

(No Model.)

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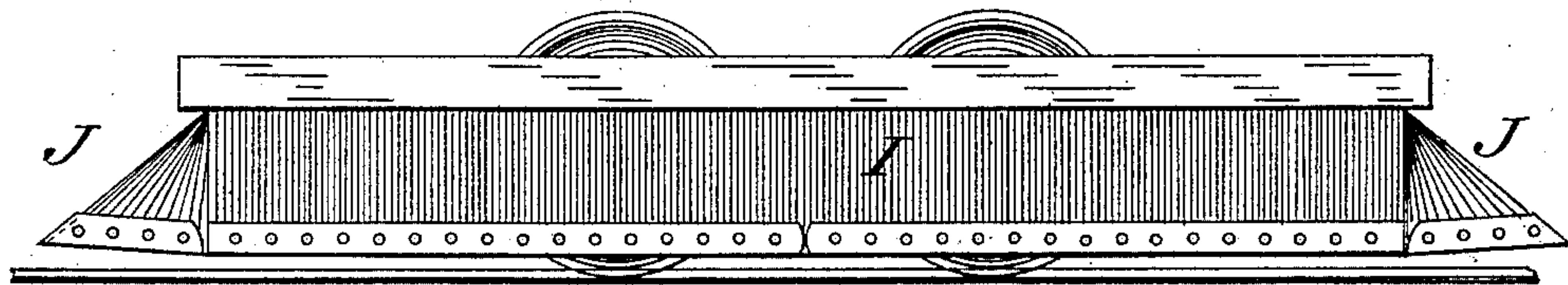
G. W. ELLIOTT.

CAR FENDER.

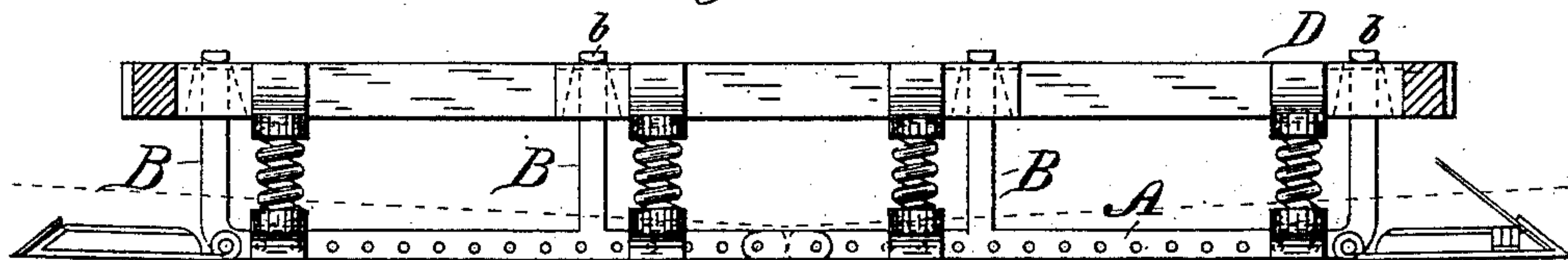
No. 360,516.

Patented Apr. 5, 1887.

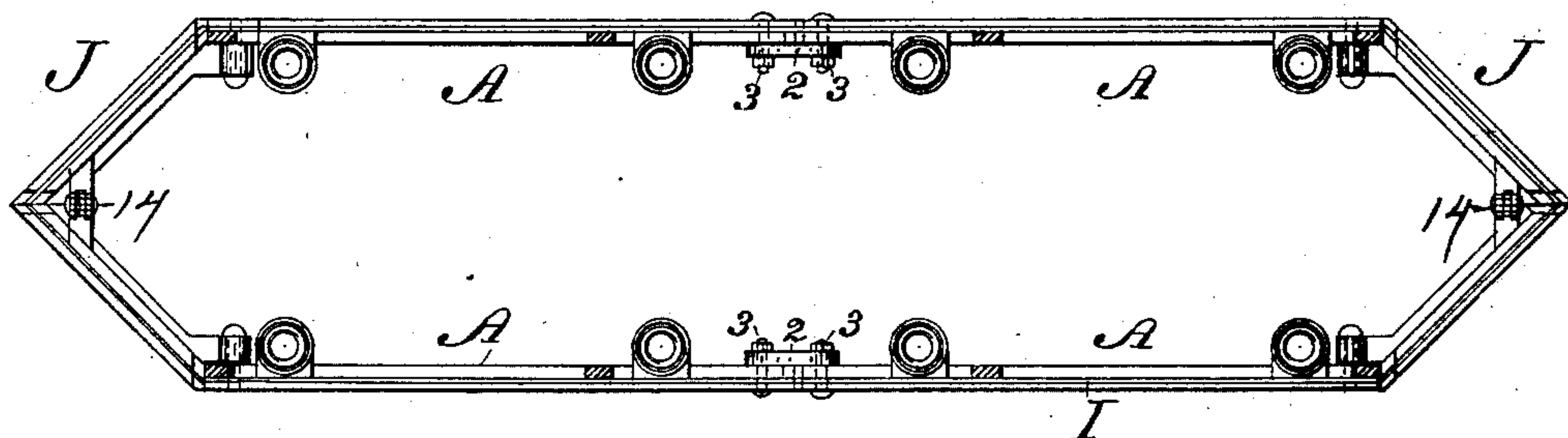
*Fig. 1.*



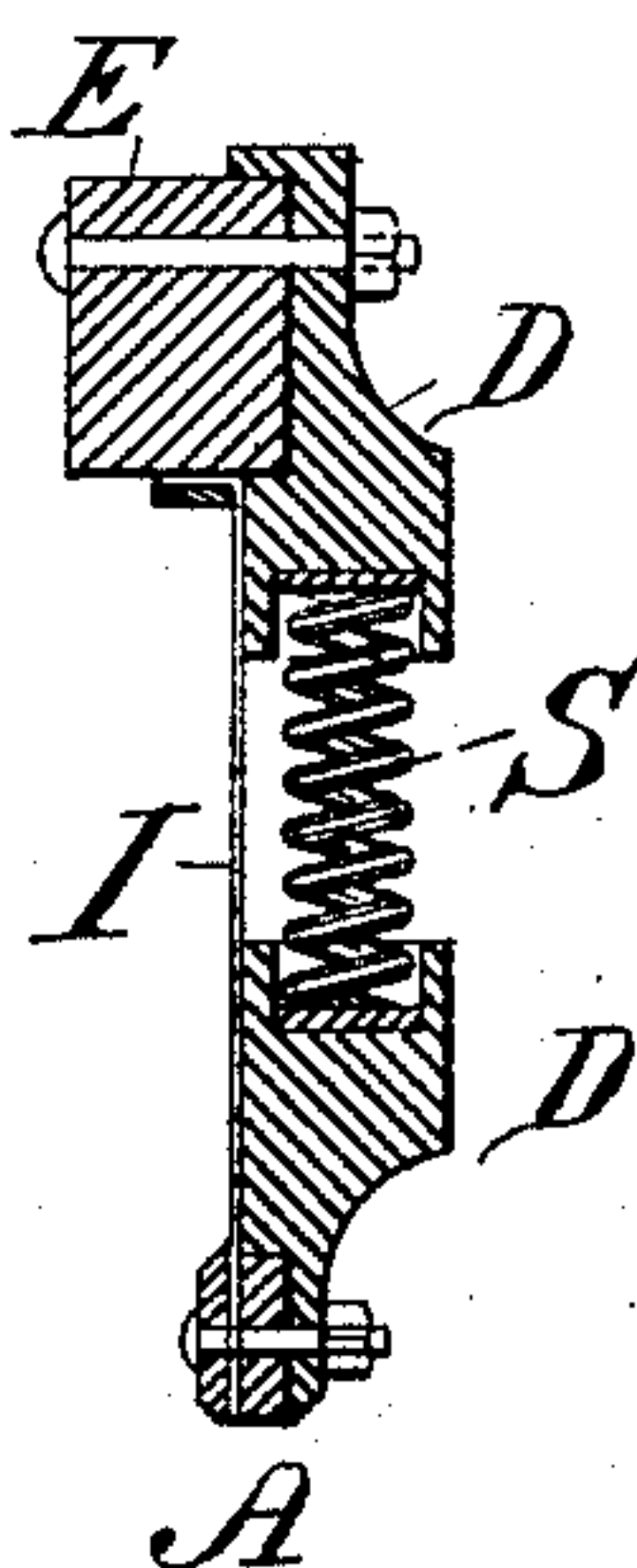
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES:

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INVENTOR,  
*G. W. Elliott*  
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(No Model.)

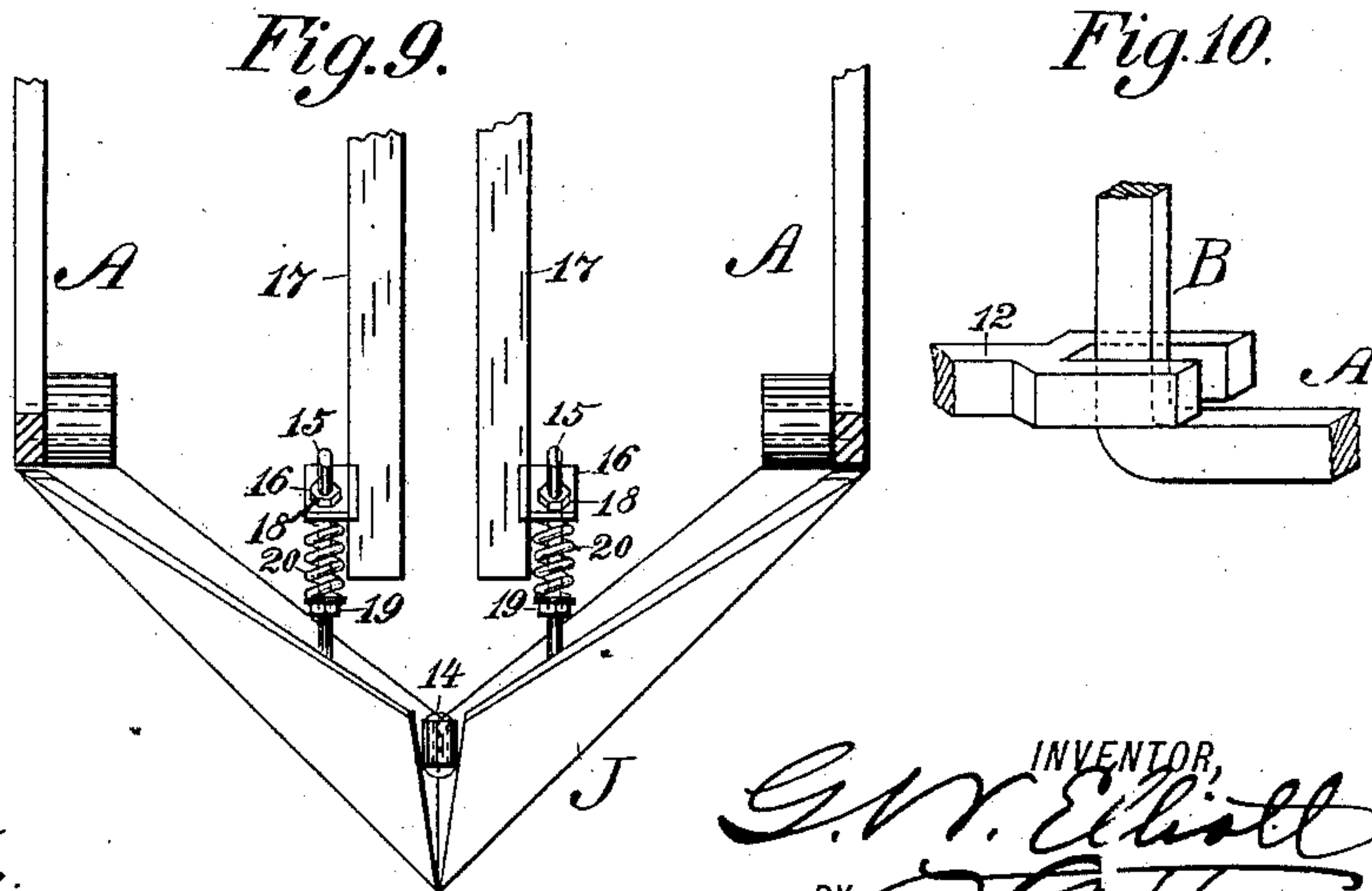
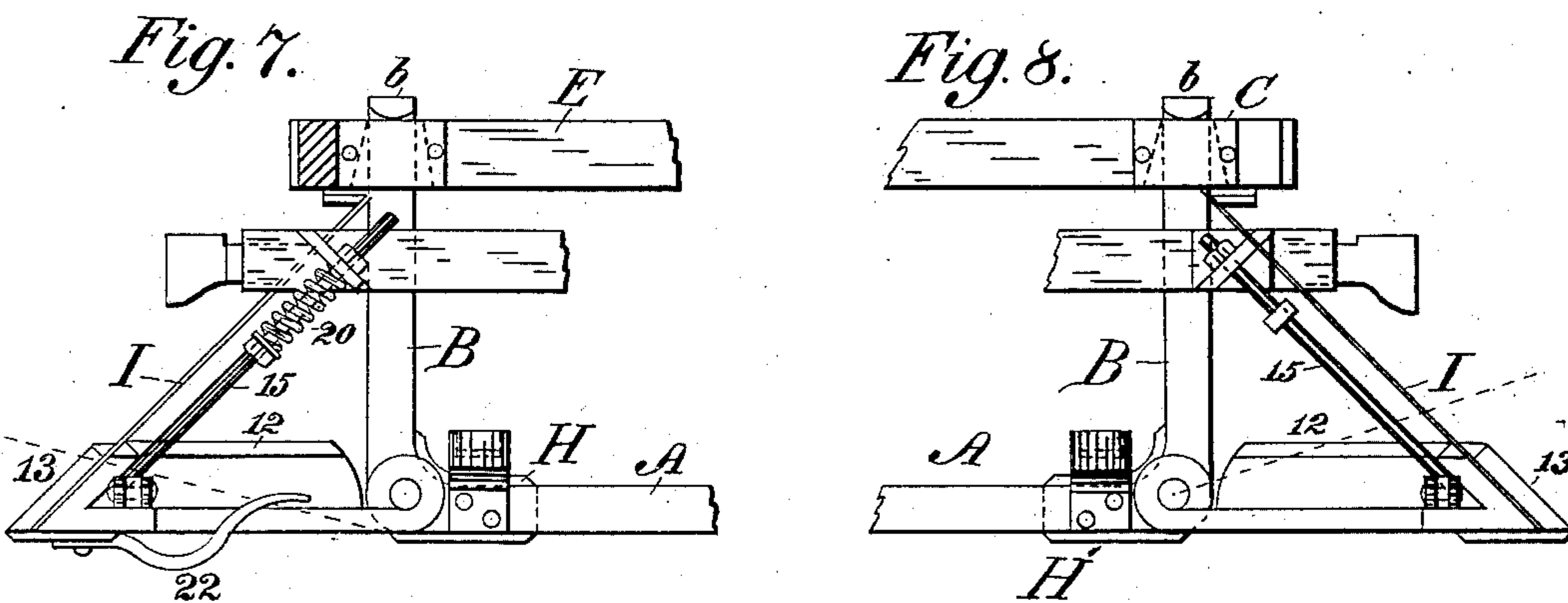
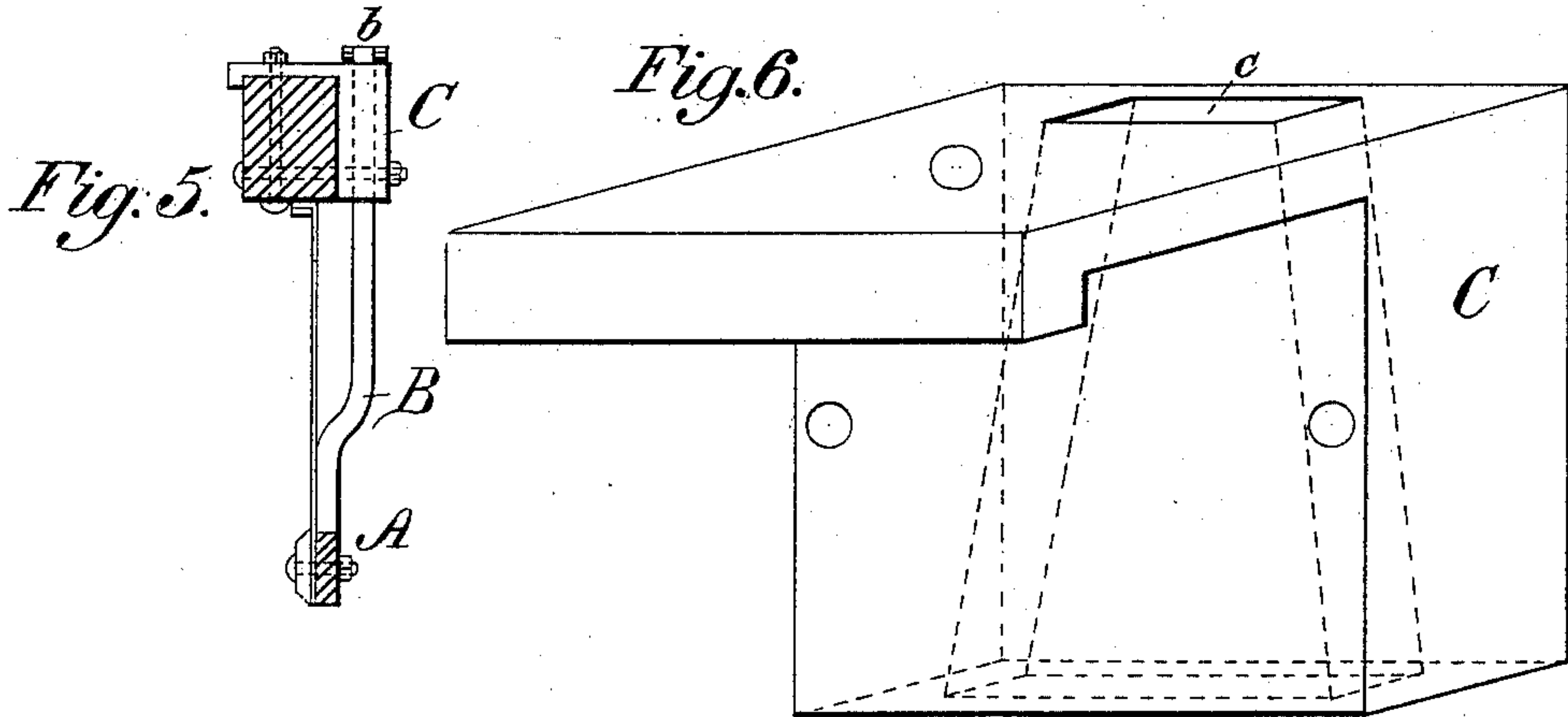
2 Sheets—Sheet 2

G. W. ELLIOTT.

CAR FENDER.

No. 360,516.

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# UNITED STATES PATENT OFFICE.

GEORGE WALTER ELLIOTT, OF KANSAS CITY, MISSOURI.

## CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 360,516, dated April 5, 1887.

Application filed December 7, 1886. Serial No. 220,884. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE WALTER ELLIOTT, of Kansas City, Jackson county, Missouri, have invented certain new and useful  
5 Improvements in Automatic Car-Fenders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a safety attachment  
10 for cable, elevated, or street cars; and the object which I have in view is to provide a fender for such cars that will be automatic or self-adjusting in operation, and particularly to provide a fender that will operate with certainty on roads that traverse steep inclines  
15 and heavy grades.

The invention may be said to consist in the devices and combination and arrangement of devices hereinafter set forth, and pointed out  
20 in the claims.

In the drawings, which illustrate the manner of carrying out the invention, Figure 1 is a side elevation of a cable-car truck fitted with my improved fender. Fig. 2 is a longitudinal  
25 section through the car-framing and through the continuous framing of the fender, the canvas being removed. Fig. 3 is a plan view of the continuous framing of the fender detached from the car-framing. Fig. 4 is a detail  
30 section through a portion of the car-framing, spring sockets or pedestals, a portion of the fender-framing, and a spring located between the car-framing and the fender-framing for holding the latter down to its normal position. Fig. 5 is a detail view of one of the  
35 hangers which loosely connect the fender-framing to the framing of the car. Fig. 6 is a perspective view of a hanger-bracket, enlarged, which is attached to the framing of the car. Fig. 7 is a sectional elevation of one end  
40 of the fender attached to the car-framing and showing details of construction. Fig. 8 is a view of the opposite end of the fender, which is similar to the other except that the spring  
45 for depressing the pilot is omitted therefrom; Fig. 9 is a plan view of one end of the fender, or rather of a pilot, as I shall refer to the ends of the fender as "pilots" in the following description; and Fig. 10 is a detail view  
50 showing a variation in the manner of connecting the heel or rear end of the pilot to the

fender-framing, so that said rear end can slide up and down during the operation of the devices.

Referring again to the drawings, the letter  
55 A indicates a pair of side frames, made of iron bars and of any width or thickness that may be required, and their respective ends are turned upward at a right angle to the main portion, so that they may take the form of a  
60 sort of runner, and, although these side frames may be constructed in a single piece from end to end, yet I prefer to break them at about the middle of their length, or at any desired point  
65 in their length, and hinge the different portions together, which may be done in any convenient way. For this purpose, however, I make use of a strap or link, 2, which is located  
70 on the inner side of the framing-sections and overlaps the respective ends, and bolts 3, which pass through said ends and through the strap,  
75 as shown, thus forming what may be termed a "knuckle-joint" between the sections, and permitting the frames to be lifted at any point near the center of their length without raising  
80 their ends, which are turned upward. It will thus be seen that the fender-framing is divided into two sections—that is, two sections upon each side of the car—which are loosely connected together.

Hangers B are formed integral with the  
85 bars of the side frames, A, and extend upward a sufficient distance to engage brackets C, which are fixed to the car-frame for the purpose of supporting the said side frames and to  
90 guide them in upward movement. I may also term the ends of the frame A which are turned upward "supporting-hangers," as they are similar in form to the hangers before mentioned; and, further, all of said hangers B may  
95 be pivoted at their lower end to the side framing, A, and the operation of the invention will still be substantially the same.

The upper end of the hangers B are provided with a semicircular shoulder or "rocker," b,  
95 which engages the upper surface of the brackets C, and said brackets are constructed with an open-ended passage or socket, c, which flares downwardly from the upper to the lower  
100 surface thereof, thereby permitting said hangers to oscillate a limited distance in said passage when the fender strikes an obstruction, and



also permitting said hangers to telescope into the brackets when the bottom of the frame comes in contact with the ground; and in striking the ground one section of the framing can raise without disturbing the others from their normal position, in which case one or more of the hangers B will telescope or move farther into the brackets and the others will keep their same position.

The side frames, A, are yieldingly held down to their normal position by means of a series of spiral springs, S, which are located at suitable points along the said frame. Sockets or pedestals D, for the reception of the ends of the said springs, are mounted oppositely on the respective framings of the car and the fender. Constructing the side framing in sections in this way makes it easy of repair when damaged by accident, as the damaged section can readily be disengaged from the others without removing them from their position on the car.

To save the frame A from destructive wear by contact with the ground during operation, I provide a series of short friction-shoes, H, which consist of a casting or a piece of wrought-iron of any desired shape that will answer the purpose, and which are fastened to said frame at suitable points along its length, so as to project a short distance below its lower edge, as indicated more clearly in Figs. 7 and 8.

The entire side frame, A, and the shoes H are designed to act similar to a sleigh-runner, to slide on the ground where the ground is high and to be suspended by the hangers B while in normal position.

It will be noticed that with the side frames, A, of the fender, and with its ends or pilots J, a continuous fender is provided, which encircles the car completely and affords almost absolute protection to life and limb, no matter at what point on the car an accident may happen, and, besides this, the construction of the fender is such that it will operate with certainty on the steepest inclines and the heaviest grades.

The pilot J, which is provided at each end of the car and which operates in conjunction with the side frames, A, is formed, Figs. 7 and 8, of an iron frame or sill, 12, pointed at its front end in the usual manner, or rounded to suit the builder. It may be formed either with a stationary nose piece or shoe, 13, or it may be provided with a hinge, 14, at its apex, thereby hinging its two sides together, as indicated in Fig. 9. The heel or rear end of the pilots may either be rigidly bolted to the sections of the side frames, A, or they may be hinged thereto in some way, as shown in Figs. 7 and 8, so that the entire pilot can rise up with the section of the side frame to which it is attached; or, in the construction shown in Fig. 9, where the two sides of the pilot are hinged together at their front end, only one side of the pilot will rise with the section when striking the ground, and the other side will retain its normal position. In the construction shown in Figs. 7 and 8 the heel of the

pilot J is hinged to the front end of the side frame, A, and its front end is supported and held at a normal height from the ground by means of one or more supporting-rods, 15. The lower end of these rods are loosely connected to the sills 12 of the pilot in any desired way. The upper end is provided with a screw-thread, and passes through an eyebolt or a bracket, 16, located on the dead-woods 17 of the car-frame, and is also fitted with a check nut or nuts, 18, whereby it may be adjusted to proper position. Another nut, 19, is located on the bolts 15, some distance below the brackets 16, and a coiled spring, 20, is located between the said nut and the said bracket, as shown. The object of this construction and the action of the spring 20 is to yieldingly hold the pilots down to their proper place in relation to the fender-framing.

In regard to attaching the pilots to the fender-framing, I would say that it is desirable to allow said pilots to rise at their heels in some instances, and for that purpose I adopt the construction indicated in Fig. 10. In this figure the sills 12 of the pilot are bifurcated at their rear ends, and the fork thus formed is made to loosely engage the upturned end of the side framing, A, thereby permitting the heel of the pilot to rise and lower on the fender-framing independently of said framing. With this last-described construction, when an object is struck by the pilot it will either be lifted by it and then thrown to one side out of the way of the wheels or, if the object is stationary and cannot be moved, the entire pilot, heel and all will be raised up.

The entire framing of the fender is to be covered with strong canvas or leather, or any pliable material, and this covering, which is designated by the letter I, is fastened to the car-frame E by any suitable devices that will answer the purpose. For instance, the pliable covering I may be removably secured to the car-framing above and to the framing of the fender below by means of button-bolts located on the framing, which are engaged by eyelets or button-holes cut in the said covering, or with strips bolted or screwed fast upon the edge of the covering, as may be desired; or the covering may be sewed on around the framing or plates thereof.

In practice I may omit the pilots J altogether, if I so desire, and in that case the side framings and covering will be continued across the ends of the car, and a continuous fender, which encircles the car, will still be provided. The pilots J are covered in a manner that is similar to the way in which the side frames are.

If desired, a curved runner of steel, 22, may be secured to the pilot-nose 13, so as to project a short distance below the same and take some of the wear therefrom.

The operation of the fender on roads that traverse steep inclines will be about as follows: When the front end of a car, or either end thereof, strikes the foot of a hill the bot-



tom of the nose 13 will come in contact with the ground and will raise the front end of the pilot J first, and, as the forward movement of the car continues, the shoes H will next strike the ground and raise one section of the side framing, A, and inversely as the other end of the car reaches the foot of the hill. After the foot of the hill has been passed the springs on the pilot and the springs on the side frames will return the respective parts to their normal position, as before described.

Having thus described my invention, what I claim is—

1. In a safety attachment for cable and other cars, the side frames extending from end to end of the car, in combination with hangers rigidly attached to said side frames and loosely joined to the framing of the car, and springs attached to the framing of the car and to said side frames for the purpose of restoring the side frames to their normal position when thrown therefrom, substantially as described.

2. In a car-fender, a pilot provided with a hinge at its point, whereby its two sides are permitted to rise and fall independently of each other, for the purpose substantially as described.

3. In an automatic car-fender, the side frames formed in sections, in combination with a double-hinged joint loosely connecting said sections, so as to allow them to rise and fall independently of each other, substantially as described.

4. In a car-fender, a pilot formed in sections and provided with a hinge at the junction of said sections, in combination with springs adapted to force said sections into their normal positions when thrown therefrom, substantially as described.

5. In a car-fender, a pilot hinged to the front ends of the side frames, in combination with movable supporting-rods for holding said pilot at its normal height from the ground, substantially as described.

6. A pilot for cars, coupled to the side frames of the fender by a pin or bolt which passes through said side frames and engages the rear ends of the pilot-sills, so as to allow a free up-and-down movement of the pilot, substantially as described.

7. In a car-fender, a pilot, in combination

with the side frames, supporting-rod 15, and spring 20, located on said rod, to yieldingly hold said pilot down, substantially as described.

8. In a car-fender, the side frames extending from end to end of the car, in combination with hangers rigidly secured to said side frames and provided with rockers on their upper ends, and brackets secured to the framing of the car and provided with apertures through which said hangers loosely pass, substantially as described.

9. In a car-fender, the combination of the side frames, the hangers rigidly attached thereto, the brackets through which said hangers loosely pass, and the springs attached to the framing of the car and to the said side framing to yieldingly hold the side framing in its normal position, substantially as described.

10. In safety-fenders for cable cars, the combination of side frames, A, made in two sections and supported by hangers B, brackets C, located on the car-frame and engaged by said hangers, spring-pedestals D, located oppositely on the car-frame and the side frames, and springs S, located between the pedestals, substantially as and for the purpose set forth.

11. The bracket C, provided with flaring passage c, in combination with a hanger, such as B, having rocker b formed upon or secured to its upper end, for the purpose specified.

12. In safety-fenders for cable cars, the side frames thereof, provided with friction-shoes to save said frame from wear by contact with the ground, as specified.

13. In safety-fenders having pilots, the pilot J, constructed with the rear end of its sills bifurcated, in combination with the side frames of said fenders, whereby the heel of the pilot can rise and lower on said frames independently thereof.

14. In safety-fenders having pilots, a metal runner removably secured to the nose of the pilot or pilots so as to project a short distance below the under surface thereof, for the purpose specified.

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

GEORGE WALTER ELLIOTT.

Witnesses:

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J. H. EDWARDS.