(No Model.)

J. FRIEDENSTEIN.

JOINT FOR METAL WHEEL RIMS.

No. 517,610. Patented Apr. 3, 1894.

Fig. 1.

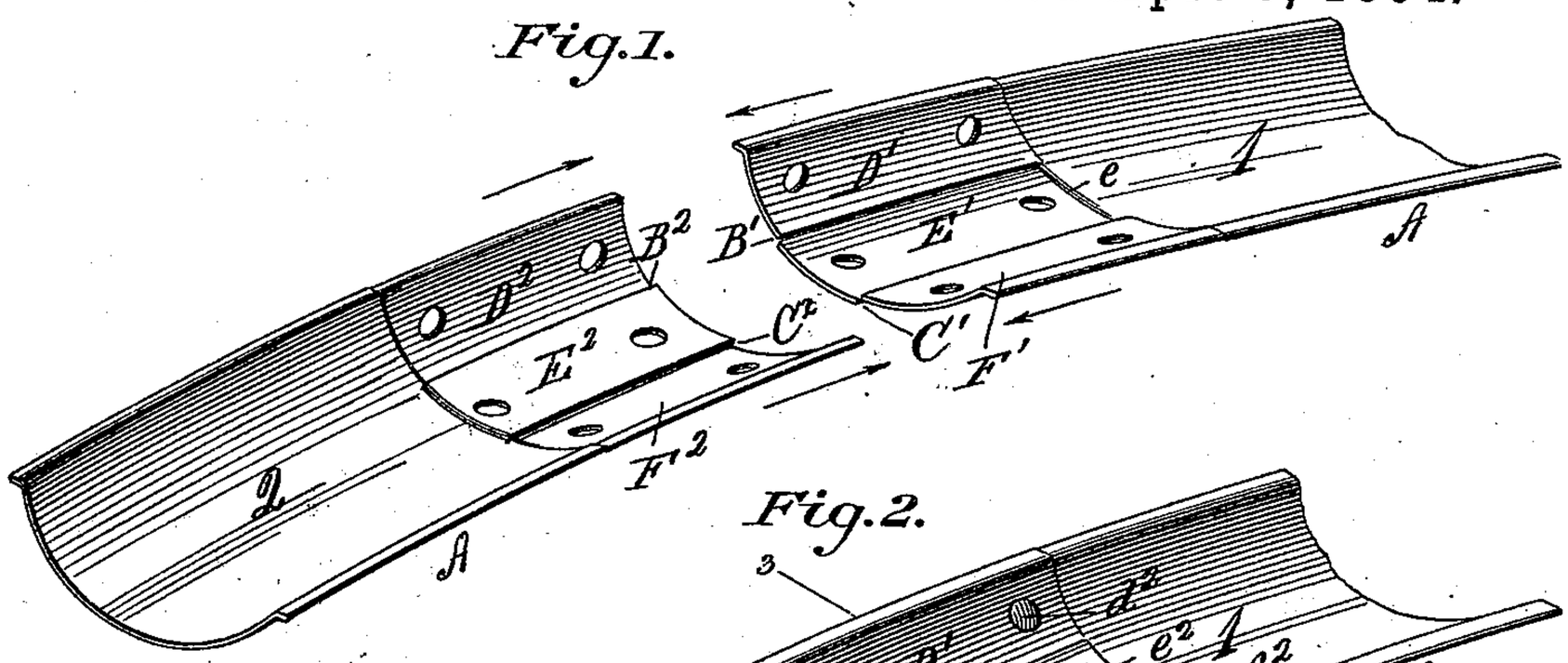


Fig. 2.

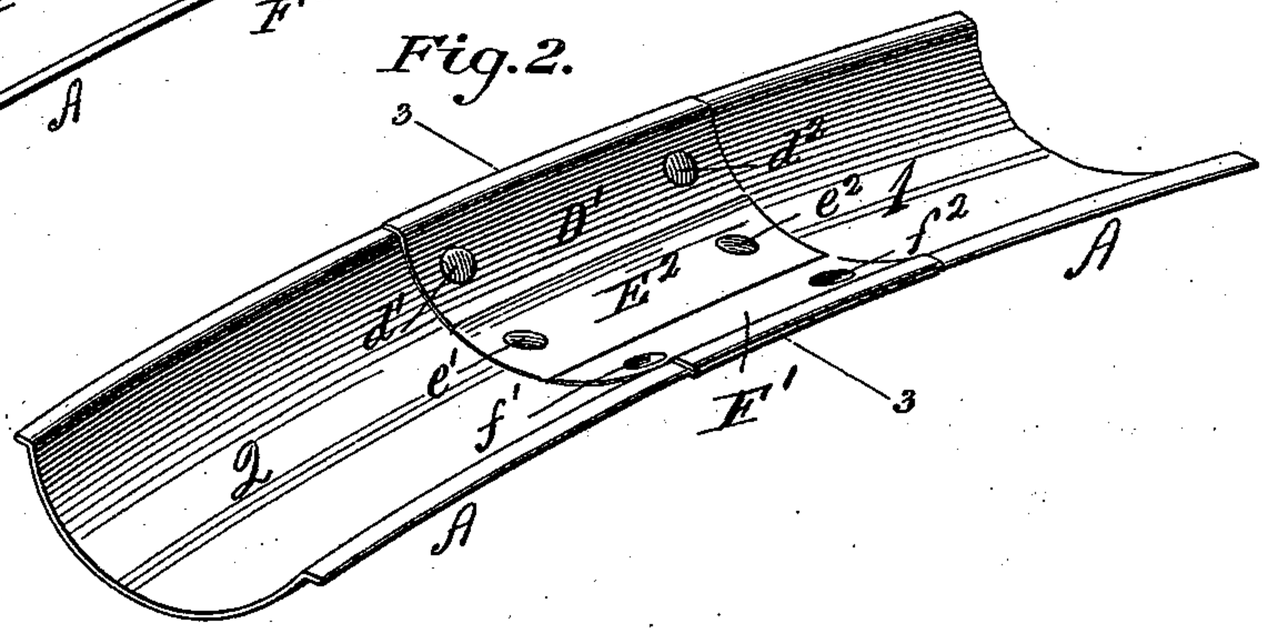


Fig. 3.

on line 3-3.

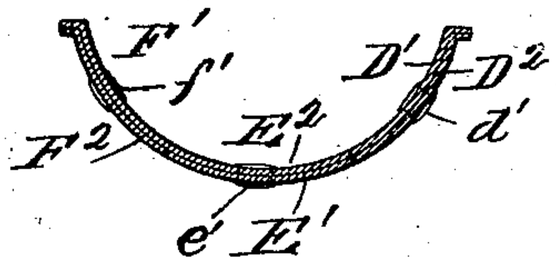


Fig. 4.

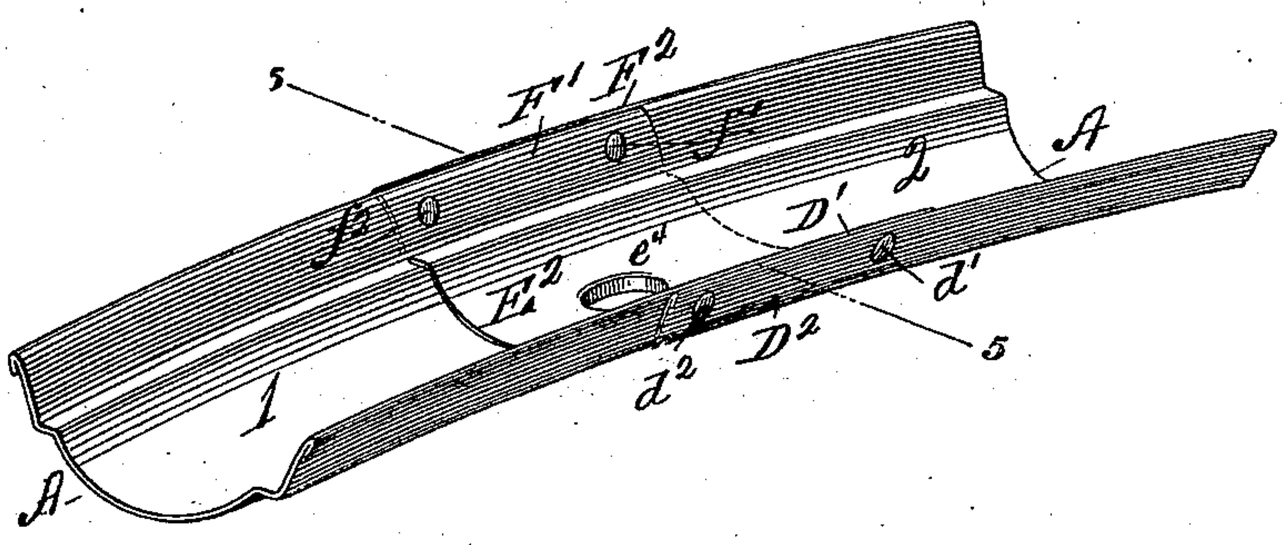
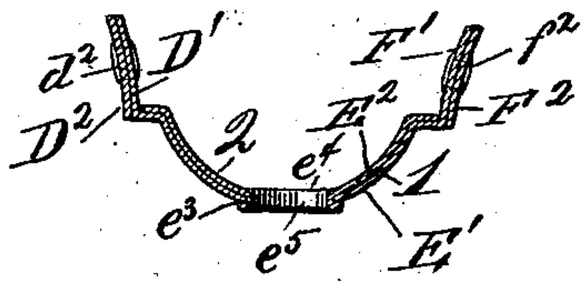


Fig. 5.

on line 5-5.



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JOINT FOR METAL WHEEL-RIMS.

SPECIFICATION forming part of Letters Patent No. 517,610, dated April 3, 1894.

Application filed January 4, 1894. Serial No. 495,602. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FRIEDENSTEIN, a citizen of the United States of America, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Joints or Splices for Metal Wheel-Rims; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of metal rims or fellies for wheels which are formed from a length of sheet or strap metal, the ends of which are united to form a hoop. It has been the custom to construct such rims of a length or ribband of steel which has been passed through shaping rolls or otherwise manipulated to impart thereto a curve of the desired radius, uniting the meeting ends of said shaped length or ribband by brazing. This method of uniting the meeting ends of said length or ribband of steel to form a hoop is, however, open to the objection that in the operation of brazing the parts of the ribband adjacent to the brazed joint become annealed or softened by the heat of the fire required to melt the brass, so that said parts lose the stiffness and resilience which characterizes the major part of the hoop or rim, thus causing much annoyance and expense for the replacement of soft rims. Moreover, in order to impart the requisite smoothness of finish to the joint, both inside and outside, and to afford a clean surface for the adhesion of the brass, the meeting ends of the ribband or blank must be dressed to a taper or feather edge, which operation requires expert hand work or the employment of accurate machinery, and is expensive.

The object of my invention is to avoid the above noted, and other objections incident to the employment of a brazed joint for rims, and this object is attained by the employment of a specially designed joint for uniting the meeting ends of the ribband or blank, said joint involving the interlocking and riveting of said meeting ends of the blank in a novel manner which will more fully appear hereinafter.

With this object in view, the invention consists in the matters to be described in detail in this specification and thus set forth in the claims.

In the accompanying drawings, wherein I have for convenience, illustrated my invention as applied to the construction of both ordinary and special rims, Figure 1, is a perspective view of so much of a rim as is required to illustrate the special construction of the meeting ends thereof; said ends being shown as separated. Fig. 2, is a similar view, showing the meeting ends of the rim united. Fig. 3, is a transverse section through the joint, the point at which said section is taken being indicated in Fig. 2, by the dotted line 3—3—. Fig. 4, is a perspective view, of a special rim embodying further improvements. Fig. 5, is a transverse section thereof on line 5—5 of Fig. 4.

The rim A, shown in Figs. 1, 2, and 3, (and of which I have shown so much as is necessary to illustrate my invention) is of a single thickness of steel, and known as the "concavo-convex," "crescent shaped" or "ordinary" rim, but it will be understood that my improvement is applicable to "special" rims, that is to say, to rims having individual cross sectional contours as in Figs. 4 and 5, to adapt them to receive or hold special tires, and also applicable to "double section" or "hollow" rims of either ordinary or special form. I have chosen to specially illustrate my improvements in connection with an "ordinary" rim for the sole reason that, owing to the simplicity of outline of such a rim, my improvements can be more easily and clearly portrayed in the drawings and more readily understood by those interested in this art. The meeting ends 1 and 2, of the rim blank, A, are provided with one or more slits, two being shown in the instance illustrated, marked B′, C′, and B^2, C^2, to form upon each of said ends 1 and 2, three tongues, D′ E′ and F′, and D^2, E^2 and F^2, the parts being designed to interlock so that the tongues of one end, say 1, will overlap the solid metal of the other end 2, and vice versa, said tongues being then riveted to the solid metal of the rim which they so overlap.

For readiness of assemblage, I prefer to cut the slits parallel with the edges of the

rim, so that the ends 1 and 2 of the blank may be brought together, and the tongues interlocked by a single movement, and without special manipulation, but I also contemplate, in some instances, cutting the slits diagonal to the edges of the rim, so that the central tongues E′ and E² will have the form of dovetail lugs, and I intend my claims to cover such a construction. I regard the construction shown, that is to say, each end 1 and 2, of the rim A provided with three tongues, best adapted for joining the rim ends of an ordinary or crescent shaped rim, but for special forms of rims, those having annular convolutions forming recesses and ribs in the tire groove, or those having a convex inner surface and projections or recesses in the outer or tire seating surface, the number of tongues upon each end 1 and 2, will be regulated by the transverse shape of the rim, the aim being to secure the same degree of radial resistance at the point of junction, or practically so, as is possessed by the rim at other points. It will therefore, be understood that I intend my claims to cover a rim joint formed of interlocking riveted tongues, irrespective of the number of said tongues which may be formed on the ends 1 and 2.

In carrying my invention into practical effect, the ends 1 and 2 of a blank are slitted in a machine or press which also operates to offset said tongues at the base or root, in a radial direction, a distance equal approximately to half the thickness of the rim metal, each tongue of each end, as 1, being offset in a direction opposite to that of the next adjacent tongue of said end. In the instance illustrated, wherein each end 1, and 2, of the blank or rim is provided with three tongues, the central tongue E′ of the end 1, is given an offset *e*, while the side tongues D′ and F′ are offset in the opposite direction. The blank or rim end 2, is oppositely arranged, so that the peripheral outline of the rim at the joint or splice is practically continuous. The tongues, when interlocked as described, are secured to the solid part of the adjacent end by rivets, the tongues of end 1 being secured to end 2 by rivets *d′*, *e′*, and *f′*, and the tongues of end 2 being similarly secured to end 1 by rivets *d²*, *e²*, and *f²*, as shown. After interlocking and riveting the tongues as described, those which lap into the tire groove may be dressed to form a smooth continuous surface for the seating of the tire without impairing the strength of the joint or splice, as said dressing removes but a small proportion of the thickness of the side tongues of one end, 1, and of the central tongue of the other end 2.

A further feature of improvement is illustrated in Figs. 4 and 5, having a special reference to the seating of the air supply nozzle or nipple of a pneumatic tire.

As ordinarily constructed, metal bicycle rims are drilled centrally at one point to permit the passage of the air supply nozzle of a pneumatic tire therethrough, and as the tires are apt to "creep" in the rim, such action brings the air supply nozzle in forcible contact with the comparatively sharp and thin edges of said drilled hole, frequently resulting in shearing off, or cutting said nozzle and thus destroying the air tube of the tire. To obviate this tendency I have devised a construction by which not only are the edges of the rim hole rounded and smoothed to avoid a cutting edge, but the walls of said hole are increased in thickness, so that should the tire "creep" within the rim, the air supply nozzle will abut against a thick rounded edge, thus reducing to a minimum the danger of shearing. In the practical application of this part of my invention one end of the rim blank, preferably that end which is to be lapped upon the inner surface of the other end of said blank, is provided with a drilled hole *e³*, said drilled hole being of somewhat greater diameter than is usual, and the other end 2 of the blank is punched, as at *e⁴* so that a burr *e⁵* will project from the hole *e⁴* thus formed. This burr *e⁵* is designed to fit snugly within and project through the drilled hole *e³* in the other end 1 of the blank, so that the projecting edges of said burr can be turned out or rivet flanged in a suitable press or dies, forming in effect a tubular rivet, thus providing thickened walls for the hole or aperture through which the air supply nozzle of the tire passes, the edges of said walls being rounded as and by the means before explained. Aside from avoiding liability of damage to the supply nozzle, this construction gives greater strength to a rim joint such as hereinbefore described without adding weight. By the described method of forming rims all liability of softening or drawing the temper of the metal, as in brazing, is avoided, the result being the production of a better rim, and at a less cost. It will be apparent that a joint or splice made in accordance with the foregoing description may be advantageously used in constructions other than wheel rims, and I intend my invention to apply wherever it may be found convenient.

What I claim is—

1. The method of constructing metal rims from a continuous ribband or blank which consists in slitting the ends of the blank to form tongues, assembling said ends so that adjacent tongues of each end will overlap opposite surfaces of the other end, and riveting said tongues of each end to said other end, substantially as described.

2. A joint or splice for the meeting ends of metal rims or bands comprising tongues formed in said meeting ends, the adjacent tongues of each end overlapping the opposite surfaces of the other end, and rivets securing said tongues, substantially as described.

3. A joint or splice for the meeting ends of metal rims or bands, comprising tongues formed on said meeting ends, the adjacent tongues of each end overlapping opposite

sides of the solid part of the other end, and rivets securing said tongues, substantially as described.

4. A joint or splice for the meeting ends of metal rims or bands, comprising tongues formed on said meeting ends, the adjacent tongues of each end overlapping opposite surfaces of the other end, said lapped ends being provided with holes or apertures the edges of one of which project through the other, forming in effect a tubular rivet, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH FRIEDENSTEIN.

Witnesses:
H. M. CAMPBELL,
H. R. CRAIG.