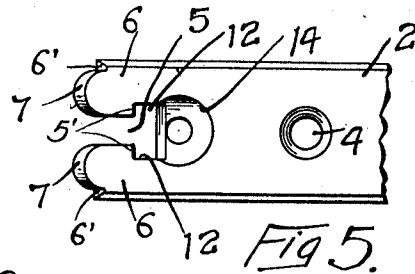
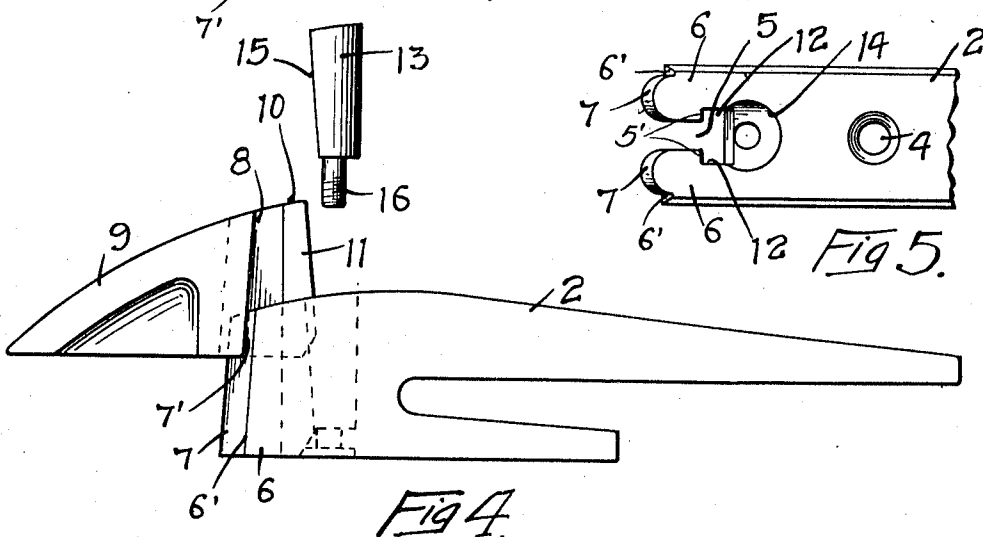
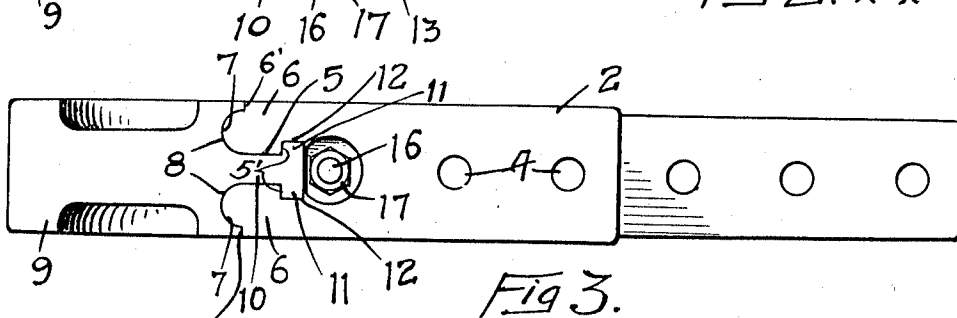
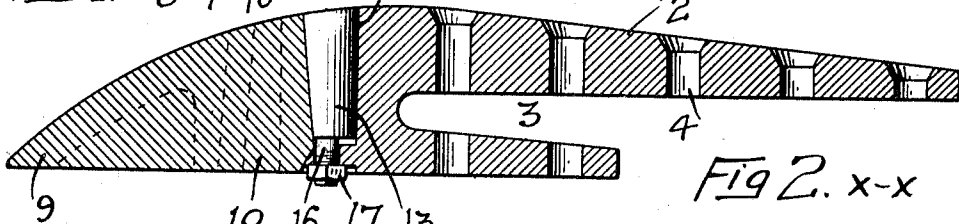
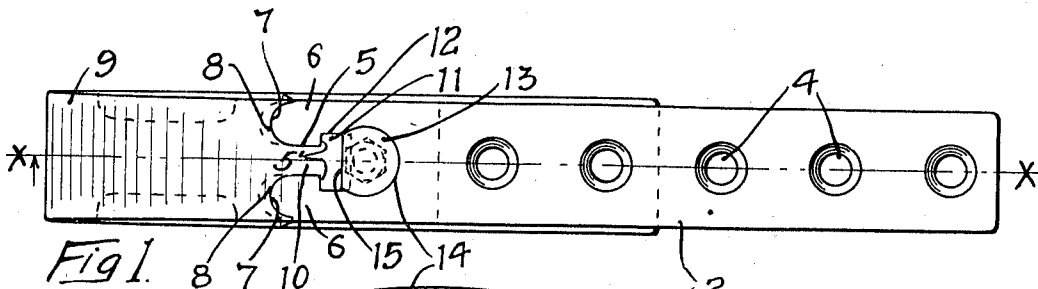


J. CLARK.  
DIPPER TOOTH FOR STEAM SHOVELS.  
APPLICATION FILED FEB. 25, 1911.

1,021,135.

Patented Mar. 26, 1912.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOHN CLARK, OF ST. PAUL, MINNESOTA.

## DIPPER-TOOTH FOR STEAM-SHOVELS.

1,021,135.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed February 25, 1911. Serial No. 610,887.

*To all whom it may concern:*

Be it known that I, JOHN CLARK, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Dipper-Teeth for Steam-Shovels, of which the following is a specification.

My invention relates to a dipper tooth and particularly to a detachable point therefor, and the object of the invention is to provide a point which can be easily and quickly detached from the tooth when it is worn or broken, and which will not tend to split or break the tooth when the dipper is in use. Some points of this kind have a tapered or wedge-shaped bearing surface on the end of the tooth and when the point strikes the ground in the operation of the shovel, the strain will frequently split the tooth and render the application of a new one to the shovel necessary.

My invention consists generally in a dipper tooth and point having opposing surfaces so arranged that pressure on the point of the tooth will exert a wedging pressure lengthwise of the tooth.

Further the invention consists in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a top view of a dipper tooth embodying my invention, Fig. 2 is a sectional view on line  $x-x$  of Fig. 1, Fig. 3 is a bottom view, Fig. 4 is a view illustrating the positions assumed by the parts of the tooth when being assembled, Fig. 5 is a detail view illustrating the construction of the end of the tooth.

In the drawing, 2 represents a dipper tooth, provided with a recess 3 to receive the edge of the dipper or shovel, and to which the tooth is secured by rivets passing through holes 4 in the tooth. The forward end of the tooth is provided with a vertical T-shaped slot 5 forming jaws 6 on each side of the center of the tooth, said jaws having faces 7 which are rearwardly and backwardly inclined and are adapted to bear on the walls of correspondingly shaped grooves 8, which are oppositely inclined and formed in a point 9 and on each side of a T-shaped tongue 10 that is adapted to fit into the slot 5 in the end of the tooth.

The lateral extensions or projections on the head of the tongue have straight faces that are adapted to bear on shoulders 5'

formed in the opposing inner faces of the jaws 6, as shown clearly in Fig. 5, and when the tongue is inserted into the slot between the jaws the engagement of the inclined end surfaces of the jaws with the walls of the grooves 8 will have the effect of clamping the head of the tongue 10 against the shoulders 5' without exerting any spreading or splitting action on the jaws 6. When the device is in use and pressure is applied to the curved upper surface of the point, the strain on the tooth will be lengthwise thereof instead of having a wedging action to spread the jaws apart. I prefer also to provide shoulders 6' on the jaws 6 against which the wings 7', formed on the tooth point, are seated, a substantially semi-circular recess being formed between the wings 7' and the tongue 10 to receive the faces 7 of the jaws 6. The jaws are thus braced and held snugly against the side faces of the tongue 10. Pressure on the point will only serve to squeeze the jaws together, the strain being exerted lengthwise of the tooth.

On the backward movement of the dipper the point of the tooth frequently strikes the ground, the pressure tending to force the point out of the tooth, and for the purpose of locking the point I provide a wedge 13 adapted to fit into a socket 14 tapered and having a tapered flat face 15 to contact with the end of the tongue 10. This wedge has a threaded extension 16 to receive a nut 17, which locks the wedge in the socket. When this wedge has been put in place and the nut tightened, the point will be securely held on its seat in the tooth, but may be readily detached therefrom by loosening the nut and removing the wedge.

I claim as my invention:—

1. A shovel tooth having a vertical socket in its end and jaws formed on each side of said socket and provided with vertically tapering end faces, the inner opposing side faces of said jaws having shoulders formed therein and provided with straight bearing surfaces, a point having a T-shaped tongue to enter said socket, the lateral end extensions or projections of the head of said tongue having straight faces to bear on the surfaces of said shoulders, said point also having surfaces on each side of said tongue oppositely inclined from the end surfaces of said jaws and bearing thereon when the parts are assembled, the engagement of said tapered surfaces with one another drawing

the head of said tongue firmly against the shoulders of said jaws, for the purpose specified.

2. A shovel tooth having a vertical socket  
5 in its end and jaws formed on each side of said socket and provided with vertically tapering end faces, the inner opposing side faces of said jaws having shoulders formed therein and provided with straight bearing  
10 surfaces, a point having a T-shaped tongue to enter said socket, the lateral end extensions or projections of the head of said tongue having straight faces to bear on the surfaces of said shoulders, said point also  
15 having surfaces on each side of said tongue oppositely inclined from the end surfaces of said jaws and bearing thereon when the parts are assembled, the engagement of said tapered surfaces with one another drawing  
20 the head of said tongue firmly against the shoulders of said jaws, and means for locking said tongue in said socket.

3. A shovel tooth having a vertical socket  
25 in its end and jaws formed on each side of said socket and provided with vertically ta-

pering end faces, the inner opposing side faces of said jaws having shoulders formed therein and provided with straight bearing surfaces, a point having a T-shaped tongue to enter said socket, the lateral end extensions or projections of the head of said  
30 tongue having straight faces to bear on the surfaces of said shoulders, said point also having surfaces on each side of said tongue oppositely inclined from the end surfaces  
35 of said jaws and bearing thereon when the parts are assembled, the engagement of said tapered surfaces with one another drawing the head of said tongue firmly against the  
40 shoulders of said jaws, and a wedge having a tapered flat face adapted to engage the end of the tongue for locking said tongue in the socket, and means for holding said wedge in the socket.

In witness whereof, I have hereunto set  
45 my hand this 22d day of February, 1911.

JOHN CLARK.

Witnesses:

GENEVIEVE E. SORENSEN,  
EDWARD A. PAUL.