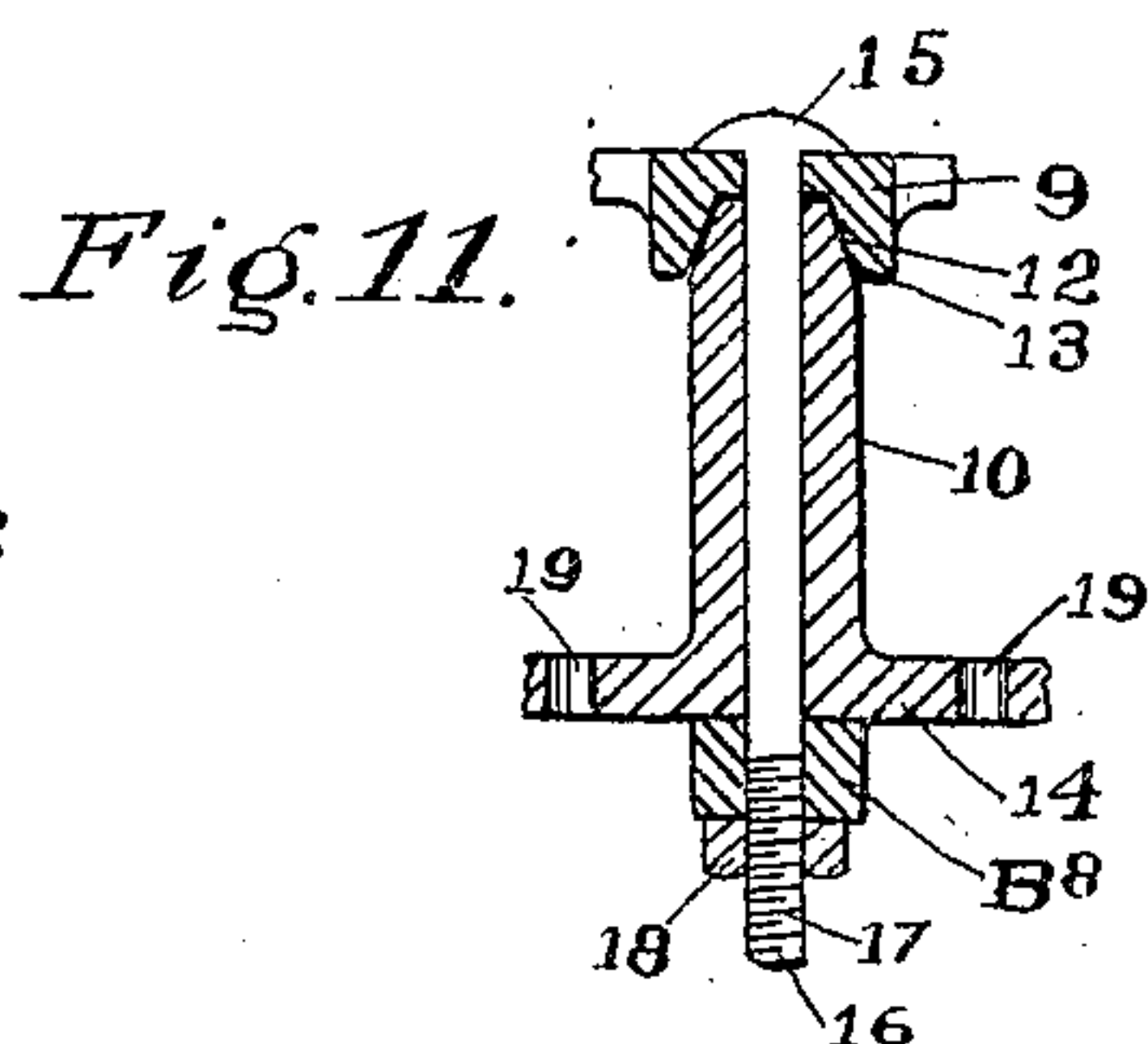
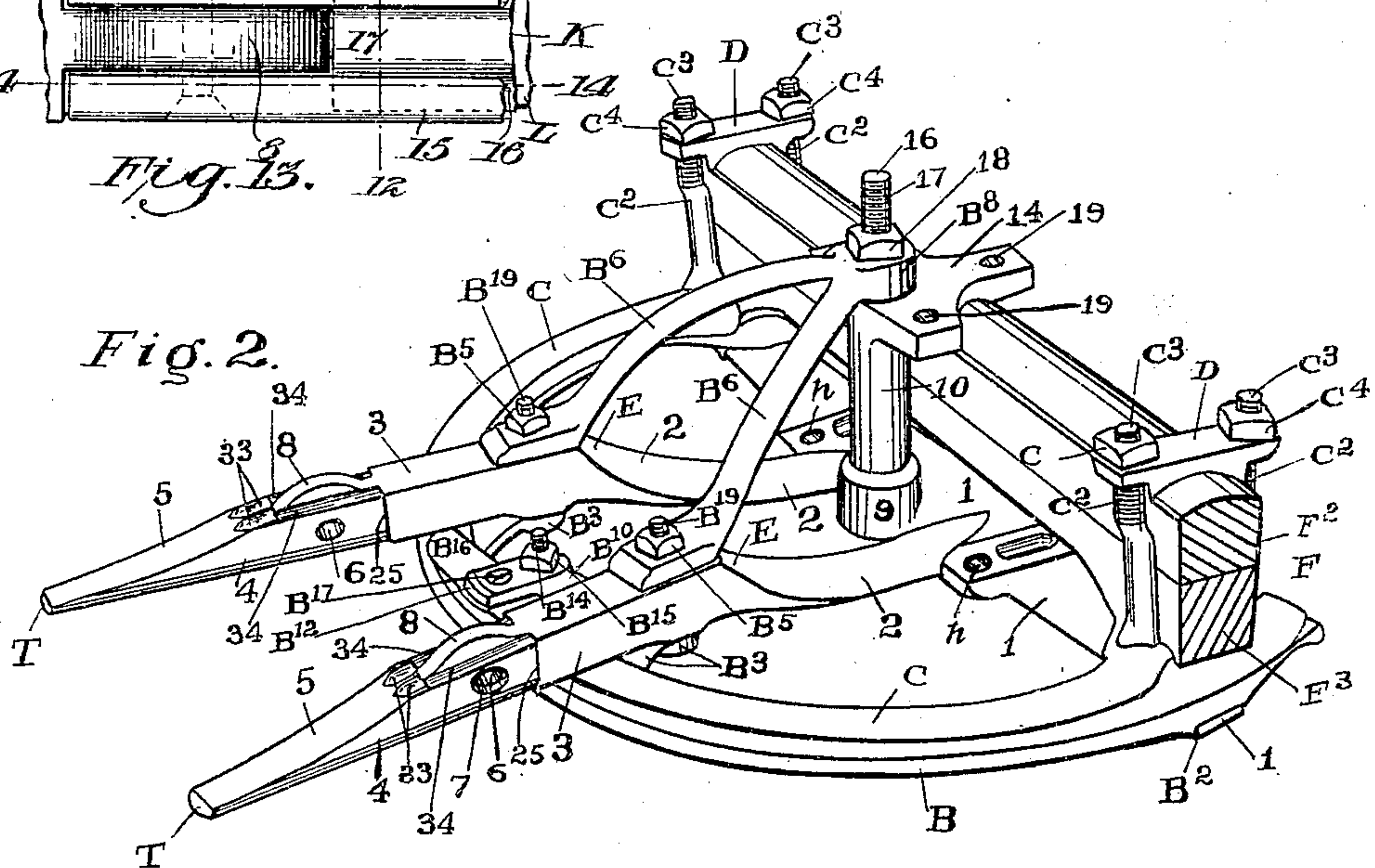
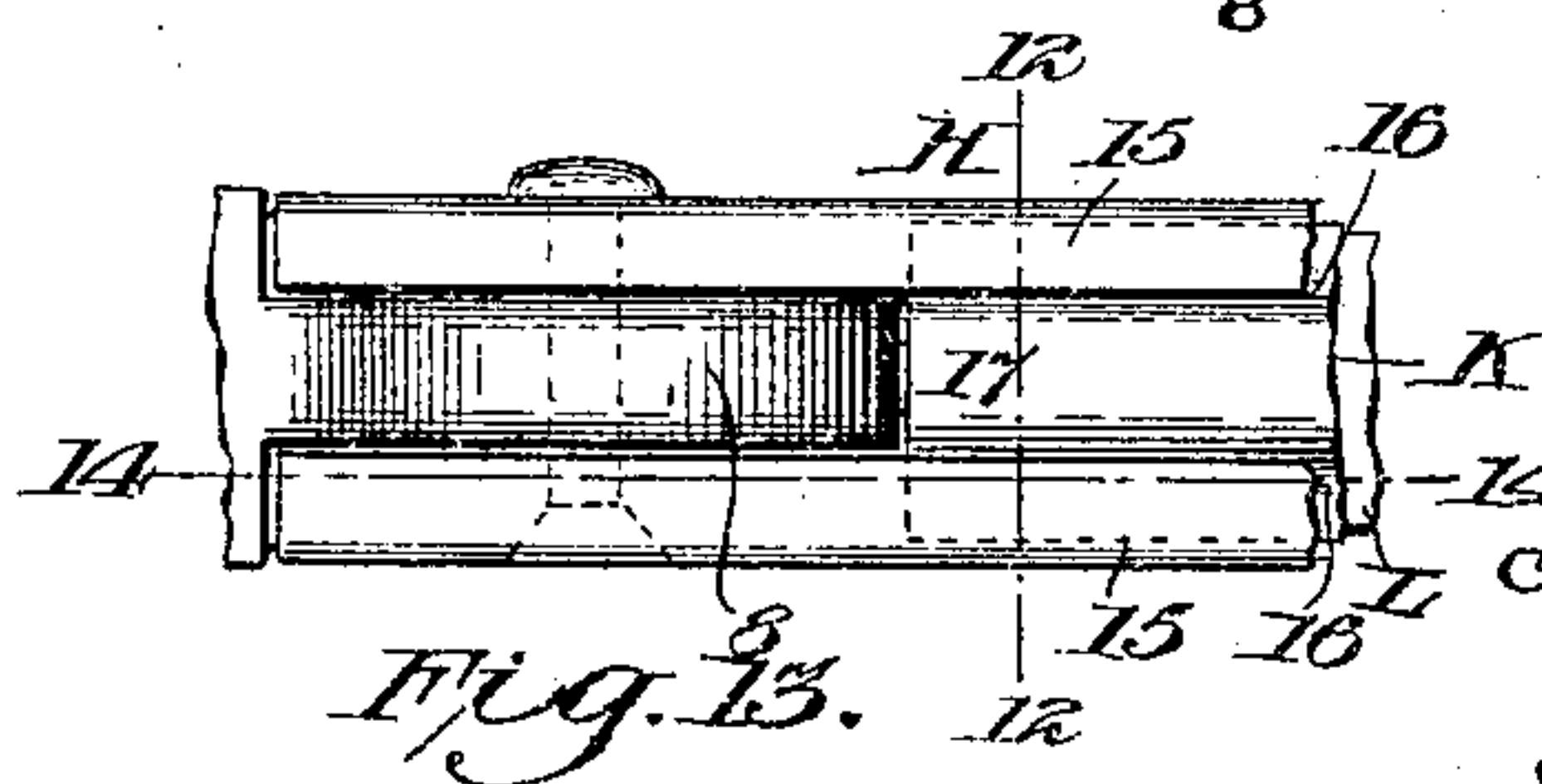
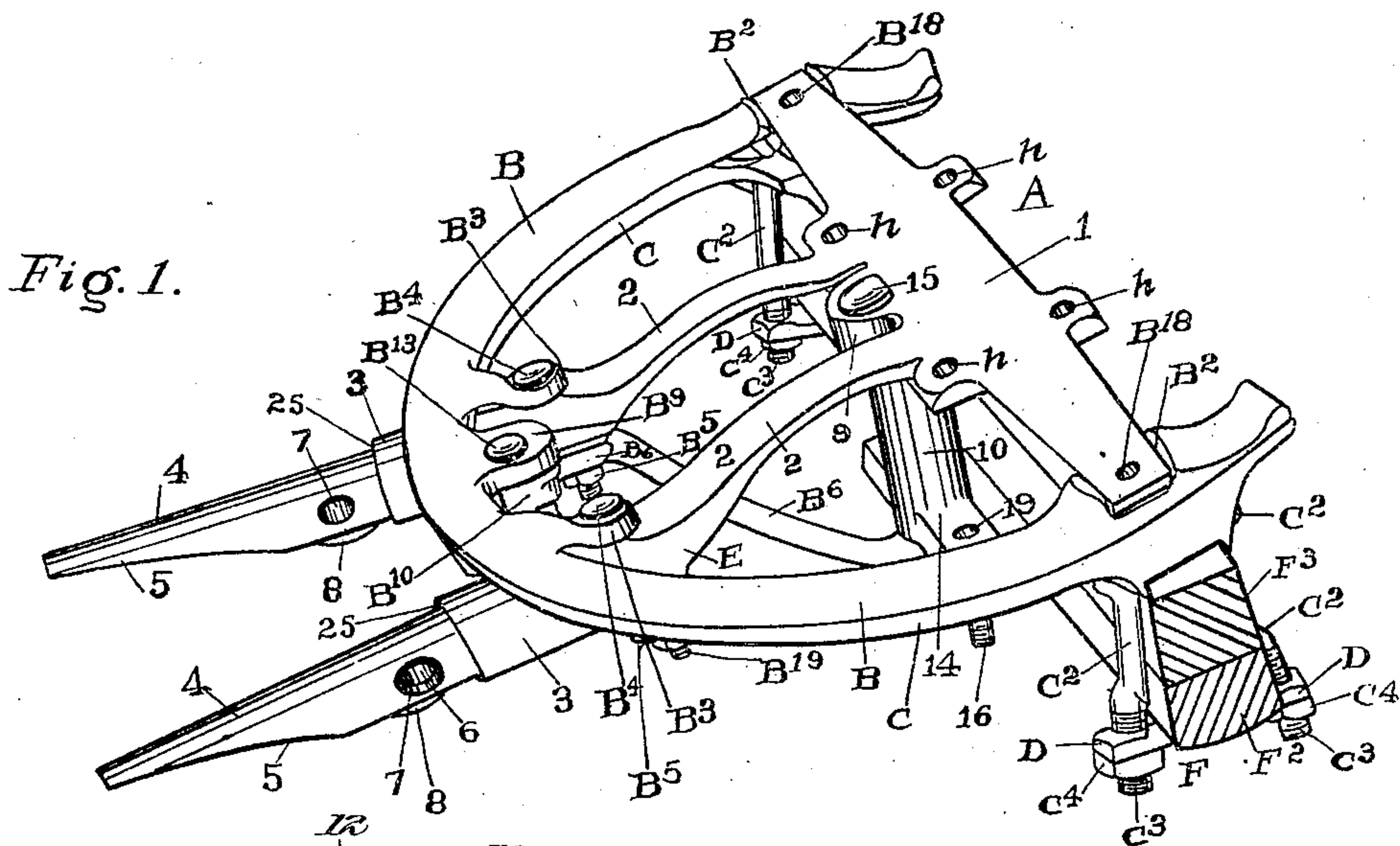


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 RUNNING GEAR.  
 APPLICATION FILED AUG. 1, 1908.

959,935.

Patented May 31, 1910.

2 SHEETS—SHEET 1.



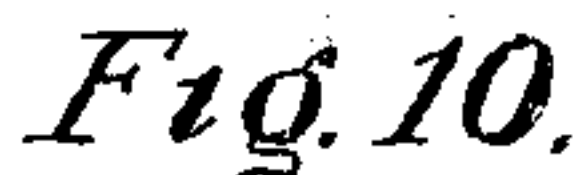
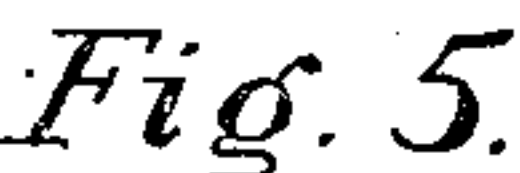
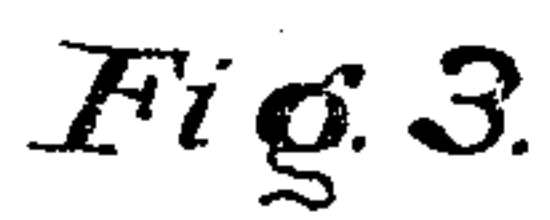
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Patented May 31, 1910.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## RUNNING-GEAR.

959,935.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed August 1, 1908. Serial No. 446,469.

*To all whom it may concern:*

Be it known that I, HENRY HIGGIN, a citizen of the United States, and a resident of the city of Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Running-Gear, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings making a part of this specification, and in which similar characters of reference indicate corresponding parts,—Figure 1 is a view in perspective of the front portion of a running gear embodying certain features of my invention. Fig. 2 is a view in perspective of the same parts which are shown in Fig. 1, but shown bottom side up. Fig. 3 is a bottom view of a rear perch extension embodying certain features of my invention. Fig. 4 is a side elevation of the rear perch extension shown in Fig. 3. Fig. 5 is a perspective view of the rear perch extension shown in Figs. 3 and 4, the bottom side of the perch extension being uppermost. These Figs. 3, 4 and 5 are on a scale slightly enlarged over that of Figs. 1 and 2. Fig. 6 is a perspective view of the running gear embodying my invention. Fig. 7 is a sectional view, enlarged, this section being taken in the plane of the dotted line 7, 7, of Fig. 6. Said section illustrates the construction in all of the four perch extensions, in the plane of the connecting bolt. Fig. 8 is a transverse section, enlarged, of the perch taken in the plane of the dotted line 8, 8, of Fig. 6, to illustrate the general construction of each of the perches. Fig. 9 is an enlarged detail of the perch, shown in perspective, the perch being shown upside down. Fig. 10 represents a longitudinal, central vertical section of any of the perch extensions and of the adjoining portion of the perch. Fig. 11 is a detail,—a central vertical section of the king bolt and its embracing parts. Fig. 12 represents a vertical cross section, taken in the plane of the dotted line 12, 12, of Fig. 13. Fig. 13 is a top view of the adjacent portions of the perch and of the perch extension. Fig. 14 is a vertical longitudinal section of the said portions of the perch and of the perch extensions shown in Fig. 13.

This section is taken in the plane of the dotted line 14, 14, of Fig. 13.

I will now proceed to describe my invention in detail.

The usual headblock plate 1 is present. This plate duly supports the headblock, which latter is not shown, as it is no part of my invention. This plate 1 may have the customary holes *h, h, h, h*, which respectively receive the legs of clips to secure the headblock to it, the plate 1. This plate 1 carries the usual king bolt socket 9, having a beveled recess 12, occupied by the beveled end 13 of the main king bolt sleeve 10. The lower end of this sleeve 10 may have the yoke piece 14 integral with it, and provided with suitable holes as 19, 19, 19, for respectively receiving the legs of a clip whose opposite end or saddle portion rests upon the upper portion of the axle *F*, the yoke 14 being in this instance the clip bar of said clip. This clip strengthens the connection between the king bolt sleeve 10 and the axle. This clip is omitted from the drawing because it does not serve to illustrate my invention and because the remaining parts of the figure are more readily seen. The axle *F* preferably, as usual, consists of the iron portion *F*<sup>2</sup> below and the wooden portion *F*<sup>3</sup> above. The king bolt 16 has a head 15, and passes down through socket 9 and sleeve 10, and yoke plate 14 and carries on its threaded portion the nut 18. The lower half *C* of the fifth wheel extends as shown. Upon it rests the upper half *B* of this fifth wheel. The ends of the headblock plate 1 are respectively supported by the adjacent ends of this upper half of the fifth wheel. The ends of this headblock plate 1 are each respectively and preferably set in recesses *B*<sup>2</sup> in the upper half *B* of the fifth wheel. A bolt *B*<sup>18</sup> at this point secures the headblock plate 1 down to the said upper half *B* of the fifth wheel.

The mechanism thus far described is old and well known.

2 indicates the front perch extension iron preferably integral with the headblock plate 1 where it joins the latter. This extension iron 2 extends rearward and crosses the fifth wheel, preferably going beneath it, and extends out into a free end capable of being connected to the forward end of the perch proper. This extension iron 2 from the point *E* at a distance to the right of where



it crosses the fifth wheel rearward is thickened into a strong body of metal, forming the part 3, which latter preferably extends to the rear side of the fifth wheel. There are usually two of such perch front extension irons 2, and both are symmetrical, being made substantially as hereinbefore described. Each of these front extensions 2, 2 are braced as follows: From the rear portion of the upper fifth wheel, a lug B<sup>3</sup> extends forward and this lug B<sup>3</sup> is connected by a bolt B<sup>4</sup> to the adjacent strong portion 3 of the front perch extension 2. Thus each of said extensions 2 is connected to its own and separate lug B<sup>3</sup> from the upper half of the fifth wheel. To the under side of the portion 3 of each front extension 2 is connected a brace B<sup>6</sup>, and this brace is connected to the said extension 2 by a bolt and preferably the bolt B<sup>4</sup> aforesaid is made to extend down through the lug B<sup>3</sup> and through the portion 3 of the said perch extension 2, and through the under brace B<sup>6</sup> and is there provided with a nut B<sup>5</sup>, or the lower end of this bolt is there provided with a rivet head in place of the nut. Said rivet head being a well known equivalent of the nut, a sketch of it is omitted from the drawing. The two braces B<sup>6</sup>, one from each perch extension 2, extend downward and forward and are preferably united at their front ends in the part B<sup>8</sup>, which latter constitutes an eye or sleeve through which the king bolt 16 passes. This king bolt may be riveted in place below the eye B<sup>8</sup>, but it is preferably provided with the nut 18. Thus this fifth wheel structure is made strong and durable, and can be produced economically. The important features of this portion of my invention consist of four characteristics, viz: First, the changing of the locations of the upper brace and of the lower brace so that they shall both meet the front perch extension forward of the fifth wheel; secondly, so that they shall meet at substantially the same vertical line respectively above and below this perch extension, and thirdly, that the front perch extension shall be made heavier here, namely: at part 3 where they are to join it, and fourthly, as a preferable mode of uniting these braces and the said front perch extension iron, a single bolt therethrough. This changing of the place where the lugs and other braces make connection with the fifth wheel from the outside to the inside of the said wheel concentrates all strains arising from their connections with the fifth wheel to a point where I easily provide a larger body of metal. This concentration of strain, as specified, is not only obviously advantageous but by this change I allow more scope for the free action of the perch back of the said fifth wheel, and also greatly increase the strength of the combined structure of the fifth wheel. The presence of a

single bolt B<sup>4</sup> to connect a perch extension to the fifth wheel by the lug B<sup>3</sup> above and to the brace B<sup>6</sup> below by the same lug B<sup>3</sup> through this enlarged portion 3 of the extension 2, said enlarged portion located as described relative to the parts heretofore mentioned, is also a feature of my improved construction. The rear free ends of these front perch extensions 2, 2 may be formed to receive perches of various shapes and constructions. In the present illustrative drawings, I have shown a novel and useful formation of these rear ends of the front perch extensions 2, 2, adapted to receive and most successfully hold together perches of which the one hereinafter described is generally typical, without damage to any one of the parts entering into this union by the cutting or breakage of any of the said parts. A description of this perch will be hereinafter presented.

The front end portion of the part 4 has centrally formed thereon a downwardly extending centrally located flange 8, and preferably ascending from the highest central point up in each direction of its length until it loses itself in this perch extension 2 proper. The rear portion of each part 4 of such extension 2 is beveled or cut away, preferably on the under side as shown.

I have found by experience that the perch extension irons are very liable to break at their junction with the perch proper, at the front end of the perch and also at the rear end of the perch. The side thrust and the vertical thrust of the vehicle gear caused in traveling over a rough road wrench the perch and the perch extension in both of their directions, but as, on account of the inequality of the road, the axle of the hind wheel is often in a different plane relative to the horizontal from what the axle of the front wheel is, there is a twisting strain imparted to the perch and to its front and rear connections. To provide against this strain, I locate the bolt horizontally in connecting the perch to its extension iron. I preferably employ but a single bolt, and I strengthen the perch extension iron at and before and behind where this hole for the bolt goes through the extension by a reinforcement, preferably of the peculiar form shown, located beneath the extension and indicated by the numeral 8. I also provide a construction of the combination of the perch, perch extension and bolt, so that these several strains, namely: the vertical, the side, the twisting and the oscillatory, to which the connection between the perch and the perch connection is subject, shall prevent breakage of the parts at this connection, and shall prevent the perch from shearing in two the connecting bolt of these parts. To this end, I form a horizontal hole 6 through the perch extension. In this hole next where the



head 23 of the bolt 22 comes, I countersink this hole thus forming the countersunk portion 7. I form a hole, one through each side of the perch H, viz: a hole 19 through that side of the perch H next the bolt head 23, and a hole 20 in the other side of the perch. I countersink the edge of the hole 19, thereby forming the countersunk portion 21. This countersunk portion 21 I adapt in manufacture to enter the countersunk portion 7 of the perch extension 4.

The perch extension iron is located within the perch iron H; the adjacent end of the perch comes to line 25, where there is preferably a shoulder formed on the perch extension. Against this shoulder 25 the end of the perch abuts. The holes 19 and 20 of the perch register with the hole 6 of the perch. The countersink 21 of the perch is now formed and extends into the countersunk part 7 of the perch extension. The bolt 22 is now inserted here through the perch and the extension. The bevel of the bolt head 23 fits and rests in the countersink 21 of the perch. The other end of the bolt projects at the other outer side of the perch and its threaded end receives the nut 35. Of course this end of the bolt may have a rivet formation, not shown because well understood, but the nut is preferable. One of the obvious advantages of this formation that I will here repeat, consists of the fact that the presence of that countersunk portion 21 of the perch which is inserted in the countersunk recess 7 of the perch extension, resists tensile strain and prevents a shearing action that would operate to cut the bolt. This single bolt at the same time constitutes a pivot for the vibratory action of the perch.

It will be understood that all of that portion of the perch extension between the free end or tip T and the shoulder 25 is preferably used as a part of the rear perch extension.

The rear perch extension is provided with a portion 26. In this part 26 is a recess 30, adapted to receive the rear axle, the latter in practice there resting upon the part 26. Hole 28 is formed through part 26 at one side of the recess 30 and hole 32 through the part 26 at the other side of the recess 30. When the rear axle is in place a clip embraces its upper portion. The legs of the clip pass down one on each side of the axle, and respectively pass through the adjacent holes 28 and 32 of the rear perch extension, and each leg is secured by nuts, screwed onto its lower end. As this axle and these clips and the mode of securing them are old, all illustration of them and further description of them is omitted.

When the perch has a metal bottom piece which fits the shell 14 of the perch, such bottom piece will preferably stop at that

end of the reinforcement 8 which is nearest to it, said bottom.

The interior of the perch will usually be filled with a wooden or equivalent filler L, and the part 4, 5, of the perch extension will extend into the metal shell 14 of the perch and along side of, that is, preferably on top of the wooden filler, the latter being formed with an inclined face, to fit the extension 4, 5, substantially as shown in Fig. 10.

In the perch presented, a very strong construction is illustrated. It consists of the shell solid on three sides and provided on its fourth or under side with the re-entering parts or edge flanges 15, 15.

The bottom K of the perch is a sheet of metal corrugated in the direction of its length, and having the convex central corrugation 17 and the concave corrugations 16, 16, one on each side of the central corrugations 17. Each concave corrugation extends into a downwardly extending flange 18. Each of these flanges 18 overlaps and rests upon the adjacent edge flange 15 of the main shell H. Thus the shell H and the bottom K embracing the wood L, constitute a very strong and elastic reach, and which can withstand much torsional as well as transverse and longitudinal strain. This perch H, L, K is presented in an application for Letters Patent of the United States for swiveled running gear, filed October 19, 1907, Serial Number 398,206, but the novel and efficient mode of combining it with perch extensions, and also with perch extensions of the novel form before described in this present specification are absent from said application Serial Number 398,206. When the adjacent shell H of the perch is fitted onto the end of the perch extension iron M, it does, as mentioned, go over and on this iron up to the shoulder 25. In this connection it should be noted that the recesses 34, 34, one on each side of the perch reinforcement 8, each receives one of the curved flanges 15, 15 of the perch. Likewise the depressions 33, 33 of this perch extension iron respectively receive the curved portions 16, 16 of the bottom of the perch. Thus the union of these parts is close and compact. The vertical reinforcement 8 strengthens the perch extension at the point where the strain of the union of the perch and the extension, (namely: at and near the bolt 22) occurs.

It will be understood that those portions of the perch extension which include an enlarged portion 3 in the front perch extension and 26 in the rear perch extension, and include the portion 4, beveled at 5, and countersunk with the hole at 6, 7, and reinforced at 8 and provided with shoulder 25 are equally applicable as the front perch extension or as the rear perch extension. When used as a rear perch extension, the



top portion of part 3 is transversely grooved at 30, as shown, to receive the rear axle. The combinations shown in Fig. 7 and in Fig. 10 are also equally applicable to the  
5 perch extension at front and rear.

If desired to adapt the invention to the various running gear or portions thereof on the market, changes may be resorted to without departing from the spirit of this in-  
10 vention.

Obviously some features of this invention may be used without others.

It should be mentioned that in the fifth wheel shown on the drawings, the upper  
15 half B of the fifth wheel has at its rear a lug B<sup>9</sup> extending forward. The lower half C of the fifth wheel carries at rear a brace having a vertical portion B<sup>10</sup> and a bottom portion B<sup>12</sup>. This latter is connected to the  
20 said lower half C of the fifth wheel by a screw B<sup>17</sup>. A bolt B<sup>14</sup> having a head B<sup>15</sup> secures the lug B<sup>9</sup> to the brace B<sup>10</sup>, B<sup>12</sup>. But as this lug B<sup>9</sup> and the brace B<sup>10</sup>, B<sup>12</sup>, screw B<sup>17</sup> and bolt B<sup>14</sup> are old and form no part  
25 of this invention, I have not given any further description of them.

What I claim as new, and of my invention and desire to secure by Letters Patent, is:—

30 1. In a running gear, the perch extension provided with the horizontal transverse countersunk hole, and a perch shell embracing a portion of the perch extension and having a hole whose countersunk flange fits  
35 into the countersunk recess of the hole of the perch extension, and a bolt located in said hole of the perch and the hole of the extension, and completing the union of the perch and of the extension, substantially as  
40 and for the purposes specified.

2. In a running gear, the perch extensions and a perch shell connected to each perch extension, the latter having the recesses 34, 34,  
45 one at each side of the perch extension and these respectively receiving the overlapping flanges of the perch shell, and means for bolting the perch shell to the perch extension, substantially as and for the purposes  
50 specified.

3. In a running gear, the perch extension provided with the horizontal transverse countersunk hole, and a perch shell embracing a portion of the perch extension and  
55 having a hole whose countersunk flange fits into the countersunk recess of the hole of the perch extension, and a bolt located in said hole of the perch and the hole of the extension, and completing the union of the perch and of the extension, and the vertical  
60 reinforcement on the perch extension below the countersunk portion of the said perch extension, substantially as and for the purposes specified.

4. In a running gear, a headblock plate, a  
65 fifth wheel, the perch extensions connected

to the headblock plate and strengthened at and forward of the rear portion of the fifth wheel and provided with the vertical reinforcement behind the fifth wheel, and with the countersunk horizontal hole, the perch  
70 extensions connected to the upper half of the fifth wheel and to the connections with the king bolt, and a perch shell having the incurved edges 15, 15, and connected to each  
75 perch extension, the latter having the recesses 34, 34, one at each side of the perch extension and these respectively receiving the said incurved overlapping flanges of the perch shell, the perch shell provided with the hole and countersunk flange, interfitting  
80 the countersunk recess of the perch extension, and a bolt through said perch extension, at said countersunk point, substantially as and for the purposes specified.

5. In a running gear, a fifth wheel, a head-  
85 block plate, the perch extensions connected to the headblock plate and connected to the upper half of the fifth wheel and to braces of the king bolt, and provided with the horizontal hole, and the perch shell having in-  
90 curved edge flanges, and a bottom perch piece having edge flanges curved to fit the inner sides of said incurved edges of the flanges of the perch shell, the perch extension having recesses adapted to receive the  
95 incurved flanges of the perch shell, and also having recesses to receive the curved flanges of the bottom of the perch shell, substantially as and for the purposes specified.

6. In a running gear, a fifth wheel, a head-  
100 block plate, the perch extensions connected to the headblock plate and connected to the upper half of the fifth wheel and to braces of the king bolt, and provided with the countersunk horizontal hole, and the perch  
105 shell having incurved edge flanges, and a bottom perch piece having edge flanges curved to fit the inner sides of said incurved edges of the flanges of the perch shell, the perch extension having recesses adapted to  
110 receive the incurved flanges of the perch shell, and also having recesses to receive the curved edge flanges of the bottom of the perch shell, the shell provided with the horizontal hole countersunk and having the  
115 countersunk flange interfitting the countersunk recess of the perch extension and the bolt having the head adapted to fit the countersunk recess, substantially as and for the purposes specified.  
120

7. In a running gear, the perch extensions provided with the vertical reinforcement behind the fifth wheel, the extensions being each provided above this reinforcement with a countersunk horizontal hole, and the perch  
125 shell joined to the extension and having recurved edge flanges, and a bottom piece having edge flanges curved to fit the inner sides of said incurved edges of the flanges of the perch shell, the perch extension having re-  
130



cesses adapted to receive the incurved flanges of the perch shell and also having recesses to receive the curved edge flanges of the bottom piece of the perch shell, the  
 5 shell provided with the horizontal holes, one of which is countersunk and having the countersunk flange interfitting the countersunk recess of the perch extension and the countersunk bolt for said holes, substantially as and for the purposes specified.  
 10

8. In a running gear, a perch having a shell open at the bottom but having there incurved flanges, and a bottom piece having a corrugated center and curved edge portions  
 15 contacting with the incurved flanges of the shell, and a perch extension having the countersunk horizontal hole, and the perch shell having the countersunk horizontal hole having a countersunk flange fitting the countersink of the perch hole, and a countersunk bolt therein, substantially as and for the purposes specified.  
 20

9. In a running gear, a perch having a shell open at the bottom but having there incurved flanges, and a bottom piece having a corrugated center and curved edge portions contacting with the incurved flanges of the shell, and a perch extension having the countersunk horizontal hole, and a vertical reinforcement on the perch extension  
 25 below said countersunk portion, and the perch shell having the countersunk horizontal hole having a countersunk flange fitting the countersink of the perch hole, and a countersunk bolt therein, substantially as and for the purposes specified.  
 30  
 35

10. In a running gear, a perch having a shell open at the bottom but having there incurved flanges, and a bottom piece having a corrugated center and curved edge portions contacting with the incurved flanges of the shell, and a perch extension having the countersunk horizontal hole, and a vertical reinforcement on the perch extension  
 40 below said countersunk portion, and the perch shell having the countersunk horizontal hole having a countersunk flange fitting the countersink of the perch hole, the perch extension having a recess at each side of the vertical reinforcement for the reception of the incurved flanges of the shell and also having recesses for the reception of the curved edge portion of the bottom of the shell, substantially as and for the purposes specified.  
 45  
 50  
 55

11. In a running gear, a perch having a shell open at the bottom but having there incurved flanges, and a bottom piece having a corrugated center and curved edge portions contacting with the incurved flanges of the shell, and a perch extension having the countersunk horizontal hole, and a vertical reinforcement on the perch extension below said countersunk portion, and the  
 60 perch shell having the countersunk horizontal hole having a countersunk flange fitting the countersink of the perch hole, the perch extension having a recess at each side of the vertical reinforcement for the reception of the incurved flanges of the shell and also having recesses for the reception of the curved edge portion of the bottom of the shell, substantially as and for the purposes specified.  
 65

tal hole having a countersunk flange fitting the countersink of the perch hole, the perch extension having a recess at each side of the vertical reinforcement for the reception of the incurved flanges of the shell and also  
 70 having recesses for the reception of the curved edge portion of the bottom of the shell, the extension having the tapered portion for insertion in the shell and the shell having a filler, which fits along and against  
 75 said tapered portion, substantially as and for the purposes specified.

12. In a running gear, a perch extension having a horizontal countersunk hole, in combination with a perch whose top and  
 80 sides embrace said extension, and whose sides have horizontal holes alining with the hole of the perch extension, the hole in one of said sides being countersunk, and having a countersunk flange which interfits the  
 85 countersink of the perch extension, substantially as and for the purposes specified.

13. In a running gear, a perch extension having a horizontal countersunk hole, in combination with a perch whose top and  
 90 sides embrace said extension, and whose sides have horizontal holes alining with the hole of the perch extension, the hole in one of said sides being countersunk, and having a countersunk flange which interfits the  
 95 countersink of the perch extension, the perch extension having a vertical reinforcement in the neighborhood of the countersunk hole, substantially as and for the purposes specified.  
 100

14. In a running gear, a perch extension having a horizontal countersunk hole, in combination with a perch whose top and sides embrace said extension, and whose  
 105 sides have horizontal holes alining with the hole of the perch extension, the hole in one of said sides being countersunk, having a countersunk flange which interfits the countersink of the perch extension, the perch extension having the shoulder against which  
 110 the end of the perch abuts, substantially as and for the purposes specified.

15. In a running gear, a perch extension having a horizontal countersunk hole, in combination with a perch whose top and  
 115 sides embrace said extension, and whose sides have horizontal holes alining with the hole of the perch extension, the hole in one of said sides being countersunk, having a countersunk flange which interfits the  
 120 countersink of the perch extension, the perch extension having the shoulder against which the end of the perch abuts, the perch extension having a vertical reinforcement in the neighborhood of the countersunk hole, substantially as and for the purposes specified.  
 125

16. In a running gear, the combination of the perch extension having a countersunk hole and a vertical reinforcement, and a shoulder forward of such hole and rein-  
 130



forcement, the perch shell having a top and sides whose edges are curved, and a separate perch bottom piece having curved edges adapted to engage the edges of the shell, and  
 5 having corrugations upwardly extending and located between said curved edges, the perch shell provided with a countersunk flange interfitting the countersink of the hole of the  
 10 perch extension, the perch extension provided on each side of the vertical reinforcement with a recess to respectively receive the curved edges of the shell, and with recesses at the rear of said recesses to respectively receive the corrugations of the bottom piece  
 15 of the perch, this bottom piece stopping at the rear of the vertical reinforcement.

17. In a running gear, the combination of the perch extension having a countersunk hole and a vertical reinforcement, and a  
 20 shoulder forward of such hole and reinforcement, the perch shell having a top and sides whose edges are curved, and a separate perch bottom piece having curved edges adapted to engage the edges of the shell, and having  
 25 corrugations upwardly extending and located between said curved edges, the perch shell provided with a countersunk flange in-

terfitting the countersink of the hole of the perch extension, the perch extension provided on each side of the vertical reinforcement with a recess to respectively receive the curved edges of the shell, and with recesses at the rear of said recesses to respectively receive the corrugations of the bottom piece of the perch, this bottom piece stopping at  
 35 the rear of the vertical reinforcement, the perch extension having its rear portion tapered, and the forward portion of the filler of the perch body tapered and fitting against the said tapered part of the perch extension.  
 40 within the space concluded by the perch shell and perch bottom.

18. In a running gear, the combination of the perch extensions, each provided with a horizontal bolt hole, and a vertical reinforcement in vertical alinement with said  
 45 bolt hole, the extension adapted to receive a perch shell having a bolt hole in alinement with the hole of the extension.

HENRY HIGGIN.

Attest:

HENRY A. FABER,  
 GEO. E. RICHARDS.