E. S. AUSTEN.

PORTABLE BRIDGE FOR VEHICLES.

APPLICATION FILED JAN. 2, 1919.

1,324,291.

Patented Dec. 9, 1919.

2 SHEETS—SHEET 1.

Fig: 1.

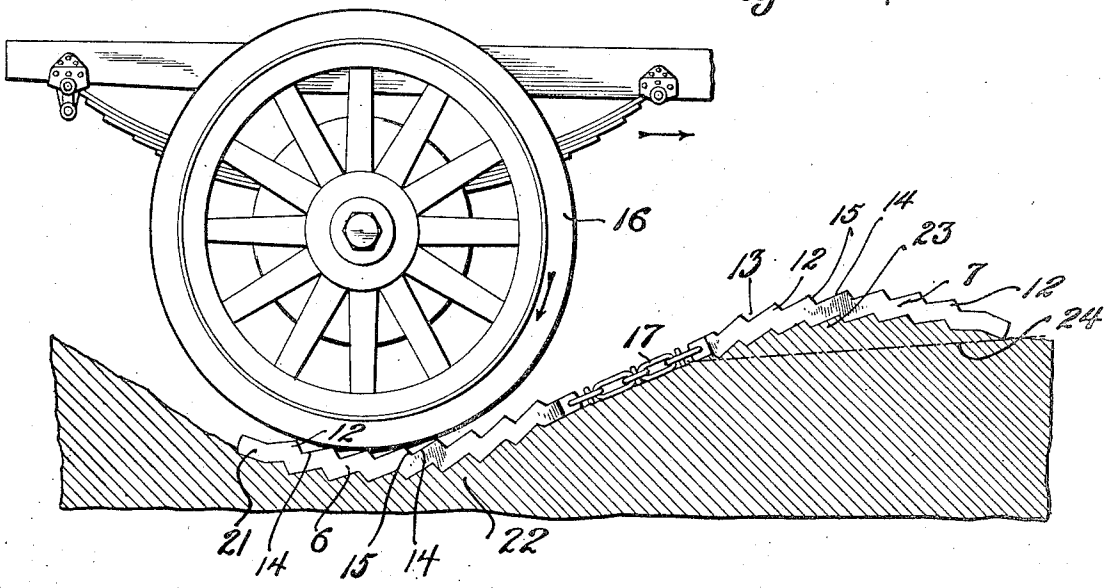
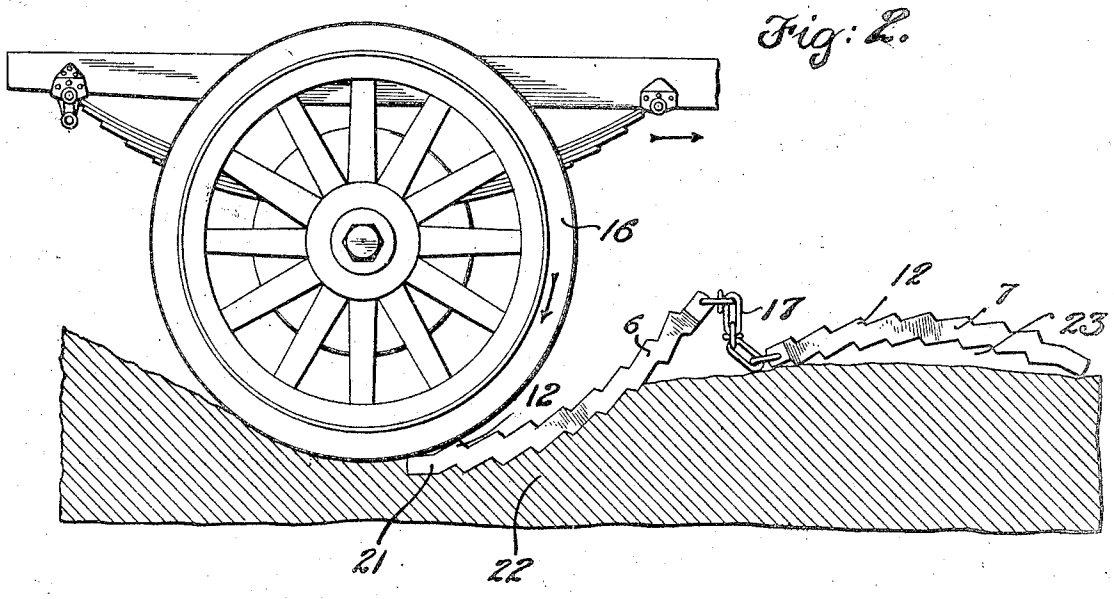


Fig: 2.



WITNESS:

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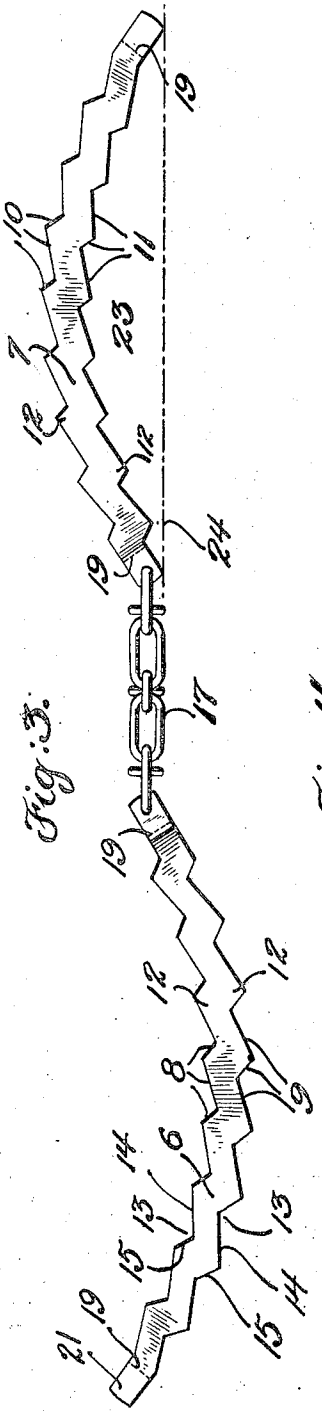


Fig. 3.

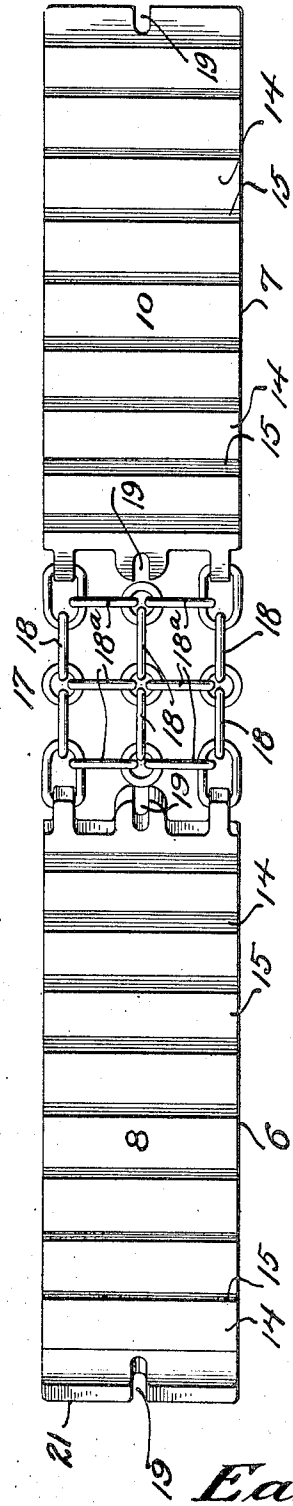


Fig. 4.

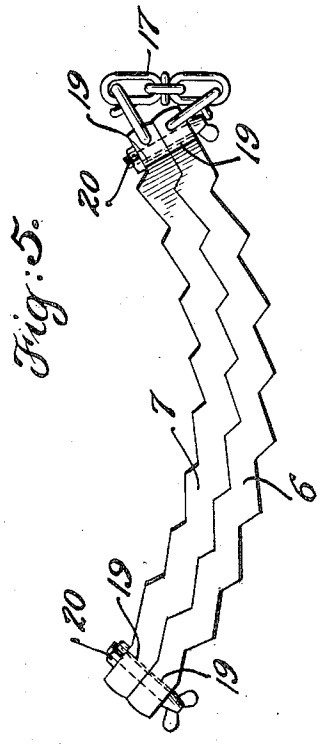


Fig. 5.

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UNITED STATES PATENT OFFICE.

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PORTABLE BRIDGE FOR VEHICLES.

1,324,291. Specification of Letters Patent. Patented Dec. 9, 1919.

Application filed January 2, 1919. Serial No. 269,220.

To all whom it may concern:

Be it known that I, EARL S. AUSTEN, a citizen of the United States, residing at Canastota, in the county of Madison and State of New York, have invented certain new and useful Improvements in Portable Bridges for Vehicles, of which the following is a specification.

One object of my invention is to provide portable means which will enable heavy vehicles, such as heavily weighted motor trucks, to get out of mud-holes.

Another object is to so construct the device of my invention that it can be easily carried and quickly positioned ready for use.

A still further object is to make my improved device of such design that it will require but little storage space, when not desired for use.

These objects, and other advantageous ends which will be hereinafter described, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is an elevation, partly in section, showing my improved device in operative position and forming a bridge,

Fig. 2 is a view of similar nature to Fig. 1 showing my improved device in the act of being positioned under a motor truck wheel,

Fig. 3 is a side elevation of the device of my invention,

Fig. 4 is a top plan view of Fig. 3, and

Fig. 5 is a side elevation showing the parts folded and secured together and illustrating the compact arrangement of the parts when not in use.

Referring to the drawings, my improved device includes two plates 6 and 7. These plates are permanently curved in the direction of their lengths. The upper and lower surfaces 8 and 9 of the plate 6 curve downwardly and the upper and lower surfaces 10 and 11 of the plate 7 curve upwardly when the device is in its operative position, as shown in Figs. 1 and 3. In other words, when in their operative positions as shown in Figs. 1 and 3, the plate 6 is concaved and the plate 7 is convex. The plates are preferably made of cast or forged iron or steel and the above mentioned curvature of the plates is permanent even when the plates are supporting a heavy vehicle. In other words, the plates are made of such strength and thickness that the weight of any heavy vehicle is not capable of changing the general curvature as above enumerated. This is an important feature of my invention and will be further mentioned hereinafter.

Each of the plates 6 and 7 has its upper and lower surfaces provided with transversely extending ribs 12 which form transversely extending recesses 13. I preferably use the form of ribs, as illustrated in the drawings, and so make said ribs that the surfaces 14 and 15, which produce them, have a certain relation to the curvature of a vehicle wheel such as indicated at 16.

The surfaces 14, as clearly illustrated in Figs. 1 and 3, extend in a direction which is nearer to the tangent of the outermost surface of the wheel than do the surfaces 15; considering that the wheel of the vehicle is rotating in the direction of the arrow on the wheel 16 illustrated in Fig. 1. It will be noted that by the above mentioned formation the surfaces 15 provide abrupt shoulders against which the vehicle wheel tire can push. This same arrangement of the ribs is carried out on the lower surfaces of the plates and the surfaces 15 on the lower parts of the plate provide abrupt resisting means when the device is positioned under a vehicle wheel which has been stuck in the mud.

The plates 6 and 7 are movably connected together and, for the connecting means, I have illustrated a chain 17 which includes longitudinally extending links 18 and transversely extending links 18ª, thus providing a flexible connecting means between the two plates. The above mentioned curvature of the plates 6 and 7 is such that the plate 7 can be folded upon the plate 6 in the position shown in Fig. 5 and, for the purpose of securing the plates in this folded position, the opposite ends of each plate are provided with apertures or notches 19 which are adapted to register when the plates are folded together to permit the insertion of connecting bolts 20 to securely bind the plates together for storage purposes. By this arrangement, the plates will register with each other and occupy comparatively small storage space and can be readily carried.

In the use of my invention, considering that a vehicle has become embedded in a mud-hole, the end 21 of the plate 6 is pushed under the forward part of the wheel tire preferably to a position in which the first rib 12 engages the tire, as clearly shown in

Fig. 2. The ribs on the lower surfaces of the plate 6 will embed themselves within the mud 22 and when the vehicle wheel is driven it will ride upon the upper surface 8 of the plate 6. The plate 7 can be positioned so that it will rest upon the top of the road-bed or mud at a position forward of the vehicle wheel 16 and as the vehicle wheel is rotated, it will ride upwardly, first over the plate 6, then over the chain 17 and plate 7.

The plate 7, by having its lower surface curving upwardly, forms a pocket 23, the depth of the pocket being defined by the distance between the under surface of the plate 7 and a plane including the lowermost end portions of the plate. In Fig. 3, said plane is indicated by the dot-and-dash line 24. By thus pocketing a portion of the mud or road-bed, the latter is made firm and the plate 7 will firmly hold to the road-bed while the wheel 16 is passing thereover since, as previously stated, the plates 6 and 7 hold their curvature even when the weight of the vehicle is upon them.

It will be noted, by reference to Fig. 1, that when my device is in an operative position, the plates 6 and 7 substantially form a compound or ogee curve with respect to each other and the vehicle wheel in passing over the device will take the motion substantially corresponding to this curve. Therefore, a bridge is provided upon which the vehicle can easily move out of a mud-hole to the surface of the road-bed.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. A device of the character described including two inflexible curved portions, said portions operatively being concaved and convex in the direction of their lengths; substantially as described.

2. A device of the character described including two inflexible curved plates, said plates operatively being concaved and convex in the direction of their lengths; substantially as described.

3. A device of the character described including two inflexible curved plates, said plates operatively being concaved and convex in the direction of their lengths; and means flexibly connecting said plates together whereby the plates can be folded one upon the other; substantially as described.

4. A device of the character described including a plate adapted to form a bridge for a vehicle wheel, said plate having ribs extending transversely to the direction in which said vehicle wheel travels, said ribs being formed by surfaces extending at different angles with respect to the tangent of the outermost surface of said wheel; substantially as described.

5. A device of the character described including an inflexible plate portion permanently curved in the direction of its length and adapted to form a bridge support for vehicle wheels, said plate having transversely extending ribs formed between its ends; substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EARL S. AUSTEN.

Witnesses:
MARY A. INGLAR,
CHAS. E. POTTS.