

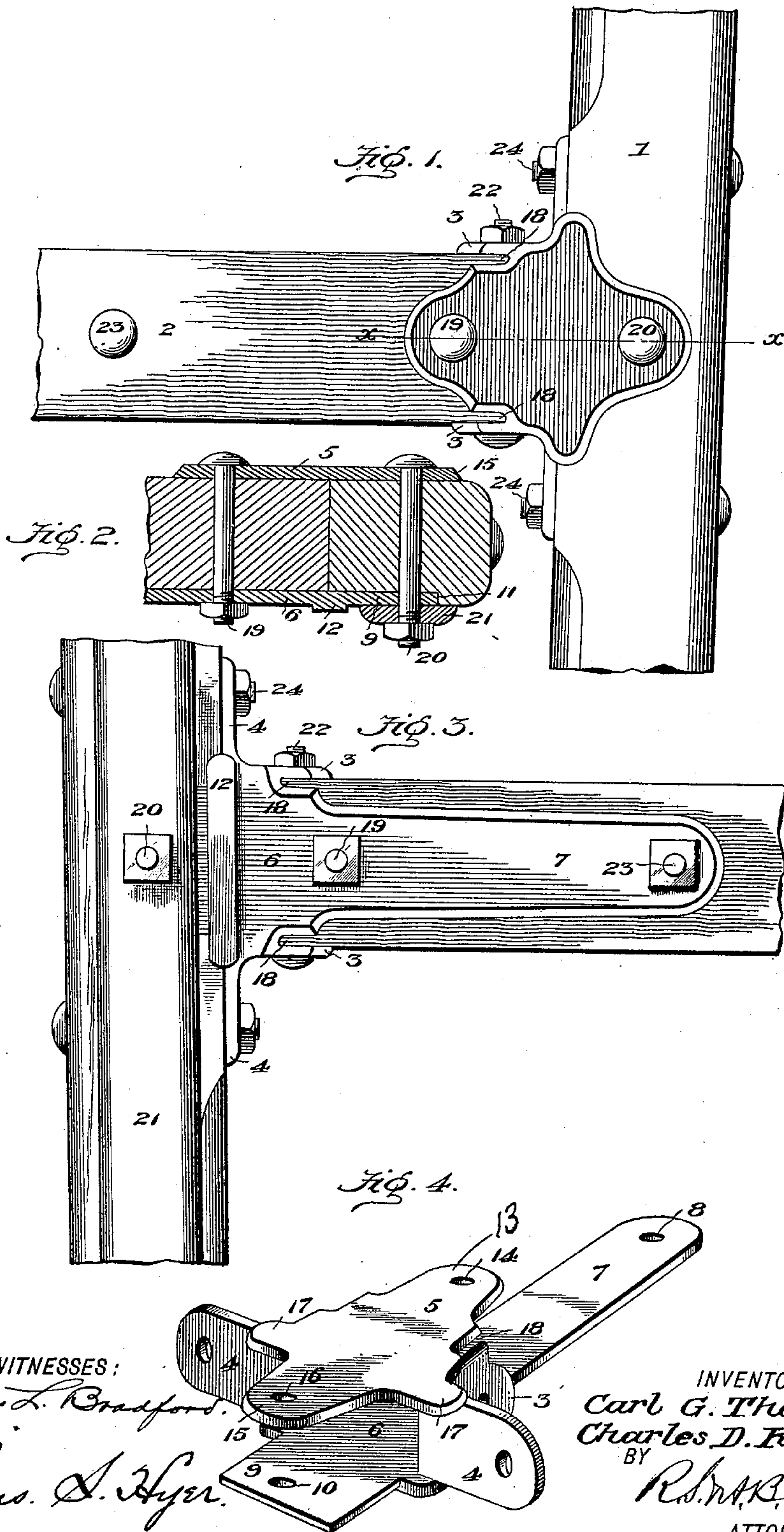
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C. G. THOMPSON & C. D. RUSH.
COUPLING IRON FOR SHAFTS OR THILLS.

(No Model.)

(Application filed Aug. 4, 1898.)



WITNESSES:

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COUPLING-IRON FOR SHAFTS OR THILLS.

SPECIFICATION forming part of Letters Patent No. 615,645, dated December 6, 1898.

Application filed August 4, 1898. Serial No. 687,735. (No model.)

To all whom it may concern:

Be it known that we, CARL G. THOMPSON and CHARLES D. RUSH, citizens of the United States, residing at Marion, in the county of Grant and State of Indiana, have invented certain new and useful Improvements in Coupling-Irons for Thills or Shafts; and we 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 coupling-irons for shafts or thills and whiffletree cross-bars; and it consists, primarily, of a device having a box-like socket made to fit the ends of the cross-bar, the said socket having two integral ears that extend along the inner side of the shaft in front and rear of the point of contact of said shaft with the cross-bar, also having the top and bottom plates so projected in the form of tongues as to engage the top and bottom of the shaft to a point near the outer side and in the opposite direction along the top and bottom of the cross-bar. The two sides of the box-like socket which engage the front and back of the cross-bar also have extensions perforated for bolts, by which means they are made to firmly engage the sides of the cross-bar. The extensions of the top and bottom plates which engage the top and bottom of the cross-bar are also perforated to receive a bolt conveniently located at a point near the one passing horizontally through the extensions of the side before described and the cross-bar, the extension of the bottom plate being longer and perforated to receive a bolt near its end, which clamps this part of it firmly to the cross-bar. The projected tongue extension of the bottom plate which engages the bottom of the shaft is so constructed that it fills a recess flush with the bottom of the shaft, thus permitting the adjustment of the shaft-iron over it evenly along the bottom side of the shaft. The top, bottom, and sides of the box-like socket are liberated by cutting away a portion of the corners, permitting them to be drawn tightly against the wooden cross-bar, clamping it firmly both horizontally and vertically, and compensating also for the neces-

sary adjustment in the event of loosening from any cause. The same mechanical properties are also embodied in the parts which engage the shaft. The two integral ears which engage the inner side of the shaft in front and rear of the cross-bar are each perforated for bolts, which bolts extend through the shaft and through the said ears, allowing the same adjustment and readjustment as described for the parts engaging the cross-bar. The projected tongues of the top and bottom plates which engage the shaft are also perforated for a bolt which engages the tongue of the top plate, the shaft, the tongue of the bottom plate, and the shaft-iron, the yielding properties of the iron permitting the same adjustments and readjustments before described.

The metal used in this device must necessarily be malleable. Malleable-iron castings, brass, aluminium, or any other malleable metal may be used; but we have designed and constructed our patterns with the intention of using malleable-iron castings.

The objects of the invention are, first, to make a strong and durable joint where the shafts and cross-bar join and to do away with the mortise and tenon; second, to enable persons using our device to maintain the parts in rigid contact by the simple process of tightening the necessary bolts when the parts become loosened from any cause; third, to facilitate the shipment or transportation of shafts or thills and cross-bars in a "knock-down" or separated condition and to have simple devices for connecting the several parts with ease and rapidity without requiring the exercise of mechanical skill and labor to accomplish the desired result.

In the accompanying drawings, Figure 1 is a top plan view of a portion of a thill and cross-bar, showing the improved device applied thereto. Fig. 2 is a section on the line *xx*, Fig. 1. Fig. 3 is a bottom plan view of the device as shown arranged in Fig. 1. Fig. 4 is a detail perspective view of the improved coupling-iron.

Referring to the drawings, wherein similar numerals are used to indicate corresponding parts in the several views, the numeral 1 des-

ignates a portion of a thill, and 2 a part of a cross-bar.

The coupling-iron comprises opposite side bearings 3, which are of a width substantially equal to the thickness of the cross-bar 2, and at their outer terminations have integrally formed therewith oppositely-extending ears 4. The bearings 3 and ears 4 are formed with apertures and are cast continuous or as a part of top and bottom plates 5 and 6, and plate 6 has projecting rearwardly therefrom an elongated tongue 7, which bears against the under side of the cross-bar 2 and has an aperture 8 therein near the rear end. From the outer portion of the plate 6 a securing-tongue 9 also projects and is provided with an aperture 10, said tongue being fitted in a recess 11 in the under portion of the thill 1, as clearly illustrated by Fig. 2, and at the point where the said securing-tongue meets the plate 6 a reinforcing or strengthening rib 12 is located and extends entirely across the width of the said plate and beyond the transverse extent of the said securing-tongue. The function of this rib is to prevent fracture, and when the cross-bar is secured in position against the thill the said rib is positioned directly under the joint, as shown clearly by Fig. 2. Thus the fracturing strain, which is greatest at the point of jointure of the cross-bar and thill, is resisted and the injurious effects of shock, jar, or twist are obviated. The top plate 5 is formed with a short rearward extension 13, which is reduced in cross-sectional extent and has an aperture 14 near the rear end thereof. At the outer portion this top plate is also provided with a comparatively narrow securing-tongue 15, having an aperture 16 therethrough, said tongue 15 projecting from a laterally-extending overhanging lip 17, which stands outwardly over the adjacent bearing-surfaces of the ears 4, as does also the part of the plate 6, on which the rib 12 is formed, so as to form upper and lower engaging projections, which bear upon the corresponding sides of the thill 1 and act as auxiliaries to the strength of the projection-tongues 9 and 15 and institute a beneficial confinement of the part of the thills which is fitted in the coupling-iron.

To establish an efficient connection between the end of the cross-bar and socket formed by the parts of the iron which have been described, it is necessary that the said cross-bar tightly fit within said socket and be firmly held against movement both for the general strength of the attachment and also to avoid irregular strain that might cause a breakage of the socket and destroy its function. Further, to render these coupling-irons of marketable value from a competitive standpoint it is necessary to use malleable-iron castings, as lightness and great strength and pliability are very essential.

Contemplating the use of a strong and pliable metal, the box-like socket is so construct-

ed, as shown in Fig. 4, having the top, bottom, and sides released from contact with each other by cutting away a portion of each corner, as at 18, permitting these parts to be forced by the use of bolts against the surface of the wood with which they are brought in contact without danger of fracture or other injury, combining in the device the properties of a clamp which may be used to take up any looseness by the shrinkage or wear of the wooden parts occurring while in use, thus reducing the liability of breakage or destruction of the parts from other causes. The integral parts of the box-like socket which directly engage the shaft or thill have also the same properties and are so constructed as to yield to the pressure of the bolts, establishing and maintaining at all times and under all conditions a rigid contact between the metal and wooden parts.

The improved coupling-iron is secured in position by a plurality of bolts. The plates 5 and 6 are held to the end of the cross-bar by a bolt 19, which passes vertically through both of them and said bar, and the tongues 9 and 15 are held in attachment with the thill by a vertical bolt 20, which also passes through a bottom thill iron or strap 21 common in devices of this character. The bearings 3 also have a bolt 22 passed therethrough and transversely of the cross-bar, and the tongue 7 at its rear end is secured in position by a bolt 23. The ears 4 are also held against movement on the inner sides of the thills by horizontal bolts 24.

Having thus described the invention, what is claimed as new is—

1. The combination with a vehicle shaft or thill and a cross-bar therefor, of a coupling-iron comprising a box-like socket having opposite side bearings and top and bottom plates, said side bearings having integral ears at the outer terminations thereof, the rear meeting corners of the side bearings and plates being recessed, and relative fastening devices for uniting the socket to the thill.

2. The combination with a vehicle shaft or thill and a cross-bar therefor, of a coupling-iron comprising a box-like socket to fit over the end of said cross-bar and having opposite side bearings with ears at the outer terminations thereof, and top and bottom plates, the rear part of the meeting corners of the bearings and plates being recessed and one of said plates having an inwardly-projecting tongue and both of the same provided with outwardly-extending securing-tongues to fit over the thill, the plates being also extended over the upper and lower edges of the ears to rest on the cross-bar when applied and the lower plate having a rib extending across the bottom of the same at a point where the adjacent securing-tongue unites therewith, and vertical and horizontal securing-bolts passed through the bearings, plates, tongues and ears and the adjacent portions of the cross-bar and thill.

3. A coupling-iron for a thill and cross-bar
consisting of a box-like socket having recesses
at the rear part of the meeting corners there-
of adapted to be clamped firmly against the
5 wood of the cross-bar, and ears at the outer
portion to bear against the inner side of the
thill in advance and in rear of the said cross-
bar.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

CARL G. THOMPSON.
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Witnesses:

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