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CHAIN SHACKLE AND METHOD OF MAKING THE SAME.

APPLICATION FILED DEC. 20, 1920.

1,423,244. Patented July 18, 1922.

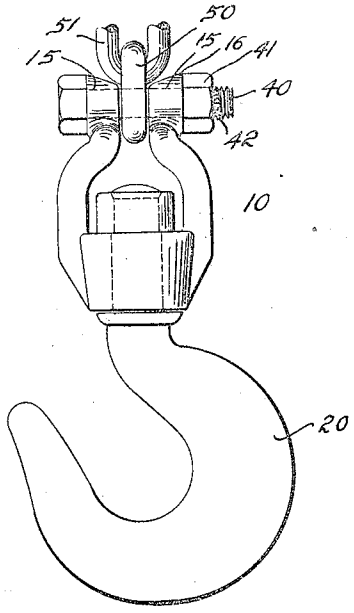


Fig.-1

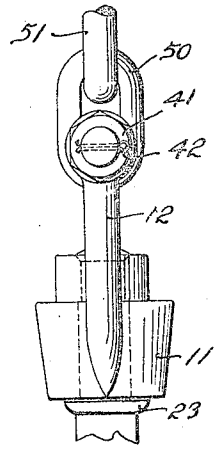


Fig.-3

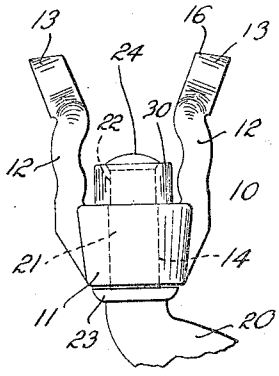


Fig.-2

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CHAIN SHACKLE AND METHOD OF MAKING THE SAME.

1,423,244. Specification of Letters Patent. Patented July 18, 1922.

Application filed December 20, 1920. Serial No. 431,880.

To all whom it may concern:

Be it known that I, EDWARD Y. MOORE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Chain Shackles and Methods of Making the Same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to a chain shackle and a method of making the same. One of the objects of the invention is to provide a shackle which is adapted to be attached to the ordinary link of a standard chain and not require the use of an additional link of a different size. This construction allows the shackle to be readily attached and detached from any standard chain.

Another object is the provision of a device for universally connecting a load support to a chain by a means rendering it readily attachable and detachable therefrom.

Another object is the provision of a device capable of fulfilling the above objects and which is at the same time simple and composed of few parts, whereby the cost of manufacture is considerably reduced and its utility is at the same time increased.

Another object is the provision of such a shackle made of a simple piece of metal. Another object is to provide a new and improved method of making such a shackle.

Other objects will be apparent in the course of the following description and features of novelty will be pointed out in the claims.

Referring to the drawings in which a shackle made in accordance with my invention is shown and the new and improved method of making the same is illustrated; Fig. 1 is a side view of my shackle in completed form and in operative position on a chain. Fig. 2, a similar view of the shackle during the course of its manufacture, Fig. 3, a fragmentary view taken from the left on Fig. 1.

10 represents the shackle member which comprises the enlarged middle portion or body 11, the arms, 12, extending from the opposite sides thereof and having thickened portions 13 formed on their ends. This member 10 is a drop forging and when originally made, the portion 11 as well as the ends 13 are solid, the opening 14 in body 11 being subsequently drilled therethrough.

It will be noticed that the arms 12 adjacent their ends 13, as originally forged, are considerably separated. This is to enable the fastening of the shank of a load supporting member or hook 20 to the shackle.

The member 20 is provided with a shank having a portion 21 and an end 22 of smaller diameter. On the other end of the portion 21 an enlarged shoulder 23 is formed. The enlarged portion 21 is of slightly greater length than the height of the body 11, and after the shank has been inserted in the opening 14, the collar 30 is placed about the end 22. This end is then upset as shown at 24. It will be seen that the upsetting of the end 22 will clamp the collar 30 between the portion 24 and the shoulder at the end of the enlarged portion 21, but on account of the portion 21 being of greater length than the height of the member 11, the member 20 will not be clamped to the member 11, but will be swivelled thereon.

When a load is placed on the support 20, the lower face of collar 30 and hence the upper end of portion 21 will be flush with the upper face of body 11, but on account of portion 21 being of greater length than the height of body 11, there will be a space between the shoulder 23 and the lower face of body 11, which is the position shown in all the figures of the drawing.

It will be noticed that the upper faces 16 of ends 15 are beveled outwardly so as to clear the link 51 of the chain. The shackle may therefore be swung on 40 as an axis and also on the axis of its shank, so that the hook 20 is universally connected with the chain.

The arms 12 above the tops of the collar 30 are then bent inward adjacent each other to the position shown in Fig. 1, and the openings 15 are then drilled therein. The ends 13 should be placed at a distance, but very slightly greater than the width of a standard chain with which it is designed to be used. The link 50 of such a chain may now be inserted between the ends 13, and a bolt 40 is passed through the openings 15 and the link 50, and may be secured in place by means of the nut 41 and the cotter pin 42. The placing of the ends 13 of the arms in close proximity to the sides of the chain link will prevent the shackle from twisting on the link.

Formerly it has been the practice to provide a broader link for connection between the arms of the shackle instead of inserting

an ordinary link of the chain therebetween. This arrangement, however, had many disadvantages, because it required either the transferring of the link from one chain to the other when it was desired to connect the shackle with another chain or the provision of a special link for each such chain. In spite of these disadvantages, it was formerly considered necessary to use such link, because it will be seen that if the arms are left separated by such a distance, as that shown in Fig. 2, a great bending stress will be exerted on the bolt, if a link of small size is connected to it, and of course, the bolt cannot be of any greater diameter than the opening in the link, so that in such a construction the bolt would be immediately bent out of shape, the openings in the link being about the same size as the stock of the link itself.

On the other hand, in order to provide a swivelled connection between the hook and the shackle, it is necessary to leave sufficient room between the arms to form this connection and the shank of the load support cannot be reduced in size because it must be of sufficient strength to carry a heavy load.

Another expedient which has been adopted in the past, in some instances, to overcome these difficulties has been the swivelling of the hook in a member trunnioned in the lower end of the shackle, but this expedient requires making of the shackle in three separate parts consisting of the two arms and the member trunnioned between their lower ends as against the single piece shackle shown by the applicant. Besides this, the fitting of a trunnion in these members requires additional boring of holes in the lower ends of the arms and the turning down of cylindrical trunnions on the intervening member, while my device provides a horizontal pivoted axis for the shackle by merely fastening the bolt 40 through the link of the chain.

The present invention, which has been devised after much experimenting and study of the disadvantages found to exist in the prior art, presents a device which may be readily attached to an ordinary chain without requiring the use of any additional member and may be as readily detached. In addition to these advantages, applicant's device may be very cheaply manufactured and is very simple, consisting, as pointed out, of the single integral shackle member. The method of construction also is very simple, involving, after the shackle has been forged, the mere boring of two openings and the upsetting of the shank on the collar.

It should be understood that the applicant does not confine himself to the details described in the specification, to any further extent than is indicated by the claims when taken in connection with the prior art, and the specification is to be taken, therefore, as descriptive rather than restrictive.

Having thus described my invention, I claim:

1. The method of making a chain shackle which consists in forming a member having an enlarged body portion with an aperture therein and having arms extending upwardly therefrom, inserting the shank of a load-supporting device in the aperture, upsetting a portion of the shank above the aperture, and thereafter bending the ends of the arm into close proximity with each other.

2. The method of making a chain shackle which comprises forming a member having an enlarged body portion and two separated arms, forming an opening through said body portion, placing in said opening the shank of a load-supporting device, placing a collar on said shank above the body, upsetting the shank above the collar, and thereafter bending the ends of said arms so that they lie over the collar and in proximity with each other, and forming registering openings therein.

3. The method of making a shackle which comprises drop forging a member having an enlarged body portion and arms extending therefrom and having enlarged ends, drilling an opening through said body portion, inserting the shank of a load-supporting device in said opening, securing a head on the shank thereafter, bending the ends of said arms adjacent each other, and drilling registering openings therein.

4. The method of making a chain shackle which consists in drop forging a member having an enlarged body portion and arms extending upwardly therefrom, drilling a hole in said body portion, inserting therein the shank of a hook, placing a collar on said shank and upsetting the end of the shank thereon, bending the ends of the arms into close proximity with each other so that they overhang the collar, and drilling registering openings through the upper part of the arms.

5. A chain shackle comprising an enlarged body portion having an opening through it and spaced arms integral with said body portion and extending upwardly from the side surface thereof on opposite sides of said opening, said arms having their upper ends bent inwardly into close proximity to each other.

6. In a device of the class described, a shackle having an enlarged body portion, an opening in said body, a shank swiveled in said opening, integral arms extending upwardly from said body portion, and having their ends bent inwardly into close proximity to each other, and a bolt passing through said ends.

7. In combination, a standard chain, a

shackle having an enlarged body portion and arms extending upwardly and inwardly therefrom, and having their inner ends separated by a distance slightly greater than the thickness of a link of said chain, said chain having a link extending between the ends of said shackle, a bolt passing through registering openings in said ends and through said link, and a load-supporting device swiveled in said body portion.

8. In combination, a standard chain, an integral shackle having an enlarged body portion and arms extending upwardly therefrom and bent inwardly adjacent to their upper ends, said ends being separated by a distance slightly greater than the thickness of a link of said chain, said chain having a link extending between the ends of said shackle, a bolt passing through registering openings in said ends and through said link, and a load supporting device having a shank swiveled in said body portion.

9. In a device of the class described a shackle having an enlarged body portion, an opening in said body, a shank swiveled in said opening and extending above it, a collar on the shank above the body, the shank having a head thereon above the collar, integral arms extending upwardly from the sides of said body portion and having their ends bent inwardly above said collar, and a bolt passing through said ends.

10. In combination, a chain, an integral shackle having an enlarged body portion and arms extending upwardly therefrom and then inwardly to bring their ends into such proximity that they are separated by a distance slightly greater than the thickness of a link of said chain, said chain having a link extending between the ends of said shackle, a bolt passing through registering openings in said ends and through said link, a hook having a shank extending through an opening in the body portion, and a collar on the shank above the body portion, and between the arms below their inward bends, the shank being upset above the collar.

In testimony whereof, I hereunto affix my signature.

EDWARD Y. MOORE.