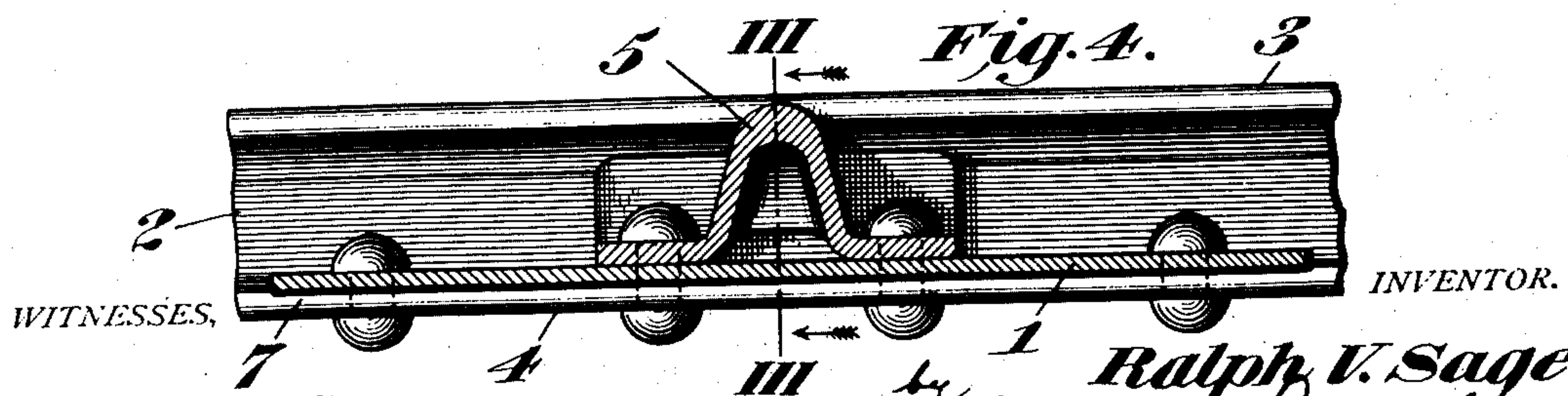
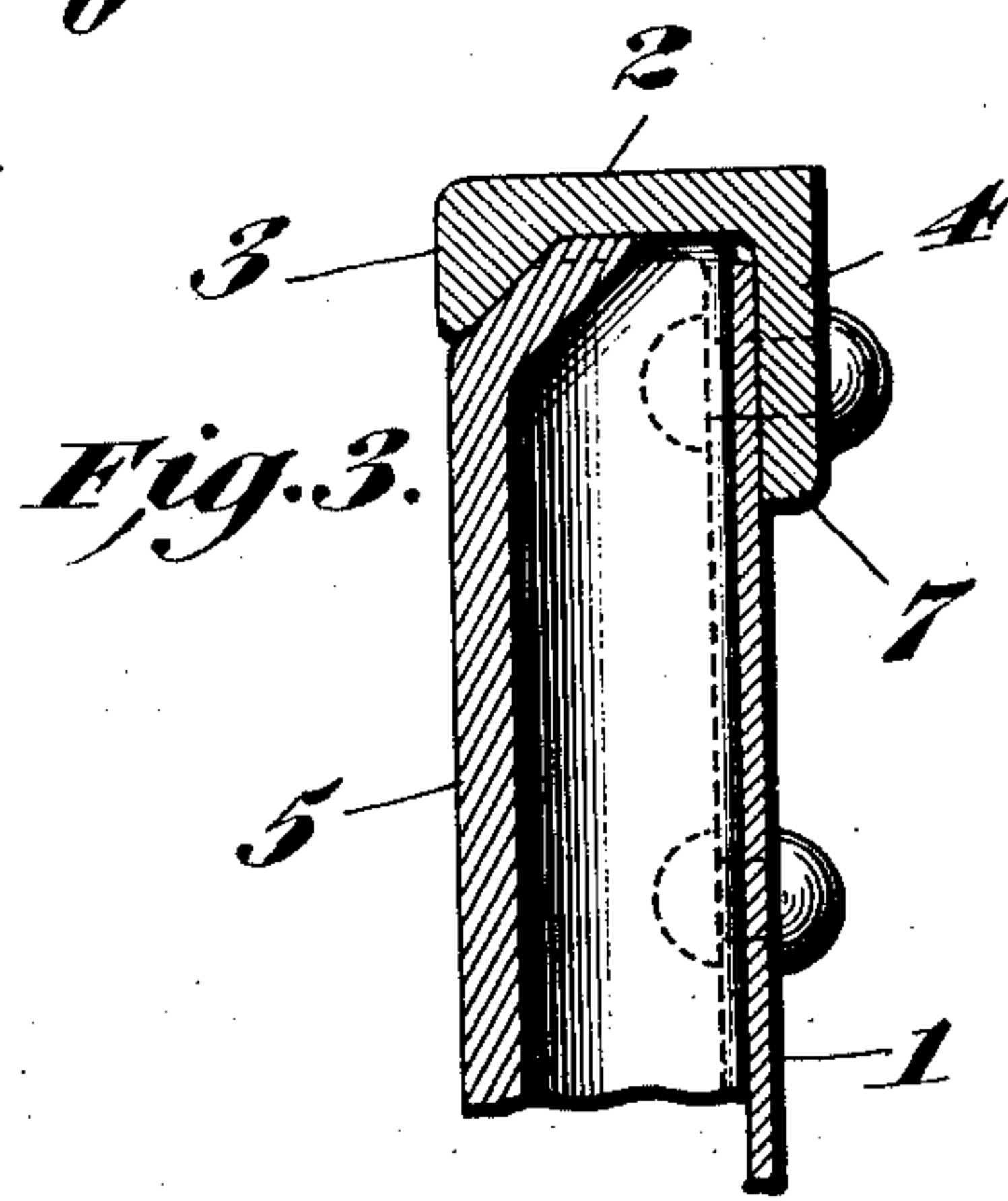
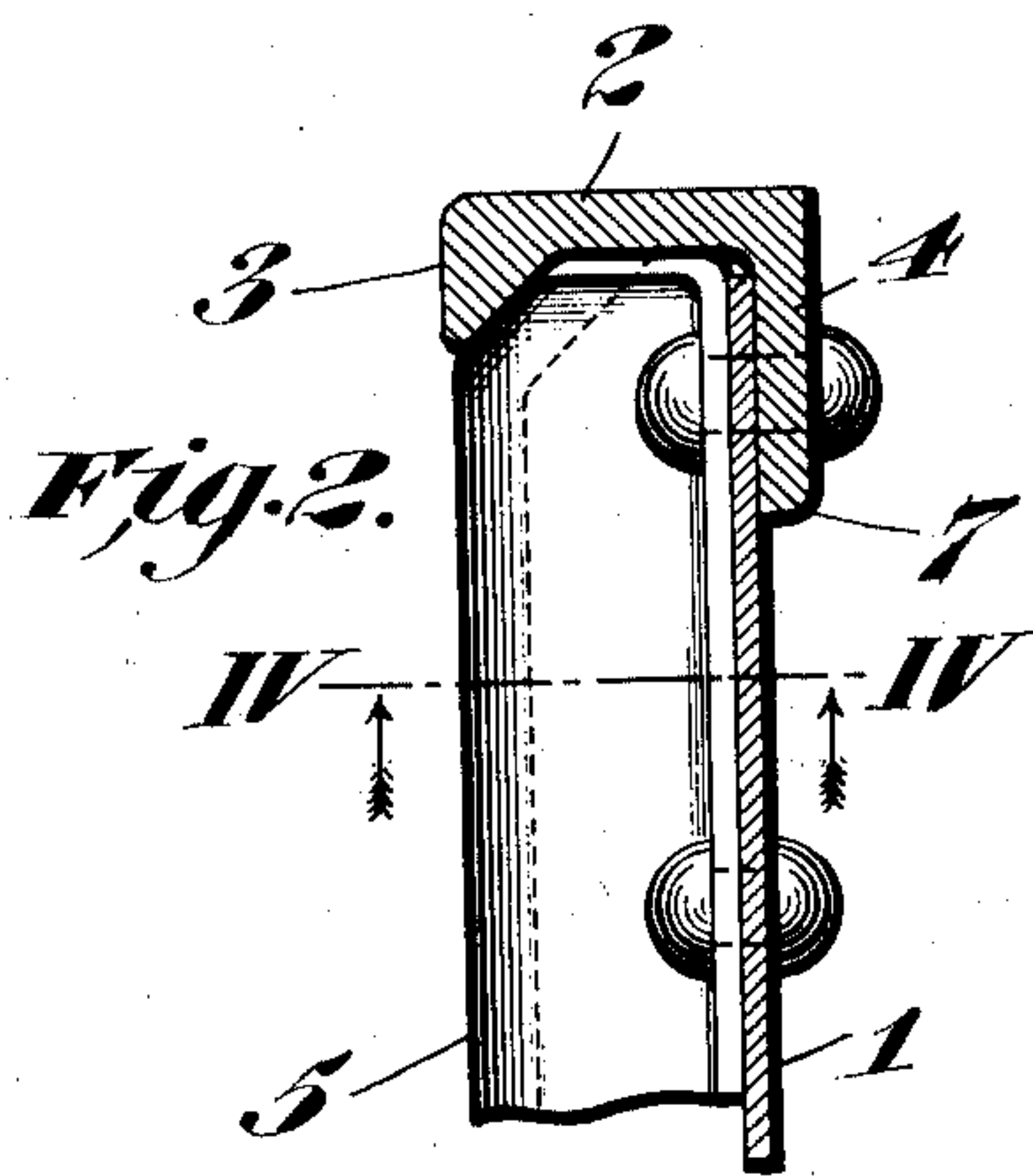
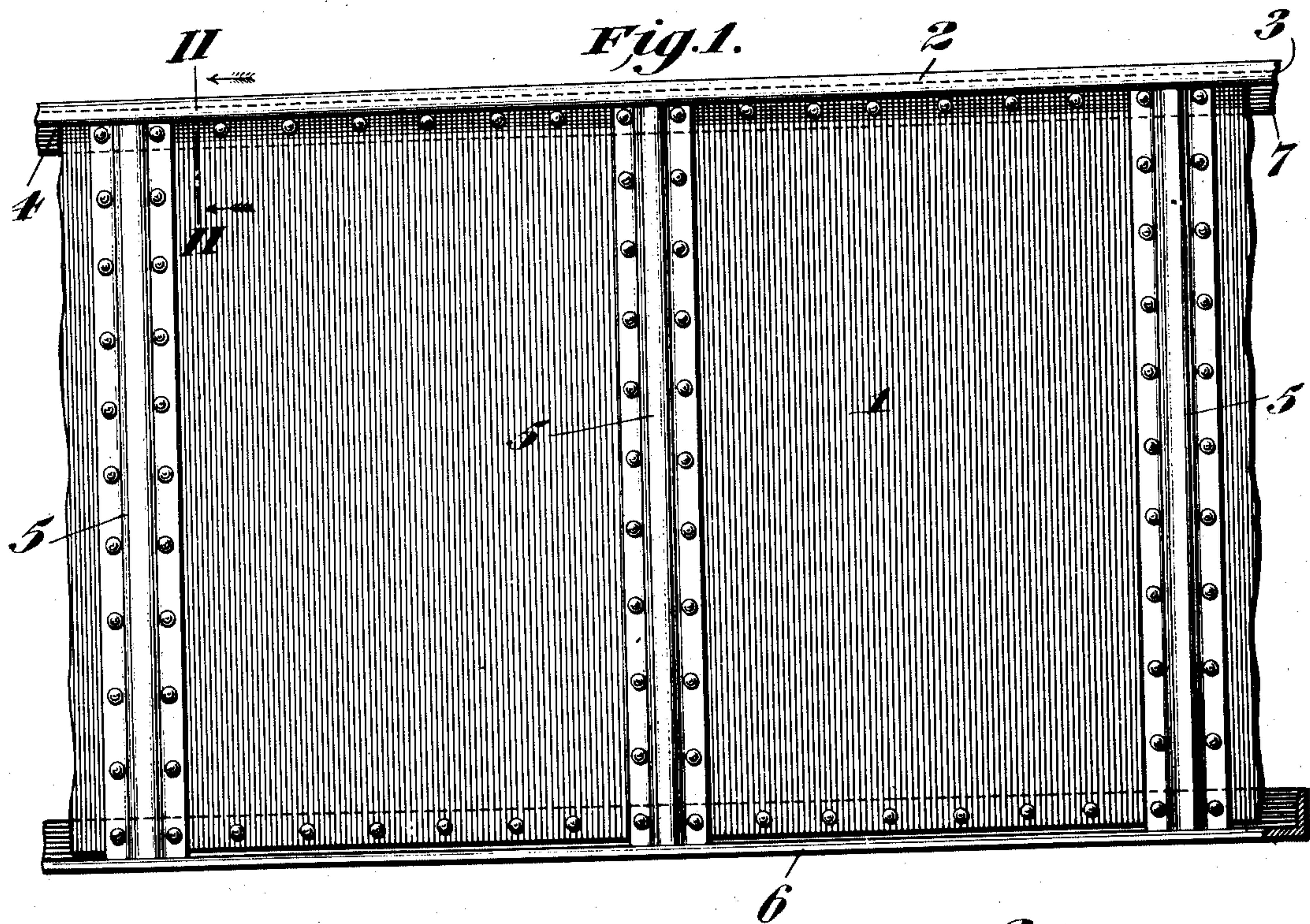


R. V. SAGE.  
 CONSTRUCTION OF METAL CARS AND FLANGED BAR THEREFOR.  
 APPLICATION FILED JAN. 21, 1907.

907,411.

Patented Dec. 22, 1908.



WITNESSES,

Elmer Seavey  
 Cyrus E. Brown.

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 his ATTORNEY.



# UNITED STATES PATENT OFFICE.

RALPH V. SAGE, OF THE BOROUGH OF WESTMONT, PENNSYLVANIA.

CONSTRUCTION OF METAL CARS AND FLANGED BAR THEREFOR.

No. 907,411.

Specification of Letters Patent.

Patented Dec. 22, 1908.

Application filed January 21, 1907. Serial No. 353,217.

*To all whom it may concern:*

Be it known that I, RALPH V. SAGE, a citizen of the United States, residing in the Borough of Westmont, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Construction of Metal Cars and Flanged Bars Therefor; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Referring to the illustration of my invention as shown on the sheet of drawings forming part hereof and in which like characters of reference designate like parts:— Figure 1 is a fragmentary side elevation of a gondola car showing a construction embodying my invention. Fig. 2 is a vertical cross section on the line II—II of Fig. 1. Fig. 3 is a vertical cross section on the line III—III of Fig. 4. Fig. 4 is a horizontal sectional plan on the line IV—IV of Fig. 2, looking upward in the direction of the arrows.

In the drawings 1 designates the car side preferably formed of metal plates; 2 is my improved flanged bar or top guard angle of special form, which strengthens said sides when considered or acting as girders to carry the load of the car and its lading; and 3 is the bulb or reinforced edge of said angle for the purpose of strengthening and stiffening the same. It will be noted that the bulb 3 is of substantially triangular cross section with rounded corners and as viewed in section, its interior surface is inclined approximately 45 degrees to the lines of the legs, although this angle may be more or less, as desired.

4 is the plain leg of my special top guard angle, which, however, differs from the leg of an ordinary structural angle in that the rounded edge technically termed the "rounding" as indicated at 7, is on the exterior of the edge as shown, whereas the ordinary structural angle has this rounding on the interior projecting corner of its leg, as is well known. The advantages of having the "rounding" on the exterior edge of the plain leg are that it thus forms a neat and

smooth finish against the side of the car, avoiding reëntrant angles, and it also provides a longer, and thus more substantial, straight bearing for the interior surface of said leg against the plate to which it is attached, all as clearly shown in Figs. 2 and 3 of the drawings.

In order to complete the illustration of my invention, I have shown car stakes 5 in connection with the car-sides, which stakes are fitted within and against the lower surfaces of my special top guard angle. I wish it understood however, that my special top guard angle can be used in connection with any form of car stake such as those composed of angles, T-bars, pressed plates, corrugated bars or even wooden stakes or other forms, if desired. 6 is the bottom flange angle of the car-sides attached to the sides 1 and the stakes 5 as shown; this angle in the form of construction illustrated, acts as the lower chord of the girder, whereas my special form of top guard angle acts also as the upper chord in addition to its other functions. In connection with my construction however, other forms of lower stiffening or chord members may be used such as channels, Z-bars, pressed plates or other shapes, instead of ordinary angles as designated by 6 in the drawings.

Although I have shown my invention in a particular form as applied to a gondola car, I do not limit myself to the exact details of the construction, but may apply same to other cars as hereinbefore stated and may modify the same or use equivalents thereof within the scope of my invention as pointed out in the claims.

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

1. The combination with a girder car-side and the vertical stakes thereof, of an upper chord member consisting of a flanged bar serving also as a top guard angle, one leg of which is secured to the inner side of the upper edge of said car-side and to said stakes, and having an outwardly projecting leg provided with an integral bulb or thickening of substantially triangular cross section with rounded corners on the exterior edge thereof.

2. The combination with a girder car-side and the vertical stakes thereof, of an upper chord member consisting of a flanged bar, one leg of which has an exterior rounding  
5 and is secured to the inner side of the upper edge of said car-side and to said stakes, and having an outwardly projecting leg provided with an integral bulb or thickening of sub-

stantially triangular cross section with rounded corners, on the exterior edge thereof. 10

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

RALPH V. SAGE.

Witnesses:

T. H. KYLER,

ELMER SEAVEY.