

(No Model.)

A. S. HALLIDIE.  
CLIP FOR ROPE TRAMWAYS.

No. 466,880.

Patented Jan. 12, 1892.

Fig. 1

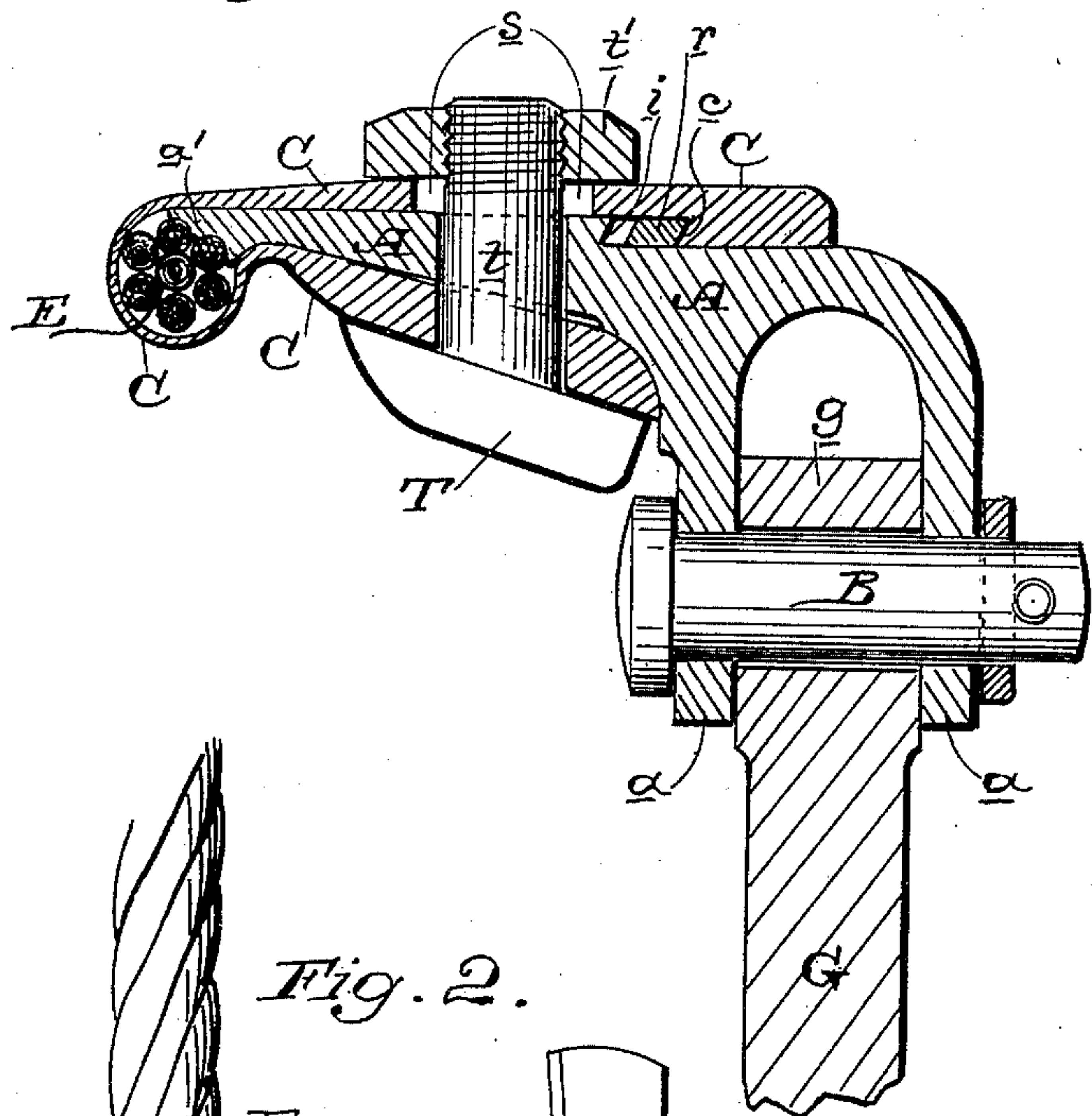
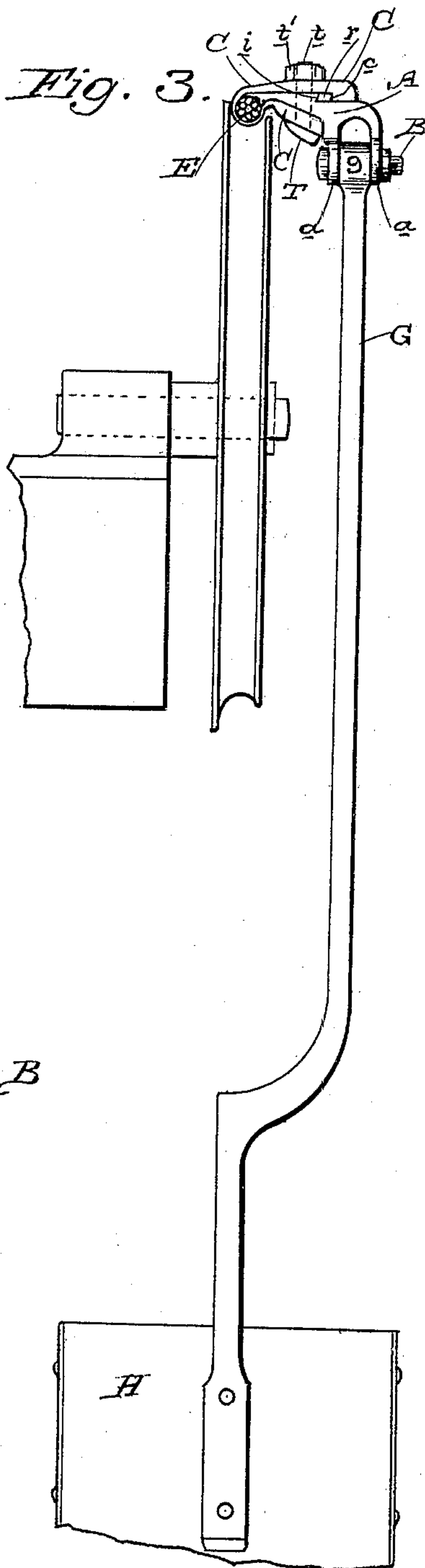
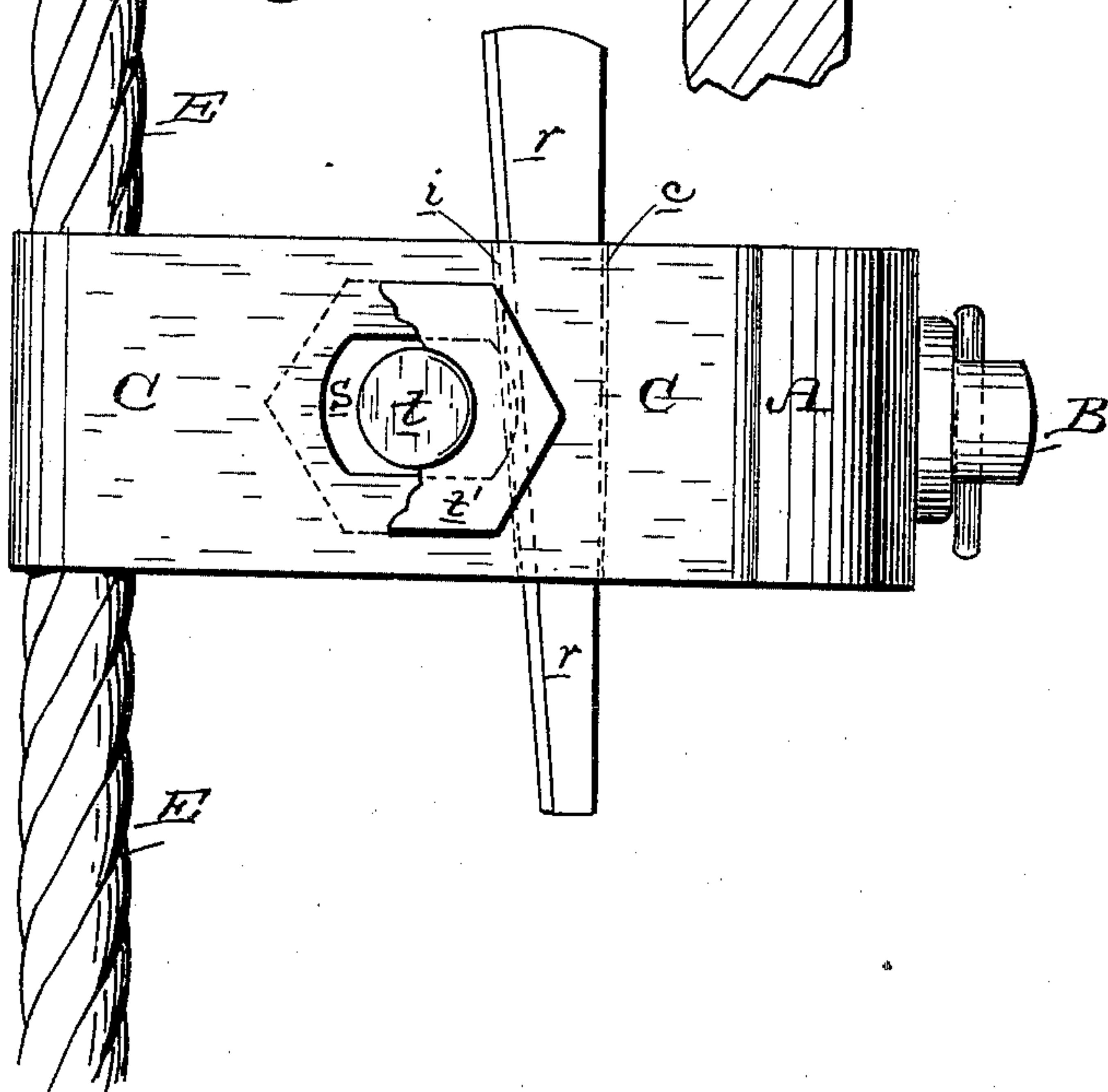


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## CLIP FOR ROPE TRAMWAYS.

SPECIFICATION forming part of Letters Patent No. 466,880, dated January 12, 1892.

Application filed August 28, 1891. Serial No. 404,009. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW S. HALLIDIE, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Clips for Rope Tramways; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of clips for use in connection with endless ropeways for sustaining and carrying the load and container, said class being exemplified by Letters Patent No. 210,851, issued to me December 18, 1878, and particularly by the Rowland Letters Patent issued to me March 4, 1890, No. 422,892, to which said patents further reference may readily be made.

My present invention consists in the several improvements in this class of clips, as will be hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide for greater strength and increased simplicity in construction and manufacture of clips of this kind.

Referring to the accompanying drawings, Figure 1 is a section of my clip. Fig. 2 is a top view of same, a portion of the nut *t'* being broken away. Fig. 3 is a general view showing the clip with its connected hanger carried by the rope, which is supported on one of the sheaves of the ropeway.

A is the body portion or piece of the clip. One end of this body is provided or formed with downwardly-extending separated or spaced lugs *a a*, through which passes a shaft B, upon which said shaft the head *g* of the hanger G is suspended, said hanger being connected with the carrier or container H. The other end of the body A is corrugated, as shown at *a'*, said corrugation fitting against the strands of the rope or cable E.

C is a metallic leaf or sheath. This is bent to form a loop, which encircles the rope or cable. One of its ends rests on top of the body A and the other passes beneath said body. The upper end is thickened or reinforced, and is provided on its under surface with a key-seat shoulder *c*. Opposing this shoulder in the body A is formed the other key-seat shoulder *i*, and into the seat thus formed is driven the wedge-key *r* to tighten

the loop of the leaf or sheath on the rope or cable and to force the corrugated end of the body to its bearing against the strands of said rope or cable. This tightening of the parts is permitted by the bolt *t*, which passes through the lower portion of the leaf or sheath, through the body and through an elongated slot *s* in the upper portion of the leaf or sheath, and receives a nut *t'* on top. This bolt holds the leaf or sheath to the body and also permits the necessary movement in tightening. The lower portion of the leaf or sheath C is also thickened or reinforced, and its end finds a seat or bearing against the head of one of the lugs *a* of the body A. The head T of bolt *t* is an enlarged one and is shaped to conform to and to cover the surface of the lower portion of the leaf or sheath against which it bears tightly when the nut is tightened on the bolt.

In previous clips the shaft from which the carrier-hanger was suspended extended directly out from and usually formed a part of the main body. On this shaft there had to be collars or flanges to hold the hanger-head. In my present-clip the downwardly-extending lugs *a a* form the guides or stops for the hanger-head, and they receive and carry the separate shaft from which the hanger is suspended. This not only provides for a simple, strong, and desirable construction, but permits the easy substitution of another shaft, if for any reason such a course becomes necessary, and this can be done without affecting the body.

The corrugated forward end of the body is an improvement and advantage in increasing the grip or hold of the clip on the rope or cable.

The bolt *t*, being made with an enlarged head T, enables me to do away with the separate guard and stiffening-piece heretofore used, and by reducing the number of parts simplifies and cheapens the manufacture. The leaf or sheath is improved by reason of being strengthened by having its ends thickened or reinforced, and when worn can be detached by removing the key *r* and bolt *t* and a new leaf or sheath substituted.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a clip for rope tramways, a body por-



tion or piece bifurcated at one end with the lugs of the bifurcation extending downwardly, and a hanger pivotally hung between said lugs, so that it may swing in planes parallel with the cable, substantially as herein described.

2. In a clip for rope tramways, a body portion or piece bifurcated at one end, the downwardly-extending separated or spaced lugs of said bifurcation carrying a removable cross-shaft, from which the hanger is suspended with capability of swinging parallel with the cable, substantially as herein described.

3. In a clip for rope tramways, a body portion or piece bifurcated at one end to form the downwardly-extending separated or spaced lugs, said lugs being provided with holes in the lower portions, and an independent removable cross-shaft carried in the holes of said lugs and from which the carrier is suspended with capability of swing parallel with the cable, substantially as herein described.

4. In a clip for rope tramways, a body portion having spaced lugs at one end for the reception of the head of the carrier-hanger and having the opposite end corrugated to fit the rope strands, in combination with means for forcing the rope against the corrugated surface of the body, substantially as herein described.

5. In a clip for rope tramways, the combination of a body portion or piece having one end corrugated to fit and rest against the rope strands and an adjustable leaf or sheath fitted to the body portion or piece and bent about and embracing the rope, substantially as described.

6. In a clip for rope tramways, the combination of the body portion or piece having at one end the lugs and the cross-shaft between the lugs for suspending the carrier-hanger and its other end corrugated for fitting against the rope strands, and the adjustable leaf or sheath fitted to the body portion or piece

and embracing the rope, substantially as described.

7. In a clip for rope tramways, and in combination with a body piece or portion, the bendable leaf or sheath embracing the rope or cable and having its ends thickened or reinforced and fitted above and below the body piece or portion, substantially as described.

8. In a clip for rope tramways, a body portion or piece and a bendable leaf or sheath embracing the rope and having its ends bearing above and below the body portion or piece, in combination with the bolt  $t$ , passing through the ends of the leaf or sheath and through the intervening body portion or piece, said bolt having the enlarged head bearing on one end of the leaf or sheath and receiving a nut on its other end, substantially as described.

9. In a clip for rope tramways, the combination of a body having the key-seat shoulder, the bendable leaf or sheath having the key-seat shoulder and slot, the wedge key-seated between said shoulder, and the bolt  $t$ , having the large head  $T$  and the nut  $t'$ , substantially as described.

10. An improved clip for rope tramways, consisting of the body having the lugs and cross-shaft at one end and the corrugations at the other end, the bendable leaf or sheath embracing the rope and having reinforced or thickened ends bearing above and below the body, the tightening-key fitted between shoulders in the body and in the leaf or sheath end, and the bolt having an enlarged head and a nut, said bolt passing through the body and one end of the leaf or sheath and slotted through the other end thereof, substantially as described.

In witness whereof I have hereunto set my hand.

ANDREW S. HALLIDIE.

Witnesses:

S. H. NOURSE,  
J. A. BAYLESS.