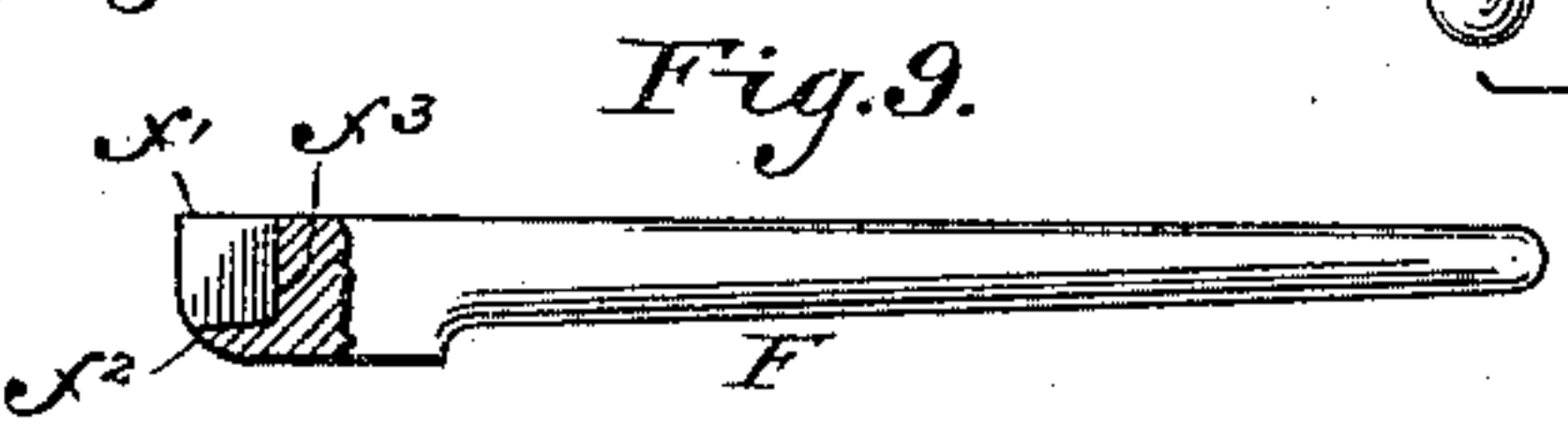
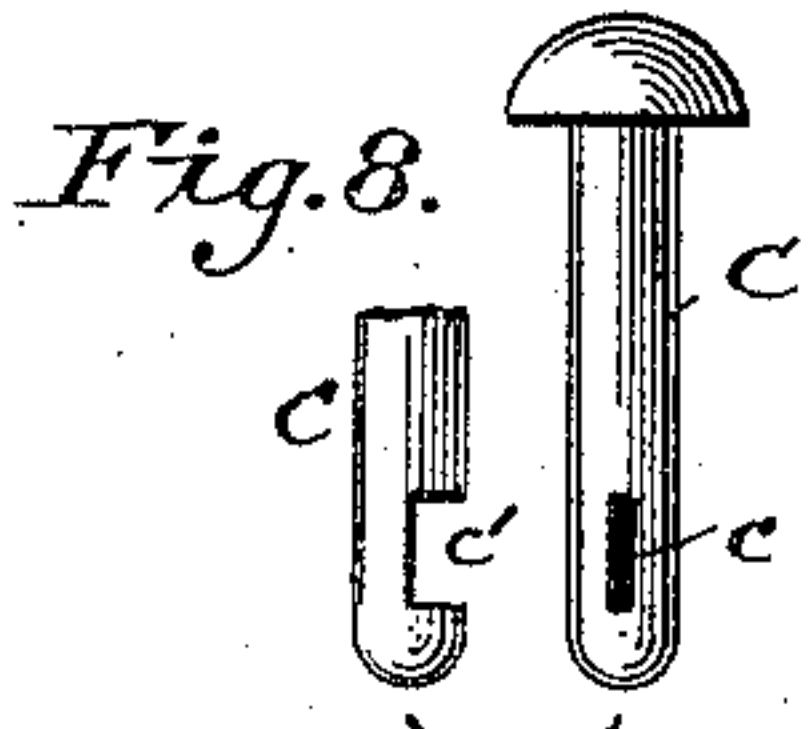
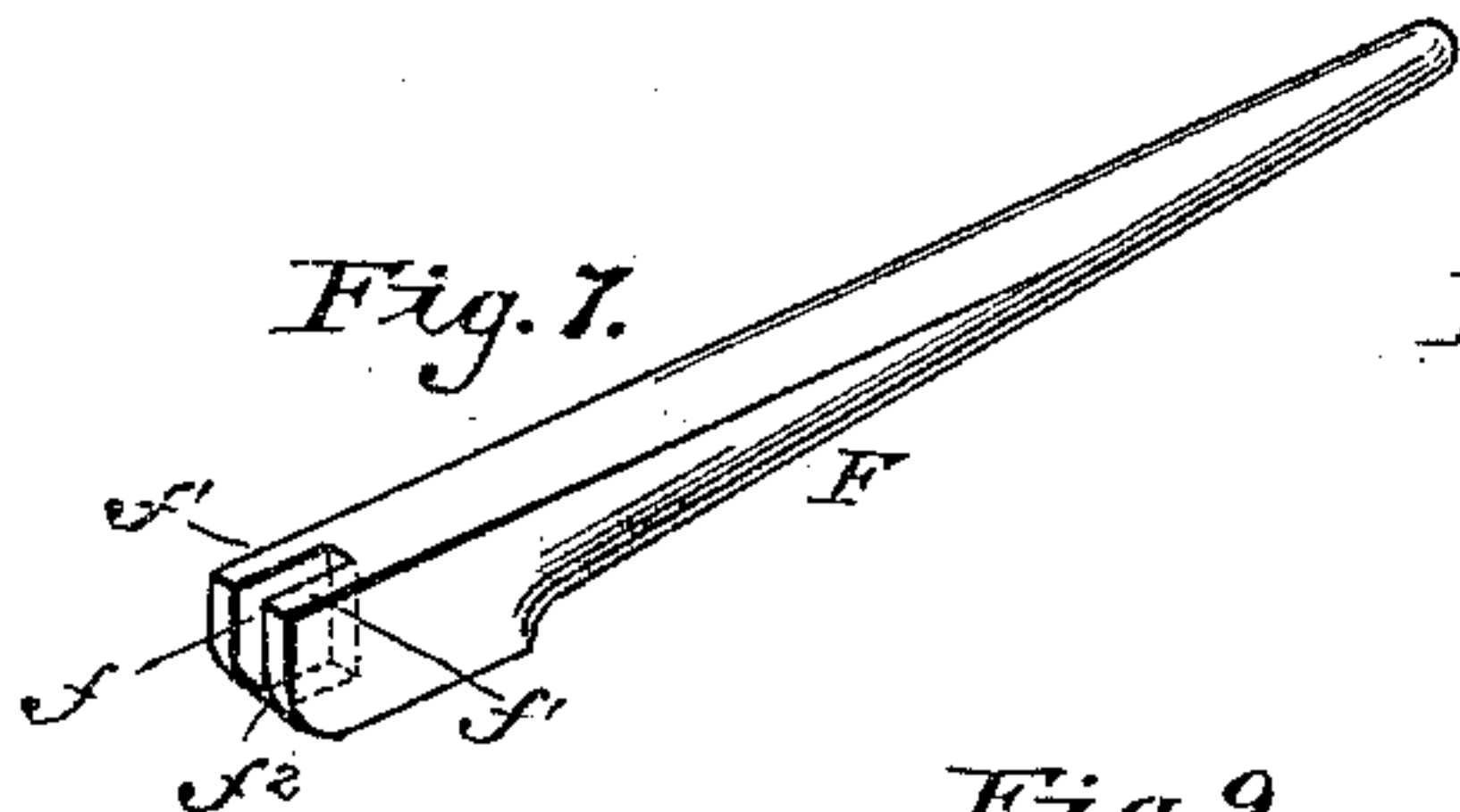
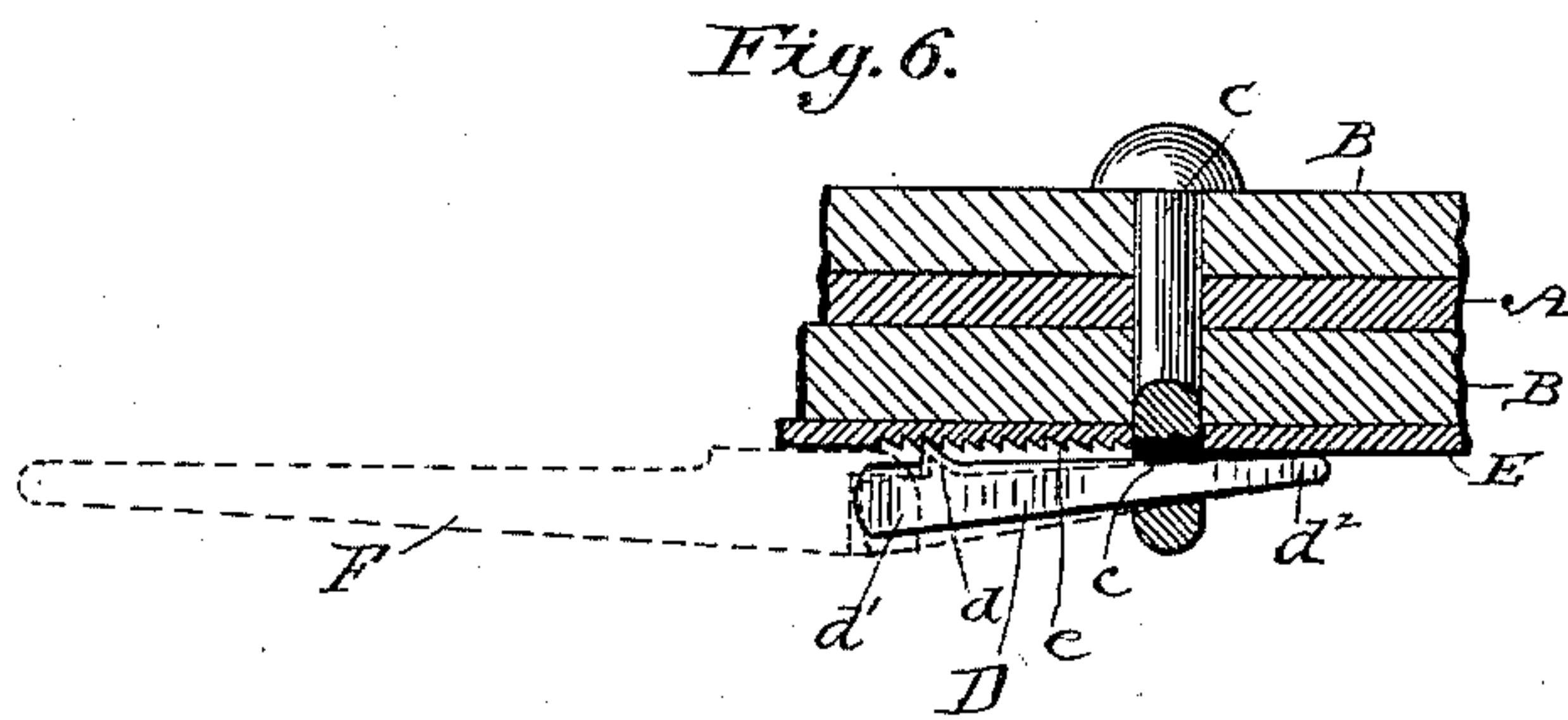
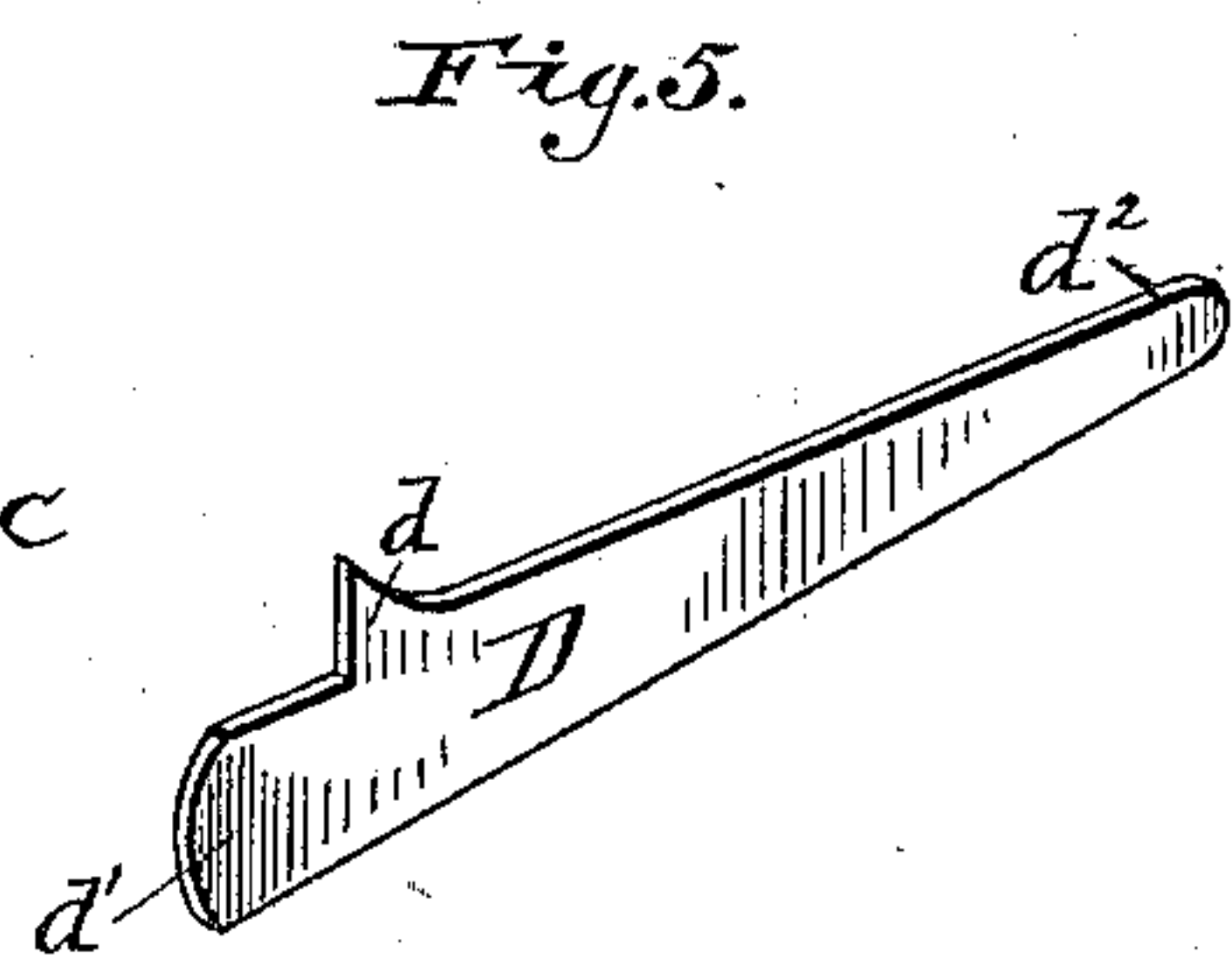
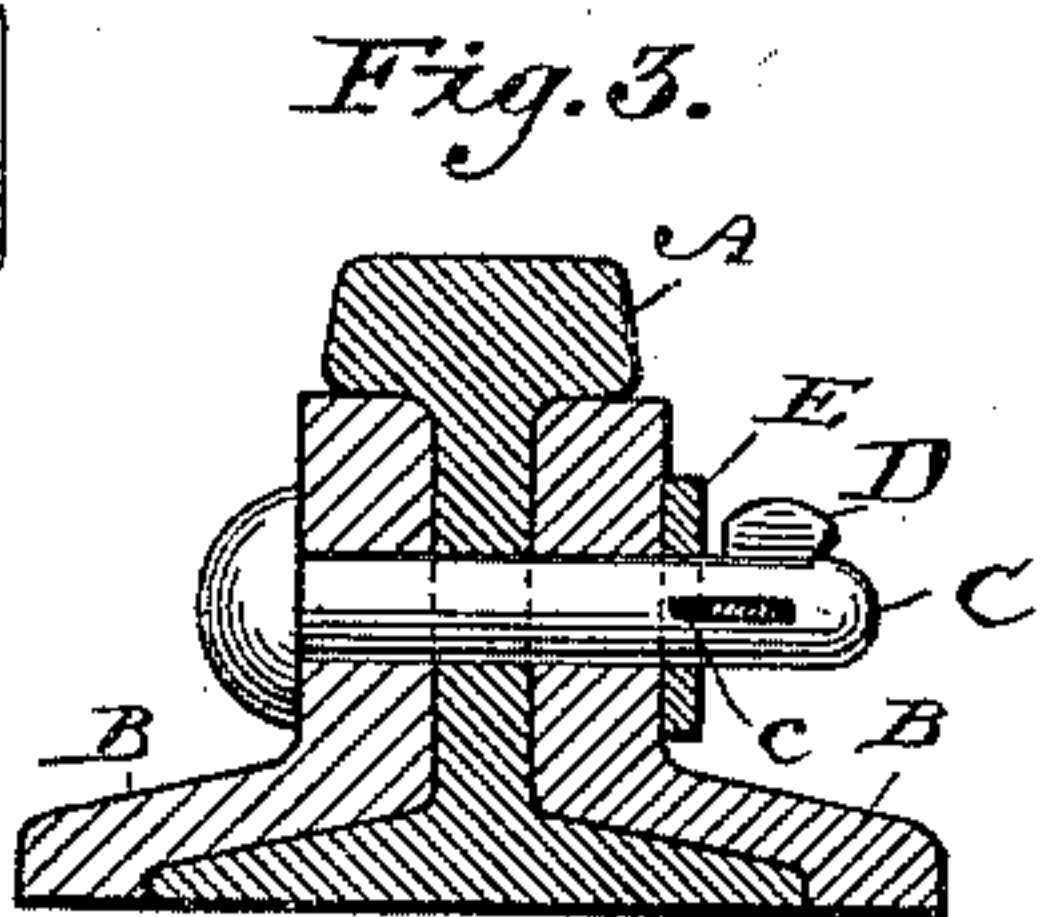
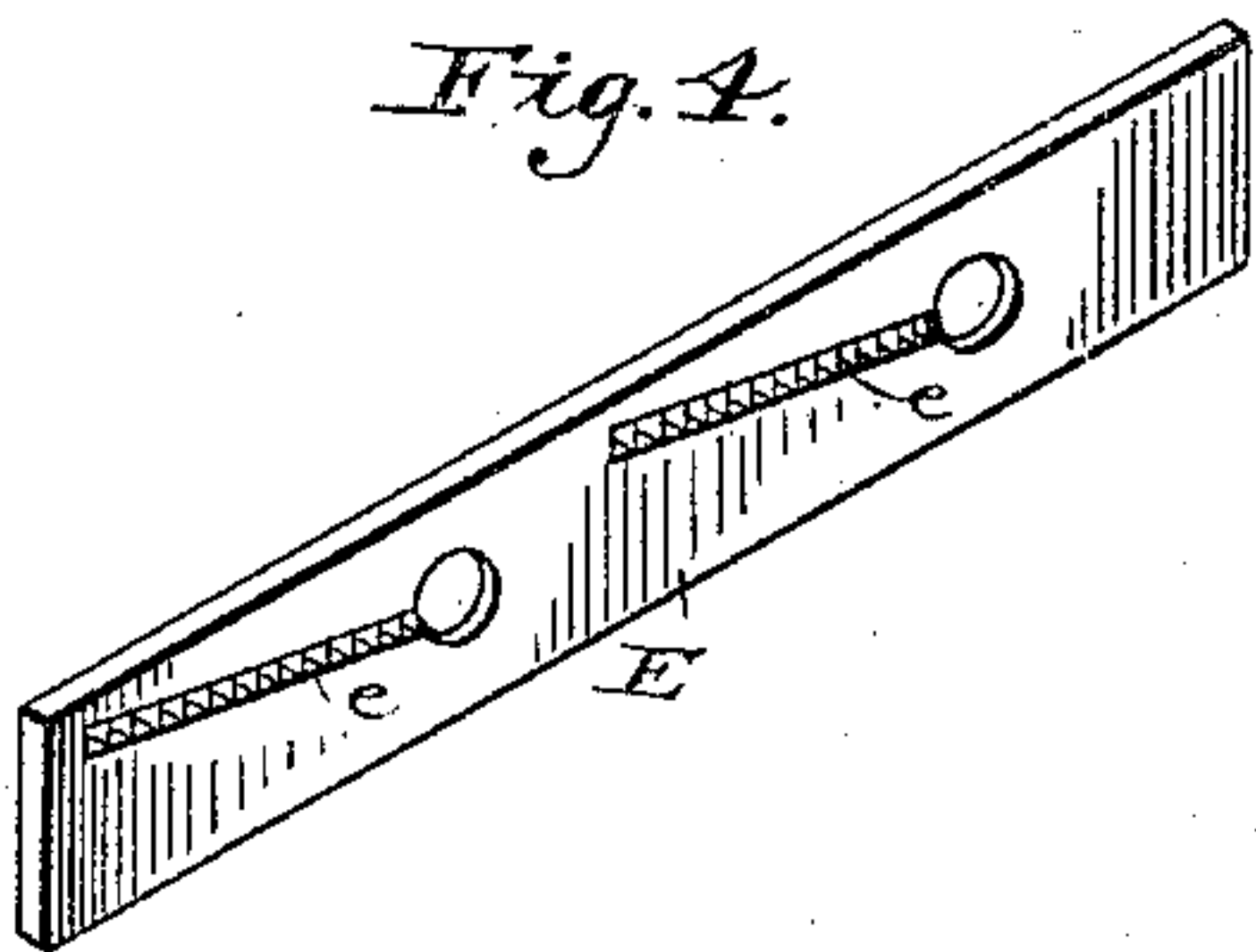
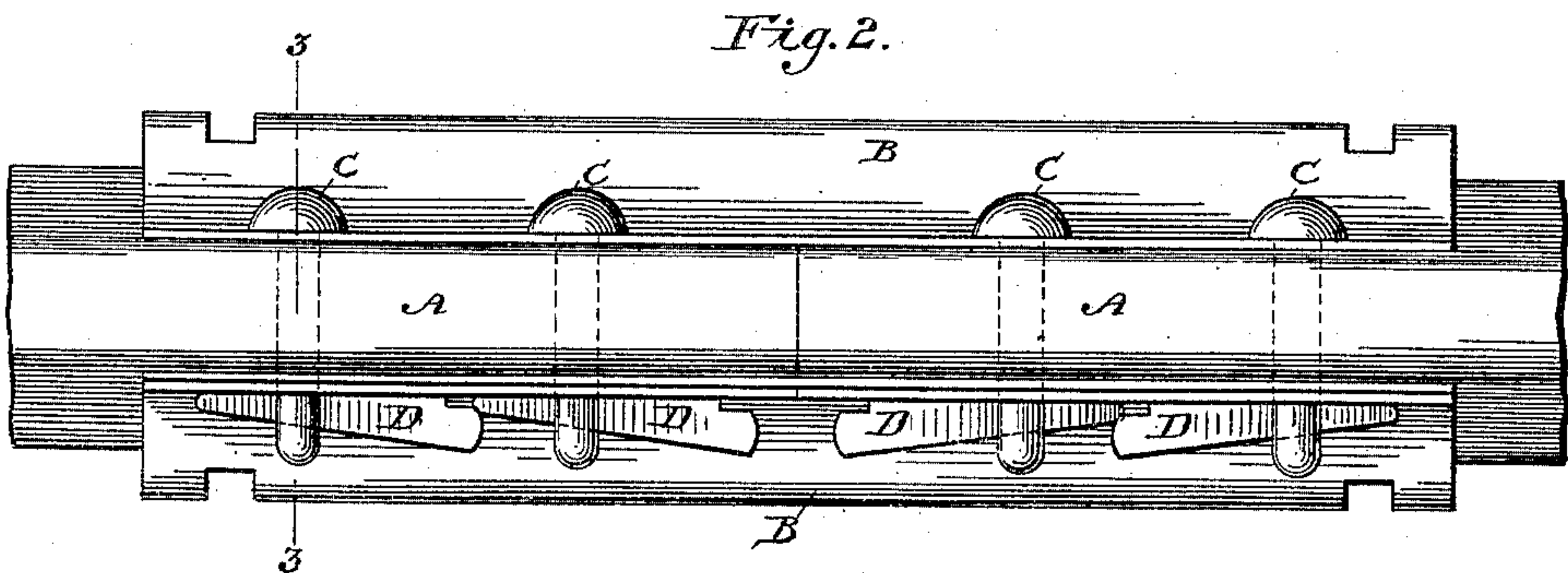
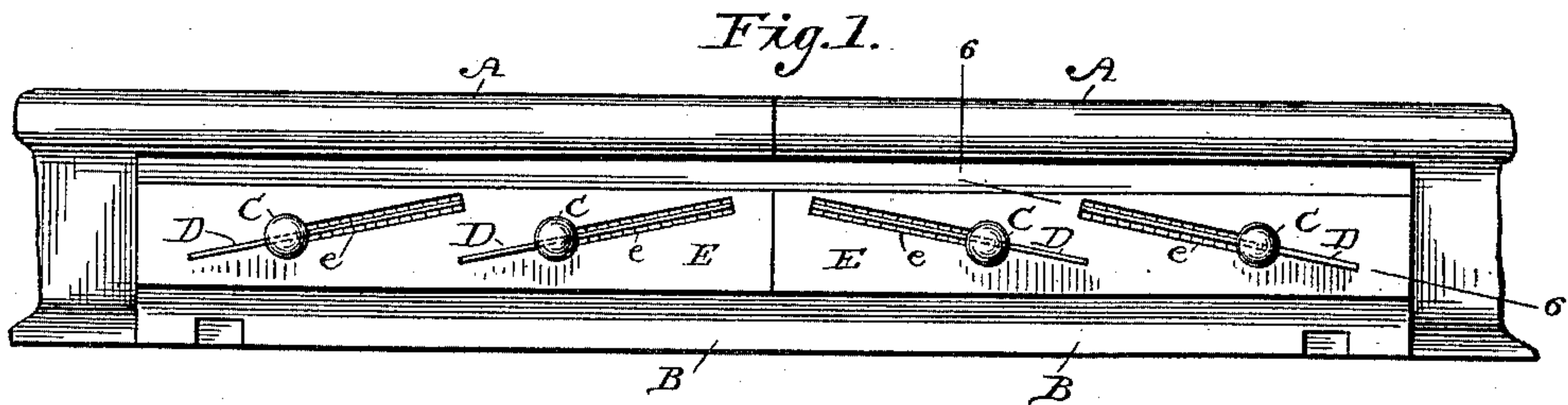


(No Model.)

L. DUBÉ & L. MESSIER.  
RAIL JOINT.

No. 440,623.

Patented Nov. 18, 1890.



Witnesses

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# UNITED STATES PATENT OFFICE.

LOUIS DUBÉ AND LUKE MESSIER, OF ALBANY, NEW YORK, ASSIGNORS TO  
THE AMERICAN RAIL-JOINT LOCK COMPANY, OF SAME PLACE.

## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 440,623, dated November 18, 1890.

Application filed April 16, 1890. Serial No. 348,205. (No model.)

*To all whom it may concern:*

Be it known that we, LOUIS DUBÉ and LUKE MESSIER, citizens of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Rail-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 railway-rail joints, and in particular to that class of joints wherein the abutting ends of the rails are connected by means of fish-plates and by bolts passing through said fish-plates and the webs of the rails.

The object of our invention is to provide means for obtaining a reliable joint of this character; and it consists in the construction and in the combinations of parts pointed out in the claims.

In the drawings, Figure 1 represents a side elevation of a portion of two abutting rails having a rail-joint embodying our invention. Fig. 2 represents a plan view of the same; Fig. 3, a transverse section on line 3 3, Figs. 1 and 2. Fig. 4 represents a detached isometric view of the retaining or locking plate forming a part of our invention. Fig. 5 represents an isometric view of the locking-key. Fig. 6 represents a section on an enlarged scale on line 6 6 of Fig. 1. Fig. 8 represents in detail two forms of locking-bolt. Figs. 7 and 9 represent isometric views and sectional elevations, respectively, of a key-driver for inserting or removing the key.

The same characters designate the same parts throughout all the views.

A A represent the abutting ends of two railroad-rails of ordinary construction.

B B are two fish-plates, and C C headed bolts (four of which are shown in the present instance for one rail-joint) passing through holes in the web of the rails and in the fish-plates, and which, in conjunction with suitable locking devices, are designed to hold the fish-plates, and consequently the rails, in place.

Thus far the parts described are old and well known. It is in the devices for locking

these bolts, and consequently the rails and fish-plates, in place that our invention resides. We provide keys D—one for each bolt—which keys pass through suitable perforations *c*, formed in the protruding ends of the bolts C. These keys are preferably wedge-shaped, as shown, and are provided with suitable detents, which in the present instance are shown in the shape of a single tooth *d*, projecting from the inner side of the same—that is, from the side proximate to the fish-plates.

Referring now to Figs. 1 and 6, it will be seen that the tooth *d* engages with a suitable retaining-surface on the fish-plate at one side of the rail-joint. In the present instance we have shown this retaining-surface as consisting of an oblique series of serrations *e*, formed in a locking-plate E. It is manifest, however, that such retaining-surface could be applied directly to the fish-plate B or that the retaining-surfaces could be arranged otherwise than obliquely.

It is also clear that in some instances we may dispense with the serrations or other roughening of the locking-plate or fish-plate by simply making the tooth or detent *d* of metal sufficiently hard to embed itself into the softer metal of the locking-plate or fish-plate when driven home into the perforation of the bolt C. It is also manifest that instead of perforating the bolts they may be simply shouldered or recessed, as shown at *c'* in Fig. 8. Either means of slotting the bolts enables them to perform their function of retaining the wedges effectually. However, we deem the form first described as best adapted for carrying out our invention.

When it is desired to join the two rails A, they and the fish-plates are put together in the usual way, with the bolts C passing through the perforations in the said fish-plates and the webs of the rails. The locking-plates are then mounted on the projecting ends of the bolts and the keys D inserted into the slots *c* or *c'* of the bolts, and they can now be driven home by a hammer to securely lock the fish-plates; but in order to avoid any injurious wear upon the serrations *e* or upon the detent *d* by the abrasion of one upon the other in driving the key home we have de-



vised the driving-tool, (shown in Figs. 7 and 9,) which consists of a stem or main body portion F, provided at its front end or head with a recess  $f$ , formed by the two cheeks  $f'$   $f''$ , bottom shoulder  $f^2$ , and upright driving-shoulder  $f^3$ . The front edge of the bottom shoulder  $f^2$  is, moreover, rounded off, as shown, whereby said front bottom edge is wedge-shaped. When it is desired to drive the key in to the desired extent and prevent the tooth  $d$  from encountering the serrations until it is driven home, we place the front edge of the shoulder  $f^2$  under the tail or rear end  $d'$  of the said key, and by forcing the stem F toward the locking-plate we lift the rear end of the key away from the locking-plate E, thereby permitting the front end of the driving-tool to slip in under the key, as shown in dotted lines in Fig. 6. The key may then be driven home by hammer-blows upon the end of the driving-tool, the tooth being held from encountering the serrations  $e$  until the tool F is withdrawn, when the strain exerted by the bolt C will immediately cause the tooth  $d$  to drop into engagement with the serrations, there to be firmly and positively held until the tool F is again applied to lift the same out of engagement with these serrations. No other agency—such as the jarring and strains arising from the passing of trains or from any of the forces acting upon the tracks of railroads—will be able to unlock the wedge or key. This unlocking can be performed by the aid of the tool F and by placing it in the position indicated in Fig. 6, thereby releasing the detent from engagement with the serrations, and then striking the forward end  $d^2$  of said wedge or key with a hammer, so as to force it backward and out of the bolt-slot. The location of the detent  $d$  at or near the butt-end of the wedge or key has the advantage that the driving-blows tend constantly to increase the bite of the detent into the contiguous retaining-surface with which it engages, and for the reason that with each blow the detent advances toward the bolt and toward the line of greatest compressive force. The wedging action is therefore thrown upon the detent in a much more advantageous manner than if the detent were located at the opposite end of the wedge or key.

What we claim, and desire to secure by Letters Patent, is—

1. In a rail-joint, the combination, with a

bolt, of a key provided at or near its tail end with a detent, and a contiguous retaining-surface for engaging the detent, all substantially as described.

2. A key for a rail-joint, consisting of a wedge-shaped body portion having a detent, as  $d$ , near its rear end, and a tail, as  $d'$ , substantially as described.

3. In a rail-joint, the combination, with a bolt, of a key having a detent at or near its tail end, a fish-plate, and a locking-plate provided with a retaining-surface for engaging the detent, all substantially as described.

4. In a rail-joint, the combination, with bolts, of a separate key for each bolt, said key having a detent, a fish-plate, and a locking-plate provided with serrations for engaging the detent of the key, all substantially as described.

5. In a rail-joint, the combination, with a bolt, of a key provided with a detent, a fish-plate, and a locking-plate provided with an oblique series of serrations, all substantially as described.

6. A rail-joint comprising the following combinations: two abutting rails, two connecting fish-plates, a number of bolts passing through perforations in the webs of the rails and the fish-plates, obliquely-set retaining-keys provided with detents, one key for each bolt, and contiguous oblique retaining-surfaces for engaging the detents, all substantially as set forth.

7. In a rail-joint, the combination of a bolt and a key having an inclined or wedge-shaped portion and a detent at or near its butt-end, substantially as described.

8. A driving-tool consisting of a stem or main body portion provided with a recess at its head formed by two cheeks, a bottom shoulder, and an upright driving-shoulder, all substantially as described.

9. A driving-tool consisting of a stem or main body portion provided at its head with an upright driving-shoulder and a bottom wedge-shaped shoulder, all substantially as described.

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

LOUIS DUBÉ.  
LUKE MESSIER.

Witnesses:

A. R. MACDONALD,  
CHARLES A. BALL.