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C. A. LINDSTRÖM.

BRAKE BEAM.

APPLICATION FILED SEPT. 20, 1906.

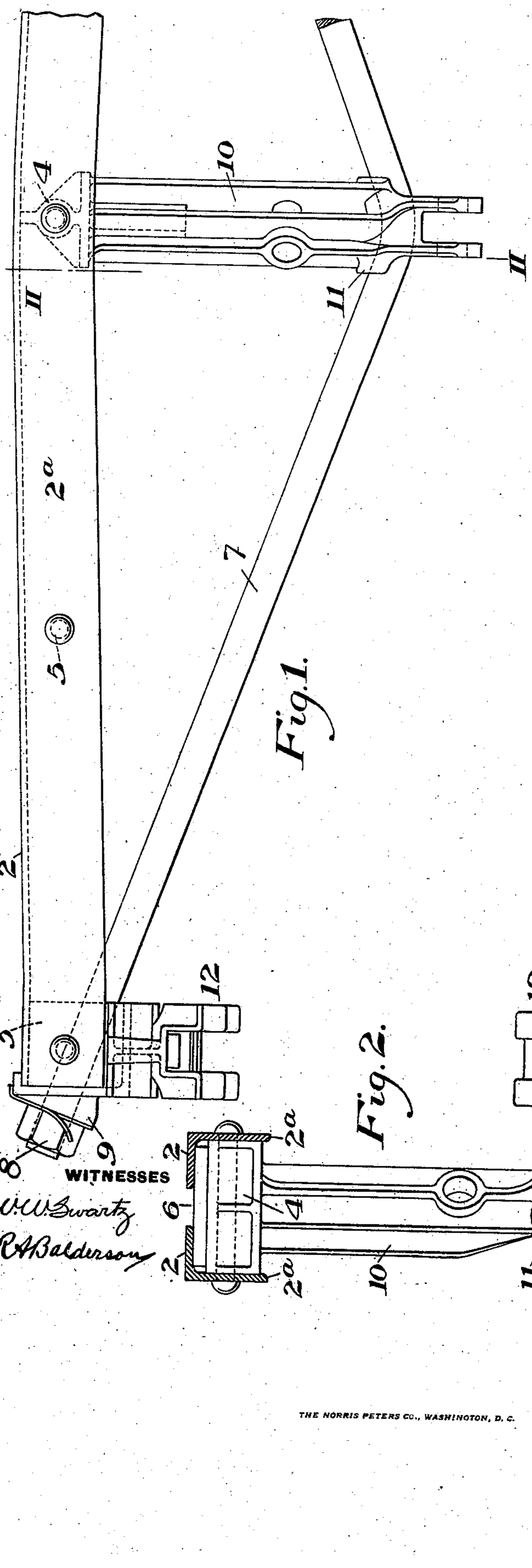

Fig. 1.

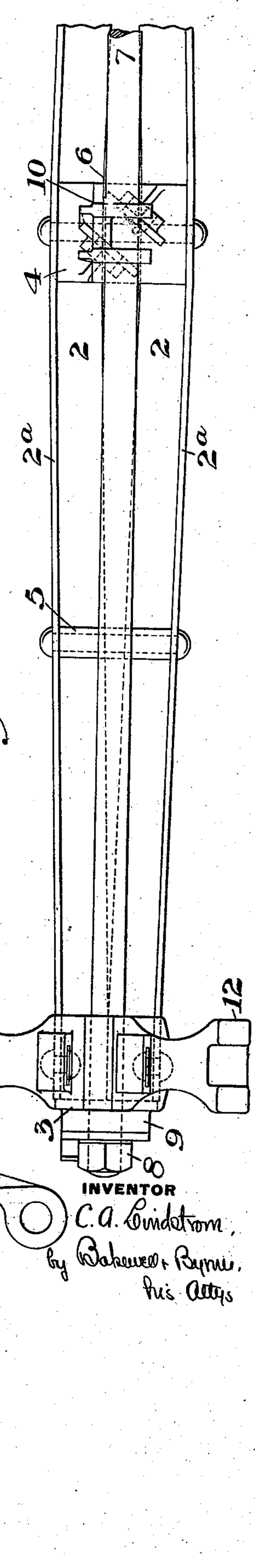

Fig. 3.

Fig. 2.

WITNESSES

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BRAKE-BEAM.

No. 847,671. Specification of Letters Patent. Patented March 19, 1907.

Application filed September 20, 1906. Serial No. 335,367.

To all whom it may concern:

Be it known that I, CHARLES A. LINDSTRÖM, of Allegheny, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Brake-Beams, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a portion of a brake-beam embodying my invention. Fig. 2 is a section on the line II II of Fig. 1, and Fig. 3 is an edge or front view of that portion of the beam shown in Fig. 1.

My invention has relation to the class of brake-beams generally designated as "trussed" beams, and is intended to provide a brake-beam having a compression member constructed so as to obtain the greatest strength with the minimum of material.

Theory teaches and practical tests have demonstrated, first, that in order to have sufficient strength both horizontally and vertically the compression member of a trussed brake-beam should be proportioned according to the requirements of a column of two different lengths or units—that is, horizontally in the direction of the applied force—which should have proportions required by a column whose length is the distance from the center of the beam, where it is supported by the strut, to the end of the beam, where it is held by the rod, and vertically it should have proportions required by a column whose length is the distance between the two ends and which length is twice as great as the first-mentioned; second, that the weakest part of the column is at the center of its length, at which point as a consequence the effective area of the material should be the greatest, and, third, that the farther a given area of material is removed from the neutral axis of the section the greater is the efficiency to withstand bending force. A compression member constructed of a single rolled piece of material will not meet these requirements with the minimum material on account of having the same area throughout its length, and consequently there is more material at the ends than the stresses demand. Trussed beams made heretofore, in which the compression member has been of uniform sections, whether made of rolled, pressed, or cast shapes, have therefore been heavier than required.

With these objects in view my invention consists in the novel construction, arrangement, and combination of parts, all substantially as hereinafter described, and pointed out in the appended claims.

In the drawings, the numeral 2 designates two rolled angle shapes of which the compression member of the beam is mainly formed. These two shapes are arranged with their vertical flanges extending inwardly toward each other and with their horizontal flanges 2^a forming the upper and lower sides of the compression member. The two angles 2 are spaced by means of end spacers 3, a central spacer 4, and any desired number of the intermediate spacers 5. At the center of the compression member the inner edges of the horizontal angles 2 are separated by a space 6, which is gradually decreased toward each end of the beam by bringing the angles gradually closer together. The angles are also preferably bowed somewhat, as shown in Fig. 1.

7 designates the usual tension member, which is preferably a continuous bent rod whose end portions extend through the end spacers 3 and are secured by nuts 8 against seats 9, formed integrally with the spacers.

10 is the usual center strut, which is secured to the central spacer 4 and which carries an open bearing 11 for the central portion of the tension member 7.

12 designates the supports for the brake-shoes, which are secured to the end spacers 3 in the usual manner.

The construction above described provides a brake-beam whose compression member can be cheaply and readily constructed and which is of a character to give a maximum moment of resistance to compression strains with the use of a minimum amount of metal in its construction and which fulfils the requirements heretofore stated.

A mechanic skilled in this art may make various changes in the details of construction without departing from the spirit and scope of my invention, since

What I claim is—

1. A built-up brake-beam whose compression member has a greater effective area of material at its central portion than at its ends; substantially as described.

2. A brake-beam having its compression member constituted of separate angles separated at their central portion to increase their effective area; substantially as described.

3. A brake-beam having its compression member formed of separate angles, said shapes being separated to a greater extent at the central than at the end portions; substantially as described.

4. A brake-beam having its compression member formed by two angles whose vertical flanges extend inwardly toward the center of the member; substantially as described.

5. A brake-beam having its compression member formed by two spaced angles whose vertical flanges extend inwardly toward each other from the upper and lower sides of the member; substantially as described.

6. A brake-beam having its compression member formed by two rolled angle shapes, whose vertical flanges are separated by a space which gradually decreases toward the ends of the member; substantially as described.

7. A brake-beam whose compression member is formed by two symmetrical rolled angle shapes, whose horizontal flanges form the upper and lower sides of the member and whose vertical flanges extend inwardly toward each other, and spacers to which the shapes are secured; substantially as described.

8. A trussed brake-beam having a built-up compression member built up of angles and having an effective area of the material greater in the vertical than in the horizontal direction at the central portion of the member; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES A. LINDSTRÖM.

Witnesses:
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