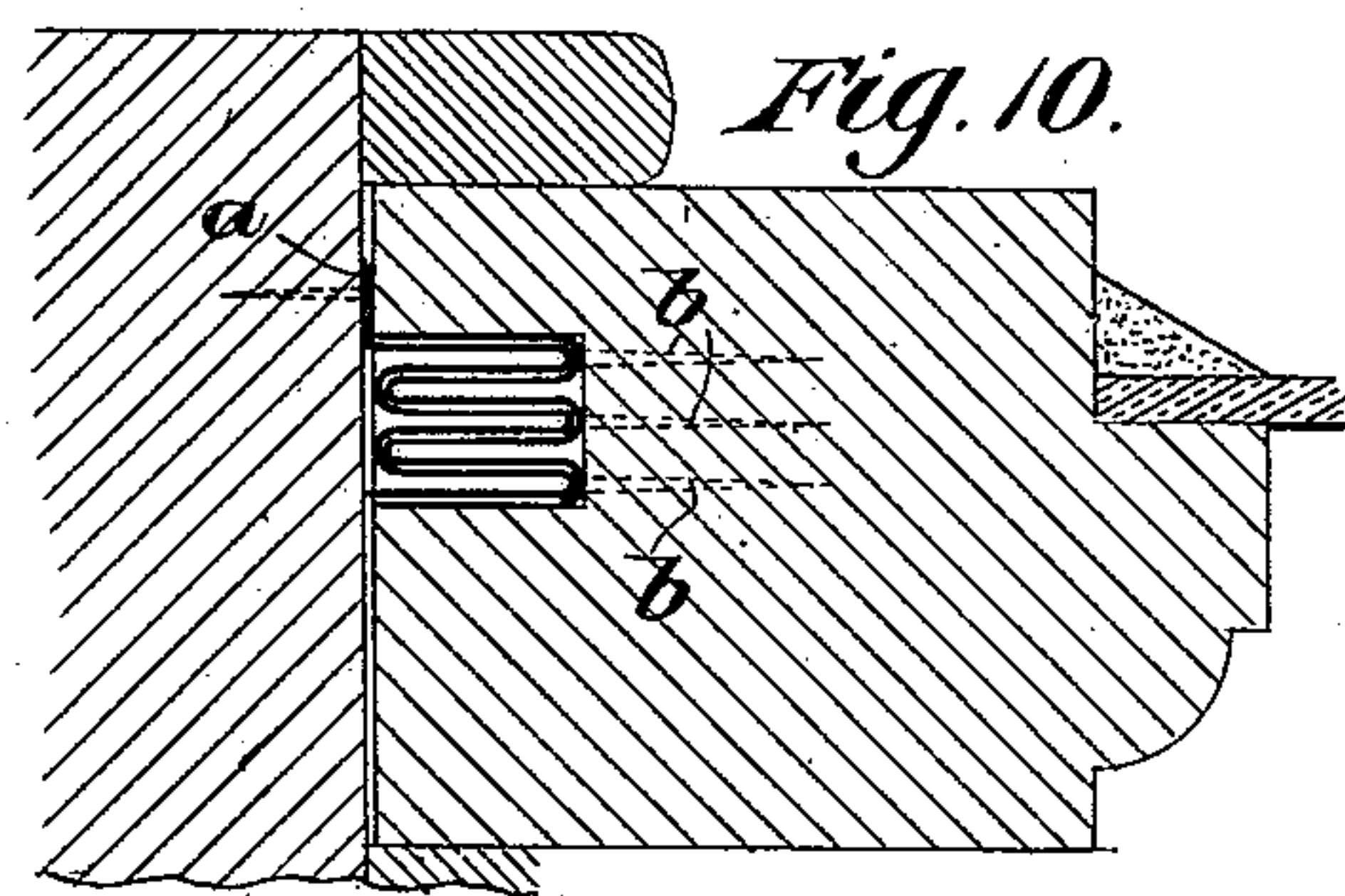
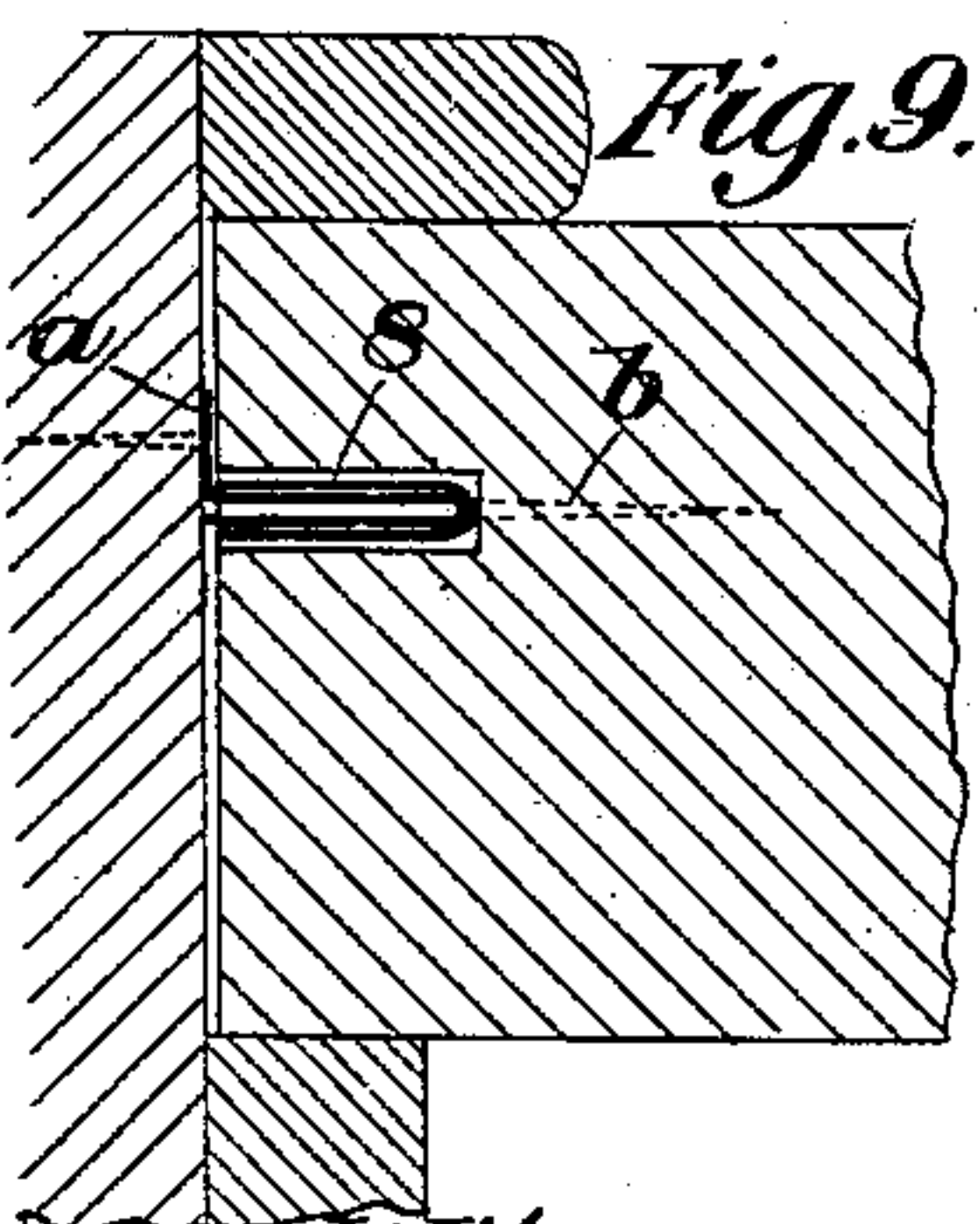
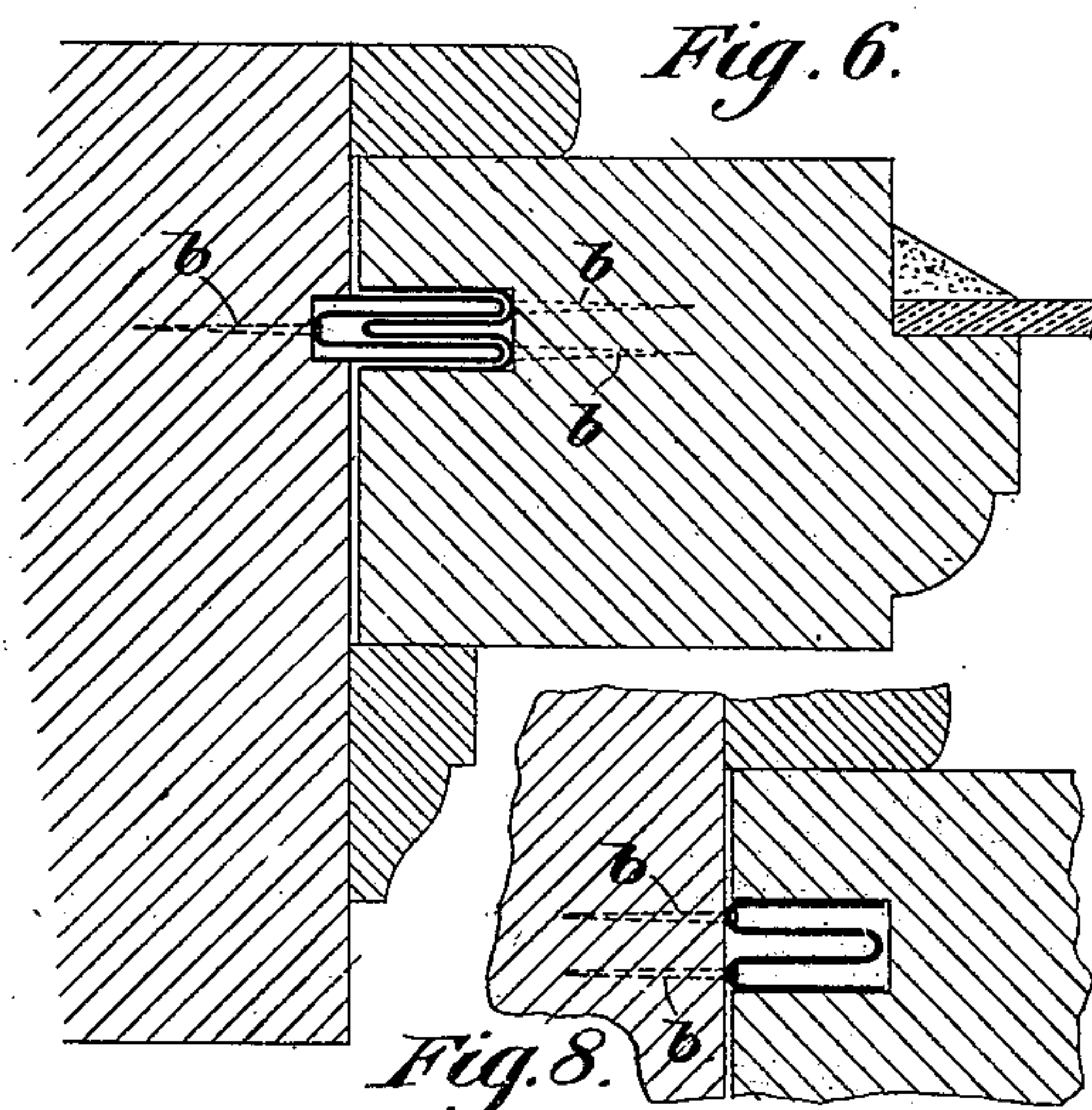
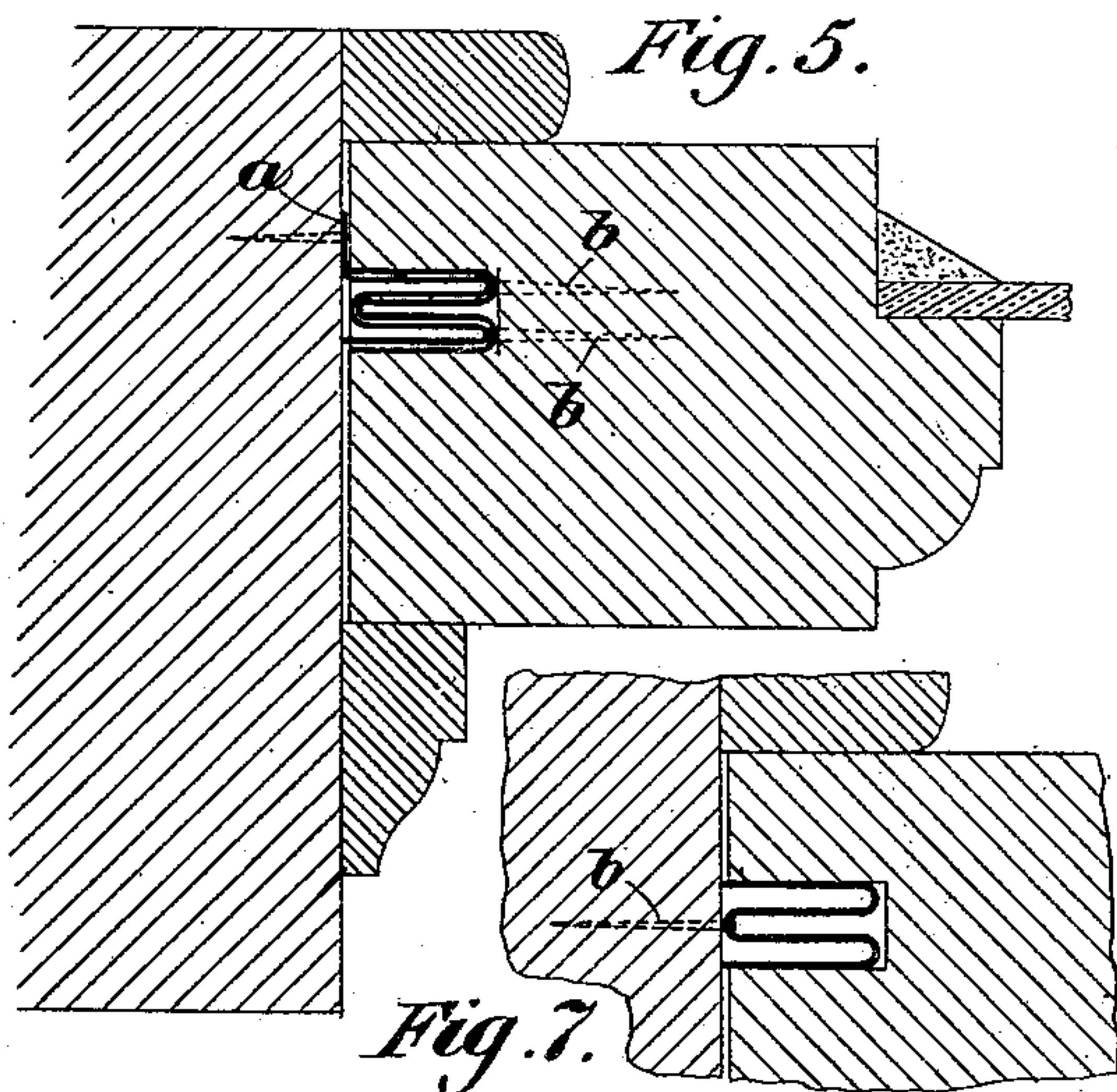
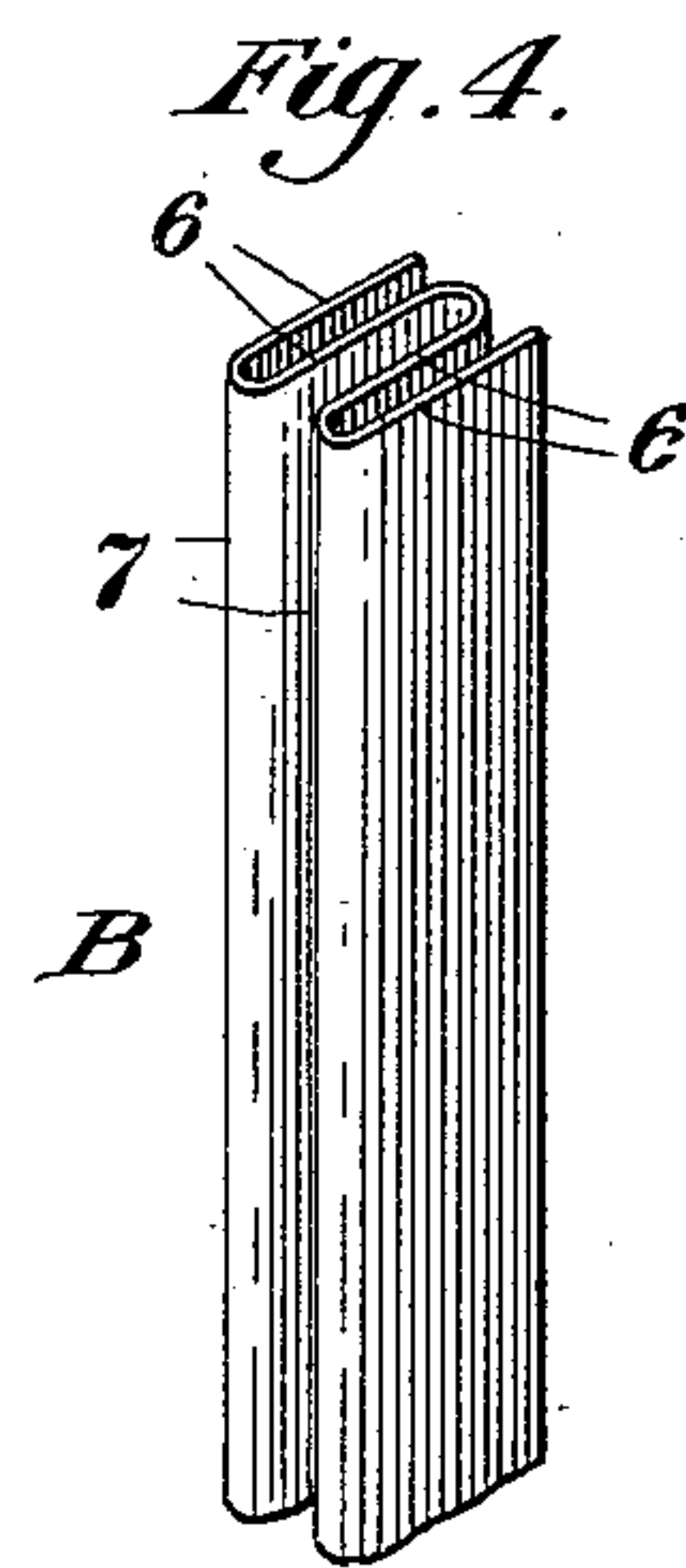
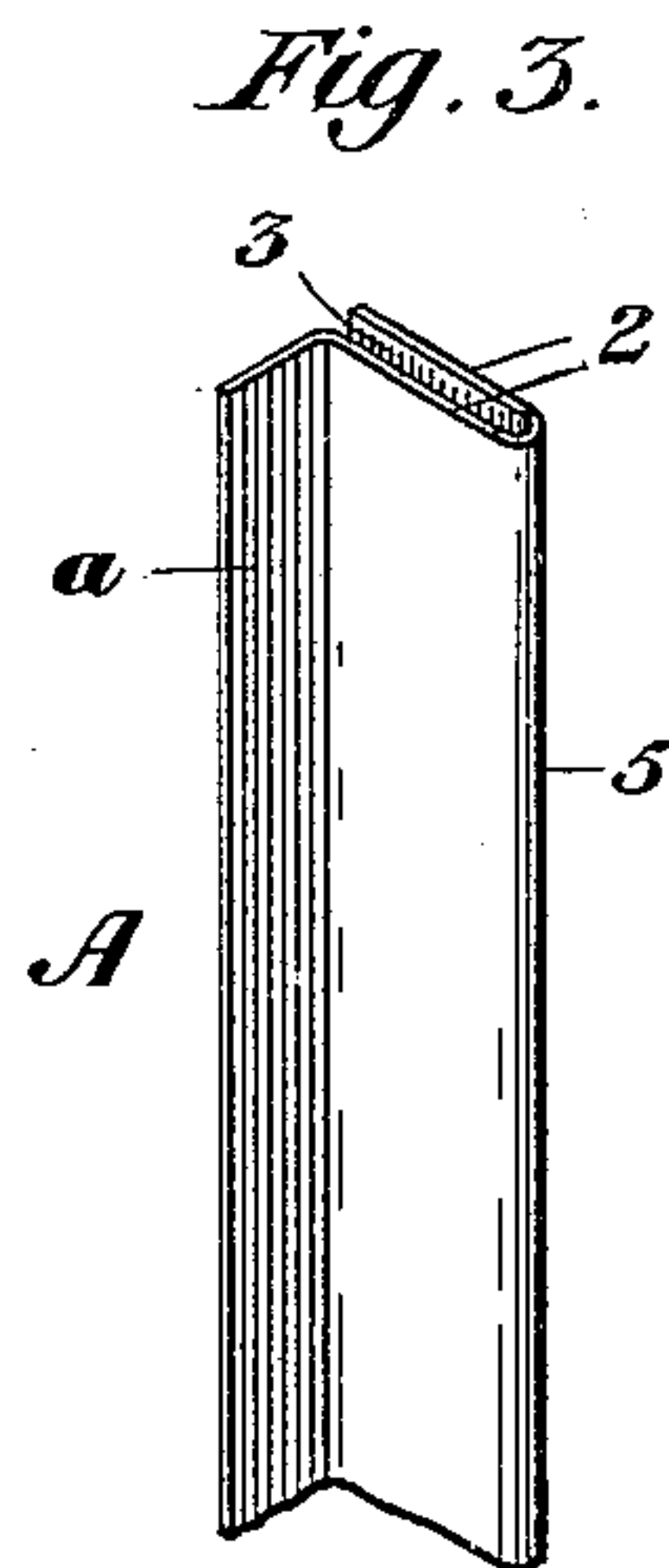
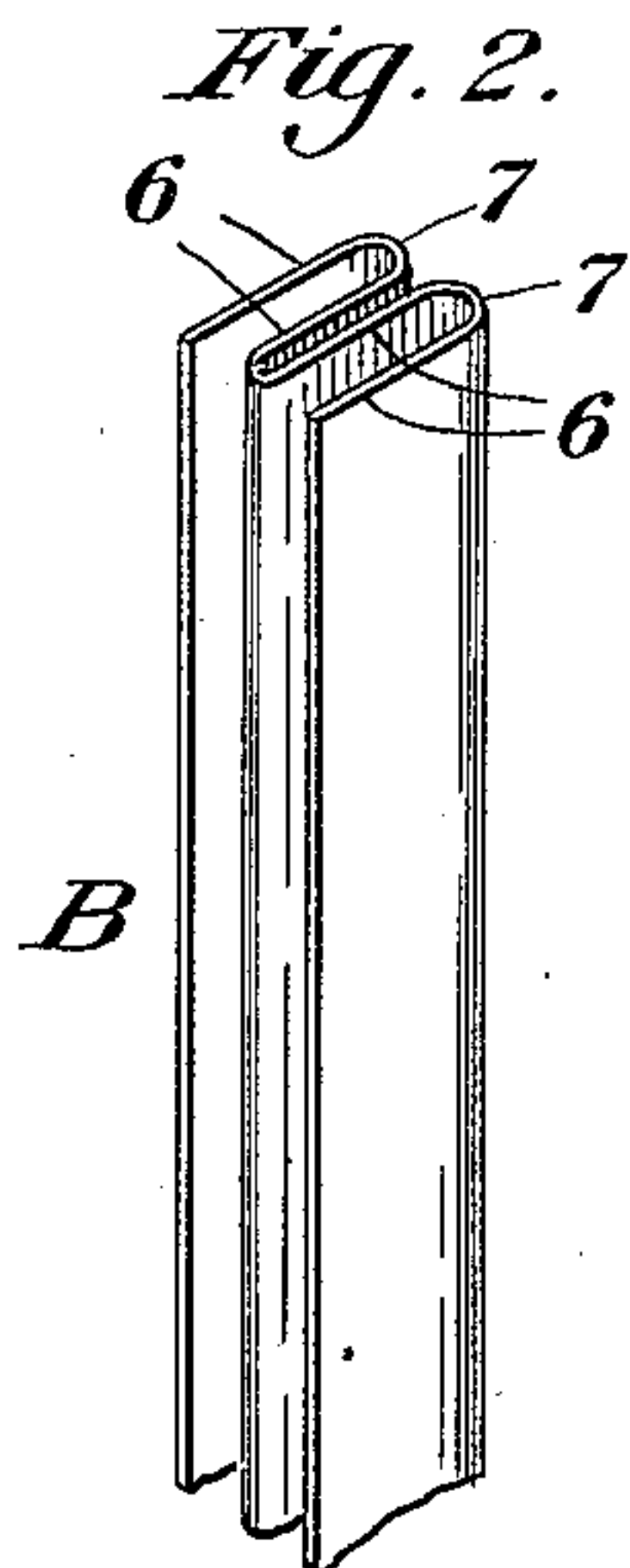
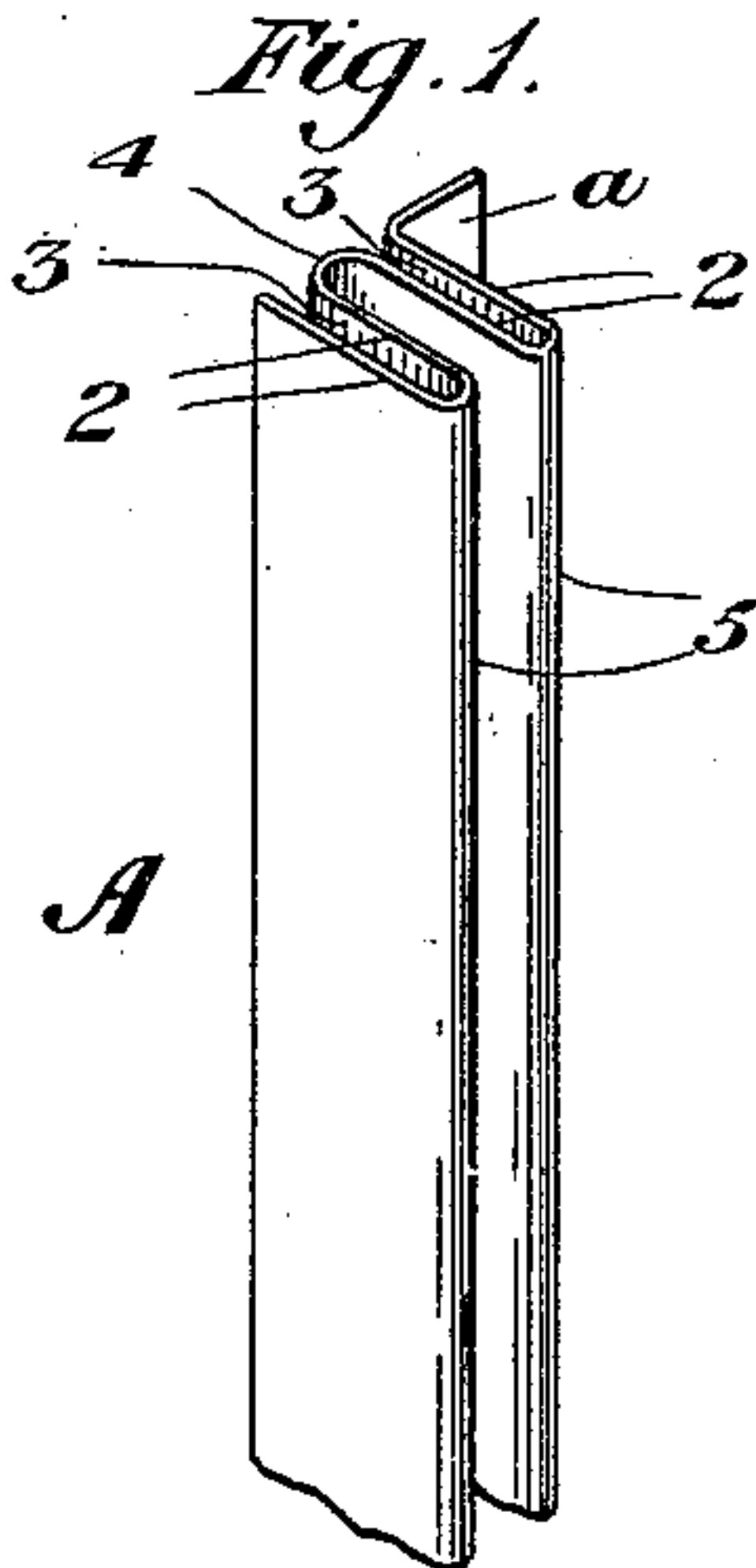


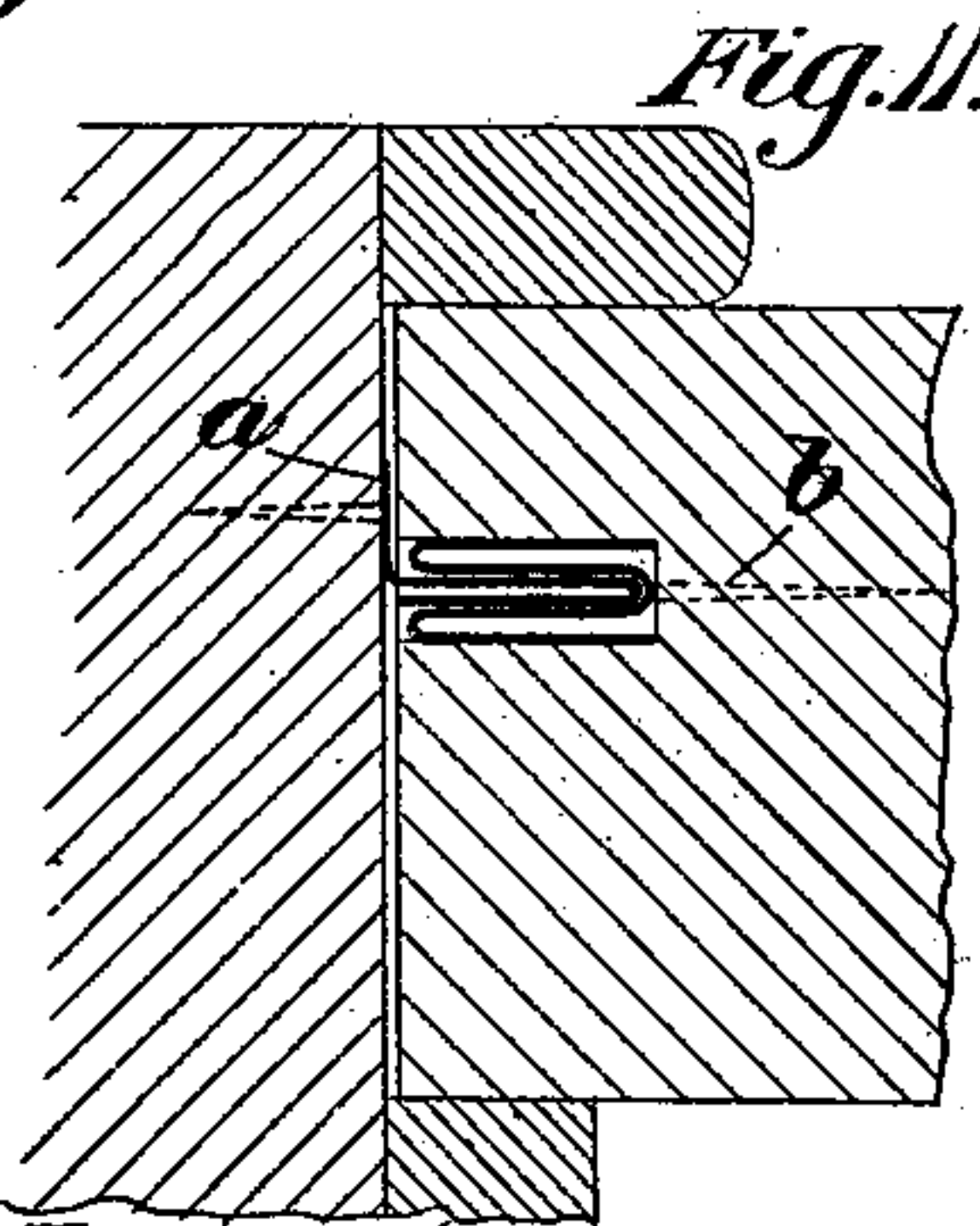
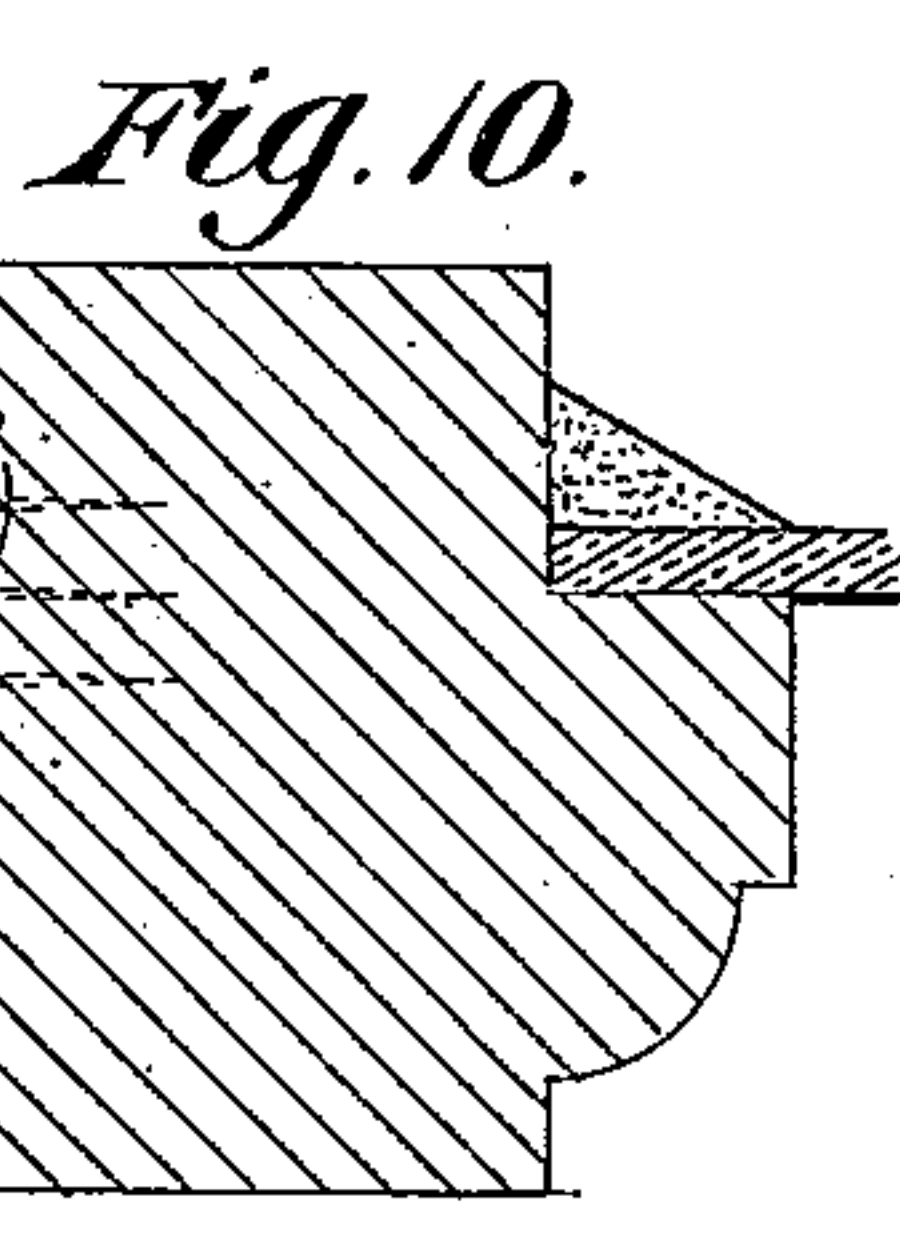
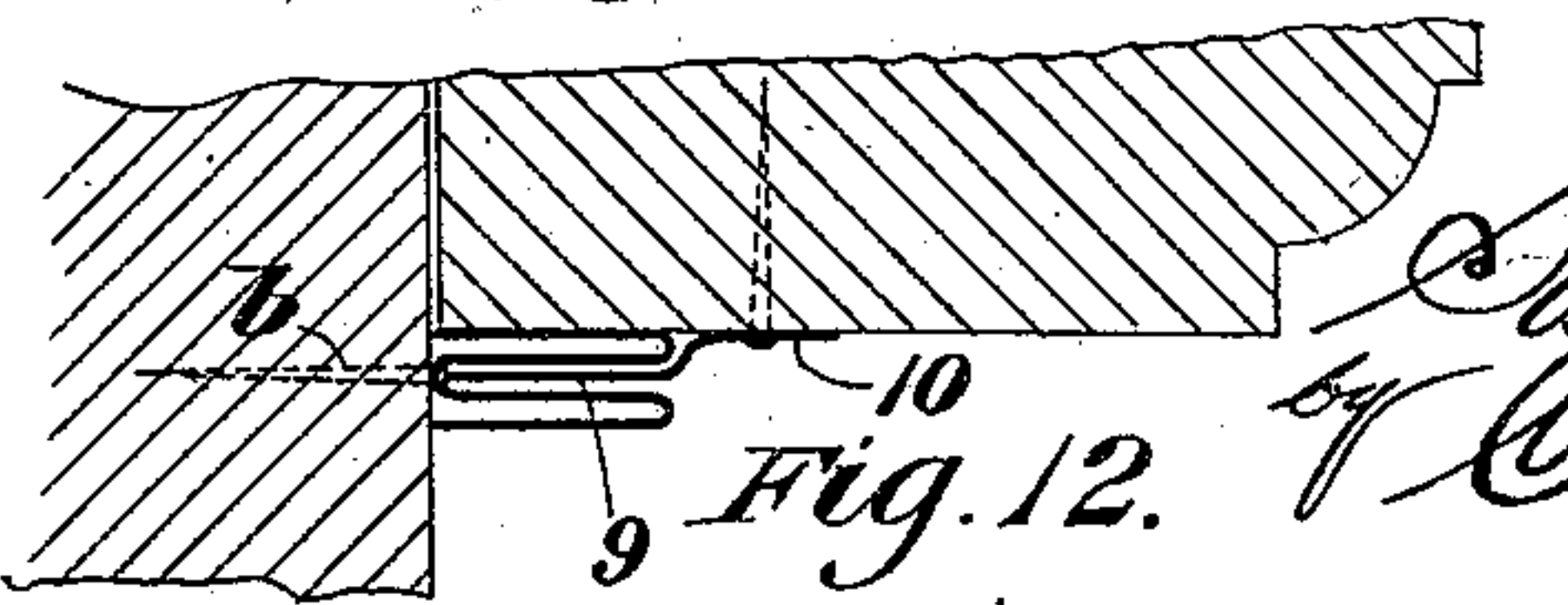
S. P. BRICKER.
WEATHER STRIP.

(Application filed Dec. 26, 1901.)

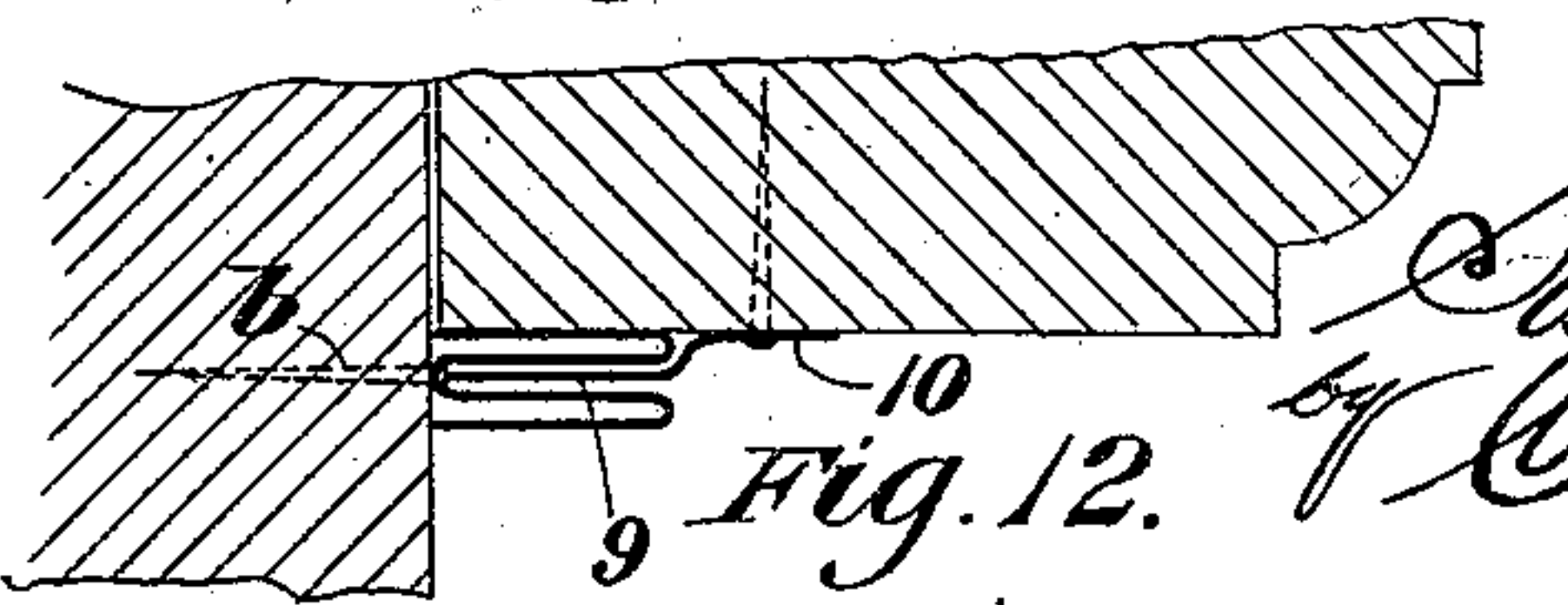
(No Model.)



Witnesses:
E. V. Mackenzie
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Inventor:
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UNITED STATES PATENT OFFICE.

SAMUEL P. BRICKER, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO
NATIONAL METAL WEATHER STRIP COMPANY, OF ALLEGHENY,
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WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 712,761, dated November 4, 1902.

Application filed December 26, 1901. Serial No. 87,171. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL P. BRICKER, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Weather-Strips, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective detail view of a portion of the "plow" member of my improved weather-strip. Fig. 2 is a similar view of a portion of the "tongue" member. Figs. 3 and 4 are similar views of similar portions, showing modified constructions. Fig. 5 is a cross-sectional view of a portion of a window frame and sash provided with the interfitting plow and tongue members. Fig. 6 is a similar view showing a modified form of the plow member. Figs. 7 and 8 are cross-sectional views illustrating the application of the single members shown in Figs. 2 and 4 to the frame and engaging grooves made in the side of the sash. Fig. 9 is a cross-sectional view showing single pair elements in engagement with each other. Fig. 10 is a view similar to Fig. 5, but showing the application of the invention wherein a greater number of the interfitting walls are employed. Fig. 11 is a similar view employing the forms shown in Figs. 3 and 4 in engagement with each other. Fig. 12 illustrates the device applied to the exterior of the frame and sash, a single strip being used on the sash.

My invention relates to weather-strips, and refers more particularly to interfitting (preferably metallic) devices for such purpose, the present invention comprising certain improvements in the construction shown and described in Letters Patent of the United States No. 674,193, dated May 14, 1901, and relating more particularly to the construction of the interfitting members and the manner of securing them in position.

Heretofore metallic strips have been used in the form of tongues secured on the side of the frame and adapted to project into a corresponding plow or groove in the side of the sash-frame; but such devices are only par-

tially efficient, do not provide a tight fit, are not reliable in continued operation by reason of swelling or shrinkage of the wood, causing the parts to bind, and other causes, and only imperfectly secure the objects in view.

My invention has in view the use of both stationary and movable interfitting members so formed with relation to each other that they will provide a practically tight embracing sliding joint, which will be maintained under all conditions.

In the practice of my invention each member is formed of thin sheet metal bent into form to provide the interfitting members, which by reason of their double walls have sufficient elasticity to insure the tight engagement which is desired. Heretofore both of these interfitting members have been provided with laterally-extended flanges adapted to be secured to the sides of the window-frame of the sash, respectively, the sash being suitably grooved out to admit of the insertion of the tongue member, while the laterally-extending flanges are secured to the opposing faces of the stationary frame and moving sash, respectively, by nails driven through the various flanges. The construction of the strip as thus made involves a large amount of metal being used simply for the flange alone, and for the purpose of reducing the size, weight, and cost of the strip I have eliminated the lateral flanges from one or both sides of both the plow and tongue members and have formed the strip in such a manner that sufficient clearance is provided between the adjacent resilient contacting faces thereof for the insertion of securing-nails, which are driven through the lowermost portion of the groove or gutter formed by the metal and by which nails the strip members are securely held in position.

Referring now to the drawings, A represents the plow member, which is secured upon the inner side of the frame by small nails, the member being made of a continuous piece of thin sheet metal of proper length or having the single securing edge or flange *a*. The main portion or operative members of the strip consist of double walls or ribs 2, having between them the intervening

space 3 3, forming the plow, the bottom 4 of which is formed by bending the metal around, as shown, in substantial alinement with the inner terminals of the wall members 2. The outer edges 5 of the walls 2 are formed by bending the metal, and while both sides of the walls are bent down close to each other there will be considerable flexibility and elasticity, which is of great advantage when the interfitting members are together, as shown in Figs. 5 and 6. When the plow member is made without the flange *a*, it is secured in position by means of small nails *b*, driven into the wood of the frame through the bottom of the plow member and between the sides 2 2, the plow member being set into a groove, as indicated, or it may be nailed against the flat surface, as desired. The tongue member (indicated generally by the letter B) consists of a double strip providing one or more walls or tongues 6, having a rounded outer edge 7, with intervening space or spaces. Another form of plow member is shown in Fig. 10, wherein a plurality of the outwardly-extending double walls 2 are provided, which may be of any number desired, the strip being secured in position either by the flange *a* at one or both sides or by nails driven in between the members 2 in the manner already described.

In Figs. 7 and 8 I have shown single stationary members having the middle rib and redoubled sides secured to the frame and projecting into a groove formed in the sash. Such arrangement is very efficient and economical, dispensing with the tongue member of the sash, and is rendered possible by reason of the great elasticity of the strip, the sides of which will press outwardly against the sides of the groove and make a binding fit. As shown, the strip may be secured in position by the nails *b* by locating either edge against the frame, elastic pressure being secured by either arrangement. It will be observed that by dispensing with flanges the sides of the strip are thus left free to move, so that their resiliency is not restrained and is thus utilized to make a binding contact with moving surfaces or interfitting members.

In Fig. 9 I have shown a construction wherein the stationary member consists merely of a single double-sided strip secured in position by a single flange *a*, and embracing such single member is the corresponding double-sided member 8, set in a suitable depression or groove in the edge of the sash, secured therein by the nails *b* and adapted to slidably embrace the stationary member A. In Fig. 11 the construction is very similar, except that the sides of the movable member are redoubled upon themselves, provided with supplemental outer elastic sides closely approximating the form shown in Fig. 2 reversed, or, as shown in Fig. 4, the whole strip being set into a suitable grooved recess in the sash and secured therein by the nails *b*. It will be understood that these members may be trans-

posed as to their location with equally good results, the embracing members being located in the frame, while the interfitting member may be mounted upon the sash, although I have secured satisfactory results with the arrangements shown and consider such preferable.

In Fig. 12 I have shown the stationary member consisting of the inner walls provided with intervening space, such walls being redoubled upon themselves, forming the outer walls, as has been described, such member being secured upon the face of the frame by the nails *b*, while between the inner walls projects the member 9, which may be single or double, bent to form the outer edge or flange 10, adapted to be secured upon the face of the sash, as shown. Throughout this construction it will be observed that one of the members approximates either the letter U or W, by which either a single pair or a double pair of walls are provided, between which walls the interfitting opposite members engage, and that the distinctive feature of each member is that it does not necessarily require the lateral flanges, but as thus constructed permits the securing-nails *b* to be driven through the bottom of the grooves, so as to secure it in position. Where such member is made in the form of a W or where, as in Fig. 10, the sides are multiplied, such characteristic features exist, thus providing a plurality of resilient sides and interfitting spaces with sufficient clearance for the insertion of the interfitting members and for the securing-nails.

By reason of the elasticity of the interfitting members a sufficient compression or expansion will occur to insure a binding fit, and care should be taken in making the strips that they shall be in proportion to each other, so as to secure these results. It will be understood that as constructed the interfitting members will embrace and combine with each other and form a tight interfitting sliding joint, and the beneficial results obtained therefrom are due not only to such interfitting engagement, but to the elastic character of the members themselves, by which they bind themselves to each other.

By my improved weather-strip all danger of warpage, shrinkage, or expansion of the wood is obviated, the objections noted are overcome, and a perfect, durable, and weatherproof strip is provided which may be installed and left in during all season without interfering with the operation of the sashes. A further advantage of great importance is that all rattling or lateral movement of the sashes is entirely prevented by reason of the engagement of the stationary and movable members with each other.

Having described my invention, what I claim is—

1. A weather-strip consisting of a metallic plate bent into a central double-sided longitudinal rib and redoubled parallel outer sides

with intervening spaces between the sides and rib, said outer sides being provided with terminal edges in the plane of the sides and constituting elastic unrestrained bearing portions; substantially as set forth.

2. A weather-strip consisting of a metallic plate bent into a central double-sided longitudinal rib and redoubled parallel outer sides with intervening spaces between the sides and rib, said outer sides being provided with terminal edges in the plane of the sides and constituting elastic unrestrained bearing portions, with means for securing the intervening doubled sides, substantially as set forth.

3. In a weather-strip, the combination of a metallic plate bent into an inner double-sided longitudinal rib and redoubled parallel outer sides with intervening spaces between the sides and rib, said outer sides being provided with terminal edges in the plane of the sides and constituting elastic, unrestrained bearing portions, means for securing the inner doubled sides, and an interfitting similarly-formed metallic plate, interfitting with such doubled and outer sides with means for securing the inner doubled sides, substantially as set forth.

4. In a weather-strip, the combination of a

strip composed of a doubled plate having sides terminating in edges in the same plane as the sides and constituting elastic unrestrained bearing portions, means for securing said strip in position, and an interfitting doubled member adapted to be slidably embraced by the sides.

5. In a weather-strip, the combination of a strip composed of a metallic plate bent into a central double-sided longitudinal rib and redoubled parallel outer sides with intervening spaces between the sides and rib, said outer sides being provided with terminal edges in the plane of the sides and constituting elastic unrestrained bearing portions, with means for securing the intervening doubled sides: and an interfitting member provided with a deflected securing-flange and projecting portions extending in between and adapted to be slidably embraced by the doubled sides, substantially as set forth.

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

SAMUEL P. BRICKER.

Witnesses:

GEO. B. BLEMING,
C. M. CLARKE.