J. G. SKELTON.

DIPPER TOOTH.

APPLICATION FILED FEB. 23, 1911.

1,003,663. Patented Sept. 19, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

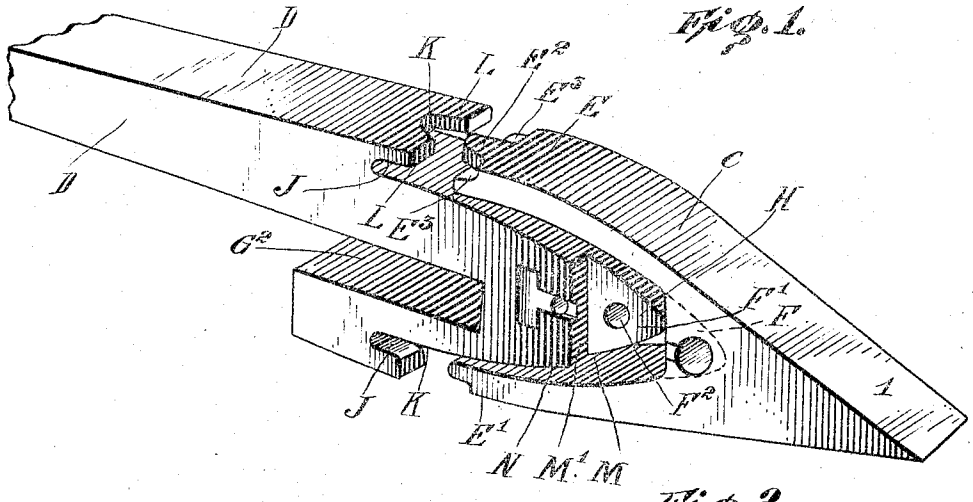


Fig. 2.

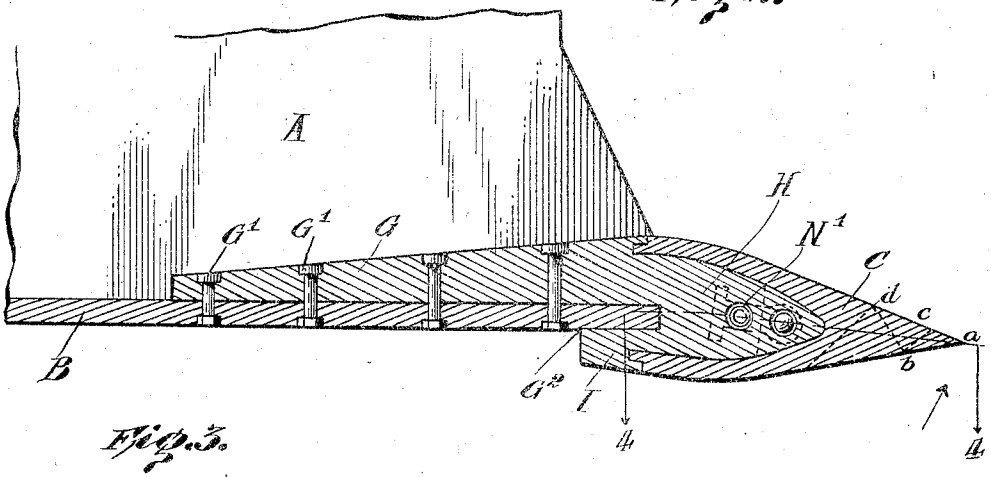
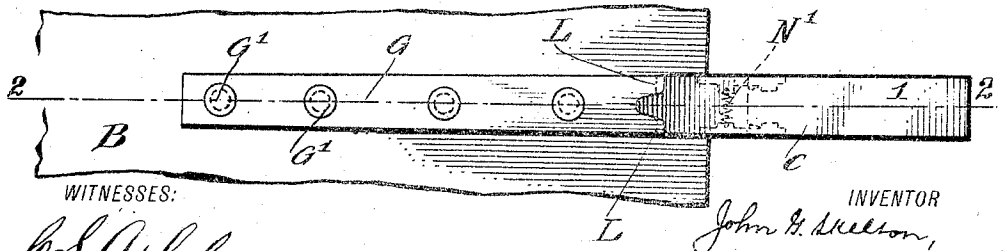


Fig. 3.



WITNESSES:

C. S. Ashley

Viola Irwin

INVENTOR

John G. Skelton,

BY

Macdonald & Macdonald,

ATTORNEYS

J. G. SKELTON.

DIPPER TOOTH.

APPLICATION FILED FEB. 23, 1911.

1,003,663.

Patented Sept. 19, 1911.

2 SHEETS—SHEET 2.

Fig. 4.

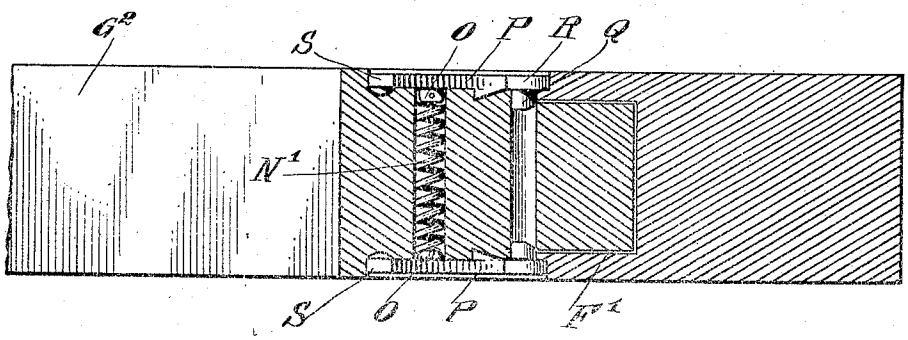
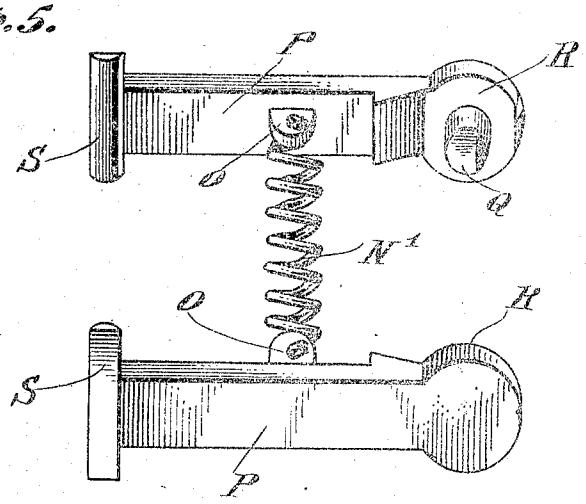


Fig. 5.



WITNESSES

C. S. Ashley

Viola Irwin

INVENTOR

John G. Skelton,

BY

Macdonald & Macdonald,

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN GIFFORD SKELTON, OF BROWN STATION, NEW YORK

DIPPER-TOOTH.

1,003,663. Specification of Letters Patent. Patented Sept. 19, 1911.

Application filed February 23, 1911. Serial No. 610,229.

To all whom it may concern:

Be it known that I, JOHN GIFFORD SKELTON, a citizen of the United States, and a resident of Brown Station, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Dipper-Teeth, of which the following is a specification, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to dipper teeth such as are ordinarily used in connection with steam shovels, dredges and other excavating machinery. The shovels, dippers or buckets of such apparatus are usually armed, at the loading end, with a plurality of metallic teeth, which not only act as a means of cutting into the earth or the material to be excavated, but also serve to protect from wear the lip or biting edge of the shovel, dipper or bucket. The points of the dipper teeth generally used at the present time, become dulled after slight use, and it then becomes necessary to discard the old tooth and substitute a new one, or to sharpen the same by heating and hammering, which I have found in practice cannot be done more than once, for being made of very hard steel, the heat to which they must be subjected in operation of sharpening injures the temper of the metal to such an extent as to make them unfit for the hard usage to which they must be subjected, the result of which is that, while the original cost of such teeth is quite high, the length of time they can be used is very short.

The object of my invention is to provide a tooth for dippers, buckets, scoops of steam shovels and other excavating machinery, of such construction that it requires no resharpening in the manner stated and, therefore, retains the original temper of the metal. This result is accomplished by constructing the tooth in two parts and in such a manner that the point of the same may be reversed, the wearing off of one edge forming a new cutting edge on reversal, and when the point is entirely worn away, a new point may be substituted without discarding the part which holds the point.

A further object of my invention is to provide means on the point and holding arm of the tooth whereby the use of bolts projected through the working faces of the point is avoided. The removal of such bolts, I have found in practice results in much loss of time, which it is one of the objects of my invention to avoid.

A further object of my invention is to provide fastening means on the side of the tooth which is subject to comparatively no wear, one form of which means is so arranged as to secure the point to the holding portion of the tooth in a manner substantially automatic.

Further objects such as simplicity, durability and utmost limit of use of the entire teeth will appear from the following description in connection with the accompanying drawings, in which—

Figure 1 is a perspective view, in part broken away, and with the automatic fastening means removed. Fig. 2 is a sectional view on the line 2—2 of Fig. 3, showing the tooth attached to a portion of a dipper; Fig. 3 is a plan view; Fig. 4 is a vertical, longitudinal section on line 4—4 of Fig. 2; Fig. 5 is an enlarged detail of the self acting fastening means.

Referring to the construction illustrated, A and B, indicate, respectively, portions of two sides of a dipper, bucket or other similar vessel used in excavating or dredging operations, the forward edge of the side B having attached thereto one of my improved teeth.

The tooth comprises two members, the cutting member C and the shank or holding member D, and both may be formed of any suitable metal capable of being properly tempered, such, for example, as manganese steel. The cutting member C is of wedge-like form and tapers to a more or less thin cutting edge at its forward end. It is further formed with two rearwardly extending jaws, E, E′, each of which is provided centrally with a tongue E^2 and on both sides of the tongue the jaw is rabbeted at E^3 to fit and receive corresponding grooves and tongues on the holding arm. The cutting member C is formed in one integral piece and is provided at its central portion with an inner recess F, the purpose of which will be hereinafter referred to, and the side walls or webs F′ forming said recess being provided with a bolt hole F^2.

The holding member D is formed of a relatively long rearwardly extending arm G, through which and through the side B of the dipper are projected rivets G′ or other

fastening means to secure the parts together, said holding member being provided at its forward end with a longitudinally extending slot G^2 into which the edge of the side B of the dipper is fitted. The holding member D is wedge-shaped at its forward end to form a nose H, and has a rearwardly extending jaw I. At opposite sides of said holding member D are provided grooves, J, J, K, K forming tongues L, L, to fit within and receive respectively the grooves and tongues on the jaws E of the cutting member C, before described.

The nose H of the holding member D is rabbeted, as more clearly shown at M so that the forward end of the nose fits snugly into the recess F′ of the cutting member C and the wall M′ of said rabbet meets flush with the rear edge of the inclosing wall F′ of the cutting member C.

The upper and lower sides of the nose H of the holding member D and the jaws E, E′ of the cutting member are so formed that they fit each other snugly, and are so shaped relative to each other that when the cutting member C is reversed so that the jaw E will lie in the position shown in Fig. 1 as occupied by the jaw E′, and the angle of direction of member C will not be changed.

Extending through an opening N in the nose H of the holding member D is provided a spring N′, the respective ends of which are connected to ears O, O on the fastener-arms P, P, each of which is provided at its forward end with a short bolt Q formed integrally with or secured to a bolt carrier R, the rear portions of said arms being provided with lateral projections S which act as a bearing for said arms when the spring is extended. The bolts Q, when in operative position under the action of the spring N′ lie within the opening F^2 of the cutting member C and extend into the opening N of the nose H, the outer surfaces of said nose H being countersunk so that the bolt carriers and the arms will lie flush with the said surfaces.

In the use of excavating shovels surface marked 1 in Fig. 1 and the surface opposite thereto take the brunt of the wear and the greatest force exerted is against those points; therefore, I have provided suitable locking means at those points for holding the cutting member to the holding member and preventing lateral and transverse movement relative to each other and no stronger holding means at the sides of these members is necessary.

In operation the dipper teeth occupy a position relative to the cutting side of the dipper as shown in Fig. 2 and as the dipper in its passage through the earth describes a motion approximately following the arc of a circle as indicated by the arrow in Fig. 2, the wear of the extreme point of the tooth will be downwardly and outwardly the result being that the point will be worn away at *a—b—c* until it takes the form of the line *b—c*. Thereupon, the position of the tooth may be reversed with the point indicated at *b* uppermost and then the wear will be on the lines *b—c—d*, and so the point may be repeatedly reversed until the entire cutting portion of the member C is worn away.

The means of attachment which I have provided enables the ready removal of old cutting points and the insertion of new ones, all that is necessary for the operator to do being to press apart the bolt-carriers R against the action of the spring N, when the old tooth can be removed and a new one slipped into place.

If it is desired to use my tooth without the automatic fastening means the cutting member and holding member can be securely fastened together by means of a bolt passed through the openings F^2 and F in which case the bolt will occupy such a position on the tooth as to be subject to very litt wear and may be very readily removed.

I wish it to be understood that I do not confine myself to the precise details of construction and arrangement of the invention herein set forth, as modification and variation may be made without departing from the spirit of the invention, as defined by the appended claims.

What I claim is:

1. A dipper tooth, comprising a holding member, jaws on said holding member for receiving and holding the lip of the dipper, a cutting member having rearwardly extending jaws interlocking with the jaws of the holding member and fastening means on the sides of the holding member and cutting member for preventing longitudinal movement relative to each other.

2. A dipper tooth, comprising a holding member jaws on said holding member for receiving and holding the lip of the dipper, a reversible cutting member having rearwardly extending jaws, tongue-and-groove interlocking means on said jaws for preventing lateral movement of said members, and fastening means on the sides of the holding member and cutting member for preventing longitudinal movement relative to each other.

3. A dipper tooth, comprising a holding member, jaws on said holding member for receiving and holding the lip of the dipper, a cutting member having rearwardly extending jaws interlocking with the jaws of the holding member, and a self-closing fastener for securing said members against longitudinal movement.

4. A dipper tooth, comprising a holding member formed with upper and lower jaws to receive the lip of the dipper, a cutting member having rearwardly extending jaws

interlocking with the jaws of the holding member and a spring-pressed means for holding said members together.

5. A dipper tooth, comprising a holding member recessed to receive the edge of the dipper, a reversible cutting member having side walls forming a wedge-shaped recess and provided with perpendicular edges, rearwardly extending jaws on said cutting member, tongues and grooves on said jaws, and holding member for locking said jaws and member against lateral movement, a wedge-shaped nose on the holding member adapted to fit said recess in the cutting member and perpendicularly rabbeted at opposite sides to abut the edges of said walls, and a member having portions projecting horizontally into said walls and nose for securing said holding and cutting members against relative longitudinal movement.

JOHN GIFFORD SKELTON.

Witnesses:

LITTLETON FITZGERALD, JR.,

E. M. GATHRIGHT.