

(No Model.)

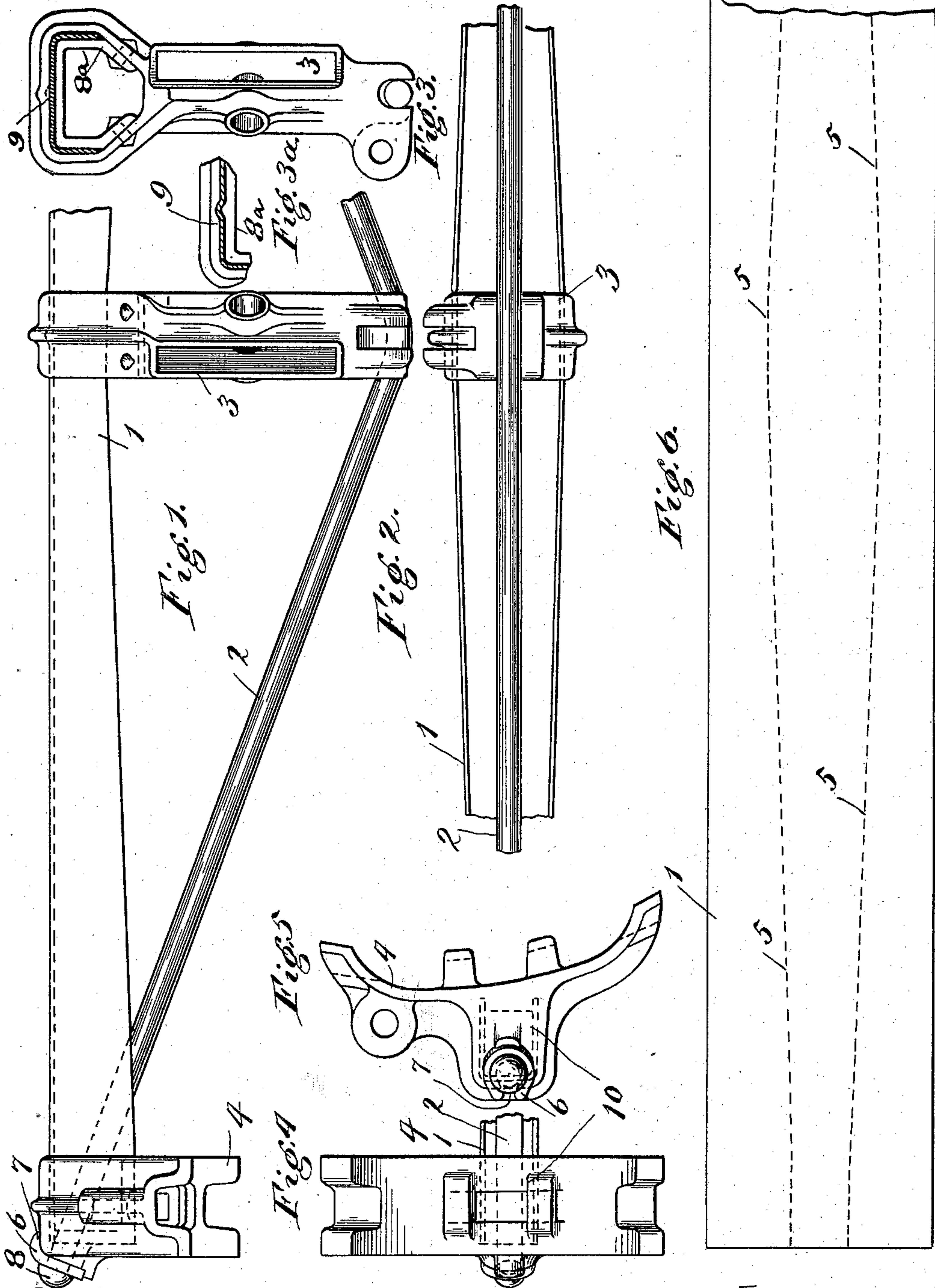
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C. L. SULLIVAN & C. E. BURNAP.

BRAKE BEAM.

No. 567,664.

Patented Sept. 15, 1896.



Witnesses:

Grace Ober
J. Annie Burnap.

Inventors

Charles L. Sullivan
Charles E. Burnap

By

Paul Symmesbedt Atty

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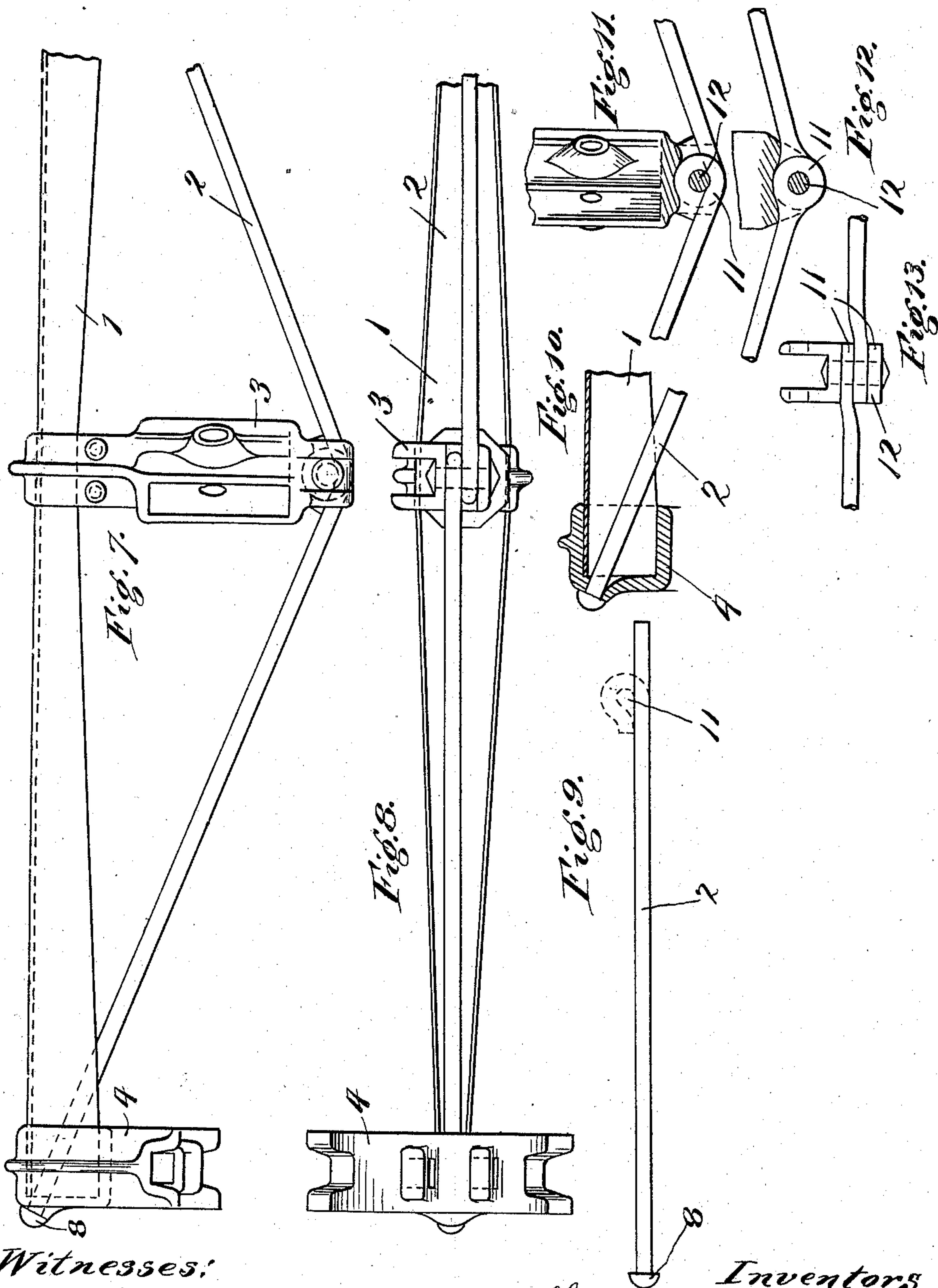
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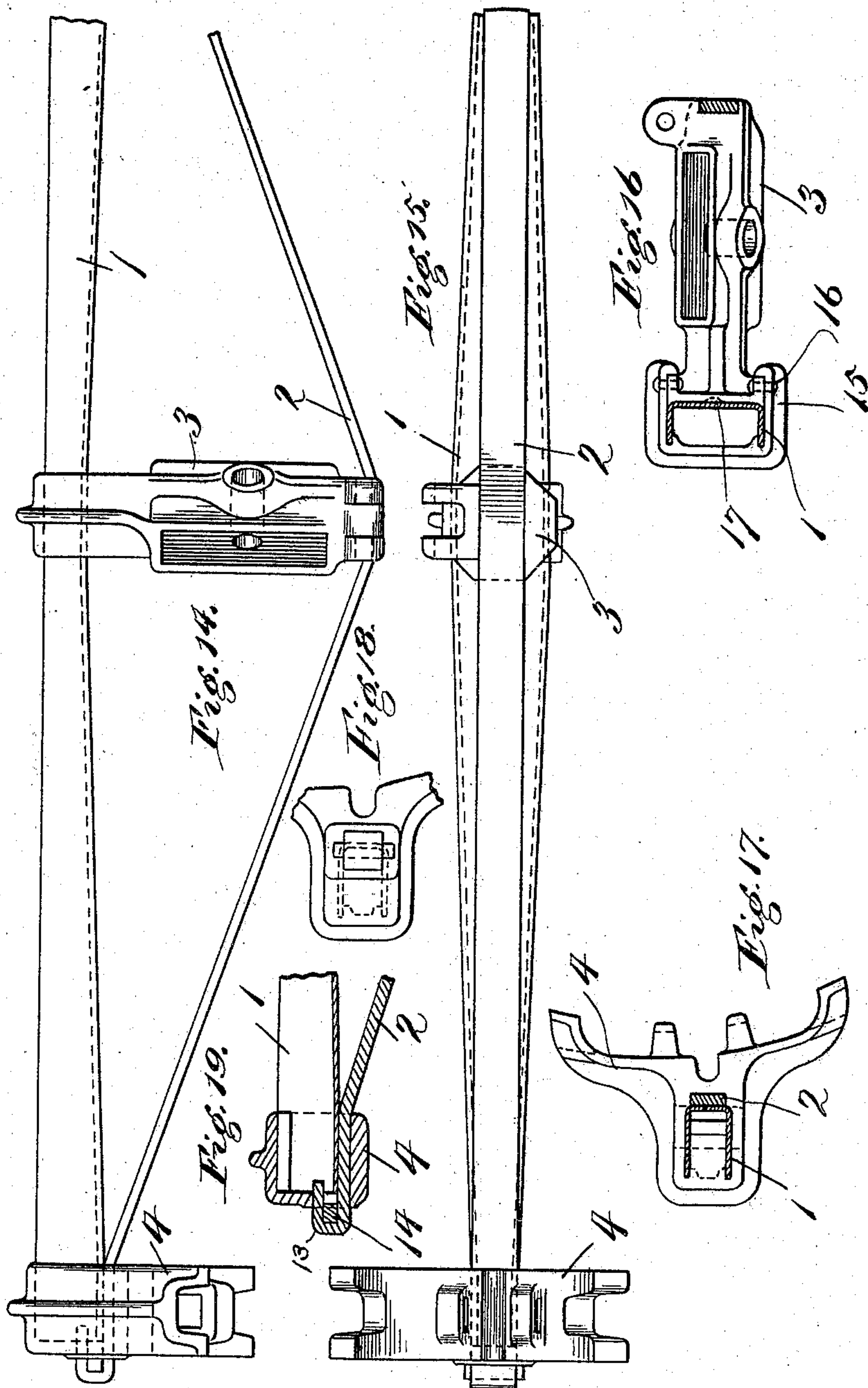
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UNITED STATES PATENT OFFICE.

CHARLES L. SULLIVAN AND CHARLES E. BURNAP, OF CHICAGO, ILLINOIS,
ASSIGNORS TO THE AMERICAN BRAKE BEAM COMPANY, OF SAME PLACE.

BRAKE-BEAM.

SPECIFICATION forming part of Letters Patent No. 567,664, dated September 15, 1896.

Application filed June 1, 1896. Serial No. 593,824. (No model.)

To all whom it may concern:

Be it known that we, CHARLES L. SULLIVAN and CHARLES E. BURNAP, citizens of the United States, residing in Chicago, Cook
5 county, Illinois, have invented certain new and useful Improvements in Brake-Beams, of which the following, taken in connection with the accompanying drawings, is a specification.

10 To most of the many forms of beam heretofore proposed there are a number of objections, prominent among which may be mentioned a lack of sufficient vertical stiffness in the middle part and horizontal stiffness next
15 the heads, a tendency of the strut to move to one side or other along the compression member and out of its central position, liability of nuts to work loose and threads to strip, expense of manufacture, difficulty of repair, and
20 excessive cost of maintenance.

To overcome the above-mentioned objections, our invention consists in certain details of construction, (to be hereinafter particularly
25 pointed out in the claims,) which we shall now proceed to describe, reference being had to the accompanying drawings, in which—

Figures 1 and 2 are partial views of a beam embodying our improvements. Figs. 3, 3^a,
30 4, and 5 are details of the same. Fig. 6 represents the sheet of metal from which the compression member is made. Figs. 7, 8, 9, 10, 11, 12, and 13 represent modified forms of a beam containing our improvements; and
Figs. 14, 15, 16, 17, 18, and 19 represent still
35 other modifications, all, however, containing our improved compression member combined with the other parts.

Referring now more particularly to Fig. 1, it will be seen that our beam comprises a
40 compression member 1, a tension member 2, a strut 3, and brake-heads 4. To secure in the compression member 1 the best distribution of the metal to resist the strains to which it is subjected, we construct the same from
45 a flat piece of metal, (see Fig. 6,) bending it up at the edges along the oblique lines 5, so as to form a channel having a wide web at or near its middle and a comparatively narrow web, but wide flanges, at or near its ends.
50 This channel we so arrange in combination with the other parts of the beam that when

put in position under a car the web will occupy approximately a vertical plane, the widened part, at its middle, giving to the beam the maximum vertical stiffness possible
55 with a given weight of metal and the wide flanges at each end giving ample strength where it is most needed to resist the strains due to applications of the brake. It is preferable to combine the channel with the other
60 parts, so that its flanges will extend in the direction of the tension member, as this makes a better form of fastening of the parts at the ends, but it is obvious that the same form of channel might be used with substantially
65 the same beneficial results save as to the fastening of the parts at the ends with the flanges turned in the opposite direction.

Combined with the channel described we have shown a number of arrangements of tension members and end fastenings, each of
70 which we will now describe in turn.

In the design shown in Figs. 1, 2, 3, 4, and 5 the tension member consists of a round rod having a riveted or forged head 8 at each of
75 its ends. To permit these ends to pass through the brake-heads when the latter are put in place, we provide in the castings holes which are materially larger than the diameter of the rod; and then to prevent the withdrawal of
80 the rod from the heads we slip under the buttons or heads on the ends of the rod split washers 6, which are bent together and over the corner of the brake-head, as shown at 7, so as to prevent their working loose. This
85 construction is easy and cheap to make, can cause no trouble by working loose of nuts or stripping of threads, and can be readily taken apart by simply prying up the ends of the split washer 6 whenever it is necessary to re-
90 pair or replace any of the parts.

Referring now to Fig. 3, wherein is shown a view of the strut with the compression member in section, it will be seen that after the compression member is put through the hole
95 in the end of the strut a split casting 8^a is put inside and expanded until it holds the channel firmly against the inside of the strut, to which it is riveted, as shown. Here we provide a notch or recess, or a projection, if preferred, in the channel, as at 9, designed to
100 register with a corresponding notch or recess

in the inside or outside casting. This prevents the displacement of the strut, which is such a common fault with many of the constructions now in service, for it is obvious
 5 that with such a notch or recess any slipping of the strut toward one end or the other of the channel is impossible. This we have illustrated a little more in detail in Fig. 3^a.

In Figs. 4 and 5, in dotted lines marked 10,
 10 is clearly shown the socket into which is fitted the end of the compression member 1, and except in so far as concerns this socket or recessed opening for the end of the compression member any form of brake-shoe fasten-
 15 ing desired may of course be used.

In the design shown in Figs. 7 and 8 substantially the same form of compression member, tension member, strut, and brake-heads are shown as have been already described,
 20 the principal difference being that in these views, in place of the tension-rod being secured by the use of a split washer at its ends, slipped under a button, it is made with a loop or a couple of eyes 11 (see Figs. 9, 10, 11, 12,
 25 and 13) at its middle point, through which is riveted or otherwise secured a transverse pin 12.

In Figs. 14 and 15 is shown a construction in which a metal strap is substituted for the
 30 round rod or tension member of the previous arrangements. Substantially the same form of compression member, strut, and end pieces are used as before, the last named, however, being slightly altered to suit the metal strap.
 35 The ends of the strap are passed through the brake-head, as clearly shown in Fig. 19, and then bent back in such a way as to form a loop 13, projecting out beyond the outer side of the brake-head, into which is inserted a
 40 key 14 for holding the parts together. Figs. 17, 18, and 19 show this method of fastening with sufficient detail to make further explanation of it unnecessary.

In Fig. 16 another method of fastening the strut in place is shown. In this construction
 45 a stirrup-iron 15, surrounding the compression member 1, is riveted to the strut 3 by means of the pins 16, the small notch or projection for keeping the strut from being displaced by slipping along the channel being
 50 shown at 17.

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

1. In a brake-beam, the combination with
 55 a tension member, strut, and brake-heads, of a compression member of a channel shape, having a wide web at or near its middle, and a comparatively narrow web but wide flanges
 60 at or near its ends, substantially as described.

2. In a brake-beam, the combination with a compression member, strut, and brake-heads, of a tension member having upset
 65 heads or buttons on each end thereof, loops or eyes at or near the middle point thereof, and a pin engaging said loops or eyes, substantially as and for the purpose described.

3. In a brake-beam the combination with a compression member 1, tension member 2,
 70 strut 3, and brake-heads 4, of upset heads or buttons 8, and split washers 6, arranged substantially as shown and described.

4. In a brake-beam, the combination with a compression member, and a strut having
 75 an opening at one end through which said compression member passes; of a split casting 8^a, inserted within said compression member where it passes through said strut, and expanded to hold the same in place, substantially as shown and described.

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Witnesses:

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