

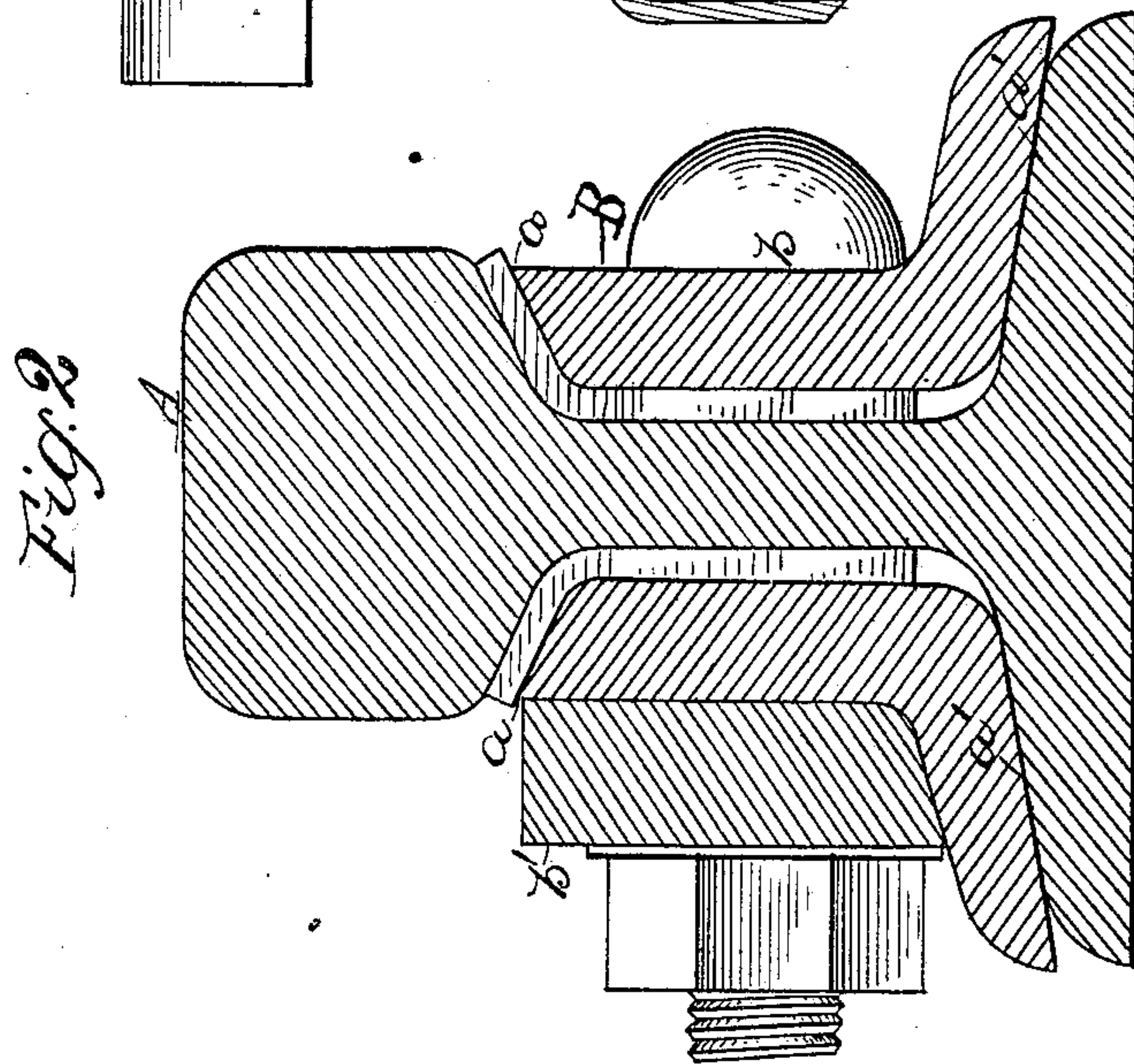
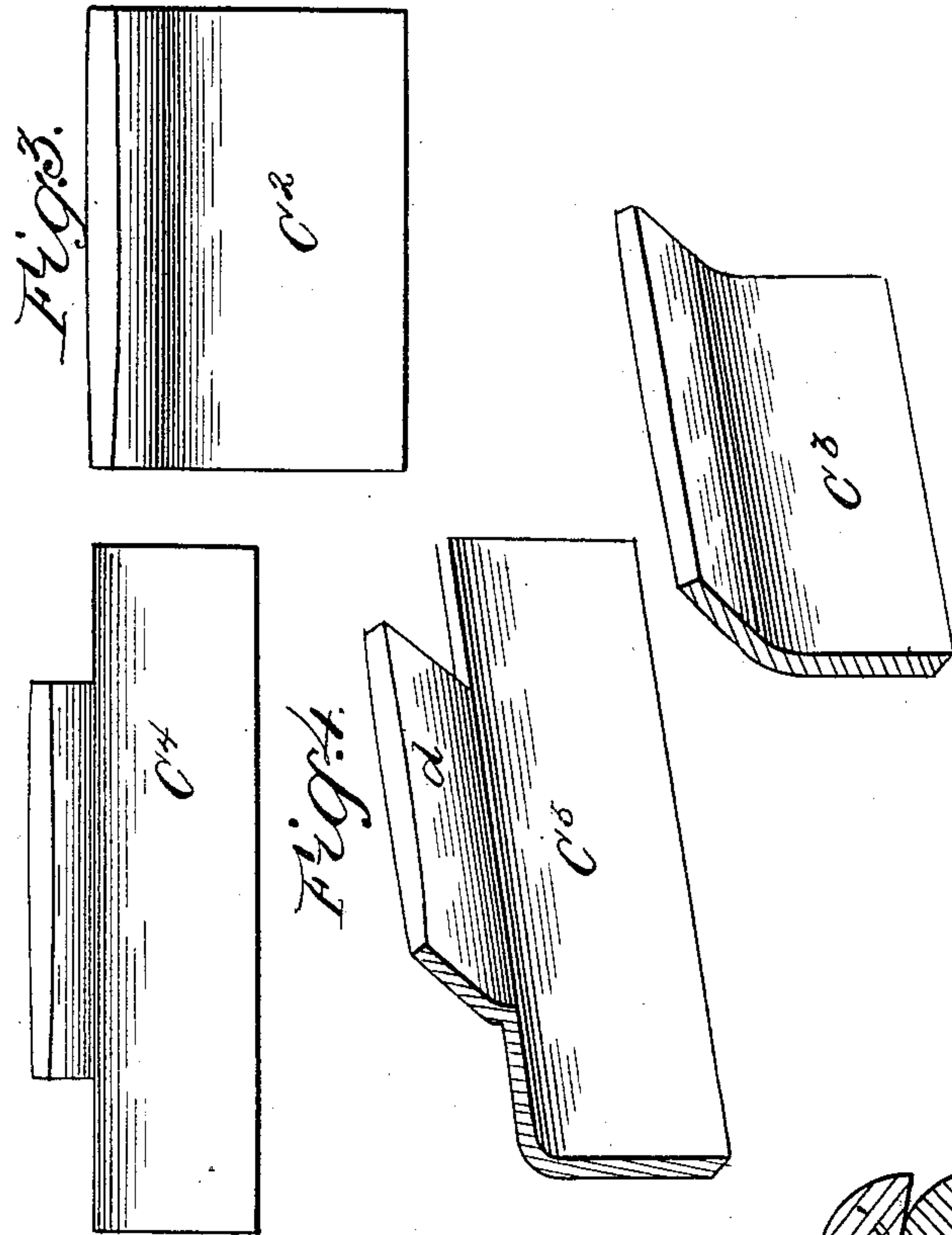
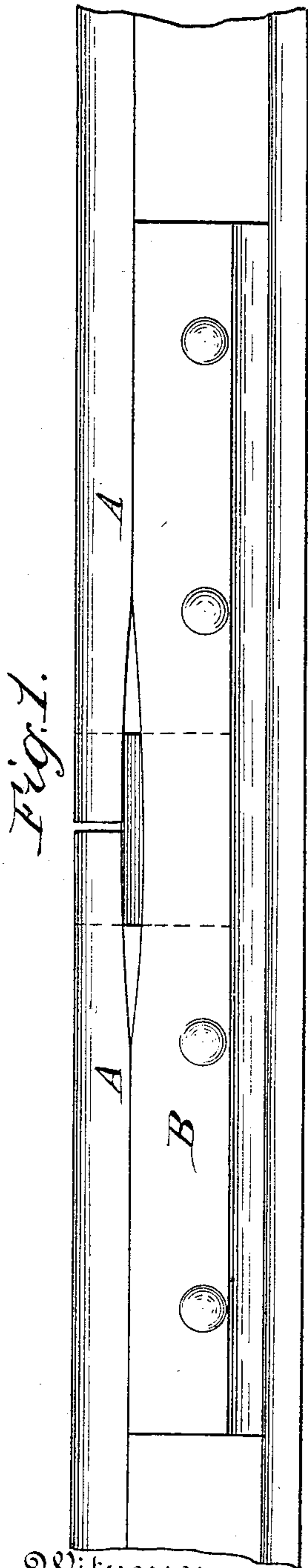
(No Model.)

2 Sheets—Sheet 1.

H. M. HALL & D. H. MAHONEY.
RAILROAD JOINT.

No. 362,958.

Patented May 17, 1887.



Witnesses
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By their Attorney
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(No Model.)

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Fig. 5.

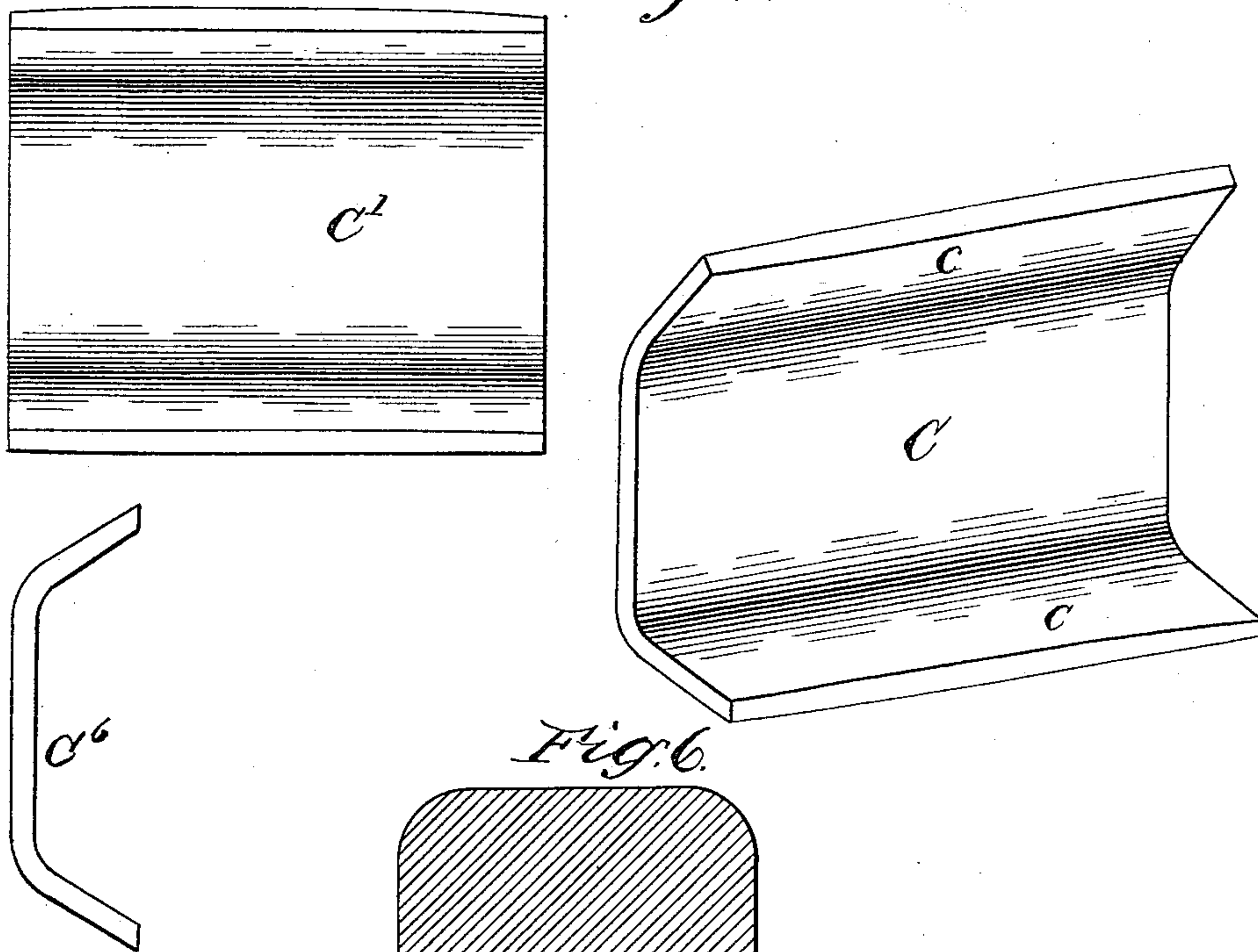
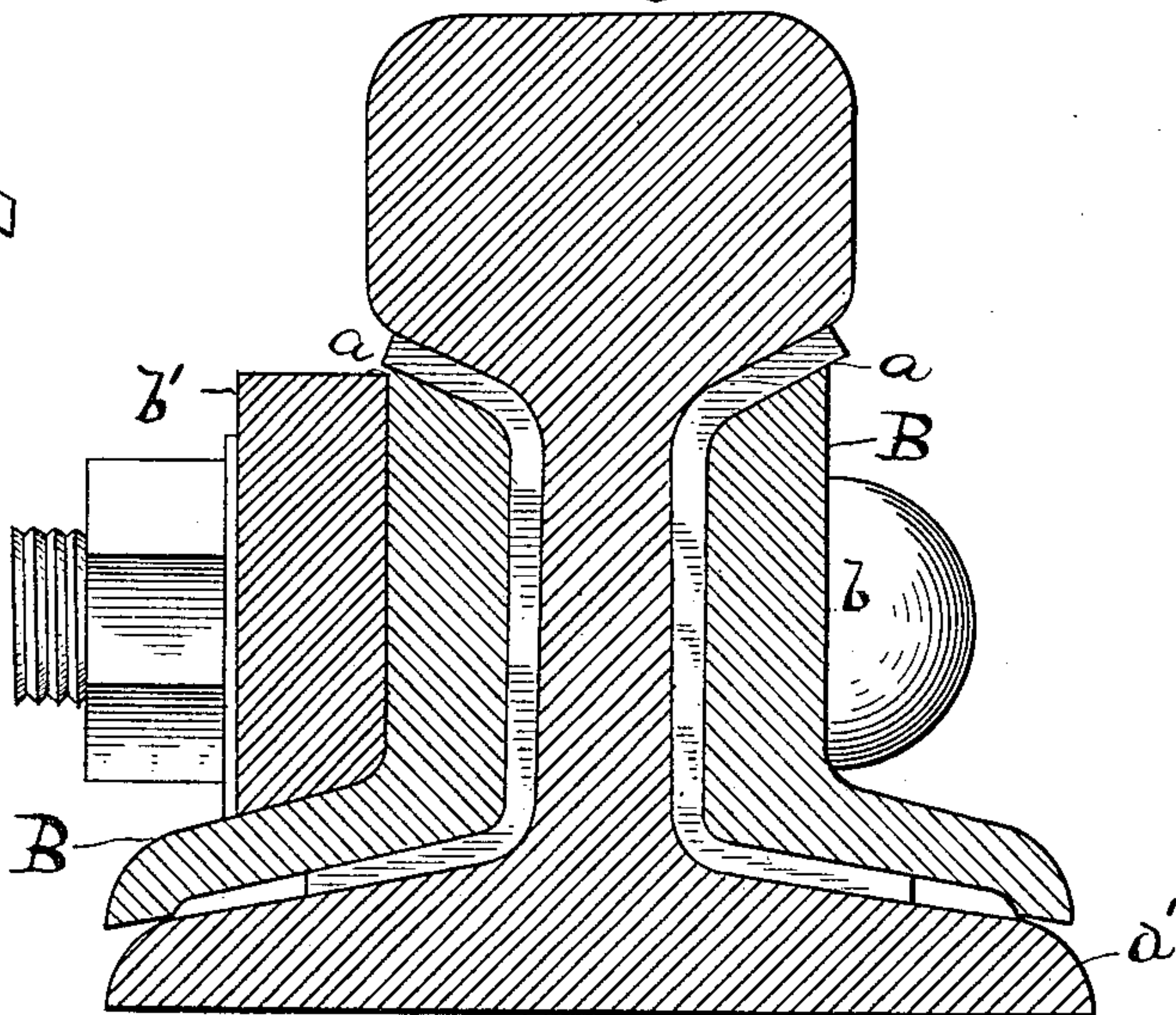


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARVEY MILTON HALL AND DANIEL HENRY MAHONEY, OF OLNEY,
ILLINOIS.

RAILROAD-JOINT.

SPECIFICATION forming part of Letters Patent No. 362,958, dated May 17, 1887.

Application filed October 9, 1886. Serial No. 215,765. (No model.)

To all whom it may concern:

Be it known that we, HARVEY MILTON HALL and DANIEL HENRY MAHONEY, citizens of the United States, residing at Olney, in the county of Richland and State of Illinois, have invented certain new and useful Improvements in Railroad-Joints; 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 relates to certain new and useful improvements in rail-joints; and it consists in the devices used and the manner of connecting the ends of railroad-rails.

The object of our invention is to securely hold the joining ends of railroad-rails in position from vertical or lateral displacement, and at the same time permit of longitudinal contraction and expansion.

Heretofore, by the usual construction and connection of rail-joints, the meeting ends of the rails have been worn, bruised, and chafed away at their upper and lower edges by reason of the wear caused by heavy loaded cars passing over the rails and the tendency of the ends of each rail to bend downward; also the vertical motion of the rails causes a jar or pounding on the face of the rail, mashing and breaking it, and no amount of tightening, by bolts or otherwise, has remedied this defect nor prevented the annoying rattle of the joints.

We attain the objects above referred to and remedy the defects as set forth by means of the peculiar construction and arrangement of our devices, which will be now fully set forth and described in the specification and claims.

Reference is to be had to the drawings accompanying this application, and forming part thereof, in which—

In Sheet 1, Figure 1 is a side elevation view of our invention, showing all parts in place. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a plan view of bent iron lining-plates.

On Sheet 2, Figs. 4 and 5 are plan views of bent plate and cross-section; and Fig. 6 is a vertical cross-sectional view of rails, plates, and pack-plates.

Similar letters refer to like parts throughout the drawings.

Referring to the drawings and to Sheet 1, A represents two railroad-rails formed T-shaped or of any other suitable form approximating to the rail in general use.

B represents the fish-plate or splice-plate, formed of metal and provided with perforations to receive bolts, and made of the desired length to lap a suitable distance on each meeting rail, and of the proper width to fit loosely between the lower face of the tread and the upper face of the foot of said rail. The upper edges of plates B are formed with beveled edges *a* and their lower edges with inclined lips *a'*, to conform in a certain degree to the outer sides of the rails A, and, further, for the proper pressing against and tightening the shims or washers, which will be more fully set forth hereinafter.

Clamp-bolts *b* are formed with heads, screw-threads, and binding-nuts and washers *b'*.

The shims or press-plates are formed of metal or any other suitable material, (as, for instance, fibrous pulp,) and are made different in form, as required.

On Sheet 2 of the drawings, Fig. 5, shims C and C' are formed from a single sheet or blank with outwardly-curved sides *c*, the angle of said curves being in conformity with the rails A and splice-bars B, the cross-section C' showing the degrees of curves for the upper and lower edges.

The vertical cross section, Fig. 6, illustrates the position of rail, splice-plates, shims C and C', the bolt *b*, washer *b'*, and binding-nut when all of the parts are in place. By the insertion of the shims C and C' between the splice-plates B and rails A, after said rails have been pounded down on the edge of said splice-plates and have been worn away and said rails have become loose and rattle, and the splice-plates tightened by bolts *b* against the shims C and C', all shake or rattle is immediately checked, the rails A are rigidly locked, the wheels of the train passing over the top of the rails smoothly and with the minimum amount of pounding or jar.

We do not confine ourselves to this precise form of shim, nor to any other set form, as the exigencies of the case, as they arise, may be met by the form required.

In Figs. 3 and 4 of Sheet 1 the shims are shown as C² and C³. The shim or blank is bent or curved outward on one side, while the opposite side is made plain, the curved part fitting under the head of the rail A and the plain portion extending downward between the splice-plates and rail.

Plates or shims C⁴ and C⁵ are formed with one side curved and a central side, *d*, projecting at an angle outward, the main portion of the shim extending endwise to contact with screw-bolts *b*, whereby said shim can be readily inserted and removed without taking out bolts *b*, and when in place will be tightly held and prevented from endwise movement by contact with said bolts *b*. With this construction it is apparent that the splice-plates B join the rails A in a perfect and secure manner; that by the insertion of the shims C C' the wear of said plates is prevented, the rails A are held secure, and the pounding and scaling of the rails prevented.

The passage of trains over the rail deflects the rail-heads or pounds them down at the joints, causing great wear on the under face of the rail-head and the upper edge and side of the splice-plate, also to a certain extent the body of the rail, thus leaving a worn space, as shown at Fig. 1. Therefore the splice-plates and tie-bolts become loose and rattle. By the insertion of our shim in the worn space be-

tween the splice-plates and rail a tight joint is secured and the bearings at the ends of the rails restored without the expense of new splice-plates.

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

1. A rail-joint-strengthening shim consisting of a metallic strip formed to fit tightly between the splice-plates and rail and in the worn space between the under face of the rail-head and the splice-plate and abut against opposite splice-bolts, substantially as and for the purpose set forth.

2. In combination, a metallic rail-joint-tightening shim having a curved body, side and end projections, with chamfered or worn splice-plates, binding-bolts, and rail, substantially as and for the purpose set forth.

3. A removable shim for rail-joints, consisting of a sheet or strip of suitable material having its ends elongated and one portion extended and curved outward, substantially as and for the purpose set forth.

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

HARVEY MILTON HALL.

DANIEL HENRY MAHONEY.

Witnesses:

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JOHN C. RUSH.