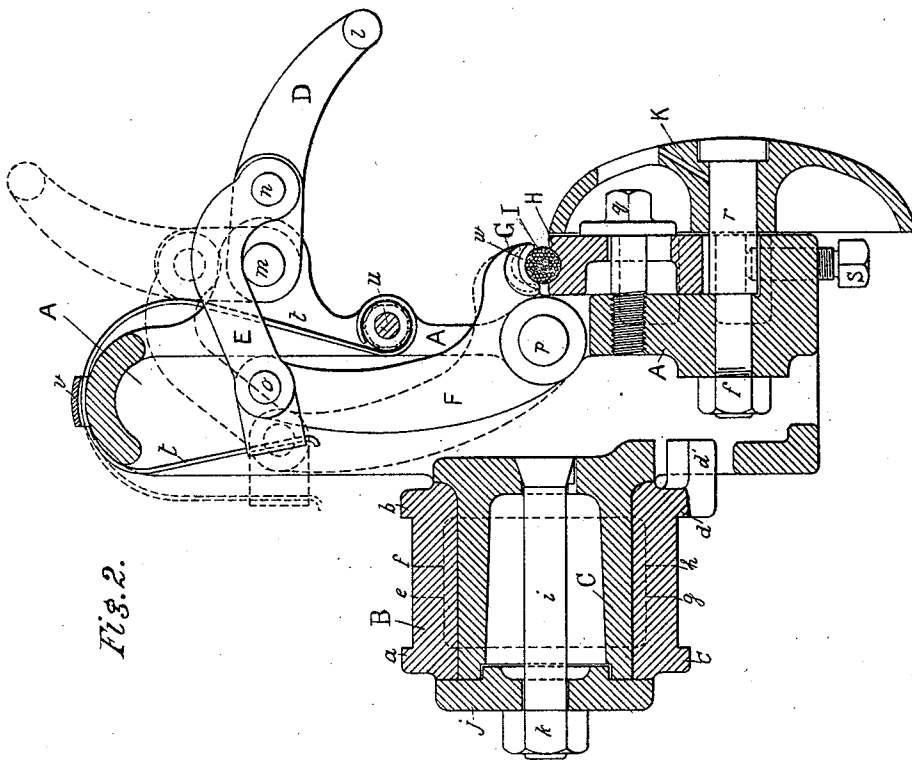
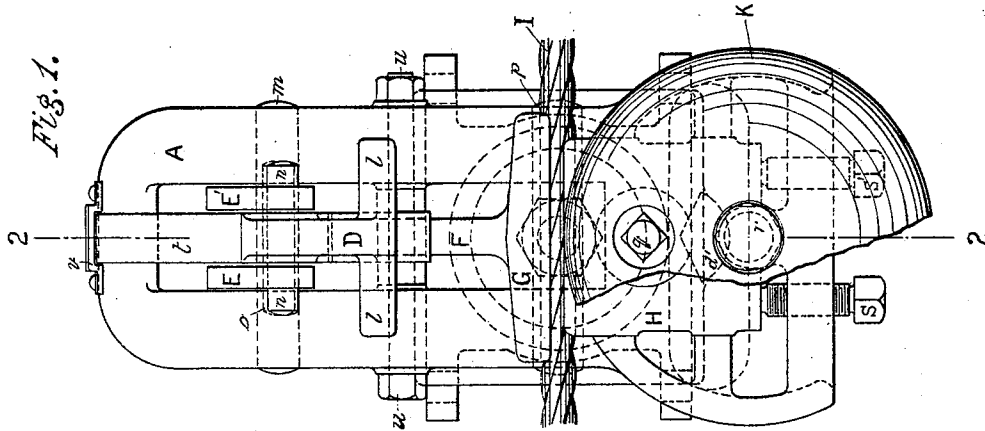


(No Model)

S. S. WEBBER.
GRIPPING MECHANISM.

No. 582,708.

Patented May 18, 1897.



WITNESSES:

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SAMUEL S. WEBBER, OF TRENTON, NEW JERSEY.

GRIPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 582,708, dated May 18, 1897.

Application filed June 10, 1896. Serial No. 594,924. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL S. WEBBER, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Grip Mechanisms, of which the following is a specification.

My invention relates to grip mechanisms, and more particularly to those gripping mechanisms which are used for the purpose of connecting moving cables and cars, buckets, and the like running upon tramways and used for conveying materials from one point to another; and the object of my invention is to produce a simple and efficient gripping mechanism which can be made at a comparatively low cost.

In the drawings, Figure 1 is a front view of my gripping mechanism with a portion of the revoluble guard broken away to disclose the structure behind the same, the outlines of the rear portions of the structure being disclosed by dotted lines; and Fig. 2 is a vertical cross-sectional view of the construction shown in Fig. 1, taken on the line 2 2 and looking toward the right.

I have illustrated my gripping mechanism as disconnected from any vehicle, its uses and operation being readily understood without such connection being shown, the method of connecting the mechanism to the vehicle being also readily understood.

In the drawings, A is the frame of the gripping mechanism.

B is a trunnion-box.

C is a trunnion formed integral with the frame A.

D is the operating-lever.

E E are respectively members of a toggle-joint connection.

F is a lever formed integral with the movable jaw.

G is the movable jaw of the grip.

H is the fixed or under jaw of the grip.

I is the operating-cable, and K is a revoluble guard.

The trunnion-box B is formed with square sides having at their outer edges, respectively, the shoulders *a* and *b* and *c* and *d*. This trunnion-box is firmly attached to the frame of the vehicle to which the grip is affixed, por-

tions of the frame of the vehicle resting against the sides of the trunnion-box between the shoulders *a* and *b* and *c* and *d*, respectively, the box being attachable to such frame by means of bolts set through apertures, (indicated by the dotted vertical lines *e*, *f*, *g*, and *h*.)

The trunnion C is fitted within the box B to turn therein, as shown in Fig. 2, and is restrained from longitudinal motion by means of the upset bolt *i*, which passes through the inner face of the trunnion and holds against the outer end of the trunnion and against the trunnion-box B a metal washer *j* by means of the nut *k*. This construction enables the frame of the gripping mechanism to swing relatively to the vehicle to which it is attached, and the limit of this swinging motion is fixed by the projection *d'*, which is formed integral with the trunnion-box B, and on its end projecting toward the frame A of the grip is angularly faced, as shown in Figs. 1 and 2, and so arranged as to contact with that part of the frame A to which is attached the trunnion C upon any undue deflection of the frame A relatively to the vehicle and the trunnion-box B.

The operating-lever D has formed at its outer end a cross-bar or handle *l* and is pivoted on a pin *m*, which is fixed in the frame A. Pivoted on a pin *n*, fixed in the lever D, are the toggle-links E and E', which are connected at their other ends with the jaw-lever F, so as to turn upon the pin *o*. At its lower end the jaw-lever F is pivoted upon the pin *p*, set in the frame A of the machine. Formed integral with the jaw-lever F is the movable jaw G. The fixed jaw H is set against the lower portion of the face of the frame A and is slotted to permit the introduction thereof through of the screw-bolt *q* and the stud *r* and to permit of vertical play of said jaw relatively to said bolt *q* and stud *r*. The bolt *q* is threaded at one end and enters a threaded aperture formed to receive the same in the lower part of the frame A. At the bottom of the frame A are formed vertical threaded apertures, into which are entered the screw-bolts *s s'*. The bolts *q* and *s* and *s'* serve to hold the fixed jaw H in its proper position, the bolts being used to adjust the same when necessary to tighten the grip of the jaws on

the cable I owing to wear upon the jaws due to friction of the cable thereon. The stud *r* supports the revoluble guard K, which is fitted to the frame, as shown in Fig. 2, for the purpose of preventing friction of the cable I against the frame A when the same is thrown out of its position between the jaws.

t is a stiff steel spring attached to the frame A by being bent upon the pin *u*, fixed therein, and is also made fast to the upper portion of the frame by the clip *v*. This spring *t* bears against the back ends of the toggle-links E and E'. (See Fig. 2.)

The toggle-links E and E' are curved near their middle portions to take over the pin *m* and assist in locking the lever D in its position when the jaws G and H are gripped upon the cable I. The jaws G and H have concave faces to receive and hold the cable I, and I prefer to place upon the face of the jaw G a small curved steel plate *w* to receive the wear upon the upper jaw. This steel plate *w* when worn through can be readily replaced by a new one.

The operation of my grip is as follows: The grip mechanism being fixed upon the vehicle, the cable I, which is used for conveying the vehicle along its track, is in motion and is running over the concave face of the fixed jaw H or impinging against the revoluble guard K, whence it may be easily thrust into its position upon the face of the jaw H. The lever D is then brought forward and downward from its position shown in dotted lines to the position shown in full lines. This draws forward and downward the toggle members E and E', the effort of the operator being opposed by the action of the spring *t* until the under sides of the members E and E' rest upon the pintle *m*. Simultaneously the jaw-lever F is moved from its position shown in dotted lines into the position shown in full lines, and the jaw G descends upon the cable I and firmly grips it between itself and the fixed jaw H. The grip is now locked and the vehicle is moved along the way until it is desired to throw the grip off, which may be accomplished by hand or by bringing the lever D in contact with a fixed projection on the way, which serves to throw it back and up until the lever D and the toggle members E E' and jaw-lever F and the spring *t* and jaw G assume the positions shown in dotted lines in Fig. 2.

When the jaws are closed on the cable I, the toggle-links E E' finding their seats upon the pin *m*, the center of the pin *n* being slightly lower than the center of the pin *m*, the mechanism is locked, and no jar of the parts is sufficient to unlock them and throw open the jaws, the spring *t* also serving to assist in maintaining the lock. Nothing but positive

force will avail to release the jaws from the cable.

Another function of the spring *t* is to quickly raise the lever D and open the jaw of the grip, releasing the cable I whenever the operator or the fixed projection on the way raises the lever D enough to unlock the toggle-links E E', the spring quickly raising the lever D to the position shown by the dotted lines. The spring further serves as a buffer to catch the recoil or impact of the lever D when it assumes the position shown by the dotted lines.

Having thus described my invention, what I claim is—

1. In a gripping mechanism, the combination of a fixed jaw, a swinging jaw having a lever formed integral therewith, an operating-lever, and a toggle connection between said operating-lever and the lever formed integral with the swinging jaw, the links of said toggle connection being curved to take over a pin and lock thereon, and said pin.

2. In a gripping mechanism, a fixed jaw, a swinging jaw, an operating-lever, a toggle connection between said operating-lever and swinging jaw, the links of said toggle connection being curved to take over a pin and lock thereon, said pin, and a spring bearing against the ends of said toggle-joint and operating to assist in maintaining the lock or to release the jaws at the will of the operator.

3. In a gripping mechanism, the combination of a swiveling frame, said frame having a trunnion formed thereon, and a trunnion-box wherein said trunnion may turn, said box having a stop formed thereon to limit the swiveling motion of said frame.

4. In a gripping mechanism, the combination of a swiveling frame having a trunnion formed thereon, a trunnion-box wherein said trunnion turns, a stop to limit the motion of the trunnion and frame, a fixed jaw, a movable jaw, and a locking connection between said movable jaw and the operating-lever, said locking connection comprising the bent links of a toggle connection adapted to take over a pin on the operating-lever, and a spring bearing against the end of said toggle-links and adapted to retain said links in their locking position and to release said locking connection and to open the jaws of the grip when unlocked at the will of the operator.

5. In a gripping mechanism, the combination of a fixed jaw, a swinging jaw, an operating-lever, and a spring-assisted locking-toggle connection between said operating-lever and said swinging jaw.

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Witnesses:

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