F. DUTCHER.

SPRING HOLDING CLIP FOR RAILWAY SIGNAL TORPEDOES.

APPLICATION FILED DEC. 15, 1916.

1,303,640.

Patented May 13, 1919.

Fig. 1.

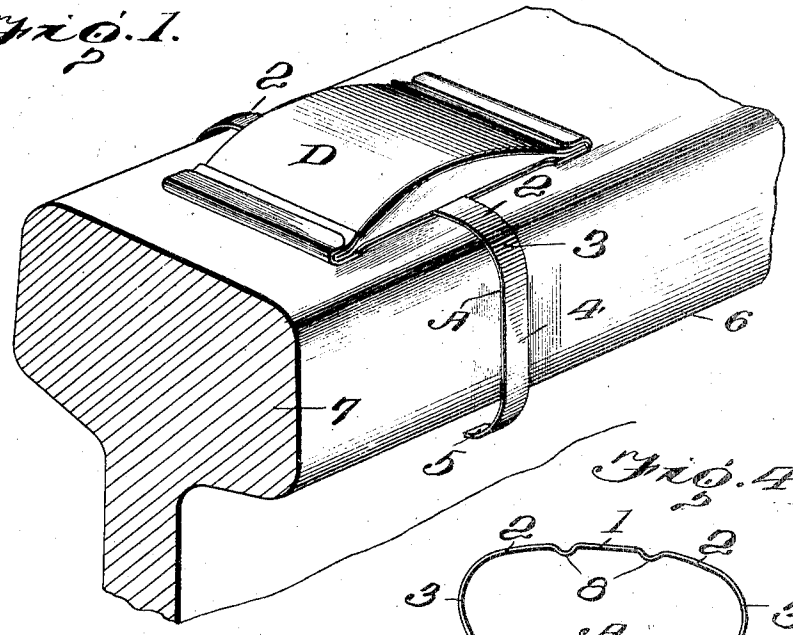


Fig. 4.

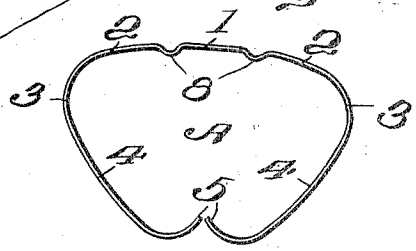


Fig. 2.

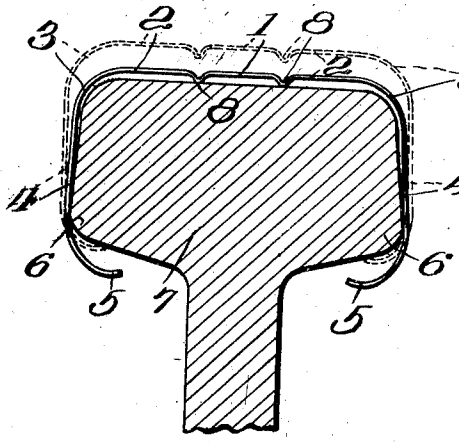
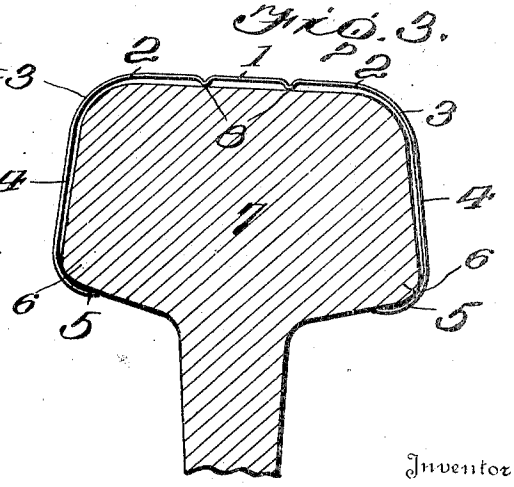


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SPRING HOLDING-CLIP FOR RAILWAY SIGNAL-TORPEDOES.

1,303,640. Specification of Letters Patent. Patented May 13, 1919.

Application filed December 15, 1916. Serial No. 137,133.

To all whom it may concern:

Be it known that I, FRANK DUTCHER, a citizen of the United States, residing at Versailles, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Spring Holding-Clips for Railway Signal-Torpedoes, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in spring holding clips for railway signal torpedoes, which are to be suitably attached to the torpedo case and capable of embracing and grasping the head of a rail for the purpose of holding the torpedo thereon to be run over by the wheel of the engine and exploded as a signal to the engineer.

Spring holding clips for railway signal torpedoes have been used on commercial torpedoes for a great many years and they have been constructed from a ribbon or strip of spring metal. All spring holding clips for torpedoes that have been commercially used for fully ten years prior to my present invention, have been made substantially oval in shape, as illustrated in my Patent Number 802,919, October 24th, 1905. Owing to the oval shape of this prior spring clip, when applied to the head of the rail, it projects beyond the edges of the head of the rail, as clearly shown in Fig. 2, of this patent. Although the commercial art has recognized this spring clip as the most effective means known for holding the torpedo on the track under the most severe conditions, it has also been recognized that even it at times is knocked off of the rail without being exploded by the wheel of the locomotive, and, therefore, the signal is not given to the engineer.

Although this difficulty has been recognized for years, it has not heretofore been remedied. One of the difficulties is due to the fact that the rails of the different roads and on different parts of the same roads are of various sizes and weights, thus varying the cross-sectional size of the tread of the rail, and no way has heretofore been devised of making a spring clip adapted to the various sizes of rails in a manner to overcome this defect. In fact in practice, the old oval form of clip does not fit the rail nearly as accurately as shown in the drawing of my aforesaid patent, and that patent is referred to as only being somewhat illustrative of the defects of the spring clip heretofore used. In this old type of spring clip when applied to the various sizes of rails, it is liable to fit lop-sided, exaggerating the side extensions and exaggerating its defects from that shown in the said patent, and with the small tread rails the inner ends of the spring will engage the vertical web and force out its sides more than that shown in my said patent.

The object of my present invention is to make a spring clip of such shape that it adapts itself to the contour of the heads of the various size rails and fits them all so snugly that there is no projecting part for the flange of the car wheels to strike, and is provided with hooks to catch under the lower side of the tread of the rail and absolutely prevents it and the torpedo attached thereto from being knocked from the rail. Furthermore, the improved shape will cause the top of the clip to rest on the face of the rail and, therefore, hold the torpedo down on the rail even though the side portions or legs of the clip are so long that the hooked portions project below the under side of the small tread rails.

In the accompanying drawings—

Figure 1 is a perspective view of my improved clip showing it applied to the head of a small rail and carrying a torpedo.

Fig. 2 is a view of the clip alone on the head of the rail, showing how it automatically moves from the abnormal position shown in dotted lines to its correct position in full lines.

Fig. 3 is an edge view of the full sized clip showing it applied to the head of a large rail.

Fig. 4 is a full size edge view of the clip, shown in Figs. 2 and 3, and before it is expanded for application to the head of the rail.

My improved spring clip A is made from a strip or ribbon of spring metal, preferably steel, and the torpedo D, of any form, is attached to the center or top portion 1, in any suitable manner. The ends 2 of the top portion are normally curved slightly downward and outward and bent downward and inward at the points 3, which connect the top and the side arms 4. These downwardly and inwardly extending side arms 4 are substantially straight and end in the upwardly

extending hooked portions 5. By reference to Fig. 4, it will be seen that the spring in its normal position is approximately heart-shaped in outline.

This improved shaped spring will snugly fit various sizes of rails so that there is no side projecting portion to be struck by the flange of the wheel, and in practical service this improved spring has been found to be absolutely reliable under the severest conditions found in snow and ice, on the western mountain roads.

By reason of the normal inwardly extending portions 4, when the spring is applied to a small tread rail, the arms serve to pull the spring down to the position shown in Fig. 2, by reason of the engagement of the lower ends of the arms with the lower corners 6 of the rail tread 7. This is due to the fact that the arms of the spring have a strong inward tension and being normally inclined engage the portions 6 of the rail and have somewhat a cam action, which forces the spring to the position shown in full lines Fig. 2. It is found in practice that if the spring is moved up to the position shown in dotted lines, Fig. 2, it will force itself down to the proper position, shown in solid lines Fig. 2. The function of the slightly downwardly curved portion 2 of the top is to cause the top to assume a horizontal position across the face of the rail tread when the arms 4 are spread outward around the head of the rail. This prevents the ends of the top extending upward above the tread of the rail, which would happen if these curved portions were not provided. By reason of this specific construction, the spring clip snugly fits the various sizes of rails and automatically assumes its snug fit.

The top 1 is here shown with the U-shaped bends 8, but these are not essential and they form a function entirely apart from the new shape of spring. In fact, the U-shaped bends 8 may be omitted and my invention still be present.

The hooks 5, as shown, project under the head of the rail and absolutely prevent the spring from being pulled away from the rail until the arms have been sufficiently drawn outward to enable the hooks to clear the rail head.

From the foregoing description and disclosure it is apparent that the primary object of my present invention is to provide a torpedo with a spring clip so shaped that it will fit snugly the top and sides of the treads of various sized rails, and when placed on the rail is locked thereon against removal by the flanges of the locomotive wheel. Bearing these objects in mind, it will be understood, of course, that the exact shape here shown may be slightly varied, so long as it accomplishes the foregoing objects without departing from the invention here disclosed and sought to be protected by the appended claims.

From the foregoing description and the accompanying illustration, it will be observed, that when the clip is in its normal contracted form it is smaller than, and of a contour different from the cross-sectional contour of the tread of the rail to which it is to be applied, but when expanded it conforms to the cross-sectional contour of the rail-tread, and closely fits its top and sides so there are no projecting portions to be engaged by the flange of a car wheel to push it off of the rail-tread.

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

1. The combination with a railway signal torpedo, of a spring clip having a top portion to be attached to the torpedo and its sides curved downward and inward in opposite directions toward each other and normally contracted to a contour smaller and different from the cross-sectional contour of a rail-tread, whereby when it is expanded for application to a rail-tread it will closely fit the top and sides of different sized rail treads for the purpose described.

2. The combination with a railway signal torpedo, of a spring clip attached to the under side thereof and having approximately a heart-shape when in its normal contracted form, whereby when it is expanded it closely fits the top and sides of a rail-tread and its extremities extend thereunder, for the purpose described.

3. The combination with a railway signal torpedo, of a spring clip having when in its contracted normal form a central portion attached to the under side of the torpedo and its side arm portions outwardly and downwardly curved, the ends of the arms curved inward and upward, whereby the clip is approximately heart-shaped, but adapted when expanded to closely fit the top edges and sides of a rail-tread and its inwardly and upwardly bent extremities to interlock with the under side of the tread, for the purpose described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRANK DUTCHER.

Witnesses:
ANNA BEVAN,
R. W. JUNKER.