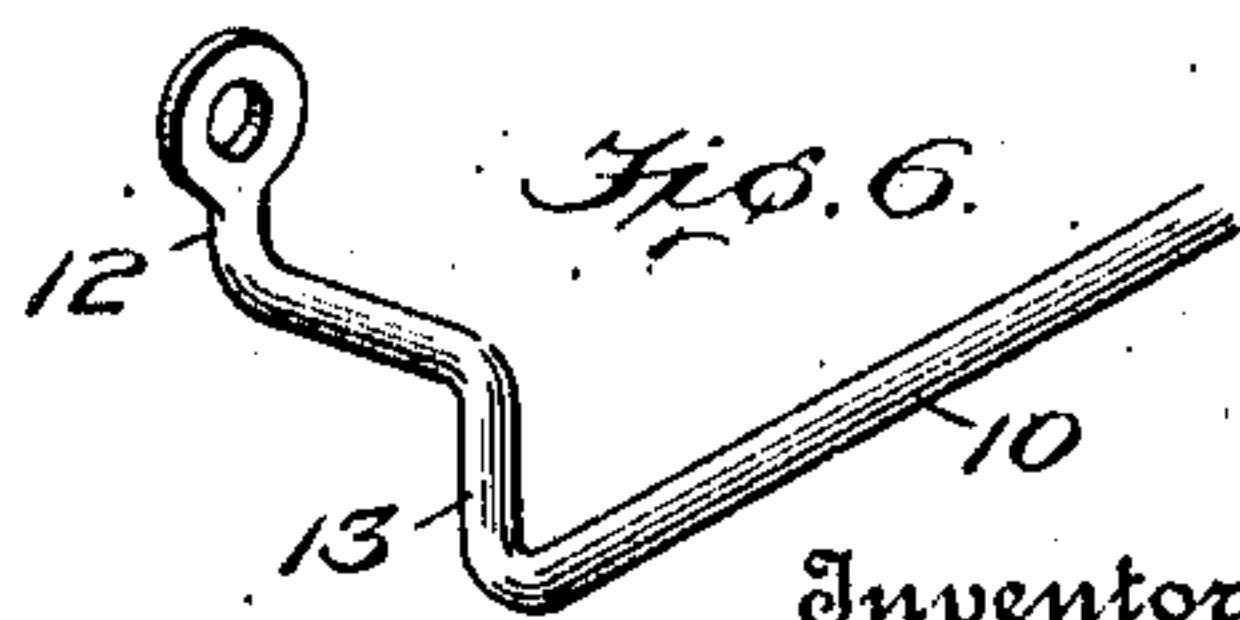
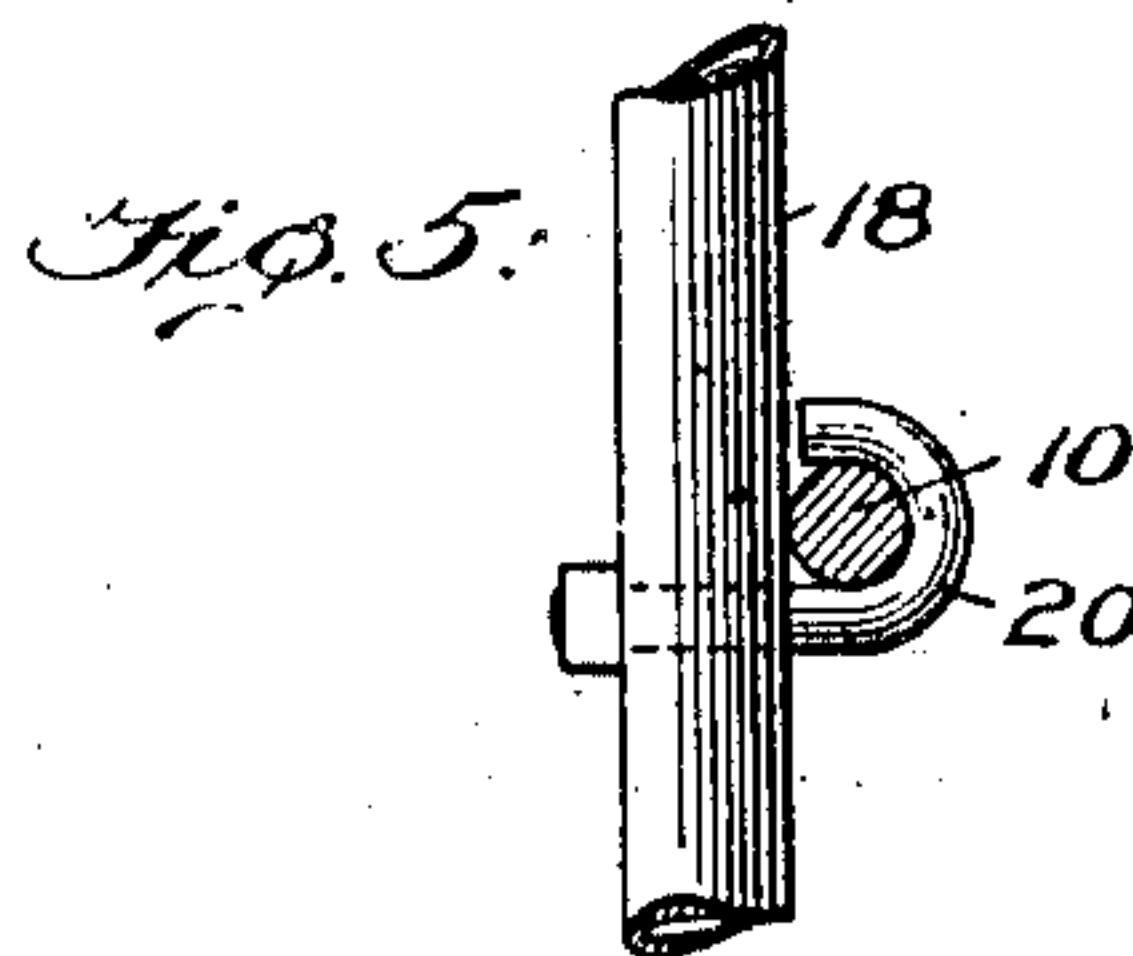
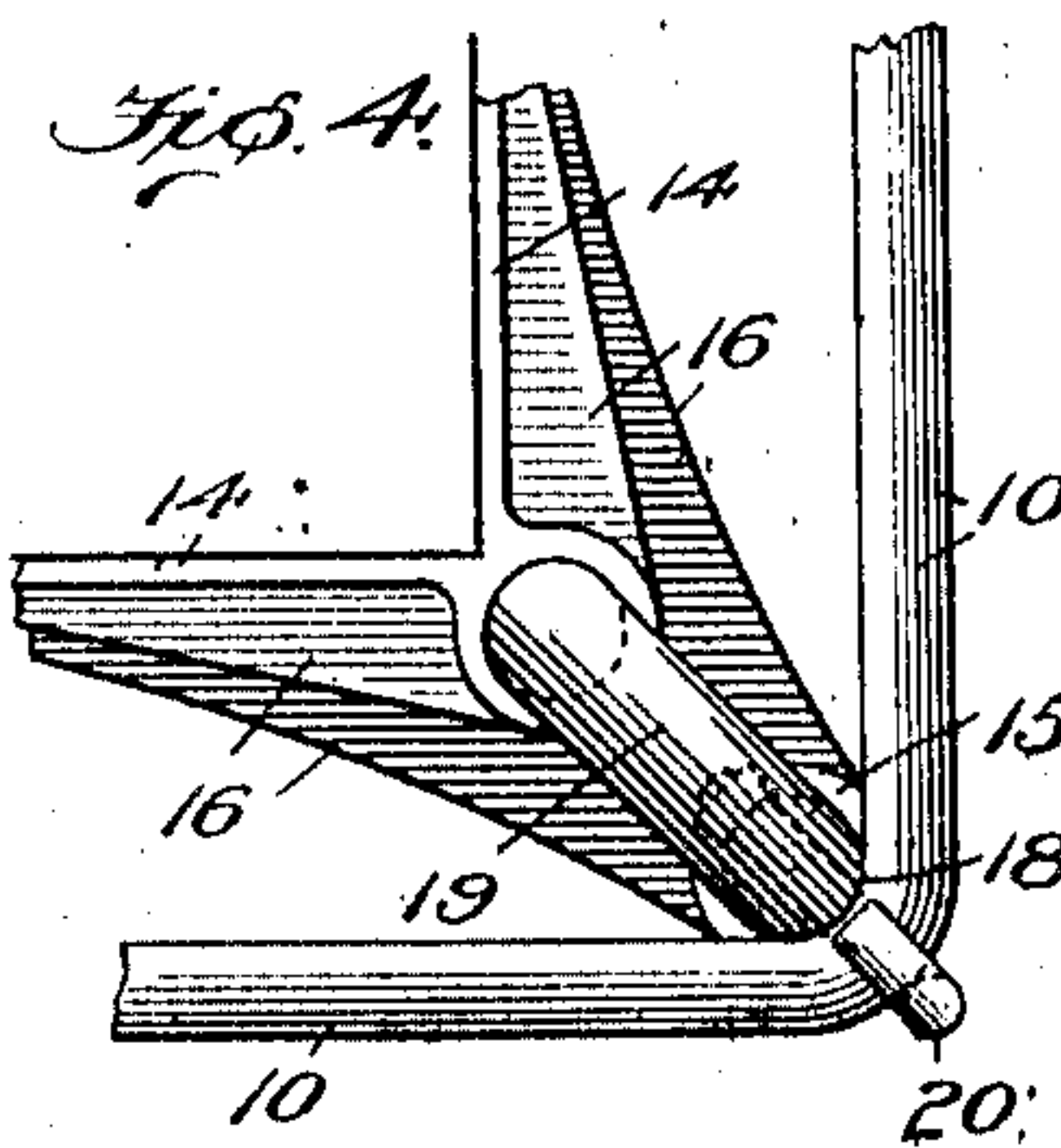
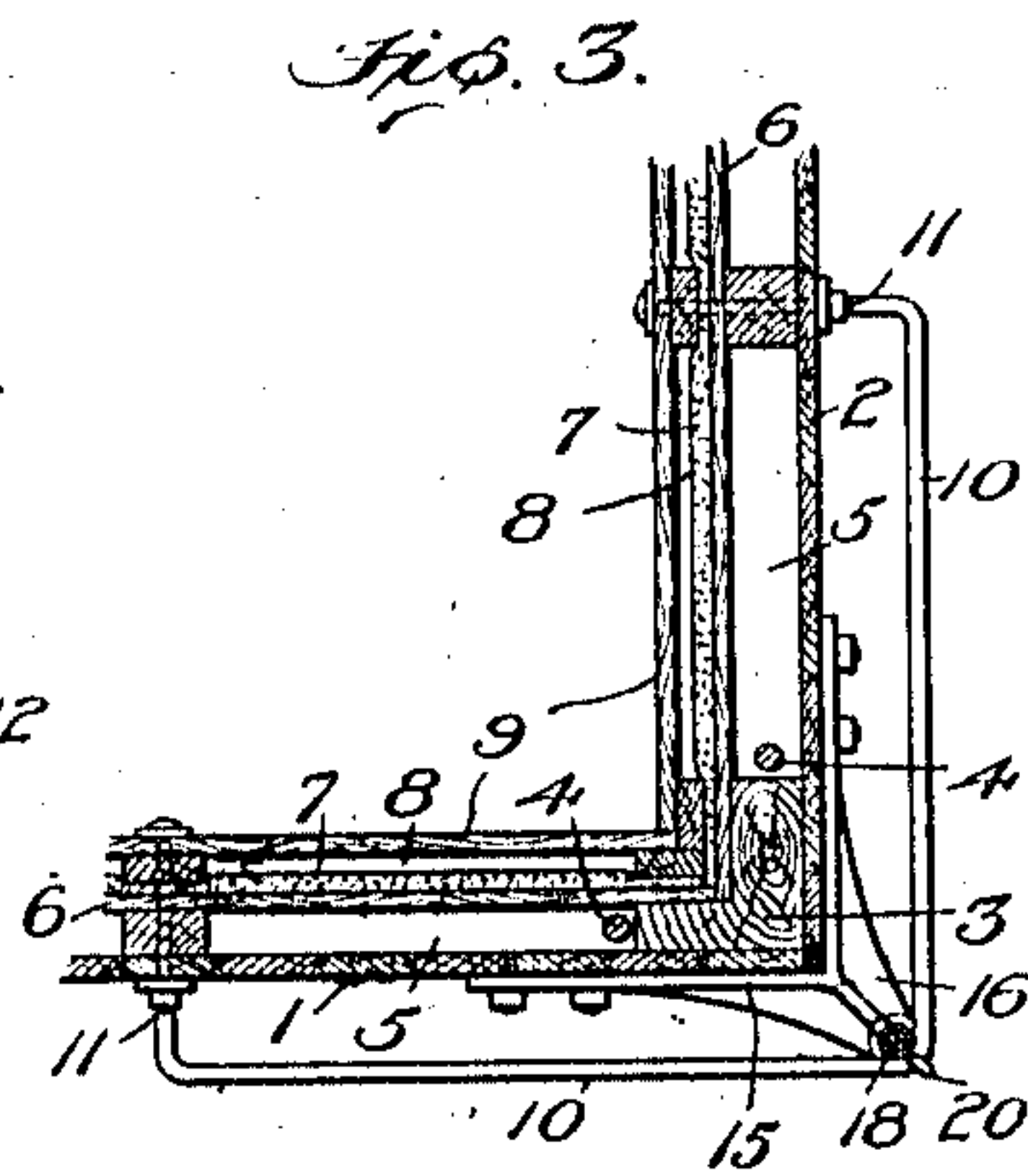
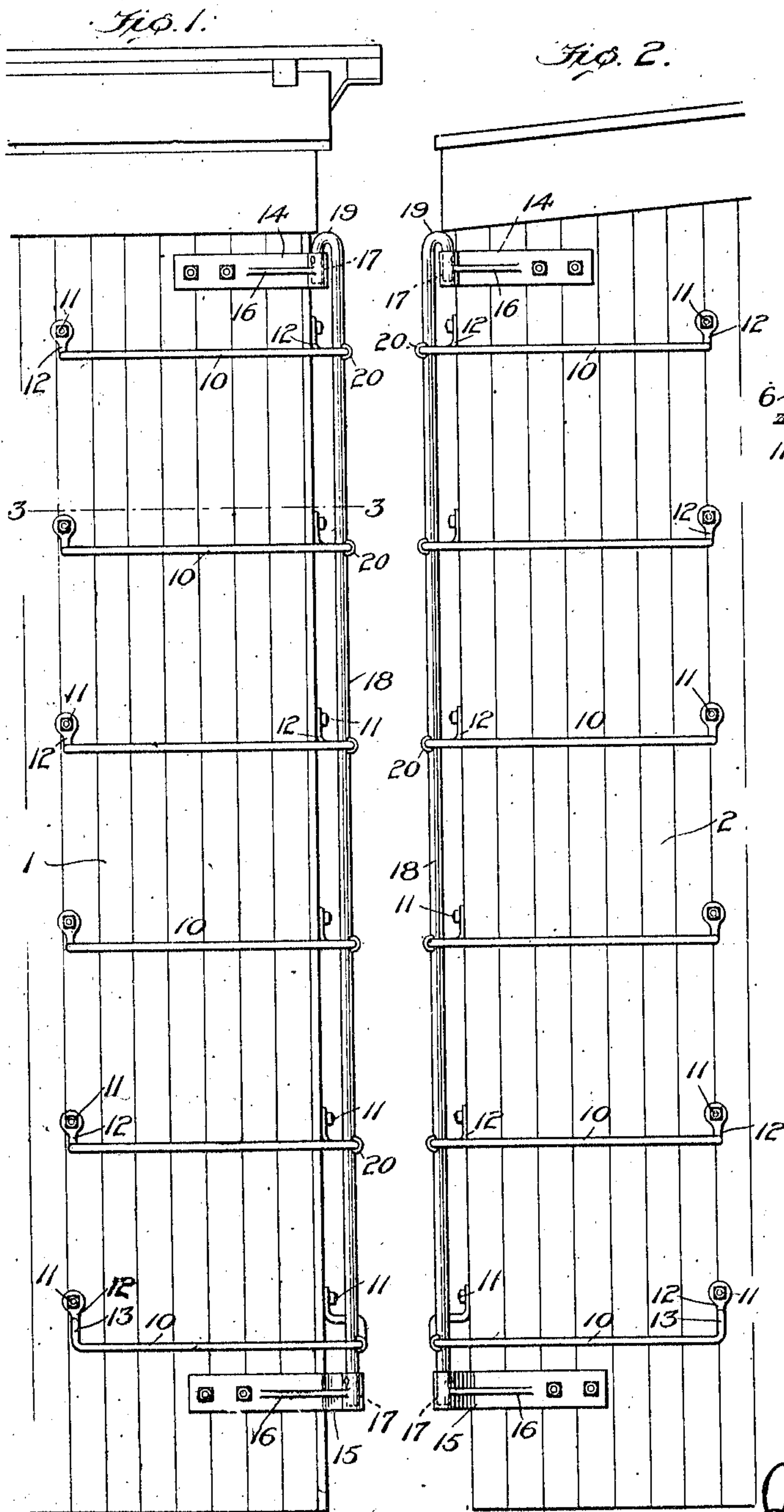


J. A. KEYES & I. R. MILLER.
CORNER LADDER FOR RAILWAY CARS.
APPLICATION FILED NOV. 23, 1910.

988,719.

Patented Apr. 4, 1911.



Witnesses

Edwin L. Bradford
O. D. Ballauf

By

Jos A. Keyes,
Irvin R. Miller,
Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH A. KEYES, OF PATERSON, NEW JERSEY, AND IRVIN R. MILLER, OF ST. PAUL, MINNESOTA.

CORNER-LADDER FOR RAILWAY-CARS.

988,719.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed November 23, 1910. Serial No. 593,889.

To all whom it may concern:

Be it known that we, JOSEPH A. KEYES and IRVIN R. MILLER, citizens of the United States, and residents of Paterson, in the county of Passaic and State of New Jersey, and of St. Paul, in the county of Ramsey, State of Minnesota, respectively, have invented certain new and useful Improvements in Corner-Ladders for Railway-Cars; and we 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.

Our invention generally stated relates to railway cars, but more especially to box and other freight carrying cars and to the equipment thereof with a novel and efficient safety appliance in the form of a combination end and side ladder.

It has for an object that of improving upon the construction and arrangement of the car ladders at present in common use, in a manner adapted to safeguard the lives and limbs of employees, thus rendering their labors more certain and satisfactory as well as less hazardous than heretofore.

The invention contemplates further the production of a ladder for car use of peculiarly simple, durable and efficient construction embodying rungs which are adapted and arranged to extend across both the side and end of a car; embodying a vertical riser or ladder stile to which said rungs are secured at a point intermediate of their car attaching ends; and embodying also certain details of construction and arrangement of parts which will be hereinafter set forth.

The invention will be hereinafter particularly described and set forth in the claims following.

In the accompanying drawings which form part of this application for Letters Patent and whereon like numerals refer to corresponding parts in the several views: Figure 1 is a side elevation of our invention as applied to the side of a freight car. Fig. 2 is an end elevation of our invention as applied to the end of a freight car. Fig. 3 is a horizontal section through our invention taken upon the line 3—3 of Fig. 1 looking down. Fig. 4 is a relatively enlarged top plan view of the corner of our invention. Fig. 5 is a similarly enlarged side view of a fragment of our ladder stile including one

rung in section and one hook bolt for securing said stile and rung together, and Fig. 6 is an enlarged perspective view of a portion of the bottom rung of our improved ladder.

Reference being had to the drawings and numerals thereon, 1 represents the side and 2 the end of a railway car which for purposes of the present invention may be of any known type or form of construction, provided only that ladders are required as in ordinary box and other house cars, gondola cars with high or low sides fixed or drop ends, and some forms of caboose cars upon all of which ladders are usually specified and required. For purposes of illustrating the present invention, however, a refrigerator car has been selected, as best shown by Fig. 3, comprising the outer side and end sheathing boards 1 and 2 respectively, corner posts 3, vertical tie rods 4—4 adjacent to said posts, main frame air space 5, blind lining 6, layer of felt or analogous material 7, nailing-strip air space 8, and inside lining or sheathing 9, all of ordinary and well-known construction.

The rungs 10 of our invention are arranged in vertical series, suitably offset from the face of the car, and are preferably of angular form as indicated by Fig. 3. In their operative position they angle around the corner of a car body at one or more corners, their opposite ends being firmly secured to the car side 1 and end 2 respectively, by means of bolts 11 passing entirely through the car structure from the inside and having their ends riveted over. By preference also the individual rungs 10 are of the well known drop pattern as indicated at 12, for purposes which are well understood, and the bottom rung is provided with an additional drop 13 to serve as a foot guard, but at the same time it should be understood that our invention is broad enough to include any form of ladder for railway cars and any approved means of attachment provided the ladder rungs are adapted to extend partially across one side and one end of the car.

To the car corner is securely bolted upper and lower bifurcated hangers 14 and 15 respectively, preferably of malleable iron and flanged upon opposite sides as at 16 for purposes of strength; these hangers are each provided with a pocket 17 in their upper

surface for the reception of a tubular riser or ladder stile 18 provided with a hooked upper end 19 and having its ends securely pinned or otherwise secured in the pockets aforesaid as shown. As thus arranged it will be observed that the ladder stile 18 rests in the angle of rungs 10, and is there firmly secured at equidistant points by U bolts 20 passing transversely through said stile beneath the rungs 10, as best shown by Fig. 5, and by preference having their threaded ends also riveted over. But while the aforesaid relative arrangement of stile 18, rungs 10, and attaching bolts 20 is satisfactory, it should be understood that these details may be varied indefinitely without departing from the broad features of the present invention, and in like manner the rungs 10 instead of being continuous might within the spirit of this invention be formed of independent end and side sections having their adjacent extremities secured to a common corner-stile either offset from the car corner or not offset as occasion may suggest or require.

This being a description of our improved corner ladder its purposes are in the main similar to car ladders in general except it should be noted that in the use of our improved ladder an employee can readily pass from the side to the end of a car or vice versa, practically without lifting his feet from a double rung 10 and at all times with comparative safety even though the passage be attempted, as it frequently the case, in total darkness or in extremely inclement weather. Moreover, it should be noted that the preferred form of our invention herein shown and described results in rungs 10 extending completely up to and slightly beyond the car corner without the necessity of employing bolts at such point where they would seriously interfere with the usual cor-

ner posts and walls of the car. And while but one ladder stile 18 is shown it is quite obvious that additional stiles may be similarly employed at the ends of rungs 10 if desired, thus dispensing with the individual securing bolts 11 passing through the car body.

Having thus described our invention, what we now claim and desire to secure by Letters Patent is:

1. A ladder for railway cars having rungs which extend across the side and end of the car.

2. A ladder for railway cars having angular rungs which extend across the side and end of the car.

3. A ladder for railway cars having angular rungs extending across the side and end of the car, and a stile connecting all of said rungs.

4. A ladder for railway cars having angular rungs extending across the side and end of the car, and a stile secured in the angle of each rung.

5. A corner ladder for railway cars having two series of rungs arranged at an angle to each other, and a supporting stile common to both series of rungs.

6. A corner ladder for railway cars having angular rungs extending around the corner of a car, a corner stile connecting all of said rungs, and means for attaching and offsetting said stile from the corner of the car.

In testimony whereof we affix our signatures, in presence of two subscribing witnesses.

JOSEPH A. KEYES.
IRVIN R. MILLER.

Witnesses:

THOMAS DURANT,
WM. E. DYRE.