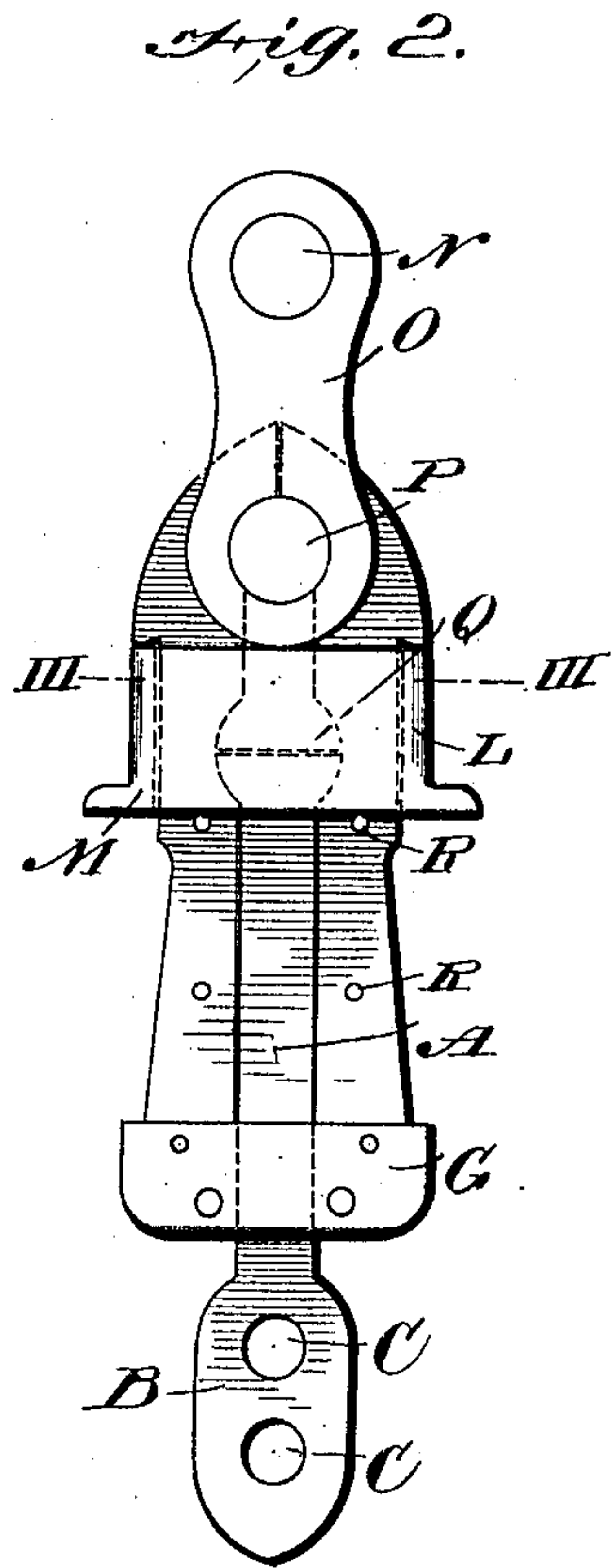
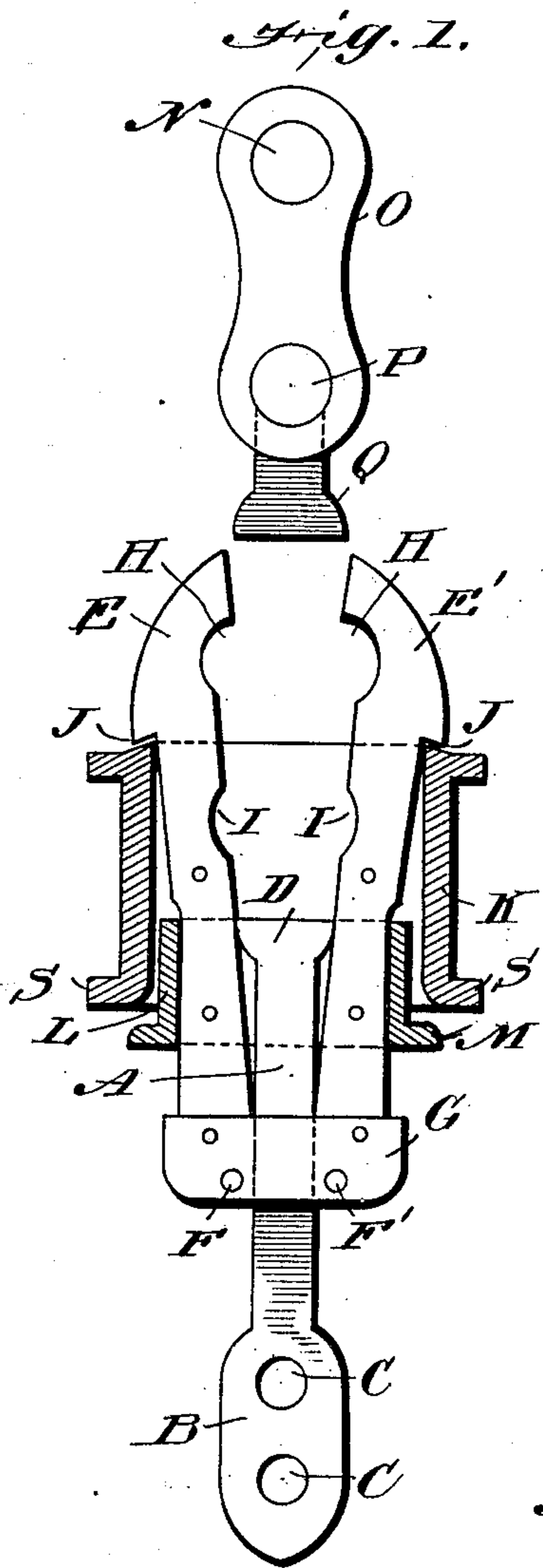


C. O. VOWELL.
DETACHABLE HOOK FOR SHAFT WORK.
APPLICATION FILED AUG. 1, 1908.

913,589.

Patented Feb. 23, 1909.



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DETACHABLE HOOK FOR SHAFT-WORK.

No. 913,589.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES O. VOWELL, a citizen of the United States, residing at Red Lodge, in the county of Carbon and State of Montana, have invented an Improvement in Detachable Hooks for Shaft-Work, of which the following is a specification.

My invention relates to the use of a hook which can be automatically detached from a cable and it consists in the constructions, combinations and arrangements hereafter described and claimed.

The object of my invention is to provide a hook which may be used as a safety device for the protection of the lives of miners who are carried up and down a shaft. It is equally applicable to certain types of elevators which are drawn up and down a shaft by means of cables attached to the upper part of a cage and which pass over pulleys at the top of a gallows frame.

In carrying out my invention I provide a hook having two pivoted parts arranged to engage a common member attached to a cable chain and to be disengaged from said common member by the engagement of an actuating ring which is placed in the path of the moving hook and through which the cable is adapted to pass. When the pivoted hook members are disengaged from the cable they engage the ring upon its upper edge thereby holding the cage suspended from the ring, as will be hereinafter shown.

My invention is illustrated in the accompanying drawing, in which—

Figure 1 is a view partly in section showing the hook attached to the ring and the cable released. Fig. 2 is a similar view showing the hook members as attached to the cable. Fig. 3 is a horizontal section along the lines III—III in Fig. 2.

Referring now particularly to Fig. 1, A designates a draw-bar provided with an enlarged lower end B, and having the usual bolt holes C by which the cage or elevator may be attached. The upper end of the draw-bar A consists of a semicircular member D. The two hook members E E', are pivoted at their lower ends at F and F' respectively, on cross-pieces G. Each of these hook members is provided towards its upper end with a semicircular recess H and a similar recess I, about midway of the hook. At the outer upper side of each hook there is the shoulder J, arranged to engage the upper

surface of a ring K when the hooks E E' are forced apart.

Surrounding the movable hook members E E' is a flattened loop or ring L, provided with a flange M, on its lower edge. This loop L is arranged to be moved up or down, and its normal condition is shown in Fig. 2.

The eye of the cable (not shown) is spliced to the upper pivot bolt N, of a link O, while to the lower pivot bolt P, of the link is attached a bar provided with a semicircular end Q.

Fig. 2 shows the manner in which the hook is attached to the cable. The pin P, is placed in the opening H, while the bar Q falls into the upper half of the recess I. The draw-bar A is forced upwardly until its upper end D meets the bar Q when the two hooks are brought together, and the ring L is slipped upwardly into the position shown in Fig. 2, until the shoulders J of the hooks prevent it from going any further. In ordinary use the ring L is prevented from slipping downwardly by means of the copper rivets R, and it will be seen that with such an arrangement as is shown in Fig. 2, there is no possibility of the cable becoming detached from the hook, since in order to do so some parts of the apparatus must give away.

The operation of the device is as follows: The ring K is secured just beneath the pulley or wheel over which the cable passes, this wheel being suspended at the top of the shaft. Ordinarily the cable passes freely through this ring; in cases of emergency however, such as when the engineer inadvertently allows the drum to draw the cable too far thereby endangering the lives of the men in the cage, the ring effects the disconnection of the hook from the cable, while at the same time causing the hook to become attached to the upper edge of the ring itself. The cable in passing upwardly through the ring K carries with it the hook. Now, when the flange M of the ring L engages the lower flange S of the ring K at the top of the shaft, the copper rivets R are immediately sheared off and the ring L is forced downwardly. At the same time the weight of the cage pulls the draw-bar A downwardly and the cylindrical cam surfaces of the end of the draw-bar D force both the hooks apart thereby permitting the disengagement of the attaching member Q of the cable, and allowing the latter to pass freely over the wheel. At the

same time the shoulders J of both hooks are forced so far apart that when the cage descends slightly they will engage the upper edge of the ring K and hold the cage suspended from the latter.

It will thus be seen that I have provided a detachable hook which is automatic in its action, and for all ordinary purposes the hook is perfectly secure, since there is very little tendency for the ring L to slip downwardly. In fact the friction of the ring is almost enough to keep it in position. When, however, the small ring L engages the larger ring K the impact is sufficient to shear off the copper rivets instantly, when the hooks spring apart in the manner already described.

It is obvious that other forms of the device embodying the same principle might be made, but I shall claim as my own all such modifications as fairly fall within the spirit and the scope of the invention.

I claim:

1. In a safety device, a pair of opposed hooks pivoted at their lower ends and provided on their inner sides with upper and lower recesses, and having on their outer sides shoulders, a movable draw-bar disposed between said hooks and having a head adapted to enter the lower of said recesses, a link having a pivot arranged to enter the upper of said recesses and provided with a

depending bar having a head arranged to enter the lower of said recesses, a ring provided with a flange surrounding said hook members and movable therealong, copper rivets arranged to retain said ring normally in position, a second ring arranged to engage the flange of said first ring to force the latter downwardly, thereby permitting the draw-bar to force the said hooks outwardly to permit the disengagement of the link and bar and the engagement of the upper edge of the ring with the shoulders of the hooks.

2. In a safety device, a pair of pivoted hook members arranged to close upon one another, an interposed draw-bar arranged to be engaged by said hook members, a link having a pivot arranged to be engaged by said hook members, a bar depending from said link and having a head at its lower end arranged to be engaged by said hooked members, a movable ring surrounding said hooks and normally closing them together, and a second ring arranged to engage the first mentioned ring and to force the latter downwardly, thereby permitting the opening of the hooks and the release of the link and bar and the engagement of the hooks with said second ring.

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Witnesses:

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