Improvement and application of construction hoist attachment frame

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Abstract

In order to overcome the existing frame construction hoist attachment length adjusting, embedded parts location is not good, it is difficult to adapt to the lack of complex building environment, this paper provides a new type construction hoist attachment frame, the attachment frame can not only adjust greatly in length, and the location of embedded parts have more selective. Greatly increased the adjustable, which can adapt to complicated construction conditions.

Keywords

Construction hoist, attachment frame, adjustable.

1. Introduction

There are generally two kinds of functions of the attached frame of the construction lift, one is to ensure the stability of the guide rail frame, the other is to adjust the perpendicularity of the guide rail frame. In the past, all of them were made into one body, so the length is not easy to adjust, and the position of the embedded parts is also difficult to adjust. At present, the architecture is developing towards the trend of complexity and diversity, so it is often not able to meet the requirements of the site in use. The modified attachment frame is of high adjustability, wide applicability and is very practical.

2. Structure composition and working principle of attached frame of construction hoist

The improved attachment frame is mainly composed of front attachment, middle attachment, rear attachment, guide post, support base, embedded piece, etc. The front attachment frame is made up of two same angle steel welded square steel, which greatly saves cost on the basis of guaranteeing strength.

A square steel consisting of angle steel and angle steel welded in the middle is attached to the reinforcing plate, The fish tail plate is formed by welding. The middle welded square steel plays a supporting and strengthening role. The four fish tail splints attached to the front end are bolted to the front attachment frame. The holes behind the former front attachment are made on a fishtail plate. And then welded to the composite square steel behind the front attachment, which is a little less reliable, so this time we hit the hole directly on the composite square steel. The synthetic square steel is directly inserted into the fish tail splint attached to the front of the back and middle. The connection in this way is far more reliable and safe than that of the fish tail splint attached to the front by using a high strength bolt. The way to connect.

The rear attachment frame is mainly composed of rectangular steel, stiffening plate, ear plate and buckle ring. The fastening ring is fixed on the rear attachment frame by welding, and the rectangular steel at the front end of the rear attachment frame is selected larger. The back attachment frame is basically bolted to increase the reliability and strength of the attachment frame connection. The guide post is mainly made up of steel pipe, stiffening plate, ear plate, etc. The steel tube is inserted into the fastening ring, the back and back distance can be adjusted through the fastening ring, so that the attachment frame can adapt to the more complicated working conditions. The front and rear stiffening plate is welded on both sides of the steel tube, the purpose of which is to prevent the guide post from

being inserted into the fastening ring. The distance is too short or too long to cause it to fall off. The front and back of the stiffening plate at the back of the guide post are welded separately to connect the inclined brace and the support base.

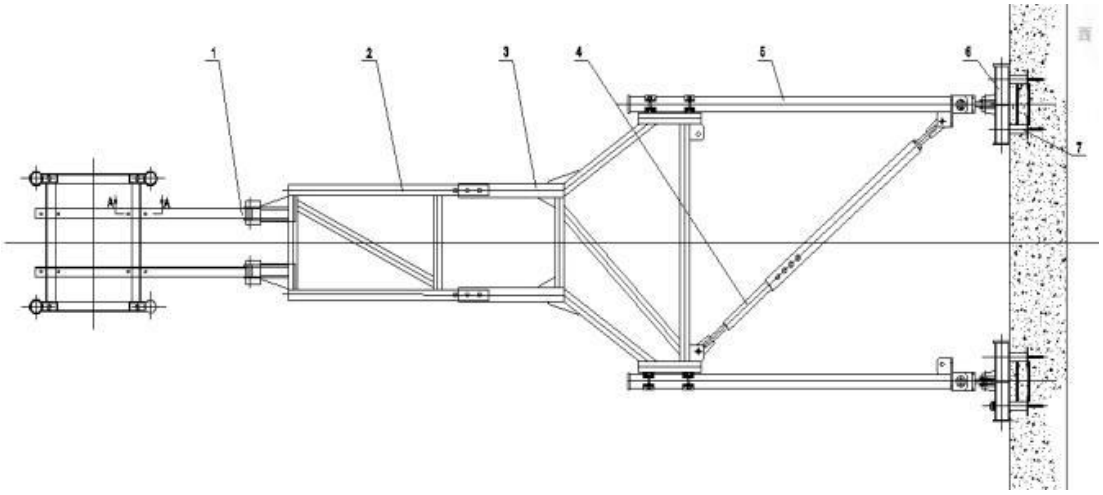

Fig 1 post are welded separately to connect

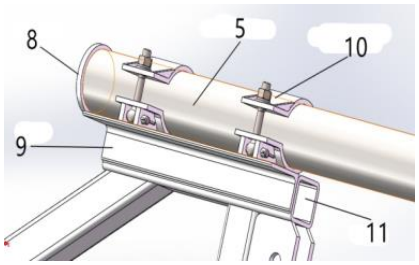

Fig 2 middle attachment

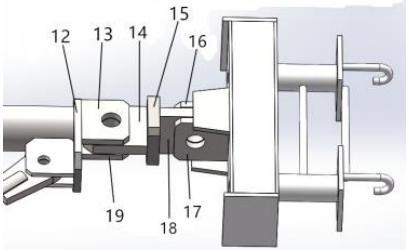

Fig 3 rear attachment

1- front attachment 2- middle attachment 3- rear attachment 4- tilted brace 5- guide post 6- support base 7-pre-burying-cover board I-9-angle steel I10-fastening ring 11-square steel Io 12-cover plate I 14-hinged plate I14-lug plate-ear plate II17-ear plate III17-ear plate III18-ear plate II19-ear plate IV 19- ear plate II1019-flat plate I14-ear plate I14-hinged plate I14-lug plate III18- ear plate III18- ear plate III19- ear plate I14-ear plate I14-hinged plate I15-ear plate II17-ear plate III18-ear plate II19-ear plate IV

3. Concrete connection mode of attachment frame of construction hoist

In this paper, the technical scheme is described clearly and completely. Due to the complexity of the whole structure, this paper mainly focuses on several key improvements.

As shown in figure 1, the whole attachment system consists of front attachment 1, intermediate attachment 2, rear attachment 3, guide 5, support base 6, and embedded 7. Front attachment 1 is connected to standard joints through high strength U-bolts, The front attachment frame 1 is hinged with the intermediate attachment frame 2 through a high strength bolt, the middle attachment frame 2 is inserted into the rear attachment frame 3 through a bolt, the button ring 10 is welded to the rear attachment frame 3, and the guide post 5 is connected to the rear attachment frame 3 through the button ring 10. The guide post 5 is connected with the support base 6 through the fish tail splint structure, and the support base 6 is connected with the embedded member 7 through a high strength bolt.

We can see from Figure 2 ring 10 not directly welded on the steel 11, this is because in the steel welding will cause the 11 pillar 5 and 3 after the attachment frame cannot be located in the same plane, resulting in the moment to reduce its service life, plus a 9 angle to solve this problem. 9 in the 11

square steel angle steel welding, welding in steel buckle 10 base 9, 5 front pillar is welded with a I8 cover to prevent the loss.

The concrete structure of the fish-tail splint can be seen from figure 3. The cover plate II12 is connected to the guide post 5 by welding, and the ear plate I13 and ear panel IV19 are welded on the other side of the cover plate II12. The hinge plate I14 and the hinge plate II18 are welded to the two surfaces of the joint plate 15 in a cross shape, respectively. The ear panel II16 and the ear plate III17 are welded to the supporting base 6, and the hinge plate I14 is clamped in the middle hinge by the ear plate I13 and the ear plate IV19. The hinge plate II18 is clamped between the ear panel II16 and the ear plate III17 in the middle hinge.

4. Conclusion

The construction hoist attachment frame introduced in this paper is adjustable four-section type, it is very convenient to install, and the width of the attachment frame is widened. The length has been lengthened so that it can adapt to the working conditions of complex large buildings at present. In the structure, the fastening ring member is adopted, so that the attachment frame can be adjusted greatly in the horizontal direction. And through the improvement of the structure, the whole attachment frame is located on the same horizontal plane. The guide column is connected with the support base through the cross fishtail splint, and the position of the embedded parts and the supporting base can be adjusted in a certain range. It can also be erected when the support base is not on the same plane under the premise of ensuring the attachment and stability. The ground increases the adaptability of the attachment.

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