out in the appended claims.

A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawings, forming a part of this specification, in which:

Figure I is a view in end elevation of the wheel, hub and cap, partly in section to show the safety latch device.

Fig. II is a sectional view taken on the line II—II of Fig. I.

Fig. III is a detail sectional view taken on the line III—III of Fig. I.

Fig. IV is a plan view of an improved stop plate.

Fig. V is a blank from which the improved stop plate is formed.

In the drawings, similar reference numerals refer to similar parts throughout the several views and the sectional views are taken looking in the directions of the little arrows at the ends of the section lines.

Referring to the drawing in detail, 10 designates the outer or wheel hub proper, the hub being connected to the inner end of the spokes. (Not shown). A hub cap 11 comprises an inner shell 9 and an outer shell 9¹ of pressed steel suitably secured together and the inner shell 9 is provided with threads 13 adapted to screw on coöperating threads on the inner hub (not shown) mounted on the driving axle or steering spindle, as is well known in the art. The outer shell 9¹ is flared outwardly at 14 and the inner shell is pressed inwardly at 15 to form a pocket 15^a extending circumferentially around the inner shell 9 of the hub cap 11, the purpose of which will later appear. The outer hub 10 is also flared outwardly at 16 and its outer end portion or flange 16^a pressed inwardly toward its axis to form the circumferential pocket 19 in which is positioned my improved stop plate.

The stop plate is clearly shown in blank form in Fig. V, and comprises the marginal strip 17 which has formed integrally therewith the projections or tongues 18. The tongues 18 are equally spaced in relation to each other and the marginal strip 17 is bent or curved corresponding to the curvature of the outer wall of the circumferential pocket 19 formed in wheel hub 10. On the end of each of the extending tongues 18 is formed a circular head 20. The tongues 18 are bent, as clearly shown in Figs. III and IV, so that when the stop plate is positioned in the circumferential pocket 19 of the hub 10 with its marginal strip 17 against the outer wall of said pocket, there is provided on each tongue a horizontal portion 21 (Figs. II and III) and the flat side of each circular head 20 formed on said tongues engages the other wall of the pocket. The stop plate is then

secured in position, preferably by spot-welding the marginal strip 17 and the circular head 20 of each tongue 18 to the respective walls of the pocket 19 which they engage.

It is to be understood that any desired number of the tongues 18 may be provided on the stop plates. In the present disclosure two stop plates are provided and when positioned the respective ends of their marginal plates do not engage each other, but the tongues are so spaced that a tongue is provided in equally spaced relation about the circumferential pocket 19. It is desired to use two plates instead of a single plate, as two plates may be more easily formed and assembled in position.

Now, proceeding with the detailed description of the safety latch and its operation: in the outer shell of the hub cap 11 is located a slot 25 at right angles to the face or outer end of the hub cap. A safety latch 26, provided with a projection 27, is located in this slot and is pivoted at the rear end of said slot or at a point farthest from the face of the hub cap, as indicated at 28. On the front of the latch is a lug extension 29 which is rounded to receive a pin on a spanner wrench as will be more fully hereinafter explained. The hub cap is further provided with two holes 30 and 32 to receive the wrench pins. One end of a single wire spring 33 is secured to the outer end of the latch 26 and the other end is anchored in the hub cap to normally force the latch outwardly from the center of the hub cap so that the projection 27 projects into the circumferential pocket 19 formed in the outer hub 10 and engages the horizontal portion of the tongues 18 of the stop plate.

When it is desired to remove the hub cap 11, the spanner wrench is applied so that one of its pins enters the hole 30 and the other the hole 32. The pin entering the hole 30 engages the inclined side of the projecting lug 29 of the latch 26, causing the same to rock inwardly about its pivot 28 thereby bringing the projecting portion 27 of the latch 26 flush with the outer surface of the hub cap and out of engaging relation with the tongues 18 of the stop plates and permitting the cap to be removed as will be readily understood. In putting on the hub cap, it is turned up on the threads of the inner hub and after being brought to a seat, the wrench is withdrawn. Thereupon the spring 33 forces the projecting portion 27 of the latch 26 outwardly from the surface of the hub cap, and into the circumferential pocket 19. Any tendency for the hub cap to back off is prevented by the projecting portion 27 of the safety latch 26 engaging with one of the tongues 18 of the stop plates. Also, any tendency for the hub cap to back off causes the latch to press harder against one of the tongues on the stop plates as can

be readily understood. As is obvious, the free ends of the tongues 18 being secured to the one wall of the pocket 19 greatly strengthens them to withstand the pressure from the safety latch. Also, the horizontal disposal of the intermediate portion of each tongue provides a sufficient surface contact to insure against the safety latch slipping under the tongues.

I am aware that the particular embodiment of my invention, which I have here shown and described, is susceptible of considerable variation, and, therefore, I desire to claim the same broadly, as well as specifically, as indicated by the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a hub and wheel structure having an outer or wheel hub, a cap to hold said wheel hub on an inner hub, the outer hub being formed to provide a circumferential pocket about the cap, and a locking mechanism for locking said cap from backing off, a part of which is mounted in said cap and includes a pivotal element; a stop therefor including a marginal plate adapted to engage the side of the circumferential pocket and be secured thereto, and projecting members or tongues adapted to engage the side of said circumferential pocket and be secured thereto, the tongues being disposed for engaging a projecting portion of the pivotal element whereby the cap is held from backing off.

2. In a hub structure having an outer or wheel hub, a cap to hold said wheel hub on an inner hub, the wheel hub being formed to provide a circumferential pocket about the cap, and a locking mechanism for locking said cap from backing off, a part of which is mounted in said cap, said locking mechanism including a safety latch pivotally mounted in a slot provided in the cap at right angles to the plane of the cap's face, the pivot being at the rear end of the slot and a portion of the latch extending through the slot and into the circumferential pocket, the combination therewith of a stop therefor comprising a marginal plate secured to a side of the circumferential pocket, and having projecting members or tongues secured to a side of said circumferential pocket, the intermediate portions of said projections or tongues being disposed for engaging the projecting portion of the latch mounted in said cap.

3. In a wheel and hub structure including an outer or wheel hub, a cap to hold said wheel hub on an inner hub, the wheel hub being formed to provide a circumferential pocket about the cap; and a locking mechanism for locking said cap from backing off, a part of which is mounted in said cap, the

locking mechanism having a safety latch pivotally mounted in a slot provided in the cap at right angles to the plane of the cap's face, the pivot being at the rear end of the slot and a portion of the latch extending through the slot and into the circumferential pocket; a stop therefor comprising a marginal plate adapted to be secured to one side of the circumferential pocket and having projection members or tongues formed integrally therewith, said tongues having circular heads formed on their ends adapted to be secured to another side of the said circumferential pocket, the intermediate portions of said projections or tongues being disposed for engaging the projecting portion of latch mounted in said cap.

4. In a hub structure including an outer or wheel hub, and a cap to hold said wheel hub on an inner hub, the wheel hub being formed to provide a circumferential pocket about the cap, locking mechanism for locking said cap from backing off, a part of which is mounted in said cap, and comprises a safety latch pivotally mounted in a slot provided in the cap at right angles to the plane of the cap's face, the pivot being at the rear end of the slot and an intermediate portion of the latch extending through the slot and into the circumferential pocket; diametrically opposed stop plates, secured in said circumferential pocket, comprising a marginal plate and tongues extending therefrom, said marginal plates being adapted to be secured to the one wall of the circumferential pocket and the respective ends of said plates disposed in spaced relation to

each other, and the tongues on each of the plates disposed for engaging the other wall of said circumferential pocket and to be secured thereto, the intermediate portions of said tongues being disposed for engaging the projecting portion of the latch mounted in said cap.

5. In a hub structure including an outer or wheel hub, and a cap to hold said wheel hub on an inner hub, the wheel hub being formed to provide a circumferential pocket about the cap; locking mechanism for locking said cap from backing off, a part of which is mounted in said cap, and comprises a safety latch pivotally mounted in a slot provided in the cap at right angles to the plane of the cap's face, the pivot being at the rear end of the slot and an intermediate portion of the latch extending through the slot and into the circumferential pocket; two diametrically opposed stop plates in said circumferential pocket, each comprising a marginal plate and tongues extending therefrom, the marginal plates being adapted to be secured to one side of the circumferential pocket and their respective ends disposed in spaced relation to each other, and the tongues on each of the plates disposed for engaging the other side of said circumferential pocket and to be secured thereto, said tongues being equally spaced about the circumferential pocket and their intermediate portions horizontally disposed for engaging the projecting portion of the latch mounted in said cap.

In testimony whereof, I affix my signature.
EMIL IBACH.