M. LACHMAN.

METAL WHEEL.

APPLICATION FILED MAY 15, 1920.

1,378,039.

Patented May 17, 1921.

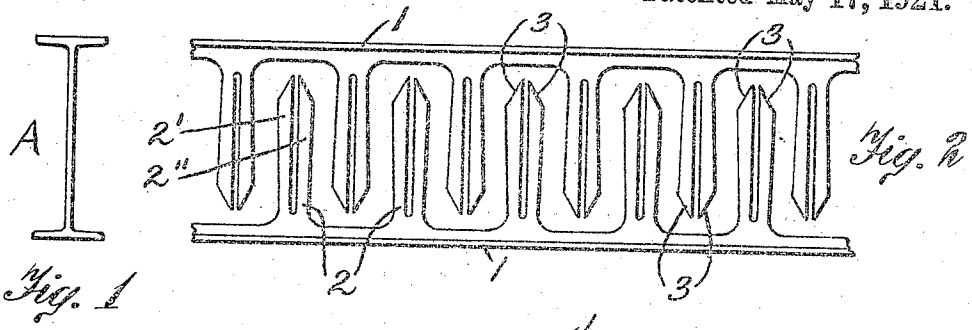


Fig. 1

Fig. 2

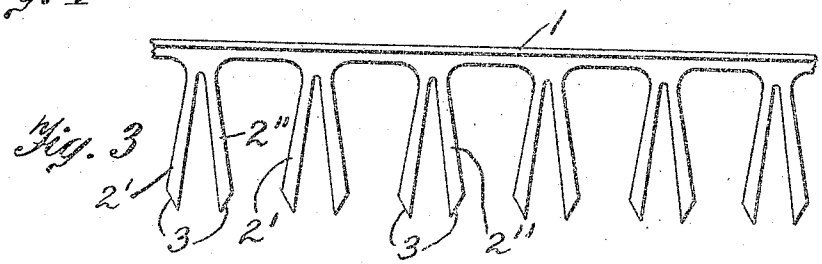


Fig. 3

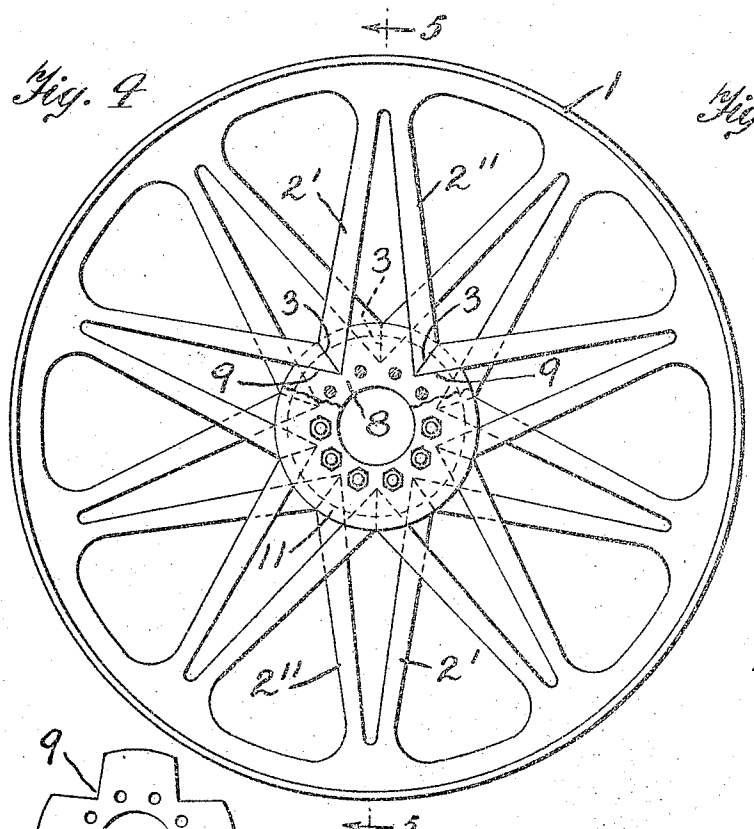


Fig. 4

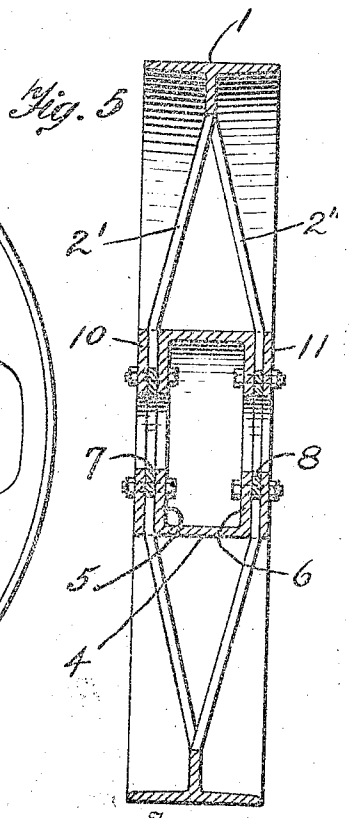


Fig. 5

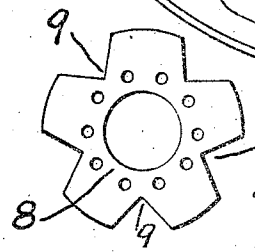


Fig. 6

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UNITED STATES PATENT OFFICE.

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METAL WHEEL.

1,378,039. Specification of Letters Patent. Patented May 17, 1921.

Application filed May 15, 1920. Serial No. 381,781.

To all whom it may concern:

Be it known that I, MAURICE LACHMAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Metal Wheels, of which the following is a specification.

My present invention relates to the construction of metal wheels in which the spokes are all integral with each other by means of the rim or felly. The wheel is made from plates or rolled sections of metal in contradistinction to a cast wheel.

The main object of the invention is to provide an exceedingly strong wheel of comparatively light weight and one in which the hub around the spokes can be easily cleaned.

The wheel is preferably formed from a rolled section such as an I beam although it may be formed from other forms of metal stock and when so formed, two wheels of any desired number of spokes may be secured from a single length of I beam while at the same time a wheel of great strength is attained, as, according to this invention, the spokes are brought together in the hub and form with the hub a truss construction.

The invention consists in the improved construction of metal wheel as hereinafter more particularly described and then specified in the claims.

In the accompanying drawings:

Figure 1 is an end view of a rolled section from which the material for the wheel may be obtained.

Fig. 2 is a side view of said beam after being cut or stamped in accordance with this invention.

Fig. 3 is a similar view showing a length of the beam for one wheel.

Fig. 4 is a side elevation of the assembled wheel.

Fig. 5 is a transverse section taken on the line 5—5 Fig. 4.

Fig. 6 is a detached front view of one of the plates in which the spoke ends are seated.

A indicates the I beam the web of which is divided longitudinally in any suitable way, whereby material for forming two wheels is obtained as indicated in Fig. 2. Each length of material consists of the head or flanges 1 which in the finished wheel forms the rim and the integral projecting strips 2 which form the spokes in the finished wheel.

Each of the spokes 2 is split or divided longitudinally preferably for practically its entire length into two spoke arms 2′, 2″. The free ends of the spokes are also preferably cut or shaped along oblique lines as indicated at 3 for reasons to be presently described.

The spoke arms 2′, 2″ are spread apart at their free or hub ends and the spokes 2 (each consisting of the arms 2′, 2″) are bent alternately so that they will be disposed at opposite ends of the hub in the finished wheel as shown in Fig. 5.

After the parts are cut out and the spokes properly shaped, the flange 1 is bent or rolled around until the ends come together in which position they are preferably welded.

4 indicates an annular box-like part or casting forming part of the hub structure and is preferably provided with inwardly projecting end flanges 5, 6 which seat by their edges on the usual hub barrel (not shown).

When the flange 1 is bent around to form the circle of the wheel, the spread free ends of alternate spokes come together on the outsides of the flanges 5 and 6 and meet along the lines 3 which are preferably so formed that they are radial lines in the hub.

7 and 8 indicate annular plates seating against the outer walls of the flanges 5 and 6 respectively and which also have an annular bearing on the hub barrel (not shown). Each of these plates is provided with a number of spaced recesses 9 in the peripheral edge and in which recesses the engaged ends of the spoke arms 2′, 2″ snugly seat and wedge.

10 and 11 indicate outside clamping plates by which the ends of the spokes are rigidly held against the flanges 5 and 6.

By dividing and spreading the spokes apart as shown each spoke engages the hub at a tangent whereby the weight for strength can be cut down materially. Also the construction gives practically an open hub all around the barrel or sleeve 4 so that mud pockets are not formed and mud or dirt can be easily removed as a brush can reach any part of the barrel periphery without trouble.

By bringing the spoke ends together on

the lines 3 in the hub and seating them in the recesses 9 of the plates 7 and 8 a truss construction is attained which rigidly holds the spokes and distributes any shock from the rim. Also owing to the bearing of the plates 7 and 8 on the hub barrel, the weight is transmitted from the rim direct to the hub.

What I claim as my invention is:—

1. A metal wheel comprising integral spokes and rim, each of the spokes being divided longitudinally and spread apart, the ends of alternate spokes being assembled at the hub at opposite ends thereof and practically tangent thereto.

2. A metal wheel comprising integral spokes and rim, each of the spokes being divided longitudinally and spread apart and the spokes being staggered alternately to opposite ends of the hub, the spread ends of the spokes engaging each other in the hub.

3. A metal wheel comprising integral spokes and rim, each of the spokes being divided longitudinally and spread apart at its hub end, alternate spokes being disposed at opposite ends of the hub and the spread ends of the spokes engaging each other in the hub at a tangent thereto.

4. A metal wheel comprising integral spokes and rim, each of the spokes being divided practically throughout its length and spread apart at the hub end, alternate spokes being disposed at opposite ends of the hub with their spread ends engaging each other along radial lines in the hub and their longitudinal lines being at a tangent to the hub.

5. A metal wheel comprising integral spokes and rim, each of the spokes being divided longitudinally and spread apart at its hub end, alternate spokes being disposed at opposite ends of the hub and a plate forming part of the hub structure and having recesses in which the spread ends of the spokes seat.

6. A metal wheel comprising integral spokes and rim, each of the spokes being divided longitudinally and spread apart at its hub end, alternate spokes being disposed at opposite ends of the hub and the spread ends of the spokes engaging each other in seats formed by recesses in the hub structure.

7. A metal wheel comprising integral spokes and rim, each of the spokes being divided longitudinally and spread apart at its hub end, alternate spokes being disposed at opposite ends of the hub and an annular plate secured to the hub having recesses in its periphery in which the ends of the spokes seat.

8. A metal wheel comprising integral spokes and rim, each of the spokes being divided longitudinally and spread apart and the spokes being staggered alternately to opposite ends of the hub, the spread ends of the spokes engaging each other in the hub and an annular plate having recesses in which the engaged ends of the spokes seat.

Signed at New York in the county of New York and State of New York this 12th day of May A. D. 1920.

MAURICE LACHMAN.

Witness:
IRENE LEFKOWITZ.