

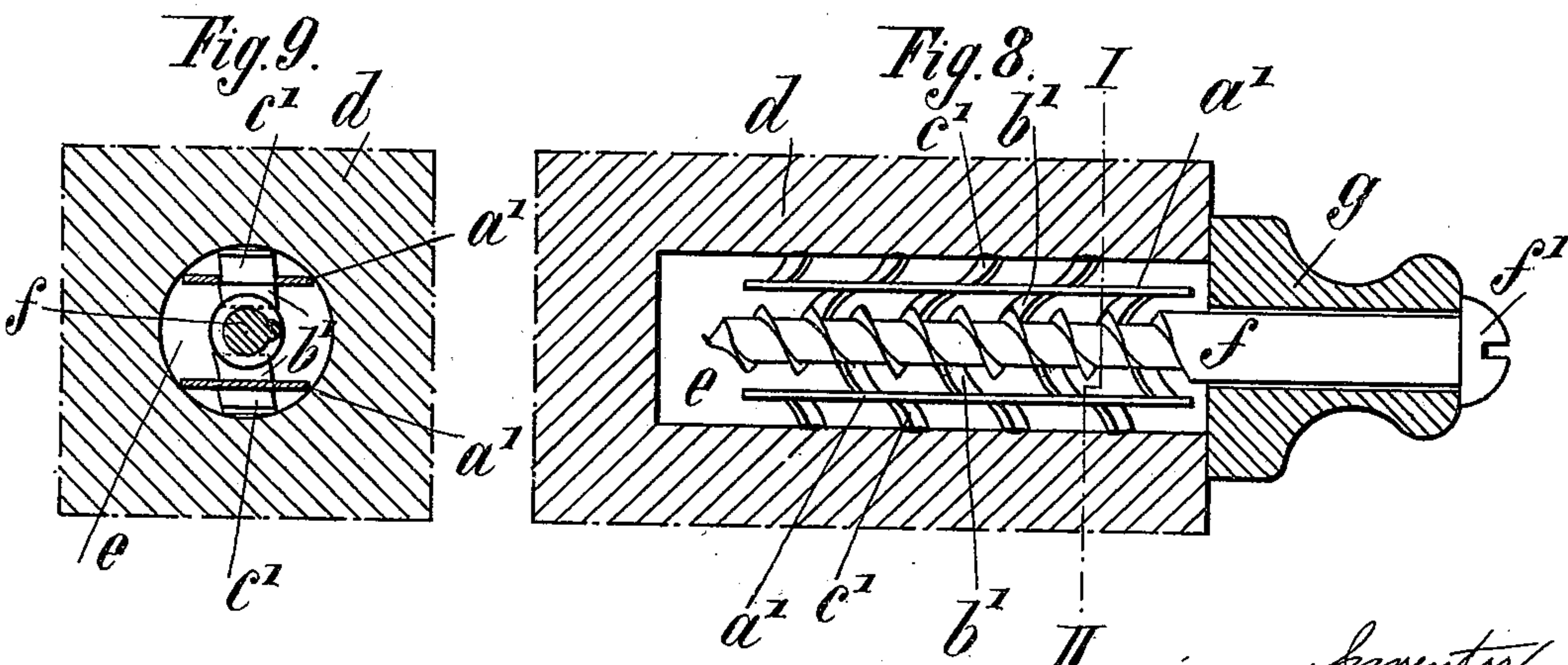
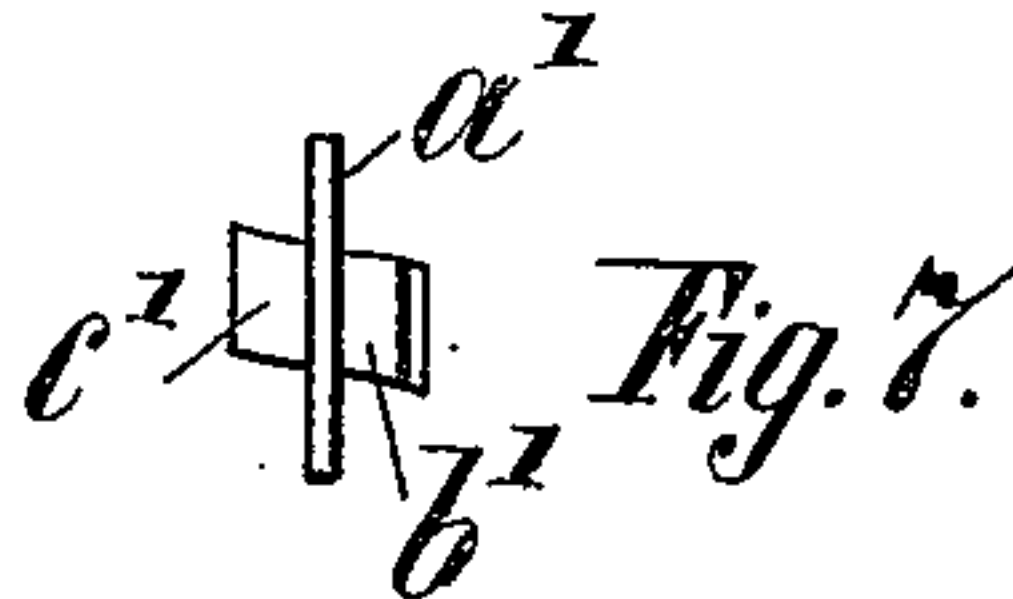
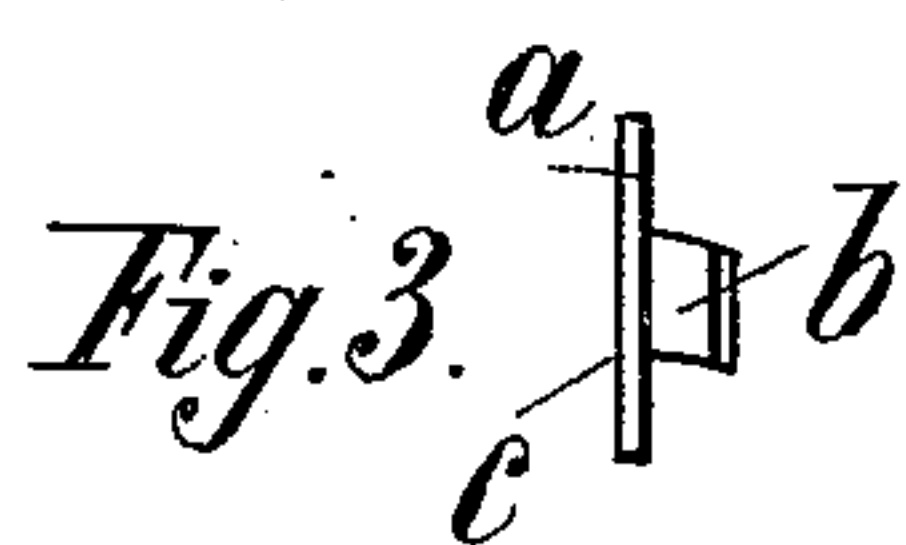
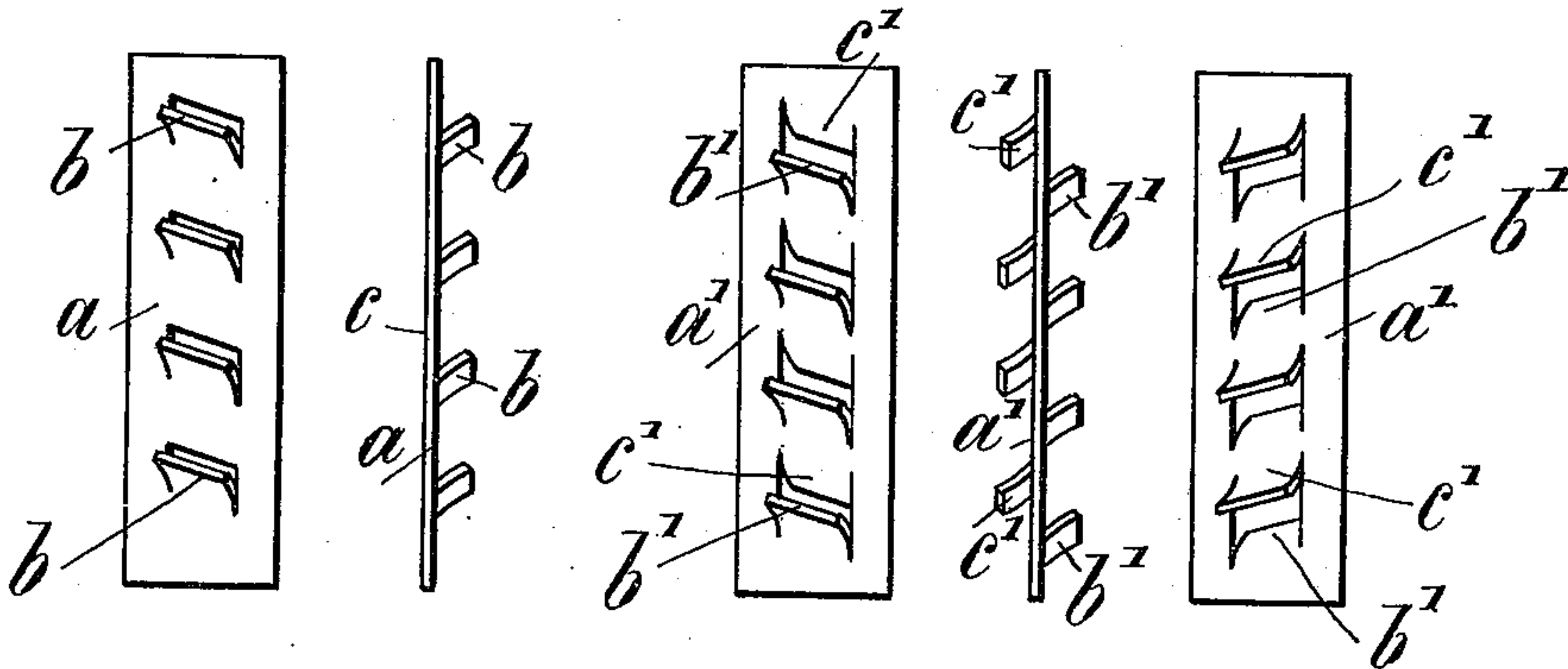
W. F. LÖFFELHARDT.

DOWEL.

(Application filed May 28, 1900.)

(No Model.)

Fig. 1. Fig. 2. Fig. 4. Fig. 5. Fig. 6.



Witnesses
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WILHELM FRIEDRICH LÖFFELHARDT, OF HAMBURG, GERMANY, ASSIGNOR
TO DIETERICH & LÖFFELHARDT, OF SAME PLACE.

DOWEL.

SPECIFICATION forming part of Letters Patent No. 665,536, dated January 8, 1901.

Application filed May 28, 1900. Serial No. 18,141. (No model.)

To all whom it may concern:

Be it known that I, WILHELM FRIEDRICH LÖFFELHARDT, a subject of the German Emperor, and a resident of Hamburg, in the German Empire, have invented certain new and useful Improvements in Dowels, of which the following is a specification.

The present invention relates to improvements in metallic hooks or dowels designed for the attachment of screw-bolts when inserted in a brick or stone wall or the like; and the object of the same is to procure a reliable fastening both of the dowel as well as of the screw-bolt according as the latter is driven into its place. I attain this object by the means illustrated in the accompanying sheet of drawings, in which—

Figure 1 is a side elevation, Fig. 2 an edge view, and Fig. 3 an end or top view, of a dowel-plate made according to my invention. Fig. 4 is a side elevation, Fig. 5 an edge view, Fig. 6 a back or rear view, and Fig. 7 an end or top view, showing a modification of the improved dowel-plate. Fig. 8 is a section through a brick or other hard material with a screw attached or fastened therein by means of a pair of the improved dowel-plates. Fig. 9 is a cross-section on the line I II, Fig. 8.

Similar letters refer to similar parts throughout the several figures.

The improved dowel consists of a thin metal plate *a*, Figs. 1 to 3, which is suitably shaped in cross-section and provided at least upon one of its flat sides with a series of inclined projections or teeth *b*. When required, both sides or one side and both edges of the dowel-plate may be provided with such teeth, in which case, however, the teeth of the one side point or extend in opposite direction to the teeth of the other side or the edge face or faces, respectively. By Figs. 4 to 7 I have illustrated a double-toothed dowel-plate *a'*, advantageously made of sheet metal, flat iron, or the like. The teeth *b'* and *c'*, preferably formed by stamping, are arranged and bent outwardly in such a manner that the teeth *b'* and *c'*, projecting from the sides of the plate *a'*, point in opposite directions, as shown by Fig. 5.

In order to fasten a screw *f* (see Figs. 8 and 9) in hard material—for instance, in a brick *d*—a hole *e* is made in the said brick, into which

hole are inserted one or more of my improved dowel-plates *a* or *a'*, respectively, so as to rest with the face *c* more properly with the edges of such face or with the teeth *c'*, respectively, upon or against the walls of the hole *e*. The dowel plate or plates are to be inserted into the hole *e* in such a manner that the inner teeth *b* or *b'*, respectively, point toward the bottom or end of the hole and the outer teeth *c* or *c'* (if such teeth are provided) toward the entrance of the hole. The inner teeth *b* or *b'*, respectively, form a sort of discontinuous or intermittent female screw-thread.

In the example shown by Figs. 8 and 9 there are inserted into the holes *e* two dowel-plates *a'*, having teeth *b'* *c'* projecting, respectively, from their opposite faces in opposite directions into the hole *e*. On screwing a screw-bolt *f* into the screw-thread formed by the dowel-plates *a'* the teeth *b'* engage the male threads of the screw, which latter forces the dowel-plates apart, and so causes the outer teeth *c'* thereof to press against and grip into the walls of the hole *e*. When the screw has been screwed home as far as to press the body, &c., to be attached to the brick—*e. g.*, an insulator *g*—against the outer face or wall of the brick, the further screwing home of the screw *f*, since the insulator *g* or the like forms a bearing or abutment for the screw-head *f'*, causes the dowel-plates to advance—that is to say, to slightly move toward the entrance of the hole. By this longitudinal displacement of the dowel-plates the teeth *b'*, as well as the teeth *c'*, are more and more straightened up in opposite directions, the latter being thereby at the same time strongly pressed against or into the walls of the hole *e* in order to secure a firm and reliable hold of the dowel-plates, and therefore of the screw in the brick *d*.

When dowels having no outer teeth are used, the said dowels are pressed with their outer sides or edges against the inner walls of the hole and held therein by friction, which latter may be increased by serrating or rifling those sides of the dowel destined to come in contact with the walls of the hole. As this is self-evident, it therefore needs no further description and illustration.

In order to enable the inner teeth of the

dowel—that is to say, the teeth acting against the male thread of the screw—to have a great contact-surface with the said male thread, they may be set at an angle to suit the pitch thereof, as shown in the accompanying drawings.

Instead of forming the dowels in separate parts two or more plates may be connected at the rear end, so as to form a single dowel-piece consisting of two or more dowel-plates the free front ends of which are capable of being spread apart by a screw screwed into such a dowel-piece. As this construction is easily to be understood from the above, an illustration of the same appears unnecessary.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A dowel for securing a screw or the like in a hole in a hard material, consisting of one or more sheet-metal plates having separated

teeth projecting from opposite faces and inclined in opposite directions, those on one face set to form an interrupted screw-thread for and of greater depth than that of the thread on said screw, so that when the latter is screwed home the teeth on opposite faces of the dowel plate or plates will be drawn in opposite directions, substantially as and for the purpose set forth.

2. As an article of manufacture, a dowel comprising a sheet-metal plate having comparatively wide and long teeth *b* set to form an interrupted screw-thread projecting from one face, and substantially similar teeth inclined in an opposite direction and projecting from the opposite face of said plate, substantially as and for the purpose set forth.

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Witnesses:

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