

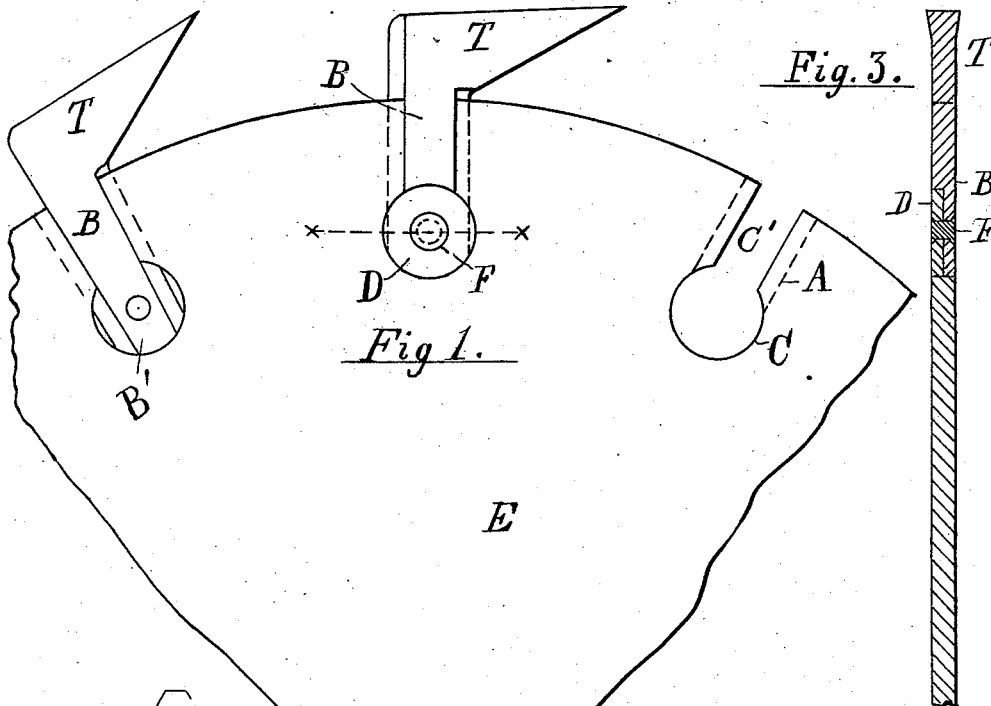
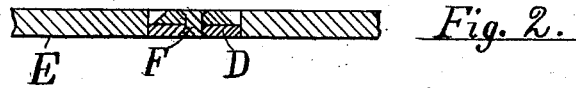
(No Model.)

J. HILTON.

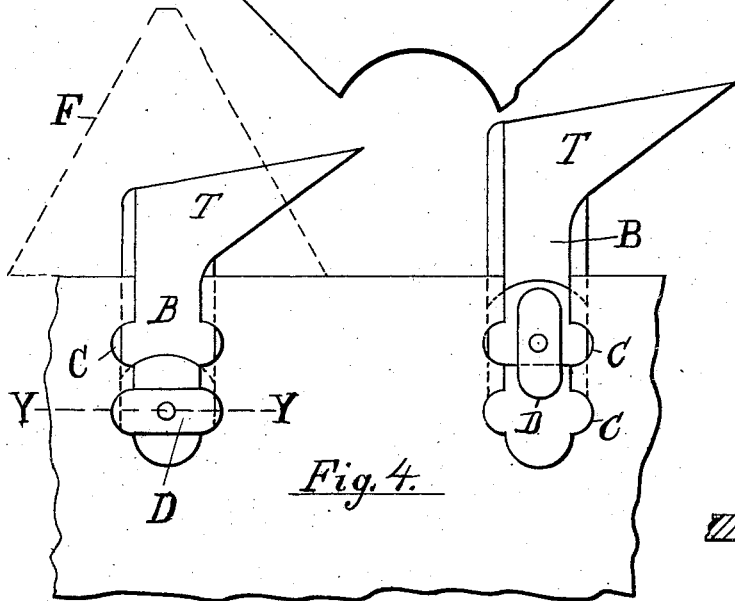
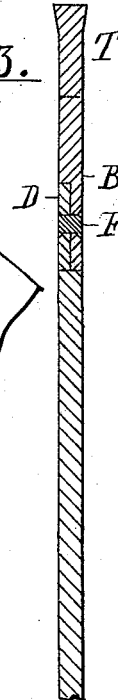
INSERTIBLE CUTTING TOOTH.

No. 301,986.

Patented July 15, 1884.



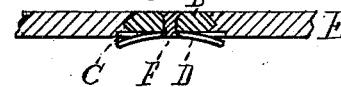
*Fig. 3.*



*Fig. 5.*



*Fig. 6.*



Attest.

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Thos. S. Crane, Atty.

# UNITED STATES PATENT OFFICE.

JAMES HILTON, OF NEWARK, NEW JERSEY.

## INSERTIBLE CUTTING-TOOTH.

SPECIFICATION forming part of Letters Patent No. 301,986, dated July 15, 1884.

Application filed November 24, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES HILTON, a citizen of the United States, residing in Newark, in Essex county, State of New Jersey, have  
5 invented certain new and useful Improvements in Inserted Saw-Teeth, fully described and represented in the following specification and accompanying drawings, forming a part of the same.

10 This invention consists in an improved means of securing a removable tooth in a saw-blade, and in a modification of the same for setting the tooth at several distances beyond the edge of the blade to compensate for wear.

15 The construction will be understood from the inclosed drawings, in which Figure 1 is a side view of a part of a circular saw, showing three slots, which are provided with teeth, upon one of which teeth the button is riveted.  
20 Fig. 2 shows a section of the saw-plate, tooth, and button on the line *xx* in Fig. 1. Fig. 3 is a longitudinal section through the center of the tooth and saw-plate, as shown at the middle of Fig. 1. Fig. 4 represents a portion of  
25 mill-saw plate, showing two slots having teeth inserted therein, the slot at the left hand having the button shown in its locking position, and that at the right turned lengthwise of the slot to permit the removal of the tooth. Fig.  
30 5 is a front edge view of the right-hand tooth, shown in Fig. 4 as removed from the slot. Fig. 6 is a section of the saw-plate, slot, tooth, and button on line *YY* in Fig. 4.

The slot *C'* shown in the drawings is formed  
35 with *V*-shaped edges or guides *A*, to aid in holding the tooth laterally in the slot, the shank *B* of the tooth *T* being of corresponding form. In Fig. 1 the base of the slot *C'* is shown formed with a circular enlargement or  
40 recess, *C*, into which the root of the tooth (shown at *B'*) penetrates, and in which it is secured by the button *D*, shaped to fit the enlargement *C*, and recessed into one side of the tooth flush with the surface of the saw-plate  
45 *E*. The shank *B* is made of the same thickness as the saw-plate, and to admit the button flush with the surface of the plate the root of the shank is rabbeted to one-half its full thickness where it coincides with the recess. The  
50 button is shown in the section at Fig. 2 as one-half the thickness of the tooth or plate, and is

secured to the root of the tooth by the rivet *F*, which is preferably made of copper or other material adapted to head easily after the tooth and button are inserted in their respective places. 55  
It is obvious that the location of the button in the recess at the base of the tooth effectually prevents the withdrawal of the latter from the slot, and resists all movement of the tooth in a radial or other direction. The slot at the left  
60 of Fig. 1 and the shank of the tooth fitted to it are shown of tapering form, by which construction the tooth can be wedged more firmly to its seat in the saw-plate, and such construction is well adapted for teeth which may be  
65 permanently fixed in the slot; but Fig. 4 shows a construction of the tooth made to be partially set out from the slot, and thereby put into a more effective or prominent position when the working-edge is partly worn down. 70  
In such a construction I form a similar recess, *C*, at two or more points in the sides of the slot, and construct the button to fit either recess. The tooth may therefore be situated in  
75 the slot with the button opposite to either recess, and it is secured in that position by riveting the button in place, as before stated.

To facilitate the adjustment of the tooth in more than one position, and to secure the formation of the required enlargements close together, I form the button of oblong shape, as  
80 shown in Figs. 4, 5, and 6, constructing it preferably of thin metal adapted to spring at the two ends when riveted to the shank of the tooth. At the left side of Fig. 4 the tooth is shown  
85 with the button turned in its locking position in the lower recess, *C*, while at the right side of the same figure the tooth is shown situated with the button opposite the upper recess, 90  
and the same turned lengthwise of the shank, so that the tooth may be withdrawn from the slot. To detach the ends of the button from the recess *C*, they require to be sprung out from the shank of the tooth, as shown in Fig.  
95 6, and can then be turned into the position shown in Fig. 4, when the tooth may be withdrawn from the slot or shifted to a new position. In the latter case the ends of the button are again sprung outward while turning it  
100 into the transverse or locked position shown at the left of Fig. 4. To bend the button in the manner described, it requires to be made

of spring steel or brass and of a thickness adapted to yield; but it is obvious that the oblong button may be made of greater thickness than is shown in the drawings, and detached from the recess C by punching out the rivet F whenever it is desired to remove the tooth, the same as would be done with the circular button shown in Fig. 1, and that the button thus may be similarly adapted for shifting the tooth outward instead of by prying up the ends, as indicated in the drawings.

I am aware that teeth have been secured in an outwardly-tapering slot by a circular button applied to a recess in the base of the slot; but in such construction the button was intended merely to prevent the retraction of the tooth, and was secured in place by expensive interlocking projections, while my construction precludes the movement of the tooth in either direction, and may be used for setting the tooth outward when worn, as described above.

I am also aware that teeth have been fitted into slots having V-shaped edges or guides, and held in place by removable gib recessed into the saw-plate at both ends of such gib; but in such construction, as in many others for the same purpose, the saw-plate requires perforations apart from the slot, and is much more liable to be cracked in hardening when perforated to receive rivets. It is also much more liable to be sprung by the rivets when inserted in the plate or in contact with one edge of the slot than when they are confined exclusively to the inserted pieces, as in my invention.

From my description and drawings it will be seen that my invention dispenses with the insertion of all rivets in contact with the saw-plate. As the rivet in my construction is applied solely to the shank of the tooth and its detached button, no strain is thrown upon the saw-plate in securing the teeth therein, both the shank and the button being properly

fitted to the saw-plate before the rivet is introduced, and then clinched or riveted in place, not affecting the saw-plate either directly or indirectly. My invention not only affords a convenient method of inserting and removing the teeth, which latter may be done by punching out the rivet or turning the button, as shown herein, but it obviates the necessity of straightening the saw-plate after the insertion of the tooth.

At T in Fig. 4 is drawn the outline of a tooth or cutter for a reaper or mower, to indicate that such teeth may be attached to the upper side of the cutter-bar by facing the same with a plate slotted as herein described.

It will be seen from the above that I do not claim the mere combination of a removable tooth with a locking-button, but the construction for the edges of the slot which holds the shank of the tooth laterally, and the construction for the button which enables the teeth to be set outward, if desired, and in any case prevent the riveting from affecting the saw-blade.

I therefore claim—

1. The combination, with the slot C', having guides A and enlargement C, of the shank B, fitted longitudinally to said guides and provided with the rabbet at its root, and the button D, secured to the rabbeted root of the tooth and fitted to the enlargement C, substantially as and for the purpose set forth.

2. The combination, with the slot C', having guides A and two or more enlargements, C, of the rabbeted shank B, provided with the button D, arranged and operated as described, to lock the tooth at several distances beyond the edge of the saw-plate, substantially as shown and described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES HILTON.

Witnesses:

THOS. S. CRANE,  
H. THEBERATH.