

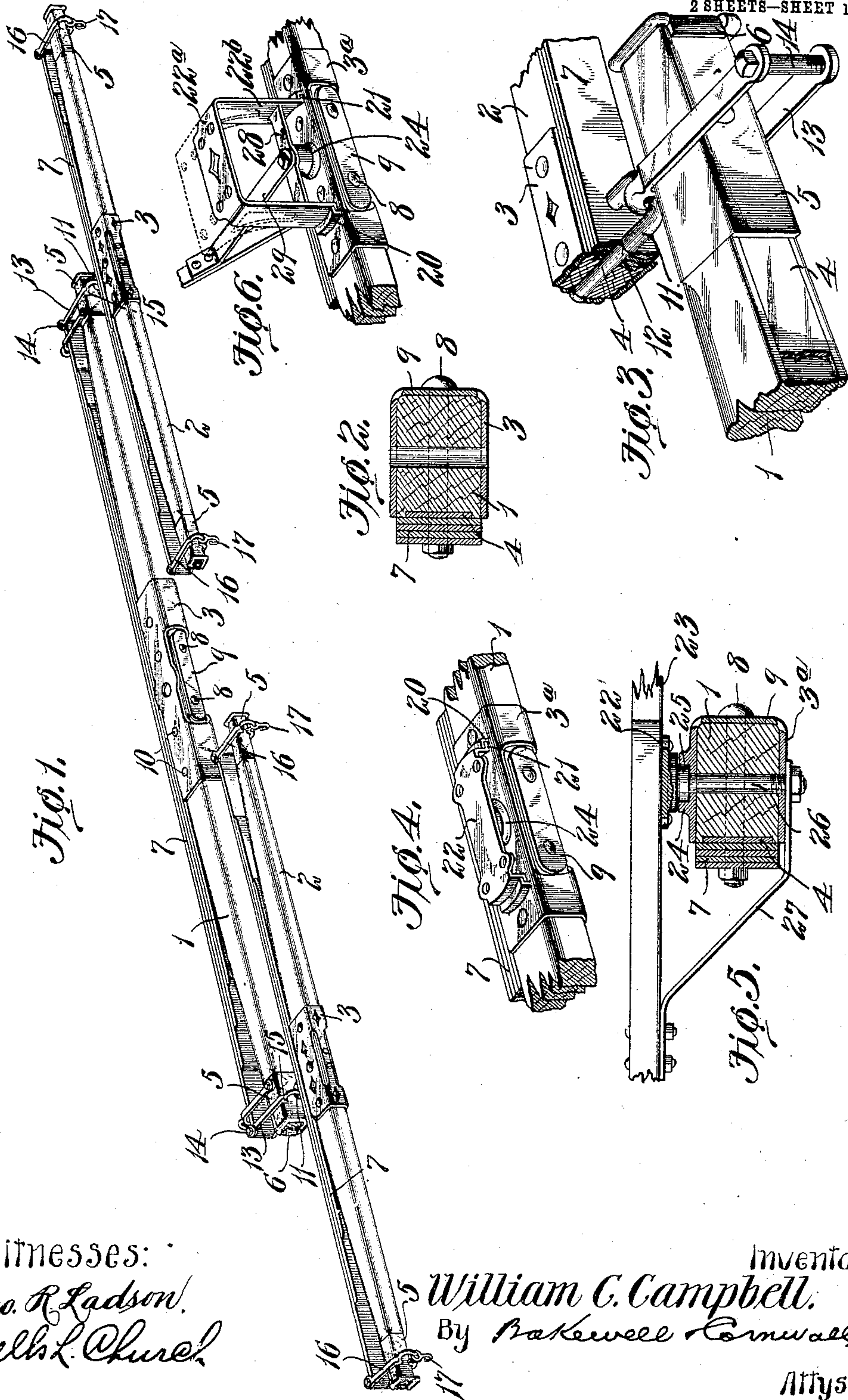
No. 870,344.

PATENTED NOV. 5, 1907.

W. C. CAMPBELL.
DRAFT EQUALIZER.

APPLICATION FILED JAN. 7, 1907.

2 SHEETS—SHEET 1.



Witnesses:
Geo. R. Ladson.
Nels L. Church.

Inventor.
William C. Campbell.
By Markwell Cornwall
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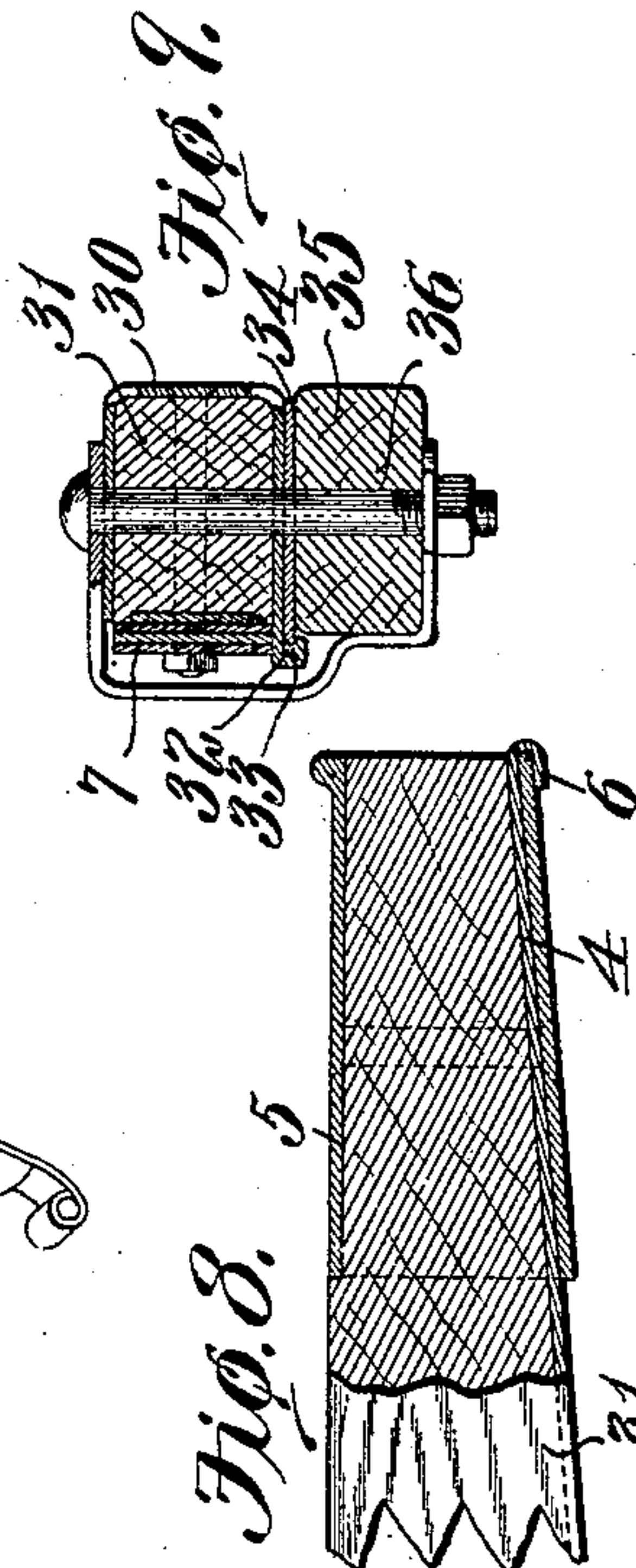
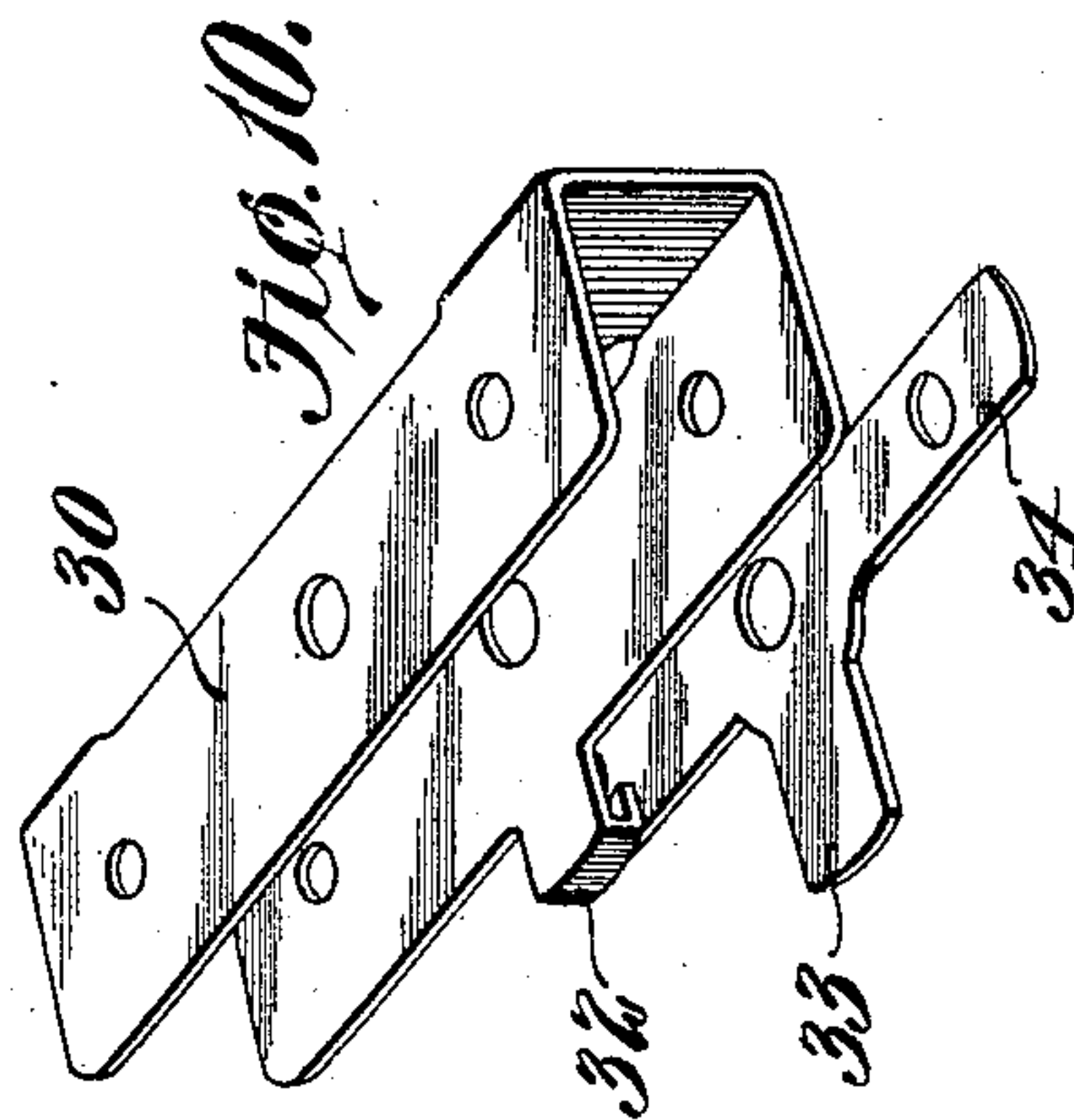
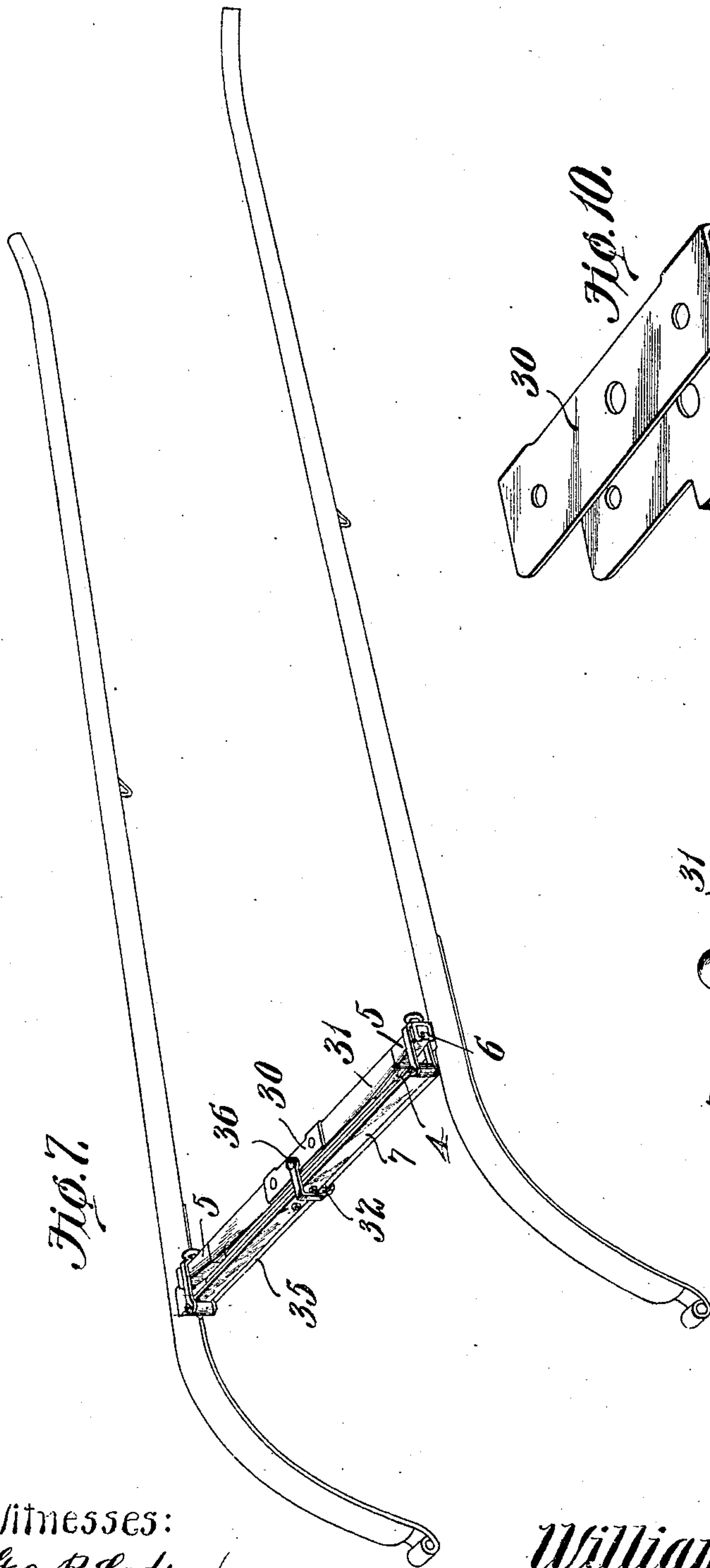
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Geo. R. Ladson.
Nells L. Church.

Inventor:
William C. Campbell.
By *Maxwell Cornwall* Attys.

UNITED STATES PATENT OFFICE.

WILLIAM C. CAMPBELL, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CAMPBELL EASY DOUBLE-TREE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF OKLAHOMA TERRITORY.

DRAFT-EQUALIZER.

No. 870,344.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed January 7, 1907. Serial No. 351,171.

To all whom it may concern:

Be it known that I, WILLIAM C. CAMPBELL, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Draft-Equalizers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a perspective view showing a device embodying the features of my invention; Fig. 2 is a cross sectional view taken at the center of the doubletree; Fig. 3 is an enlarged detail view partly in section; Fig. 4 is a perspective view of a slightly different form of my invention; Fig. 5 is a vertical sectional view illustrating the form shown in Fig. 4 attached to the pole-hound of a vehicle; Fig. 6 is a perspective view showing still another manner of connecting the doubletree to the pole-hound; and Figs. 7 to 10 inclusive show my invention applied to a pair of vehicle shafts.

This invention relates to draft equalizers such, for example, as swingletrees and doubletrees used on vehicles and of that type shown in my prior patent No. 670,839, dated March 26, 1901.

25 The object of my invention is to provide a construction that is strong and which possesses other desirable features that make it an improvement upon the device shown in my prior patent above referred to.

Referring to the drawings, 1 designates the doubletree, and 2 designates the swingletrees which are constructed of wood and have curved rear edges similar to the corresponding members described in my prior patent.

At the center of each of the members 1 and 2 is a metallic strengthening device 3 of approximately channel-shape so that it will incase the upper and lower sides and the front edges of said members, thereby greatly strengthening these members at the points where they are weakened by forming openings to receive the hammer-pin which connects the doubletree to the pole-hound of the vehicle and the devices which connect the swingletrees to the doubletrees.

Extending along the curved rear edge of each of the members 1 and 2 is a metal bar or strip 4 which is preferably set in a groove formed in the rear edge of the member, the opposite ends of the bar 4, as well as the member to which it is connected, being incased in rectangular-shaped metal ferrules or sleeves 5, the extreme ends of the bar 4 being bent at 6 over the outer edges of the ferrules to connect said ferrules to the members on which they are mounted and also hold the bar in place.

A leaf-spring 7 is secured intermediate its ends to each of the members 1 and 2, the spring on the double-

tree 1 being secured by bolts 8 which pass through a plate 9 on the front edge of the doubletree. By using a separate plate 9 instead of forming the web of the metallic member 3 continuous I can remove the spring from the doubletree without taking out the fastening devices 10 which connect the metallic member 3 to said doubletree.

The devices 11 which connect the intermediate portions of the springs to the swingletrees 2 are of substantially staple form, the shanks of which are of less diameter than the head portions thereof, as shown in Fig. 3, so that shoulders 12 will be formed to bear upon the rear sides of the springs 7, the ends of the shanks being upset or riveted over in countersunk holes in the webs of the metallic strengthening member 3 on the swingletrees, as shown in Fig. 3. As the ends of the fastening devices 11 extend flush with the front faces of the metallic members 3 on the swingletrees, there will be no sharp projections on the swingletree to damage the leg of the horse attached to the vehicle. The eyes formed by the heads of the staples receive yoke-shaped members 13 that are fastened at their outer ends by means of bolts 14 to the leaf-spring 7 on the doubletree 1, thereby connecting the members 1 and 2 together. Each of the yoke-shaped members 13 is provided with lugs 15 which engage the front face of the ferrule 5 on the end of the doubletree and thus act as stops to control the position of the end portions of the spring 7 relatively to the doubletree. The devices 16 on the swingletrees which are connected to the springs 7 of the swingletrees are of the same construction as the yoke-shaped member 13 and these devices 16 carry movable rings or hooks 17 to which the harness traces are connected. A draft appliance of this construction is very strong because the doubletree and swingletree are strengthened by the metallic members 3 at the points where they are weakened by the formation of holes to receive fastening devices and are also strengthened by the metal bars or strips 4 which extend the full length of the doubletree and singletree. The rectangular-shaped metal ferrules 5 which incase the end portions of the doubletree and swingletrees also additionally strengthen these parts and prevent them from becoming marred by the lugs 15 on the members 13 and 16, and the end portions of the metallic member 3 on the doubletree also act as buffers for the inner ends of the leaf-springs attached to the swingletrees.

In Figs. 4 and 5 I have shown a construction in which the metallic strengthening member on the doubletree is a trifle different from that shown in Fig. 1. In this construction the strengthening member 3^a is provided on its upper side with undercut lugs 20 that receive flanges 21 on a plate 22 secured to the underneath side of the pole-hound 23 of the vehicle, the

member 3^a being provided with an integral ring-shaped portion 24 which acts as a bearing for the enlarged part 25 of the hammer-pin 26, the lower end of said pin extending through a stay 27 that is connected to the pole-hound.

In some cases it is desirable to have the doubletree located some distance below the pole-hound and to accomplish this without using blocks or fillers, I provide the plate 22^a, that is secured to the pole-hound, with long legs 22^b having flanges at their lower ends which coöperate with the undercut lugs on the metallic member 3^a on the doubletree, as shown in Fig. 6. A cross web 28 extending between the legs 22^b carries the hammer-pin, and an auxiliary stay 29 extends from this cross web to the stay 27 to which it is connected. As shown in dotted lines in Fig. 6, the plate 22^a may extend rearwardly some distance so that it can be attached to the pole-hound at a point out of alinement with the hammer-pin. With a construction of this character the doubletree can be used above the pole-hound by simply connecting the plate 22^a to the upper side instead of to the underneath side of the pole-hound.

In Figs. 7 to 10 I have shown my improved construction embodied in a swingletree for a pair of shafts. In this construction the metallic strengthening member 30 that is connected to the swingletree 31 is provided with an integral hook 32 which extends over a lug 33

formed integral with a plate 34 that is connected to the cross-bar 35 of the shafts so as to relieve the hammer-pin 36 from strain.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device of the character described, comprising a doubletree provided at its center with a metallic strengthening member having an opening for a hammer-pin and provided on its upper face with undercut lugs and with an integral ring-shaped portion surrounding said opening, in combination with a plate adapted to be connected to the pole-hound of a vehicle and provided with flanges which extend underneath said undercut lugs, said plate being provided with a hammer-pin having an enlarged portion that fits inside of the ring-shaped portion on the upper face of said strengthening member; substantially as described.

2. A device of the character described, comprising a member having a leaf-spring connected to the rear edge thereof, a channel-shaped metallic strengthening device incasing the central portion of said member and having a portion of its web cut away, and a removable plate arranged in said cutaway portion and having the fastening devices for the leaf-spring extending through same; substantially as described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this third day of January 1907

WILLIAM C. CAMPBELL.

Witnesses:

WELLS L. CHURCH,
CHARLES E. M. CHAMP.