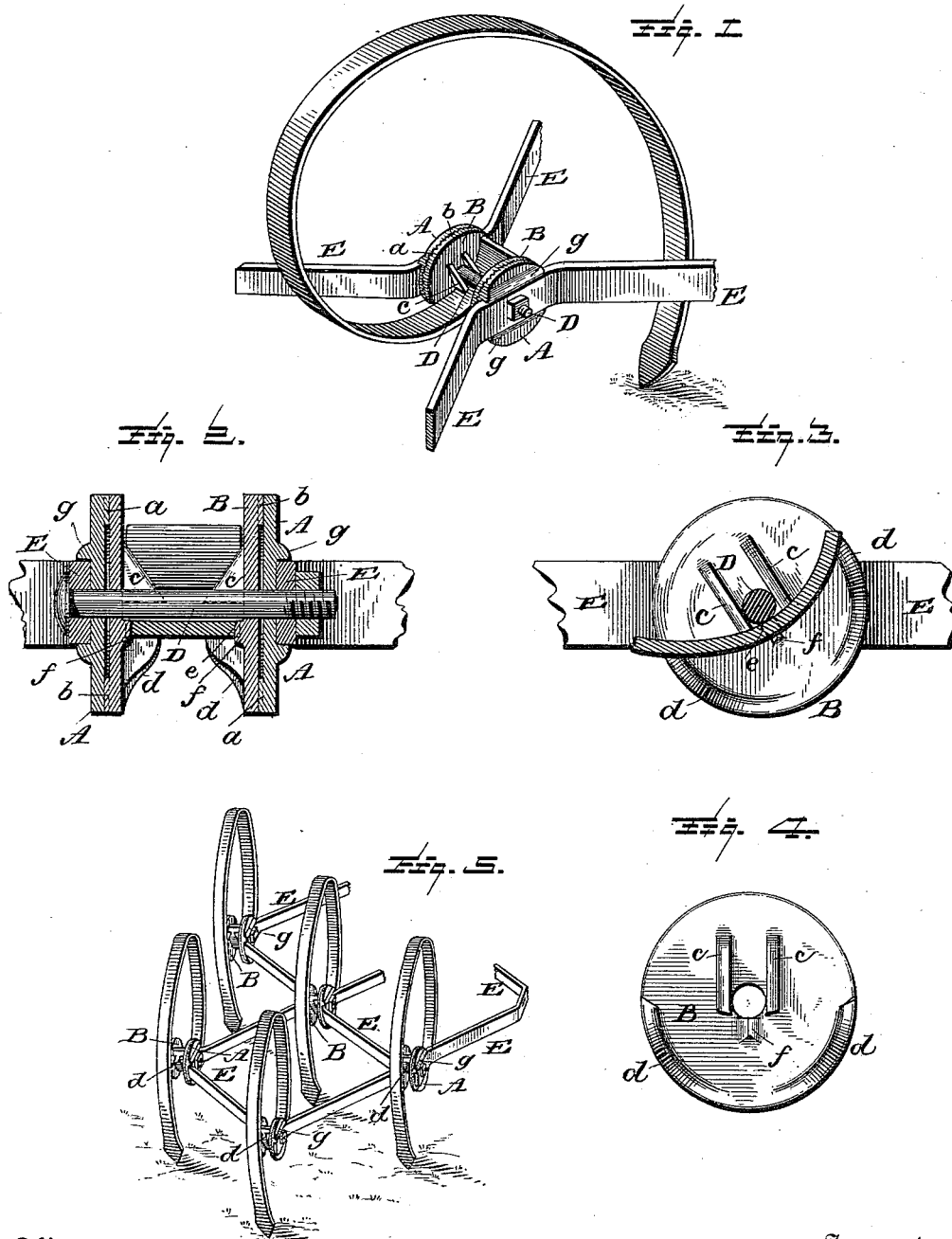


(No Model.)

S. N. HENCH & W. A. DROMGOLD.
SPRING TOOTH HARROW.

No. 419,990.

Patented Jan. 21, 1890.



Witnesses

L. C. Hills
Edw. A. Dick

By their Attorneys

Inventors:

Saml. A. Ketch
Walker A. Dromgold

Marcellus Bailey

UNITED STATES PATENT OFFICE.

SAMUEL NEVIN HENCH AND WALKER A. DROMGOLD, OF YORK, PENNSYLVANIA.

SPRING-TOOTH HARROW.

SPECIFICATION forming part of Letters Patent No. 419,990, dated January 21, 1890.

Application filed November 26, 1889. Serial No. 331,604. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL NEVIN HENCH and WALKER A. DROMGOLD, of the city of York, in the State of Pennsylvania, have invented a new and useful Improvement in Spring-Toothed Harrows, of which the following is a specification.

This invention relates to means or devices for adjusting and fastening or holding the teeth of spring-toothed harrows, which teeth are combined with individual fasteners, by which they can be securely held in adjusted position. A spring-toothed harrow of this kind is set forth in our Letters Patent dated April 23, 1889, No. 402,079; and our present invention may in some respects be considered an improvement upon the structure described and illustrated in said Letters Patent.

In our patented harrow the tooth is inserted in a slotted ratchet-hub, which is combined with stationary ratchet-plates that engage the projections or teeth on the hub, and with a pivot-bolt by which all the members of the fastener are drawn together, so as to hold the tooth in its adjusted position in the frame of the harrow.

In our improved form of tooth-fastener which is the subject of the present application we employ, in lieu of a slotted ratchet-hub, two separate clips, which are provided upon their interior opposite faces with projecting lugs that come both above and below the tooth when the latter is inserted in place between them, these clips, as well as the stationary plates which they engage, being drawn together upon or against the side edges of the tooth, which is inserted between the clips, by means of a pivot-bolt similar to that in our Letters Patent aforesaid. We also form in the sides of the tooth which comes between the clips nicks or recesses which, when the clips are drawn together, are entered by projections on the clips, with the effect of preventing the tooth from slipping lengthwise in the fastener.

The nature of our improvement and the manner in which the same may be carried into effect will be understood by reference to the accompanying drawings, in which—

Figure 1 is an enlarged perspective view of

the tooth with its holder and short pieces of the harrow-frame attached. Fig. 2 is a vertical section in the plane of the longitudinal axis of the holder. Fig. 3 is a vertical section in a plane transverse to the axis of the holder. Fig. 4 is a view of one of the clips, looking at its inner face; and Fig. 5 is a perspective view of a portion of the harrow.

The frame of the harrow may be of any suitable construction. As represented in the drawings, it consists of straps E, bent into zigzag form, which are combined with the stationary ratchet-plates, the clips, spring-teeth, and the pivot-bolts being constructed substantially in the manner set forth in our Letters Patent No. 402,079, hereinbefore referred to.

The tooth-holder consists of the two stationary ratchet-plates A, which are fixed to the frame and are provided on the interior opposite faces with teeth *a*, and of the toothed clips B, provided on their outer faces with teeth *b*, to engage the teeth of the stationary ratchet-plate. With these parts is combined a pivot-bolt D, which passes axially through them, and also through the frame-straps E. Upon the inner face of each clip are formed two sets of lugs *c* and *d*. The inner set *c* are intended to be above the tooth. They are on opposite sides of the center of the clip at sufficient distances apart from each other to permit the pivot-bolt to pass between them. The lugs *d* are intended to be below the tooth—that is to say, that portion of the tooth which is inserted between the clips—and they are located at the outer edge of the clips. When the tooth is in place, it is held between the lugs *c* above and lugs *d* below, in the manner indicated more particularly in Figs. 1 and 3. When it has been thus inserted, by tightening the pivot-bolt all parts of the holder will be drawn together and toward the tooth, which will thus be clamped and held in its adjusted position.

Whenever it is desired to change the adjustment, the pivot-bolt is loosened far enough to permit the ratchet-faces of the clips to be disengaged from the stationary ratchet-plates. The clips are then adjusted to bring the tooth to the position desired, and then by tightening again the pivot-bolt the clips and tooth

will be held in the position to which they have been shifted.

In order to prevent the possibility of lengthwise slip of the tooth in the holder, we nick or recess its opposite edges, as indicated at *e*, and we form upon the interior opposite faces of the clips, at the points opposite which the nicks *e* will come when the tooth is inserted in place, projections *f*, which enter these nicks, as indicated in the drawings, and thus hold the tooth most firmly against lengthwise movement in the holder.

To conveniently attach the ratchet-plates *a* to the straps *E*, each plate has on its outer face a horizontal groove *g*, in which the frame-strap is received, the pivot-bolt passing through these parts of the frame, all as described in our Letters Patent hereinbefore referred to.

We have for convenience termed the engaging faces of the clips and stationary ratchet-plates "ratchet-faces." It will be understood, however, that under this name we include any projections upon the meeting faces of these parts, by which they will be caused to engage one another when drawn together.

Having now described our improvement and the manner in which the same is or may

be carried into effect, what we claim, and desire to secure by Letters Patent, is as follows:

1. In combination with the stationary ratchet-plates and the pivot-bolt, the ratchet-faced clips provided with two sets of lugs so placed as to come above and below the tooth, as described, and the spring-tooth inserted between said clips and held by the said lugs, substantially as and for the purposes hereinbefore set forth.

2. The combination of the stationary ratchet-plates, the pivot-bolt, the ratchet-faced clips provided on their interior opposite faces with two sets of lugs, which are adapted to come above and below the tooth, as described, and with projections to engage the sides of the tooth, and the tooth inserted between said clips and held by said lugs thereon and provided in its sides with nicks or recesses which are engaged by the projections upon the clips, substantially as and for the purposes hereinbefore set forth.

In testimony whereof we have hereunto set our hands this 22d day of November, 1889.

SAMUEL NEVIN HENCH.

WALKER A. DROMGOLD.

Witnesses:

DAVID O. PRINCE,

WM. F. EICHAR.