

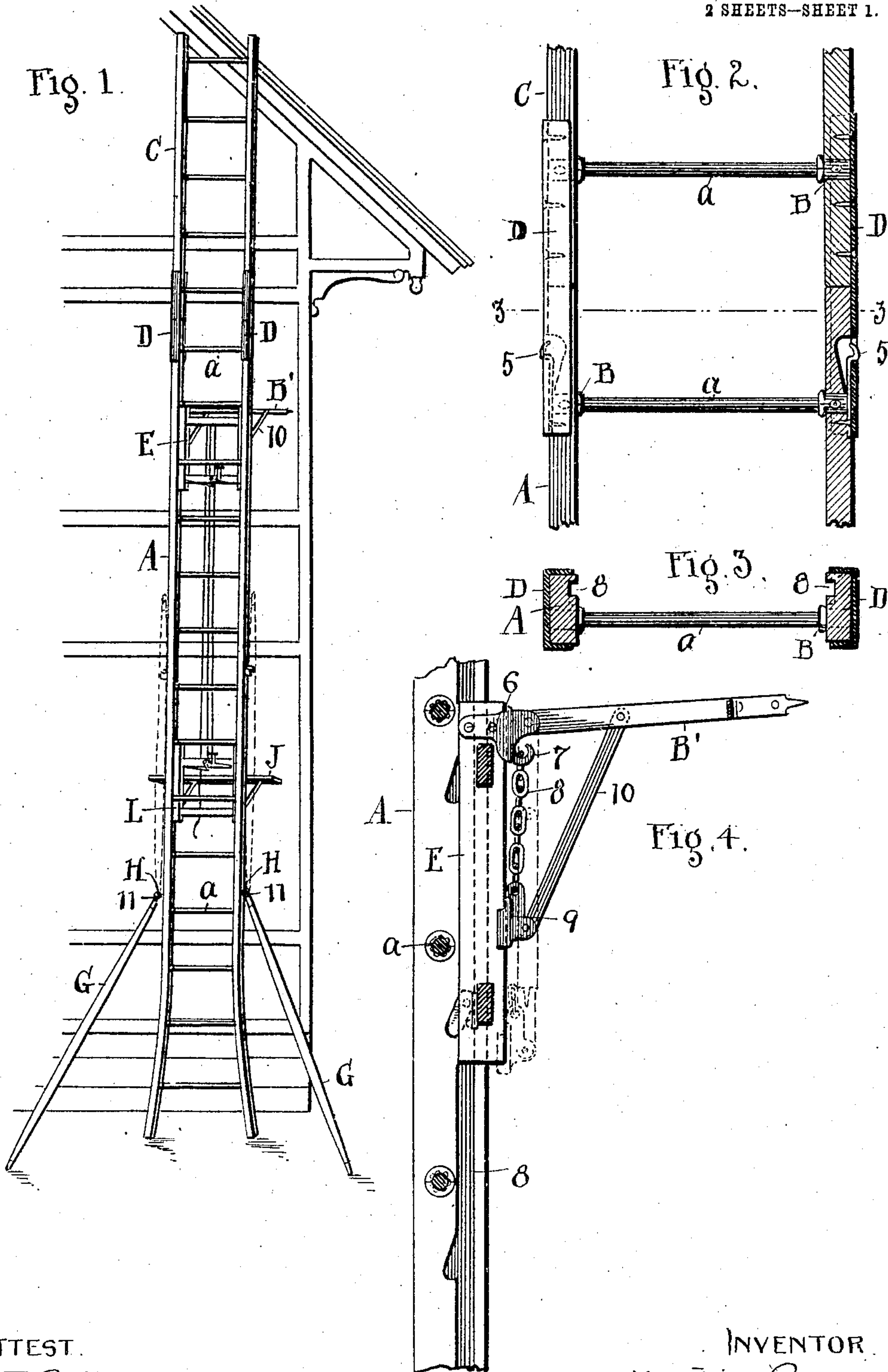
No. 843,989.

PATENTED FEB. 12, 1907.

M. BAUER.
COMBINED LADDER AND SCAFFOLD.

APPLICATION FILED JULY 9, 1906.

2 SHEETS—SHEET 1.



ATTEST.

J. B. Moore

C. A. Sell

INVENTOR.

Martin Bauer

By *H. V. Fisher* ATTY.

No. 843,989.

PATENTED FEB. 12, 1907.

M. BAUER.
COMBINED LADDER AND SCAFFOLD.
APPLICATION FILED JULY 9, 1906.

2 SHEETS—SHEET 2.

Fig. 5.

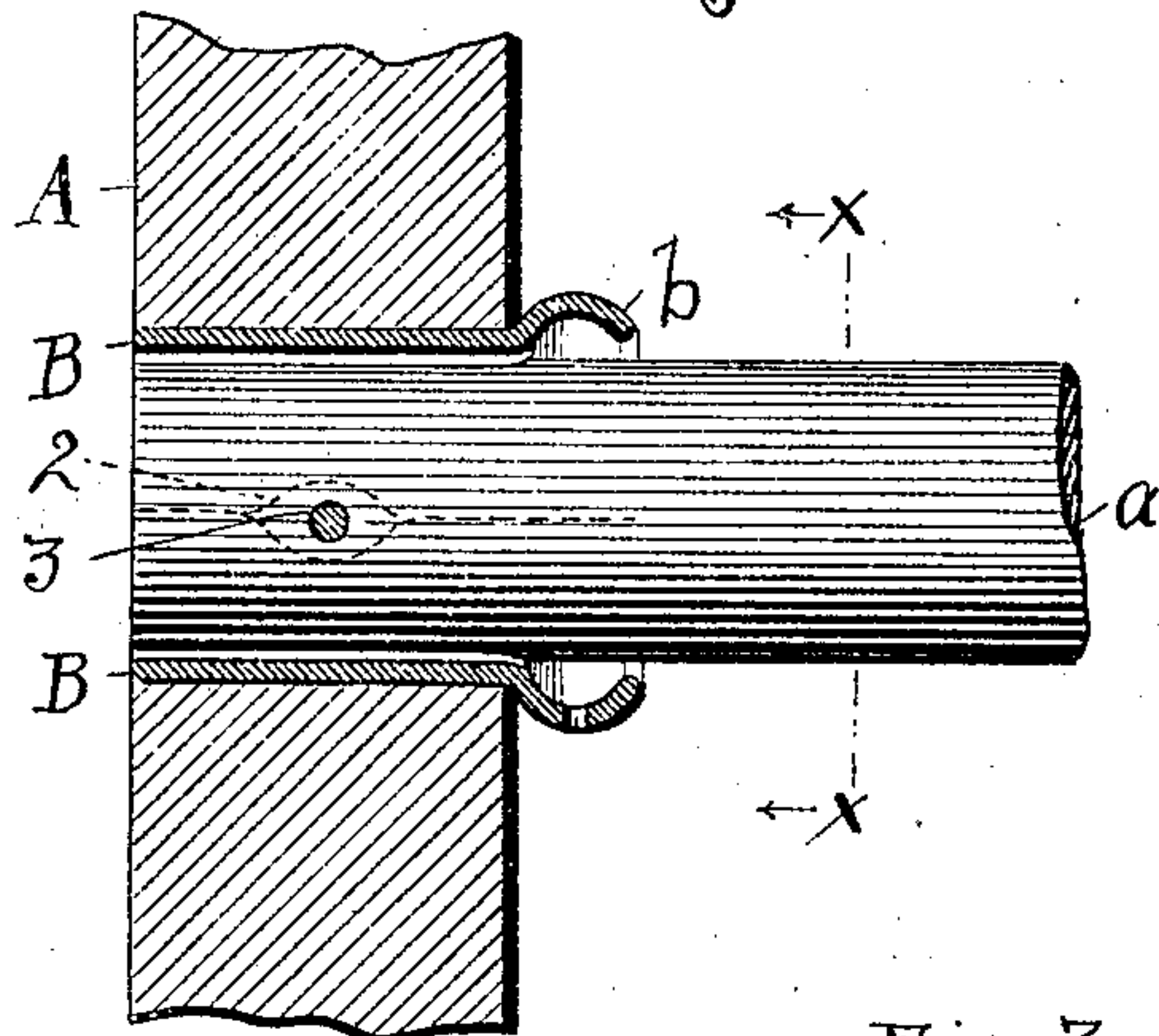


Fig. 6.

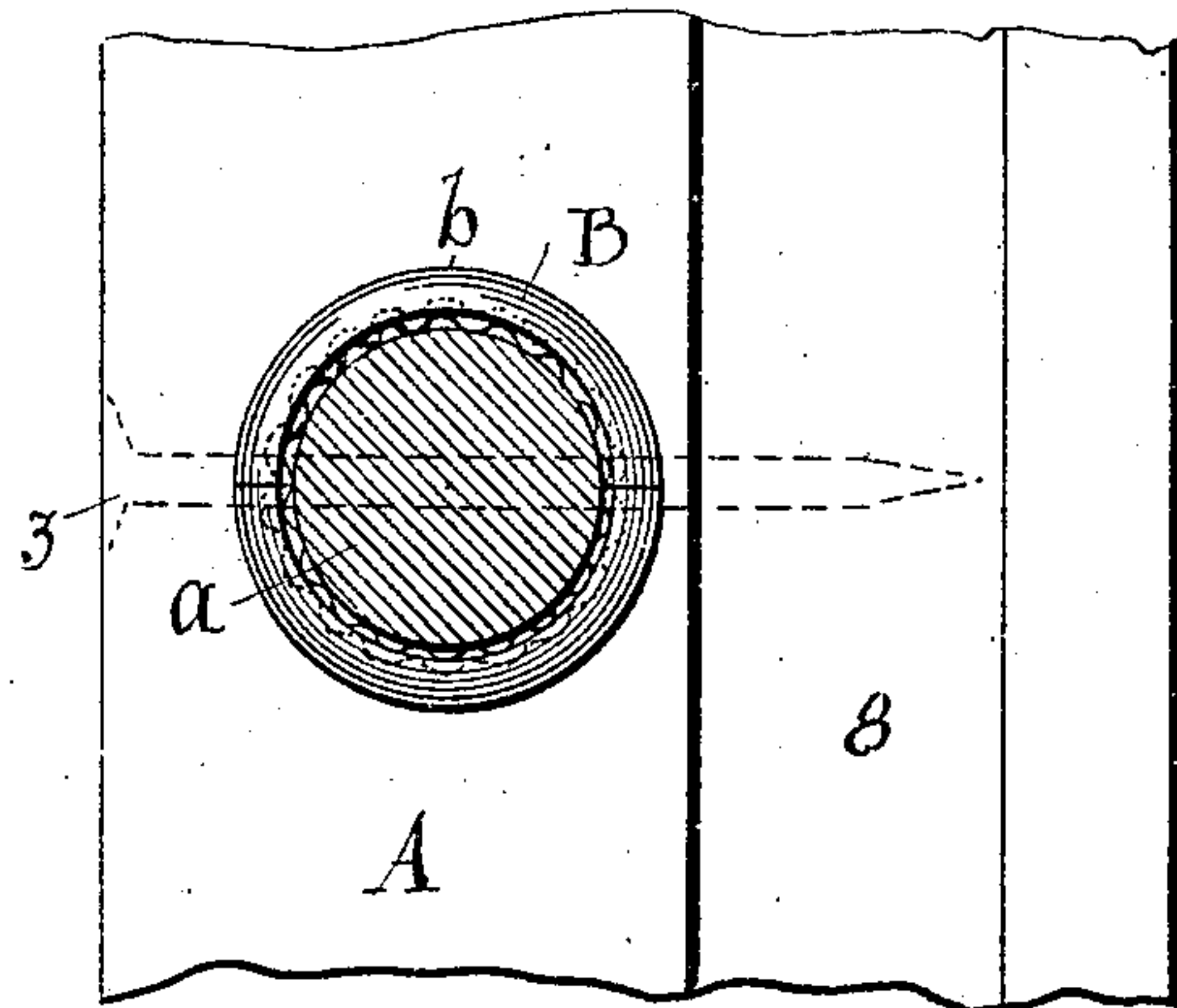


Fig. 7.

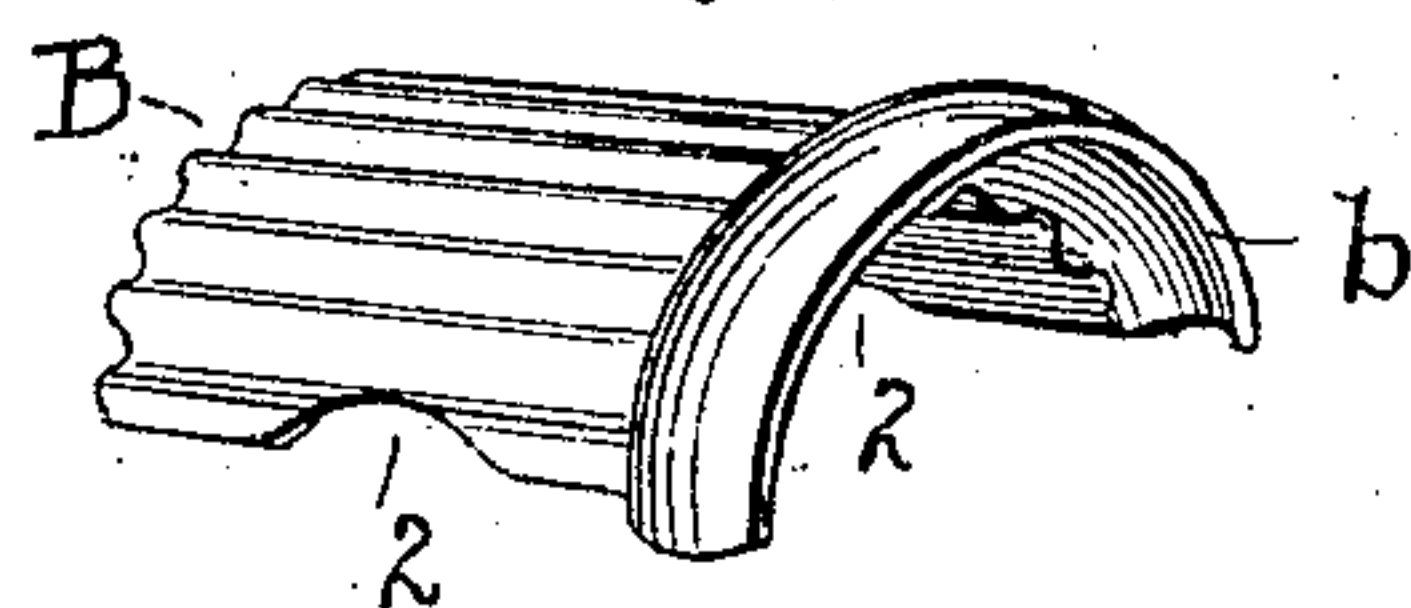


Fig. 8.

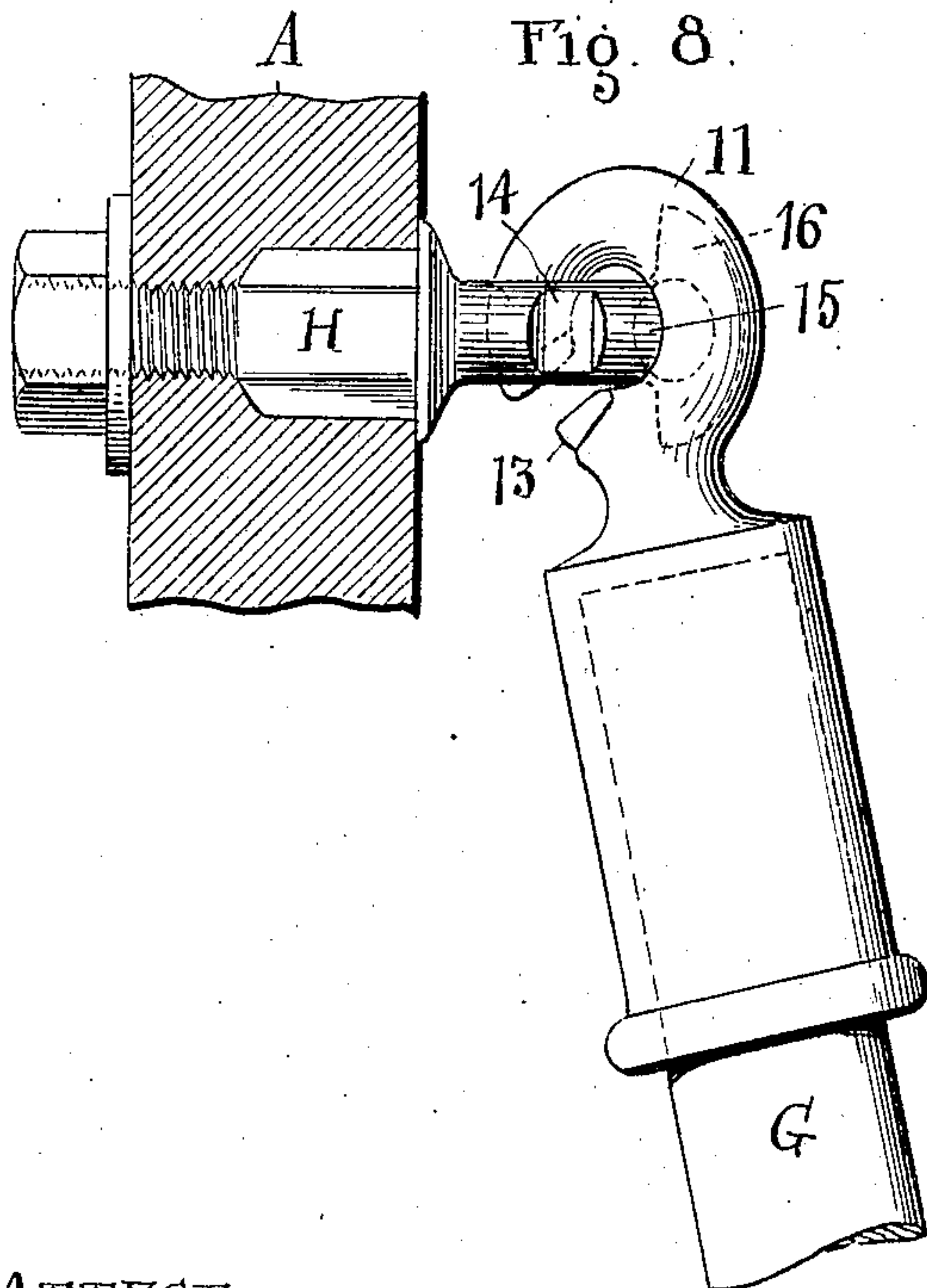


Fig. 9.

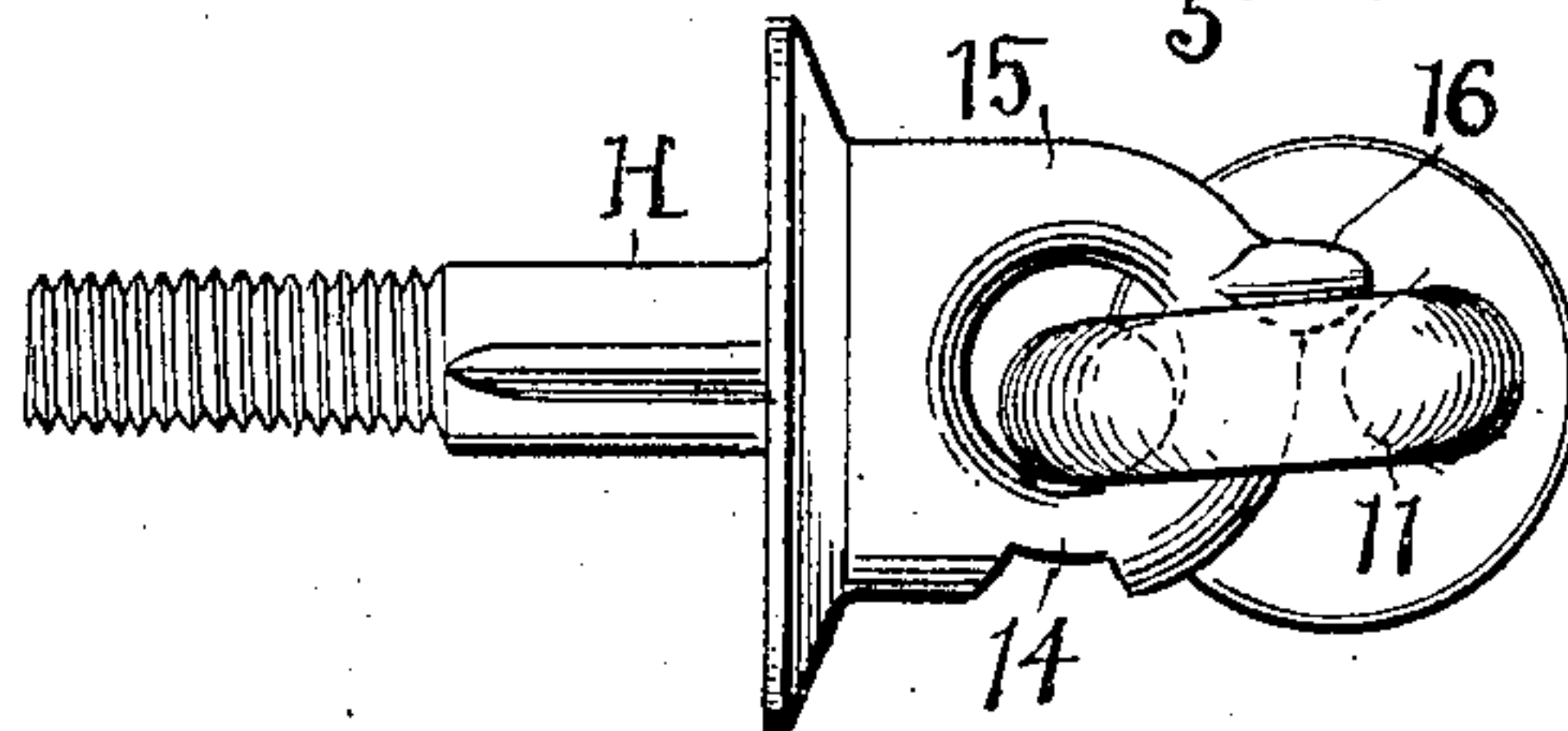
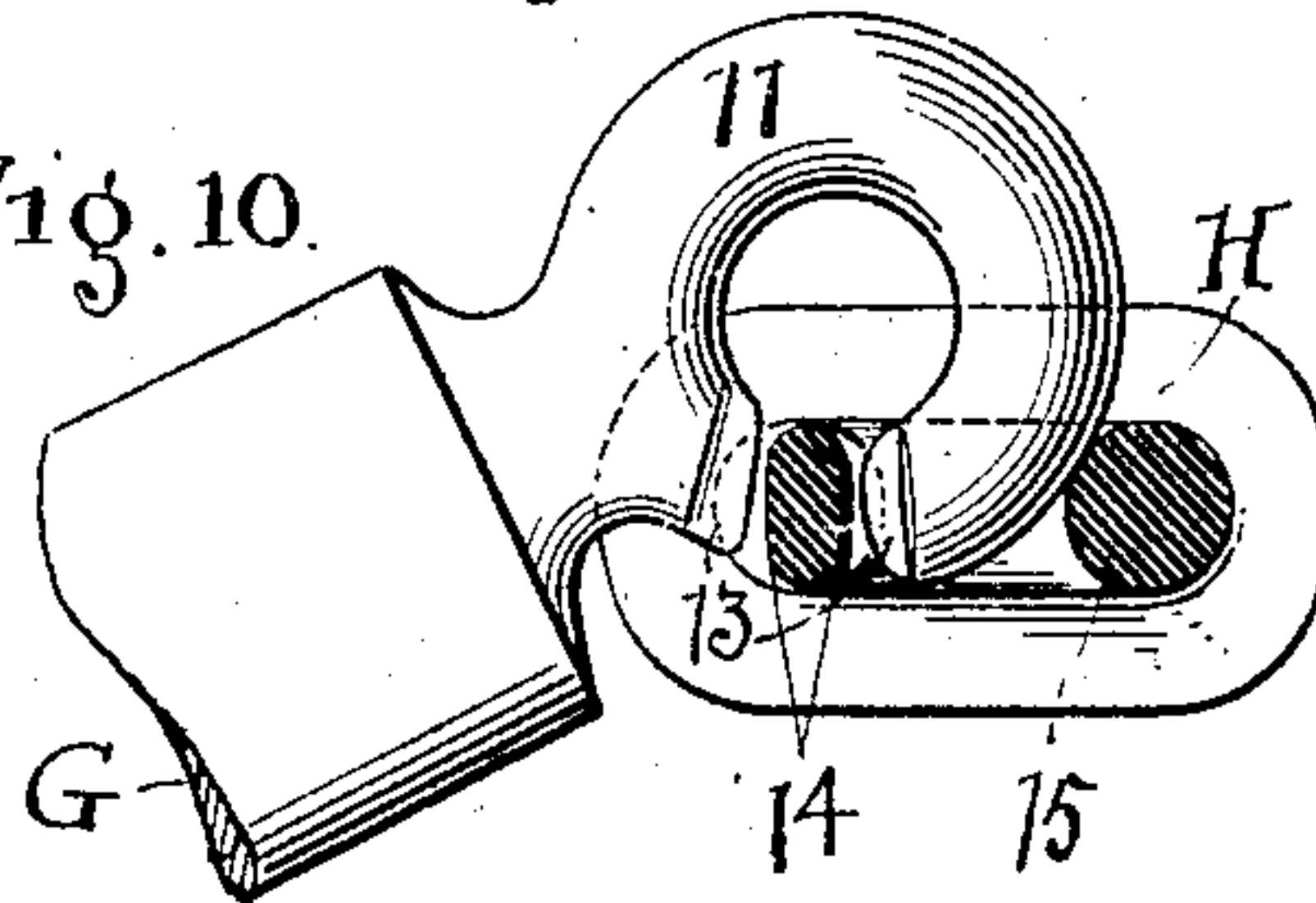


Fig. 10.



ATTEST.

R. B. Moser
C. A. Sell

INVENTOR.

Martin Bauer

By *H. V. Fisher* ATTORNEY.

UNITED STATES PATENT OFFICE.

MARTIN BAUER, OF CLEVELAND, OHIO.

COMBINED LADDER AND SCAFFOLD.

No. 843,989.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed July 9, 1906. Serial No. 325,260.

To all whom it may concern:

Be it known that I, MARTIN BAUER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Combined Ladder and Scaffold; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a combined ladder and scaffold; and the invention consists in the construction and combination of parts, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan elevation of my improved ladder and scaffold shown as resting against a building in using position. Fig. 2 is a section of the top of the ladder proper and of the extension thereon, showing the means whereby the said parts are united and made rigid one with the other. Fig. 3 is a cross-section of the ladder on a line corresponding to 3 3, Fig. 2. Fig. 4 is a side elevation of the top of the ladder proper, showing the construction and relation of the top brace thereto in both open and folded position. Fig. 5 is an enlarged sectional elevation of a portion of the side of the ladder and a longitudinal section of the ventilating-ferrule, also as hereinafter described. Fig. 6 is a cross-section on line *xx*, Fig. 5. Fig. 7 shows one of the sections or halves of the ferrule for the rounds of the ladder. Fig. 8, 9, and 10 are the different views of the brace connections for the lower end of the ladder, adapted to prevent the braces from becoming unlocked in their engagement with the eyebolts, as hereinafter more fully described.

The invention as thus shown comprises at least four different novel features: first, the ferrule for protecting the rounds of the ladder from rotting; second, the top extension, by means of which the ladder is elongated or lengthened for higher buildings than ordinarily when desired; third, the link connection at the heel of the upper brace-frame, whereby the said frame can be set and held at different angles with respect to the ladder and is adapted to be folded flat against the ladder; fourth, the novel construction of the eyebolt, which is engaged by the floor or ground brace of the ladder and which is so constructed as to prevent locking

and consequent breaking off of one of the said parts when the said brace is to be folded.

Now, referring to the drawings, A represents the ladder proper, and *a* the rounds therein.

B represents a sectional or divided ventilating-ferrule, which in this instance is corrugated lengthwise in the portion which extends through the frame or side of the ladder and supports the ends of the rounds, so as to provide open circulation for the air about the rounds the full depth of the ladder-frame, and thus provide ventilation and prevent such accumulation of moisture at this point as will destroy the life of the round.

It is a common experience in ladders for outdoor work that moisture works into the round at the point where it meets the ladder-frame and in a comparatively short time rots the round out at that point, so that it becomes weakened and breaks off under weight, and which frequently leads to serious accident. My idea is to preserve the extremity of the round against the injurious effects of moisture by affording a free ventilation over its entire end surface, and this is done by means of the ventilating-ferrule, either of the kind shown or its equivalent. Said ferrule, furthermore, has an enlarged rim or flange *b* at its inner end projecting past the frame A of the ladder relatively as shown and of a length adapted to form a support for the round *a* if it should occur that it broke off at its meeting-point with the edge of the ladder. In that case the round would simply drop down upon flange or head *b*, and this would be a warning to the user of the ladder and would prevent the round from dropping further, and thus avoid accident. I also provide the sections of the said ferrule with recesses 2 in their edges adapted to receive a nail 3, which passes through said recesses and the round of the ladder and secures the ends thereof, as seen in Fig. 5. This makes a safety arrangement for the rounds of the ladder, which is of the highest value to the user, because it is a sure protection against fall or danger by reason of the breaking away of the round at either or both ends when he is standing thereon.

The next feature of the invention above referred to is comprised in the top extension C, adapted to lengthen the ladder to reach the higher places on a building where the ladder in its original size would not be sufficient. To this end I construct the extension C of

any desired length and connect the same with the body of the ladder by means of channel-iron couplings D. The said couplings are made of such size and length as to fit snugly about the meeting ends of the said parts and to overlap both ends sufficiently to make a rigid and safe connection between them, and the said channel-irons are permanently affixed to the upper or extension section C and adapted to sleeve over the upper ends of the ladder, thus making a sort of socket connection for said ends in said irons, and a spring 5 at each side of the ladder is provided with a locking-shoulder at its inside adapted to engage in the recess in the side and top of the ladder to lock the extension firmly thereon. Thus a ladder is provided with as much greater length than the body of the ladder as may be needed in any case, and the entire structure is made rigid and perfectly safe.

The third feature of novelty is found in the means for adjusting the position of the folding brace or brace-frame D, which ordinarily comes at the top of the ladder, but which in this instance, if desired, may be removed from its position Fig. 1 to the extension C above. In my former construction, as seen in Letters Patent No. 788,992, I employed a link connection for the braces of brace-frame B; but the links or chains were of a fixed length and could not be taken up or let out, and hence there was no adapting of the said parts to the varying inclinations of the ladder. This was found to be an undesirable limitation, and hence I have improved the said construction by providing the upper supporting-iron 6 at each side with a hook 7, and chain 8 engages over this hook and is permanently fixed at its lower end to the brace-slide 9. It should be noted, however, that the brace or brace-frame B' and the parts just referred to are connected with the rigid frame E, adapted to run in inside channels 8 in the ladder and which extend the full length thereof from top to bottom, and the said frame E is provided with ribs on its side and rear portions to slide in said channels. Hence the brace-slide 9 is free upon the edge of the said frame E and has inside flanges or wings to confine it laterally, while the brace 10, one at each side, engages therewith and pivotally with the brace-frame B'. With this construction and arrangement of parts I may employ a fixed or set brace-frame at any angle or inclination to the ladder that may be desired by taking up or letting out the chain 8, and then when I desire to fold the ladder for shipping I detach the chains from their hooks and bring the links 10 and the frame B downward, so that they rest one against the edges of the frame E, and making a close fold for shipping, as seen in dotted lines, Fig. 4. This construction, therefore, is very convenient and desir-

able whether the ladder be in use or be packed away for shipping or storing.

The fourth feature of the invention above referred to is comprised in means for engaging the bottom braces G of the ladder. These have a length relatively as shown and are designed to be folded lengthwise outward against the sides of the ladder when not in use, as seen in dotted lines, Fig. 1, but may be bodily detached, if preferred. However, I have made provision for folding the same against the side of the ladder, so that they will be in place when the ladder is set up for use and be out of the way for shipment and storage. To these several ends I have provided said braces G with hooks 11 and shouldered fins 13 at the base of said hooks. These hooks are engaged with the eyebolts H, which are secured through the sides of the ladder from the outside and in which the eyes thereof have outside notches 14 of such depth as to permit the fins 13 to pass through the same for engaging and disengaging the braces. Otherwise and in all working relations said hooks are irremovably secured upon or in the eyes of the eyebolts, and this is particularly true when they are brought to bracing position, in which the braces are set outward at their bottom from the bottom of the ladder and sustain a lateral inclined relation to the ladder, which appears clearly in Fig. 1. When in this position, the hooks are apart from the recesses 14 and cannot become detached from the eyebolts, but hold a bracing position and relation thereto. Now it has been a common experience in this arrangement of the parts that when it come to folding the braces they would be caught in an angular position between the hook and eye, which would lock the two parts together, and then any force or undue pressure upon the end of the brace to get them unlocked or to fold the brace is liable to break one part or the other. To avoid this, it was necessary to provide the eye 15 with a stop 16, which is in the nature of a rib thrown up on its outer portion, beyond which the hook cannot be turned. This limit is plainly seen in Fig. 9. Hence the hook 11 is confined to one half or side of the eye 15 for its operations, which is all that it needs, and on this side of the said rib it cannot be thrown into such accidental locking position as will cause breakage, but will have perfectly-free movements.

It will of course be understood that the so-called "body" of the ladder may be made in hinged sections, if desired, and all the attached parts, such as brace-frame B' and the mechanism connected therewith and the platform J and its carrying and sliding frame L, may be removed from the ladder and the ladder be used simply as a common ladder, if it be preferred. It will also be noted that both platform-frame J and brace-frame B' slide in the same channels on the inside of the

ladder and that each is provided with its own mechanism for making locking engagement. These features, however, are not set forth as novel in this application.

5 What I claim is—

1. As a new article of manufacture, a ventilating-ferrule for the ends of the rounds of ladders.

10 2. As a new article of manufacture, a sectional ventilating-ferrule for the rounds of ladders provided with corrugations for circulation of air about the confined end of the round.

15 3. As a new article of manufacture, a ventilating-ferrule for the rounds of ladders having a flange portion about its inner end of a greater cross-section than the body of the ferrule and adapted to come on the inside of the ladder.

20 4. A ladder provided with ventilating-ferrules in the sides thereof and the rounds of the ladder locked in said ferrules.

25 5. In a combined ladder and scaffold, a ladder and braces at the bottom thereof, eyebolts fixed in said ladder and hooks upon

said braces, and said hooks and eyebolts constructed to disconnect the hooks at one side of said eyebolts.

6. In ladders, a ladder provided with bolts at its sides and lower portion, in combination 30 with braces having hooks engaging the eyes of said bolts and constructed to be engaged and disengaged therewith, and lateral stops on said eyes to prevent the said hooks from turning into strained position therein. 35

7. In ladders, a ladder provided with eyebolts in its lower portion, in combination with braces hooked upon said bolts, the eyes of said bolts having outward projections adapted to limit the turning of the hooks 40 therein, thus preventing the said hooks from coming into locked and breaking relation with the said eyebolts.

In testimony whereof I sign this specification in the presence of two witnesses.

MARTIN BAUER.

Witnesses:

R. B. MOSER,
C. A. SELL.