

B. M. WENTWORTH.  
SLEIGH AND BOB SLED RUNNER.  
APPLICATION FILED AUG. 13, 1909.

999,931.

Patented Aug. 8, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

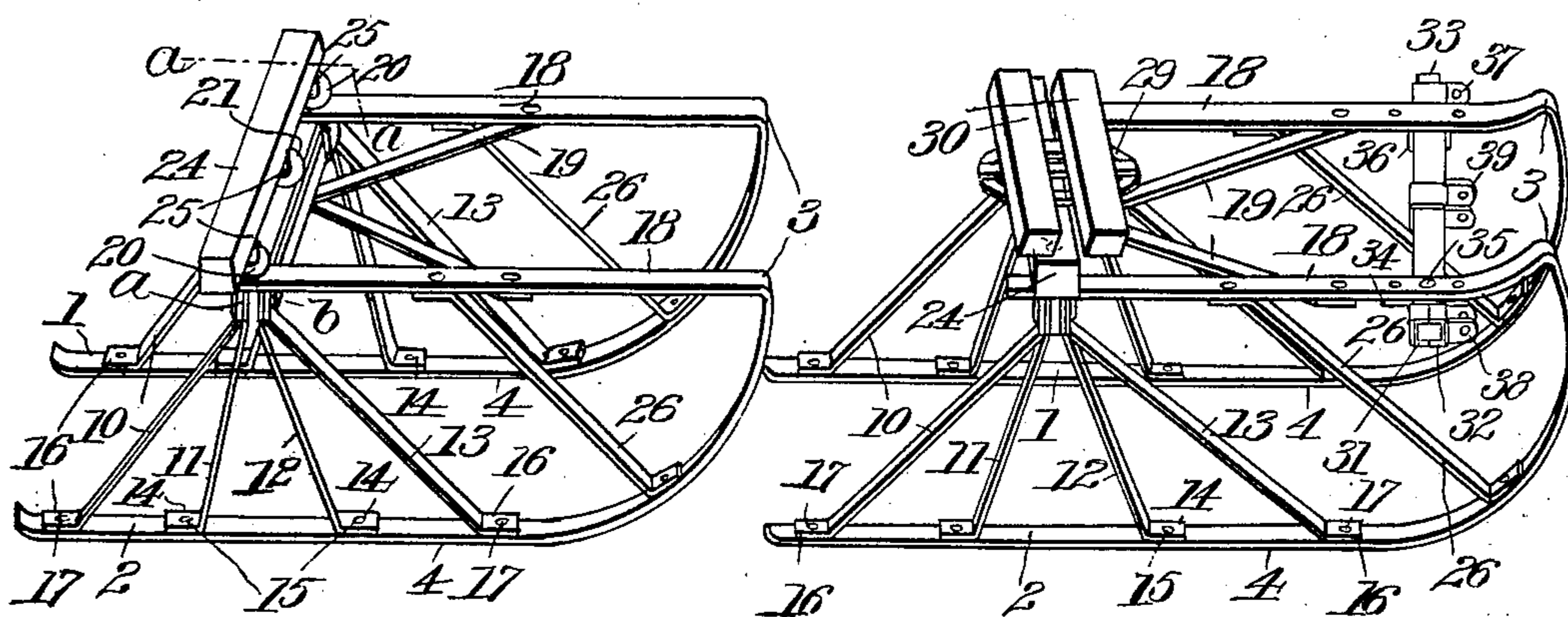
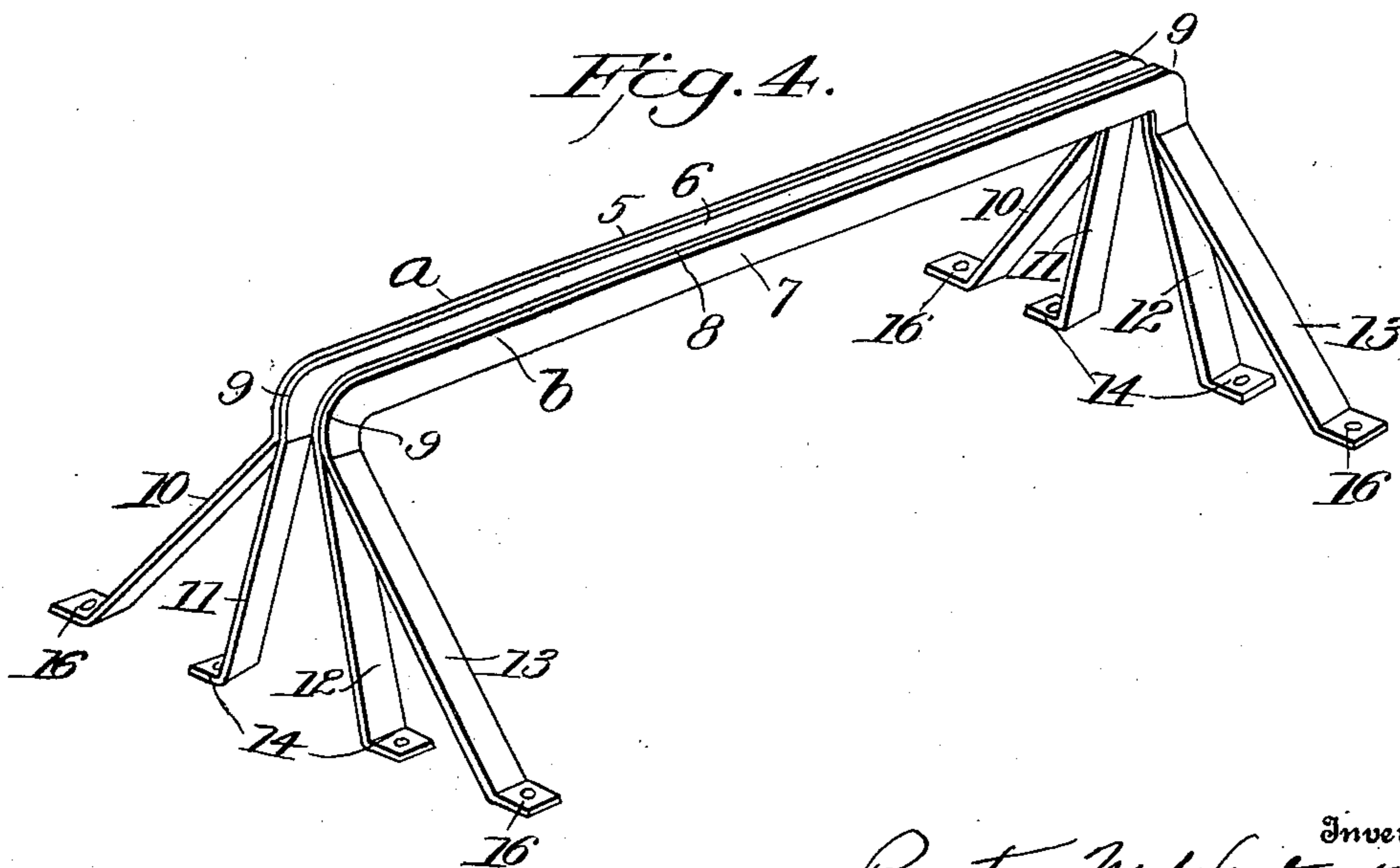


Fig. 4.



Witnesses

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*E. S. Dalton.*

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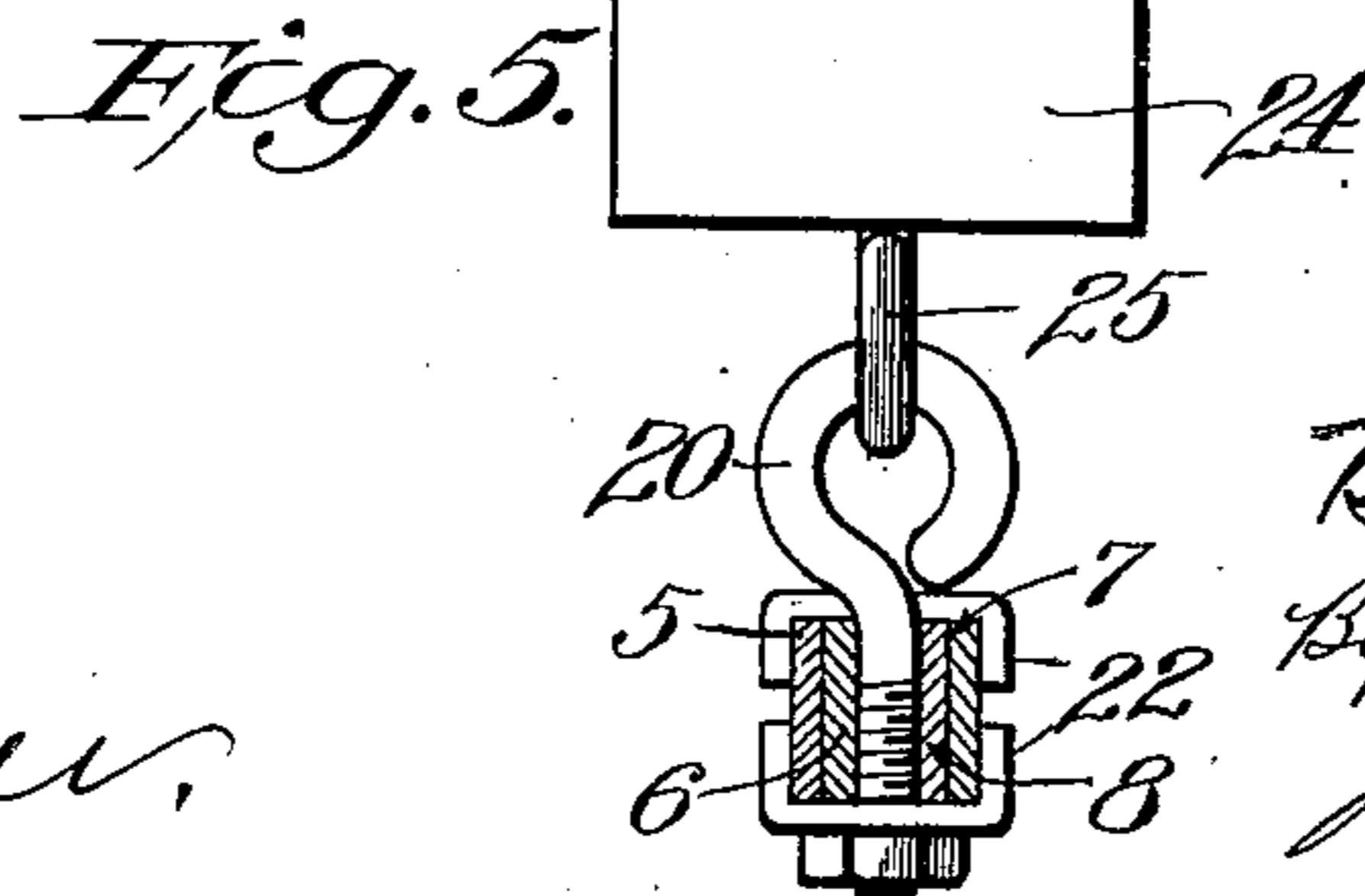
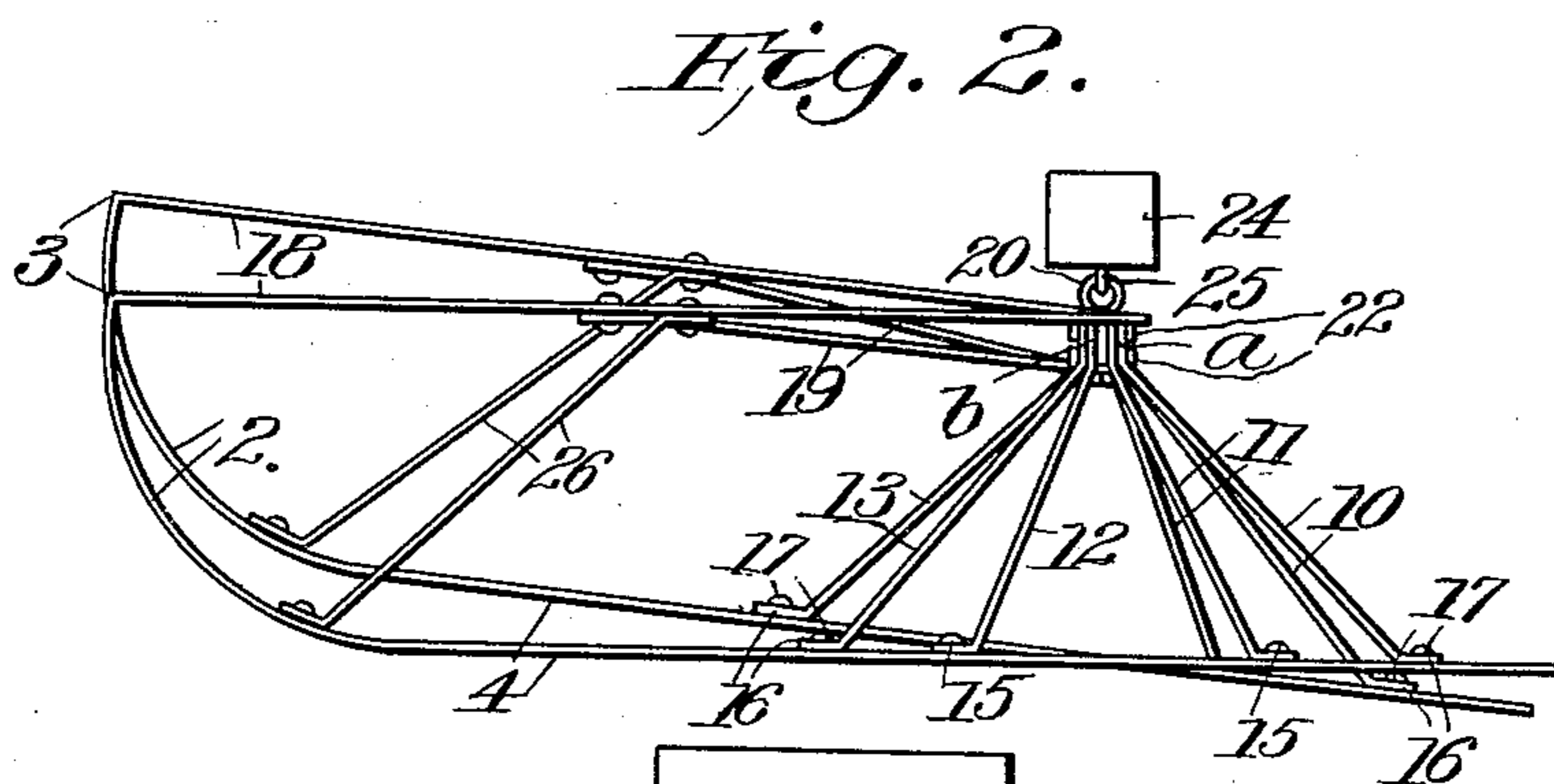
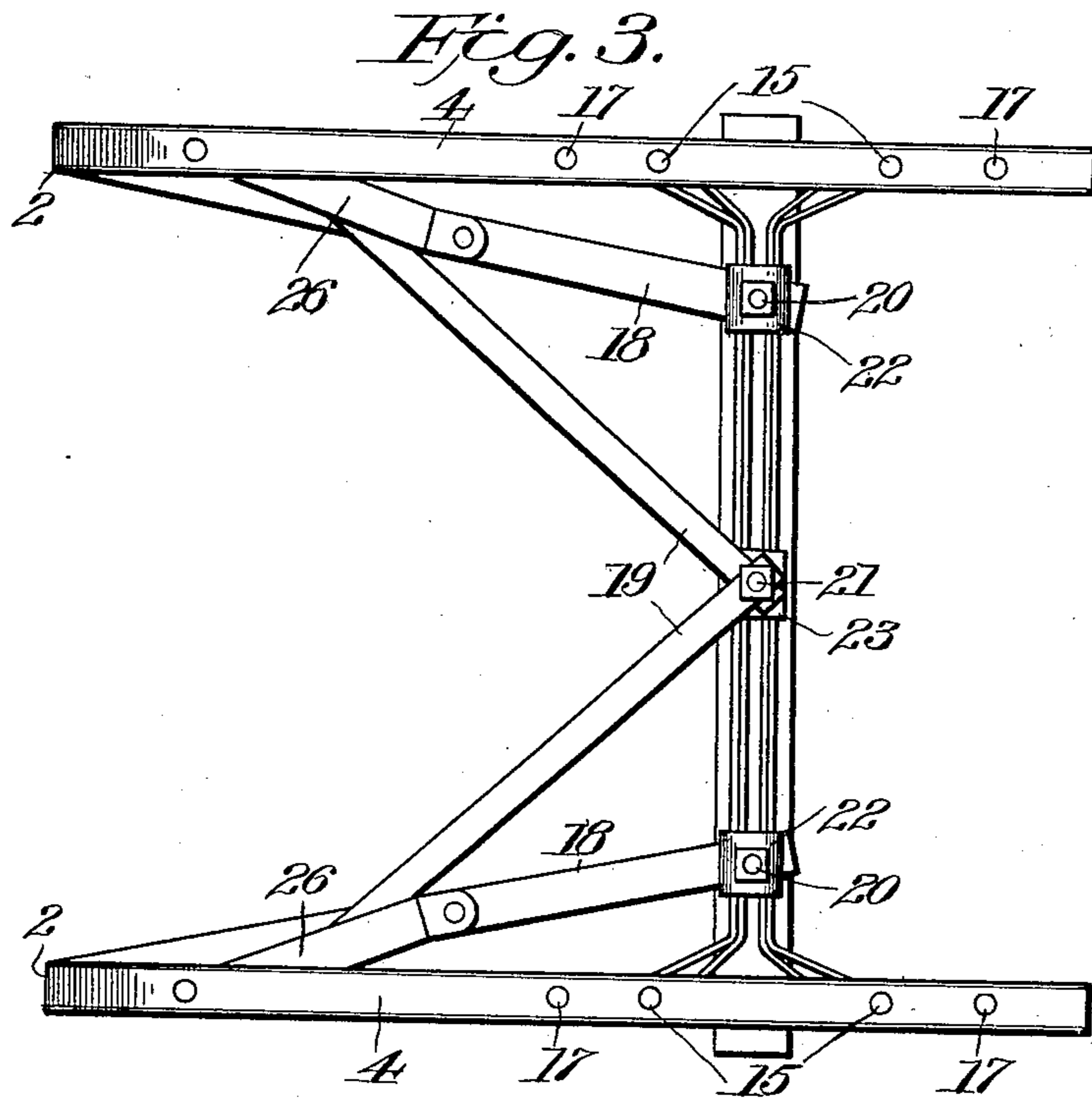
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3 SHEETS—SHEET 2.



Witnesses  
*E. S. Dalton*

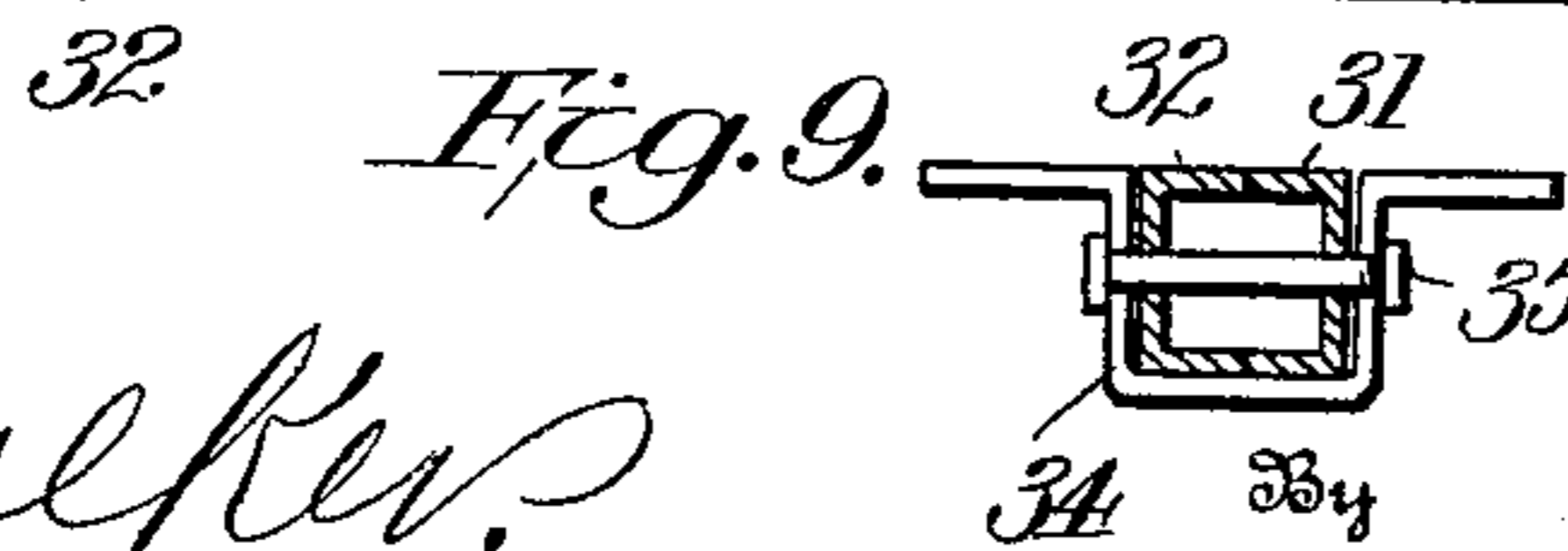
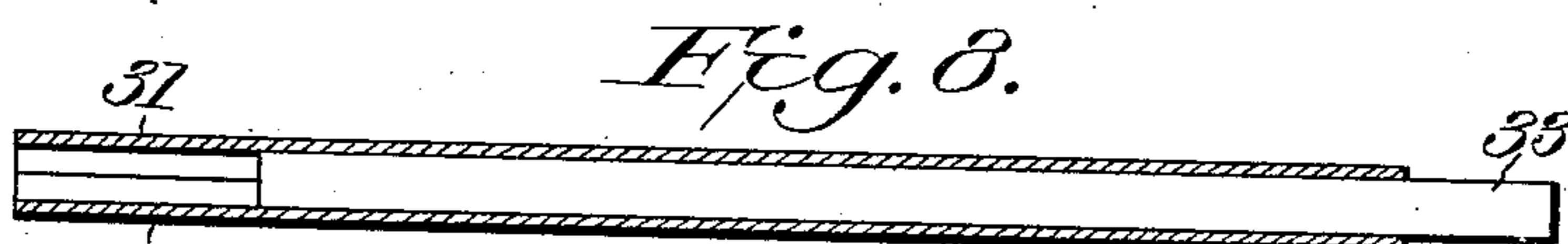
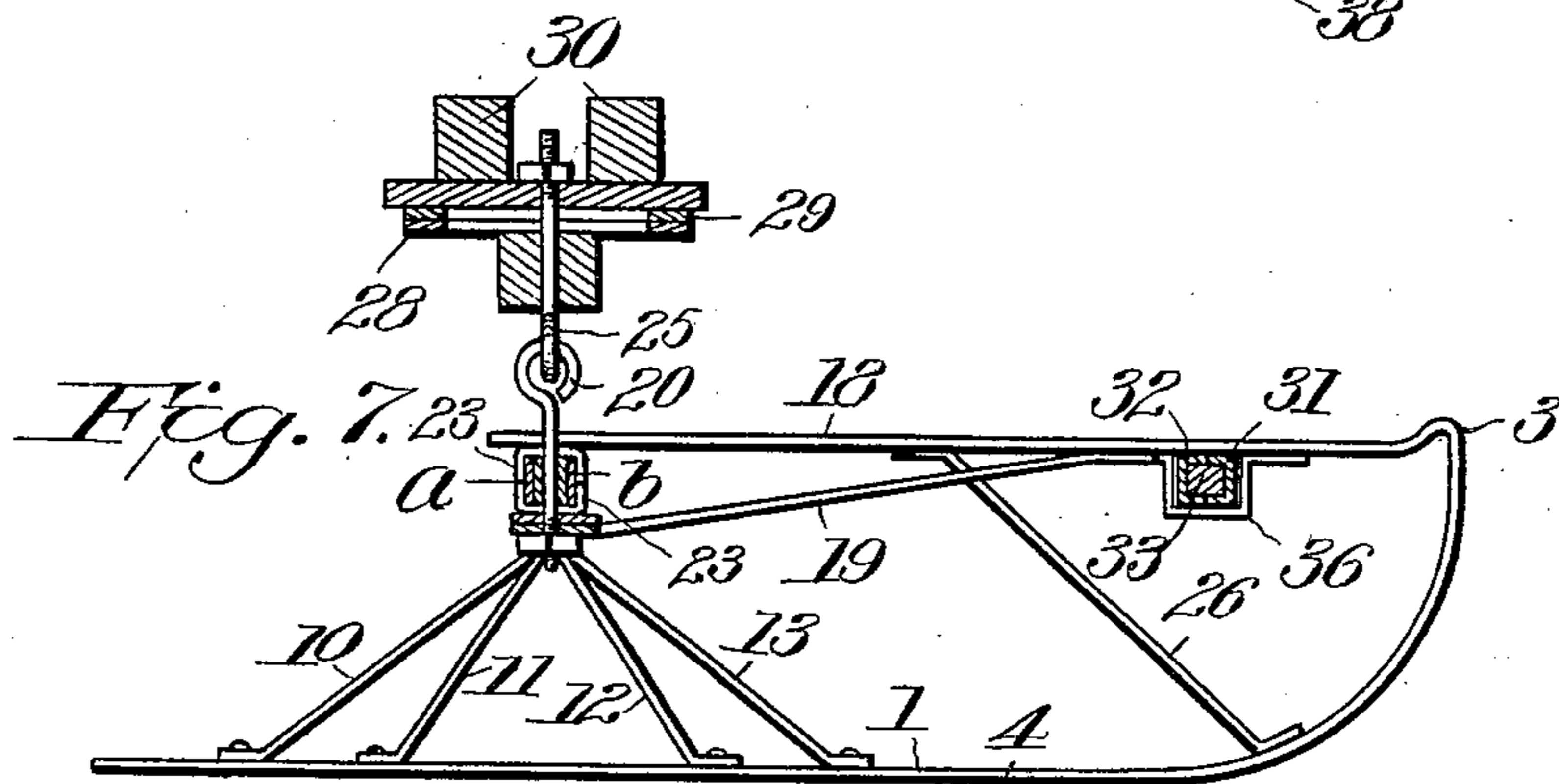
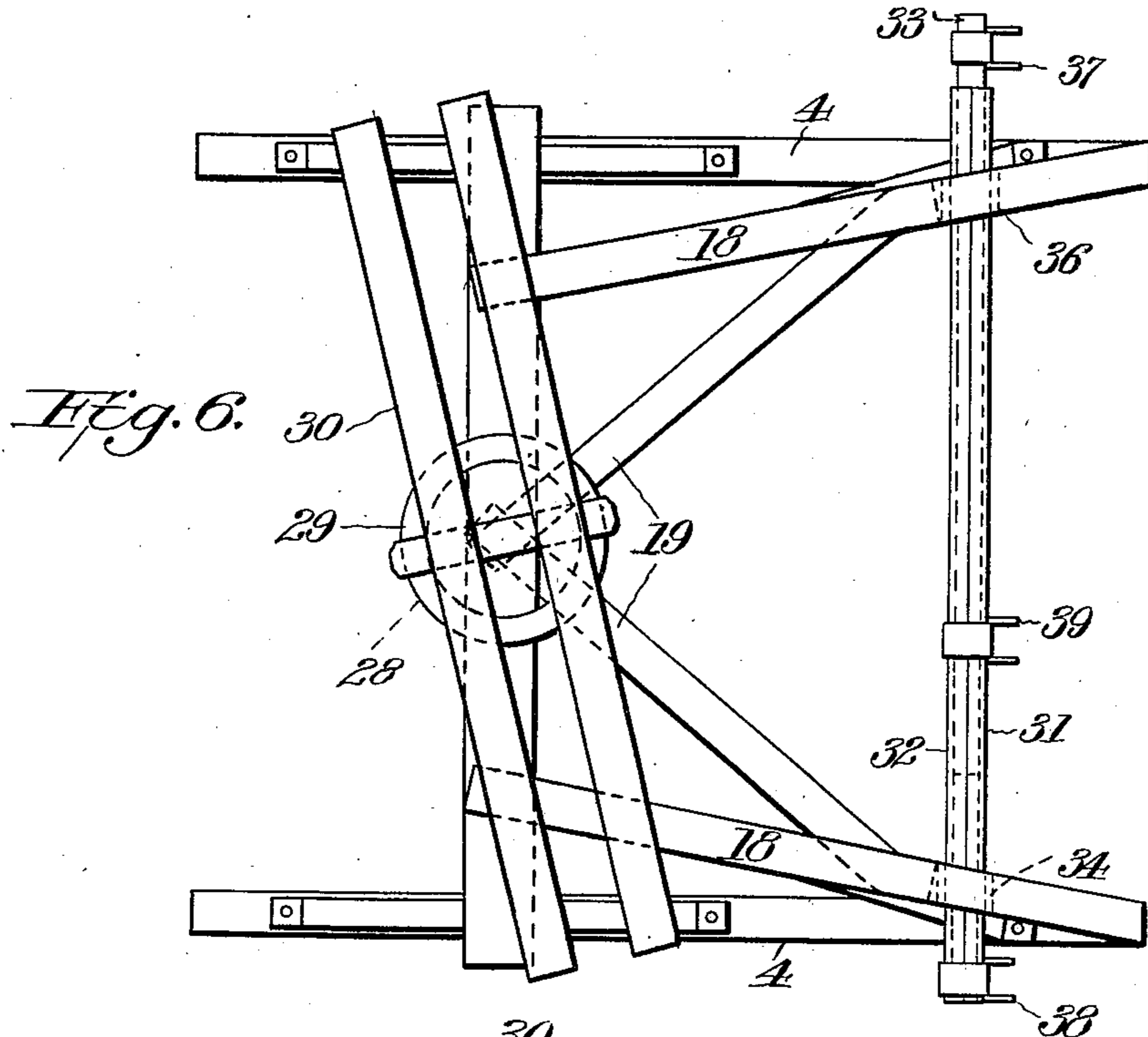
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3 SHEETS—SHEET 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

BARTON MORRILL WENTWORTH, OF SOMERSWORTH, NEW HAMPSHIRE.

SLEIGH AND BOB-SLED RUNNER.

999,931.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed August 13, 1909. Serial No. 512,721.

*To all whom it may concern:*

Be it known that I, BARTON M. WENTWORTH, a citizen of the United States, residing at Somersworth, in the county of Strafford and State of New Hampshire, have invented certain new and useful Improvements in Sleigh and Bob-Sled Runners, of which the following is a specification.

This invention relates to sleigh runners.

One object of the invention is to provide a strong, light, and very flexible runner and so constructed that when the runners are applied to a sleigh, they have a very high clearance for deep snow.

Another object of the invention resides in the provision of a sleigh whose runners are constructed to possess considerable flexibility so that the runners may readily adapt themselves to any unevenness of the road and thereby obviate undue strain being placed upon any part of the vehicle or the runners themselves.

A still further object of the invention resides in the provision of a runner which is efficiently braced through the instrumentality of suitable trusses which have a plurality of alining bearing points upon the runner, thereby strengthening the runner and not interfering with the flexibility thereof which it is my aim to provide for in the production of my present runner.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claims, it being understood that changes may be made in the form, proportion, size and minor details without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 illustrates two bob sleds disposed in alinement and in such position as to properly receive a sleigh body. Fig. 2 is a side elevation of the rear bob illustrating one runner raised so as to disclose the extreme flexibility of the runners. Fig. 3 is an inverted plan view of the rear bob. Fig. 4 is a detail perspective view illustrating the knee pieces and their truss bars. Fig. 5 is a transverse sectional view on the line *a—*a** of Fig. 1. Fig. 6 is a top plan view of the bob shown to the right in Fig. 1. Fig. 7 is a vertical longitudinal sectional view through the bob shown in Fig. 6. Fig. 8 is a longitudinal sectional view of the

draw bar disconnected from the bob. Fig. 9 is a transverse sectional view through the draw bar at the point where the draw bar is fixedly secured in the bracket on the right hand runner of the front bar.

Referring now more particularly to both of the bobs illustrated in the accompanying drawings, the reference characters 1 and 2 indicate the runners turned up at their forward ends to provide the usual noses 3 of a bob sled and also provided with shoes 4.

In the present structure, I provide pairs of knees, each pair of knees *a* and *b* comprising two members 5 and 6 and 7 and 8, respectively, the members of each knee extending across the device in substantially parallel relation and each being curved at 9 at its opposite ends and directed downwardly to provide truss bars 10, 11, 12 and 13, respectively, the inner members of each pair of knees diverging preferably evenly in a downward direction toward the runners 1 and 2 and provided with feet 14 for engagement with the upper faces of the runners and to which they may be secured firmly by means of suitable fastenings 15. The outer members 5 and 7 of the knees diverge downwardly a greater degree than the divergency of the inner members and are provided with feet 16 by which they may be secured to the upper faces of the runners through the instrumentality of suitable fastenings 17. It will thus be seen that the body of each member forming the knees is continued to form the trusses referred to, so that it is not necessary to form the bodies of the knees and their trusses of separate pieces and consequently require connections therebetween through the instrumentality of bolts, as is common in the art. By obviating the use of these bolts, I get farther away from the rigidity now manifest in sleigh runners, and provide for an extremely simple, inexpensive and flexible runner. The members 5 and 6, and 7 and 8 of the knees are preferably disposed together, but in order to insure proper flexibility of the runners, the inner members 6 and 8 of the knees are preferably spaced apart, as shown, and in a manner to be hereinafter explained.

The nose 3 of each runner is preferably directed backwardly to form a cap bar 18, and the cap bars 18 converge rearwardly, as shown, there being converging braces 19 extending rearwardly from a point substantially intermediate the ends of the cap bars

18 to a point midway of the lengths of the members forming the knees, and at their rear ends secured firmly to the under faces of the members forming the knees, with the caps secured to the upper edges of the members forming the knees.

The front and rear bobs have their inner members which form the knees spaced apart through the instrumentality of eye bolts 20 and 21, the outer eye bolts 20 passing through the inner ends of the cap bars 18 and downwardly between the inner members of the knees and also through the substantially U-shaped channeled clamping members 22. The intermediate eye bolts 21 pass through similar clamping members 23 and between the inner members which form the knees, and also through the inner overlapping ends of the braces 19. Thus the eye bolts 20 and 21 and the clamping members 22 and 23 have a dual function, in that they provide for a clamping of the parts together and also in the spacing of the pairs of knees from each other. The bobs have a bolster 24 provided with eyes 25 adapted to interlock with the eyes of the eye bolts 20 and 21, so that the bolsters may have a rocking movement longitudinally of the bobs, and it will be seen that the bobs are further braced by means of truss bars 26, each secured at its upper end to the under face of the corresponding cap bar 18 and at its lower end to the corresponding runner, preferably near the base of the nose of the latter. These forward trusses 26 are directed inwardly and upwardly, because of the rearward convergency of the cap bars 18 to which they are secured, and said trusses 26 are therefore slightly out of vertical plane with the four rear truss bars. Both bobs are substantially alike, and possess the same characteristics. However, there are some additions on the front bob that are not necessary on the rear bob. For instance, on the rocking bolster 24 of the front bob I dispose intermediate the ends thereof a fifth wheel element 28, with which coöperates a fifth wheel element 29 carried by the body bolster bar 30, these fifth wheel elements 28—29 being of any desired construction and arrangement. Another feature characteristic of the front bob which is not shown on the rear bob resides in the peculiar type of draw bar which consists of two channel irons 31 and 32 mounted between which is a square bar of iron 33 or any other suitable material, which is adapted to slide within said channel irons. The channel irons are mounted on the right hand runner by a bracket 34 suspended from the right runner, there being a bolt 35 passed through the bracket and the channel irons. The channel bars are mounted on the left hand runner in a bracket 36 similar to the bracket 34, but through this bracket 36 and the bars adjacent left hand runner I do

not pass a bolt, but permit the channel bars to have movement in the bracket 36 transversely of the bob so as not to interfere with the flexibility of the bob. The square iron strip 33 which is inserted in the left hand end of the channels is supposed to slide in and out freely and normally extends outwardly through the left hand end of the channel bars so that the left hand shaft (not shown) may be shackled to it through the instrumentality of the thill connection 37 on said bar 33, the right hand shaft (not shown) being shackled to the right hand end of the channels by means of thill connection 38 when it is desired to drive straight, or to the middle thill connection 39 on the channel bars when it is desired to drive sidewise. Thus when using the shaft for direct draft the shafts are connected to the shackle or thill connections 37 and 38, but if it becomes necessary to "set over" all that has to be done is to disconnect the left hand shaft from the thill connection 37 and force the shaft over and pull the bar 33 with the thill connection 37 outwardly of the channel bars 31 and 32 and place the right hand shaft in the thill connection 39. In making these changes the left hand shaft takes care of itself and it will be understood that in speaking of right and left hand shafts, that I mean right and left looking toward the horse.

It will thus be seen that on each runner I have five bearing points and that the runners possess considerable flexibility in direct contradistinction to those runners built principally to involve rigidity, in which latter case considerable bolts and stiff bars are employed, both stiff bars and numerous bolts being entirely absent from my invention, thereby rendering it not only more simple and less expensive of manufacture, but producing extreme flexibility, as stated. This flexibility of the invention is desired because it frequently happens that one runner contacts with a hump in the roadway, while the other runner contacts with a hollow. In rigid structures, this will cause a twisting of the sled and will place such strain upon it as to cause loosening of the joints and a consequent weakening of the sled. Heretofore, an attempt has been made to overcome these serious defects in rigid structures by further stiffening them, but I have followed a course directly opposite to that pursued in the manufacture of sleds, in that I provide knees having trusses so formed and arranged that the trusses themselves, as well as the knees may yield to overcome loosening of the parts, permitting of a free and easy ride over an uneven road.

What is claimed is:—

1. A bob sled comprising runners, a pair of spaced flexible knees, each member of each knee having a truss bar formed therewith

at each end and extending downwardly and secured to the runners, rearwardly converging cap bars leading from the forward ends of the runners to said knees, a separate truss bar secured to each runner and extending inwardly and secured to the corresponding cap bar, and rearwardly converging braces secured to the cap bars and to said knees.

2. A bob sled comprising runners, a knee including flexible cross members having flexible downwardly directed ends secured to the runners, rearwardly converging cap bars leading from the forward ends of the runners to the knee, and separate truss bars between the runners and the cap bars.

3. A bob sled comprising runners, a knee including flexible cross members having flexible downwardly directed ends secured to the runners, rearwardly converging cap bars leading from the forward ends of the runners to the knee, separate truss bars between the runners and the cap bars, and brace connections between the cap bars and the knee.

4. A bob sled comprising runners, a pair of spaced knees, each member of each pair of knees having downwardly directed bars secured to the corresponding runners, the truss bars of the inner members forming the knees diverging downwardly and the truss bars of the outer members forming the knees diverging downwardly to a greater degree than the divergency of said inner members, cap bars leading from the forward ends of the runners to the knees, separate truss bars between the runners and the corresponding cap bars, and brace connections between the cap bars and the knees.

5. A bob sled comprising runners, pairs of flexible knees, the members of each pair of knees having downwardly directed truss bars secured to the runners, cap bars leading

from the forward ends of the runners to the knees, separate truss bars between the runners and the cap bars, clamping members embracing the members forming said pairs of knees, and means passed through said clamping members and between the inner members of said pairs of knees to space the pairs of knees apart.

6. A bob sled comprising runners, pairs of flexible knees, the members of each pair of knees having downwardly directed truss bars secured to the runners, cap bars leading from the forward ends of the runners to the knees, separate truss bars between the runners and the cap bars, clamping members embracing the members forming said pairs of knees, brace bars connecting the cap bars and the knees, eye bolts passed through said clamping members, the rear ends of said brace bars and between the inner members of said pairs of knees to secure said brace bars to the knees and to hold the pairs of knees in spaced relation, and a bolster having eye bolts connected to the aforesaid eye bolts.

7. A bob sled comprising runners, pairs of knees having downwardly directed truss bars secured to the runners, cap bars leading from the forward ends of the runners to the knees, separate truss bars between the runners and the cap bars, and brace connections between the cap bars and the knees, all of said parts being formed of flexible material, whereby upon elevation of one of the runners the normal running position of the companion runner will not be affected.

In testimony whereof I have affixed my signature, in presence of two witnesses.

BARTON MORRILL WENTWORTH.

Witnesses:

BENJ. M. DRAKE,  
RANSOM B. CROSS.