

(No Model.)

G. W. & F. E. ARNOLD.
HARROW TOOTH FASTENING.

No. 276,209.

Patented Apr. 24, 1883.

Fig. 1.

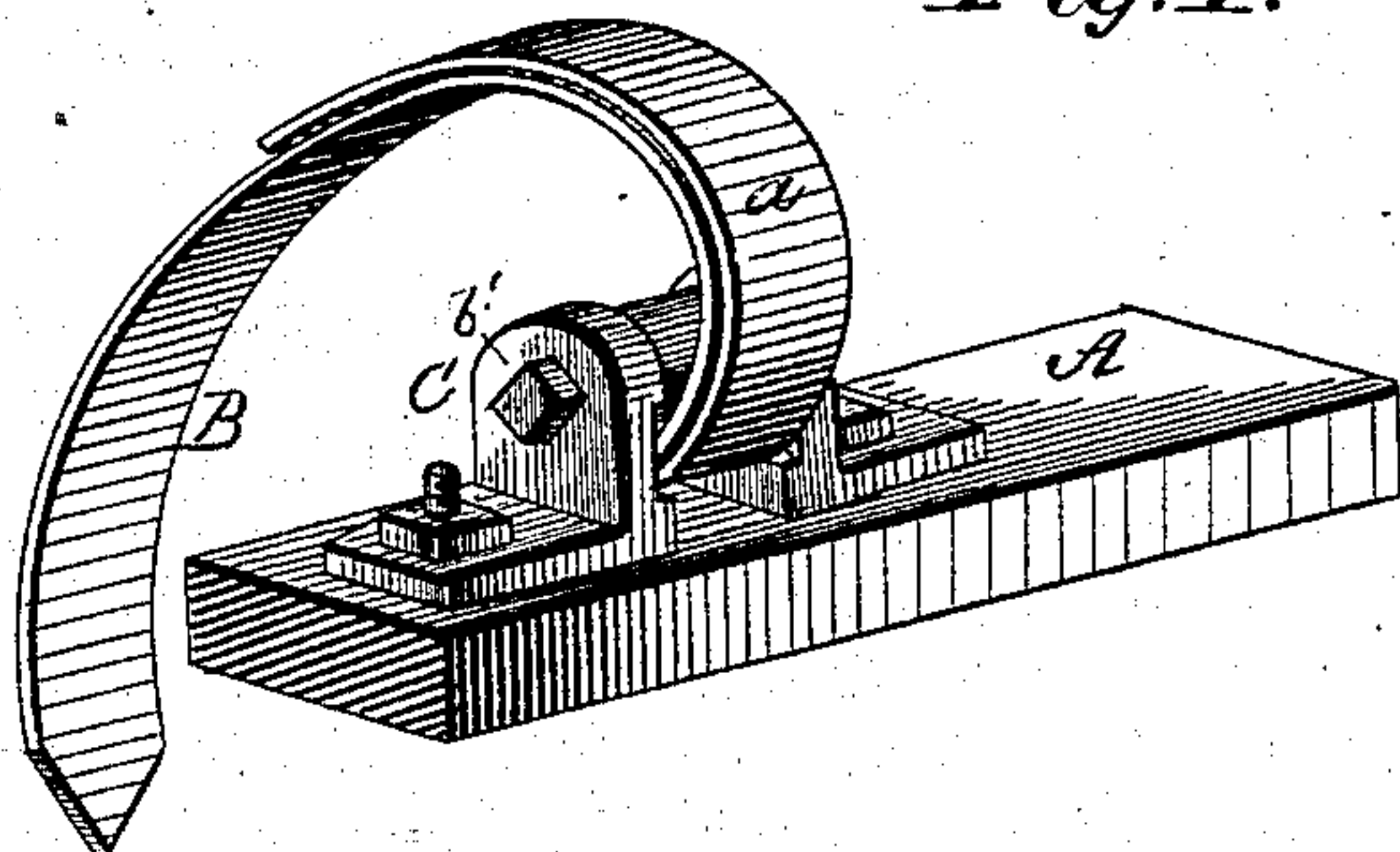


Fig. 2.

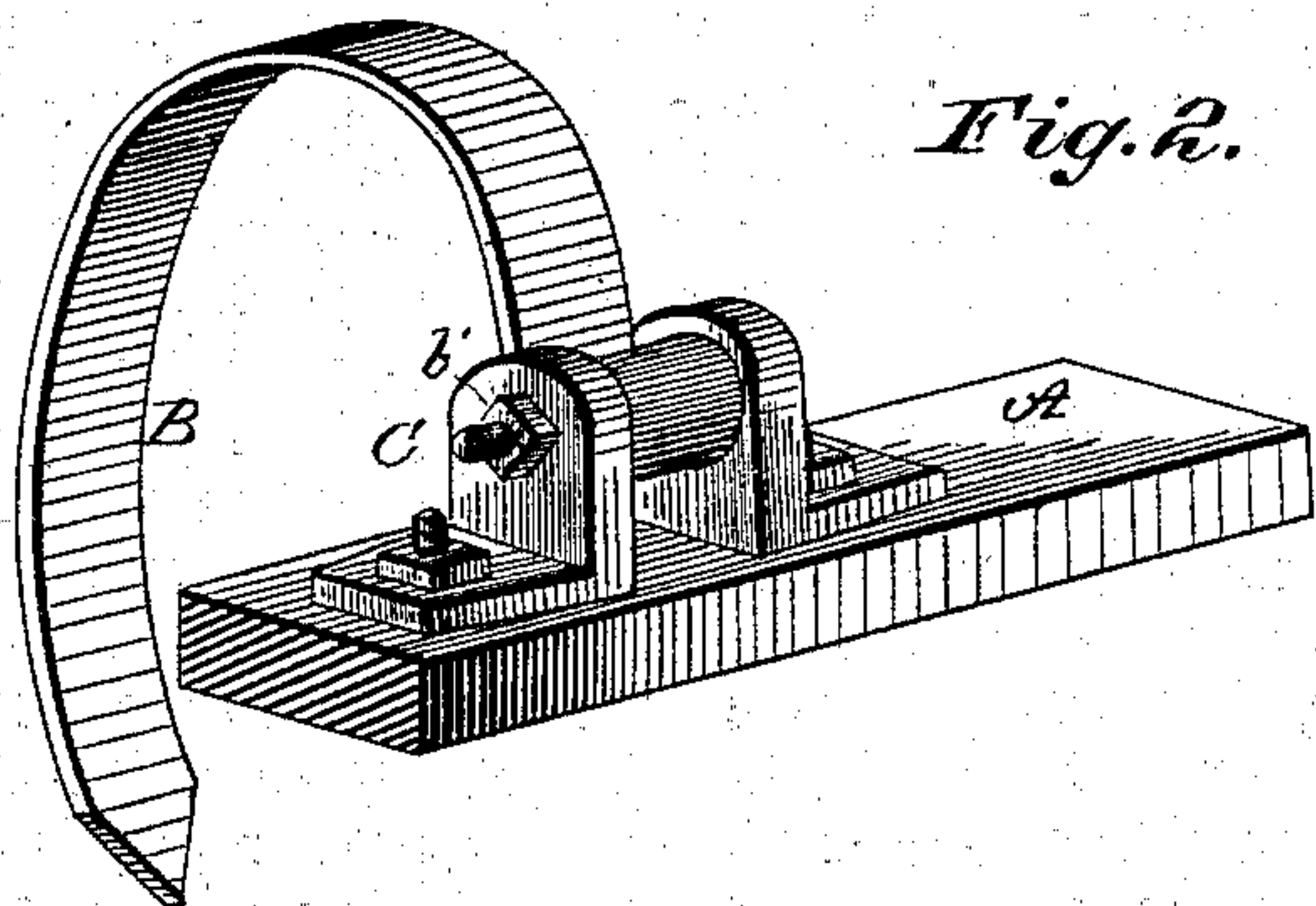


Fig. 3.

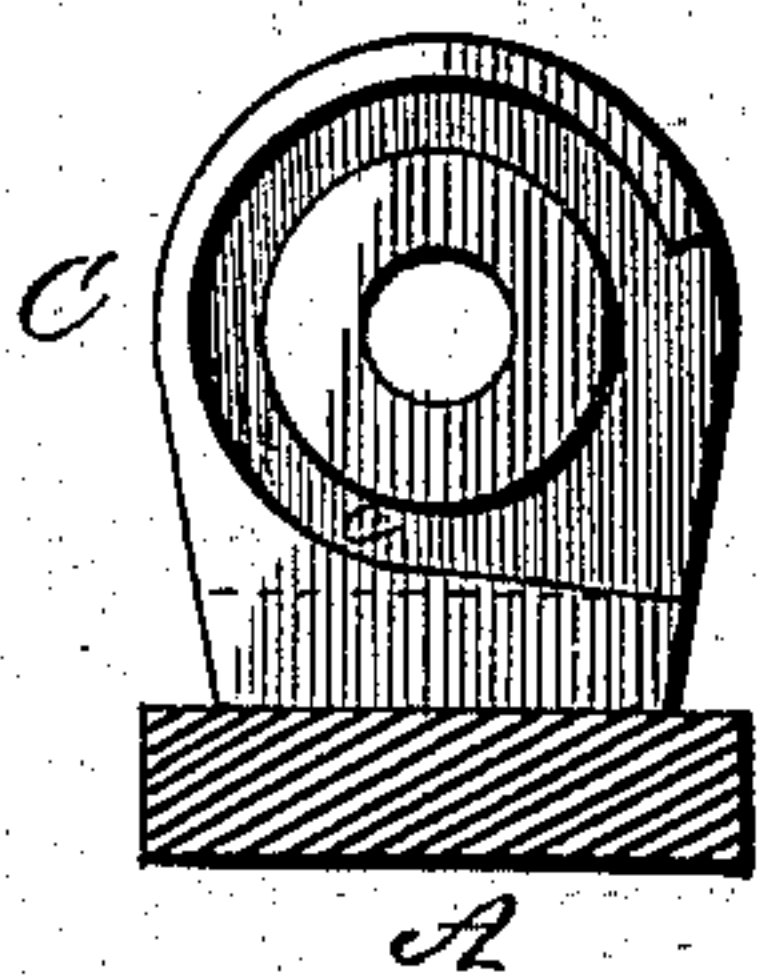
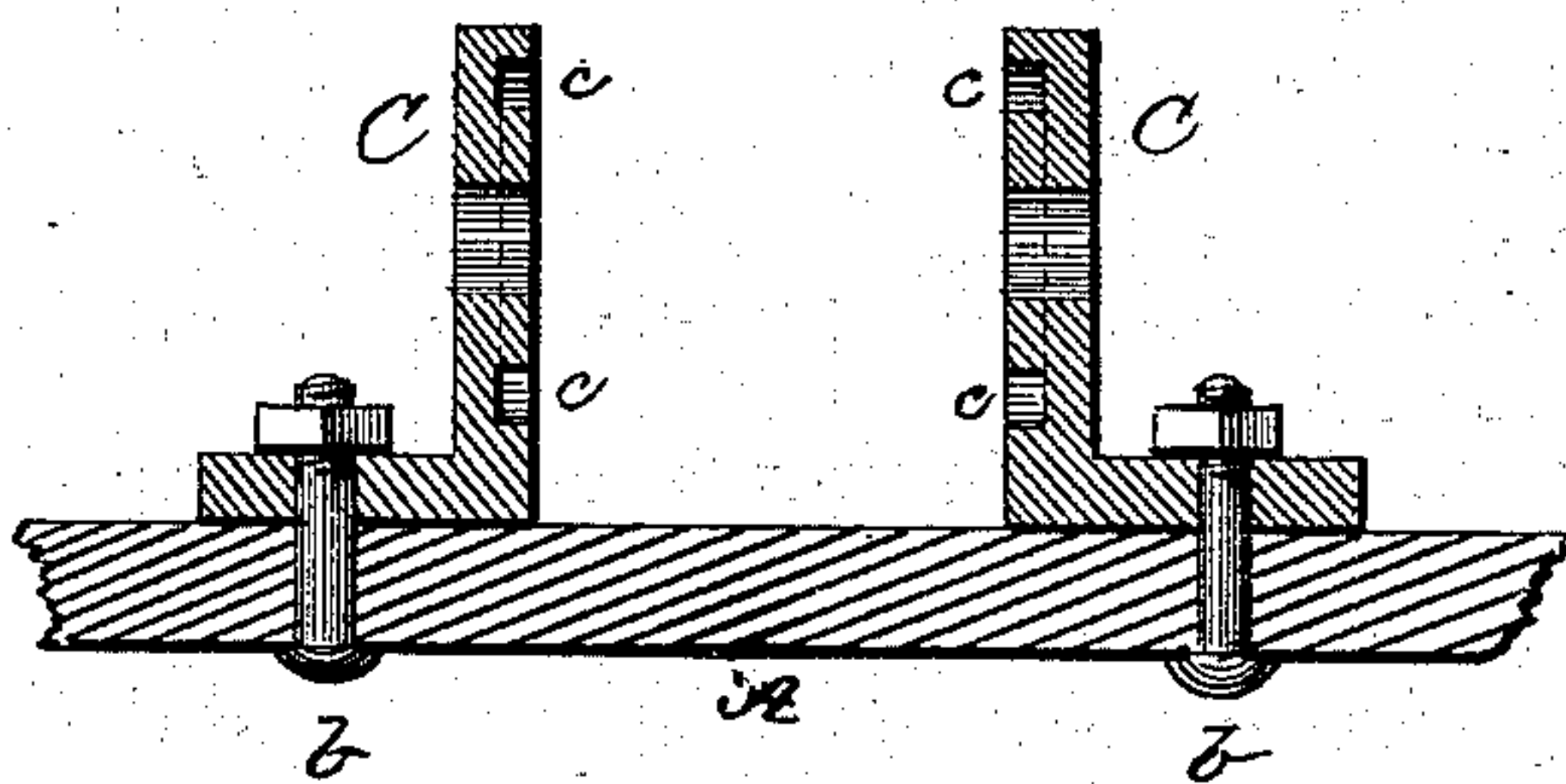


Fig. 4.



Witnesses:

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by

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UNITED STATES PATENT OFFICE.

GEORG W. ARNOLD AND FRED E. ARNOLD, OF IONIA, MICHIGAN.

HARROW-TOOTH FASTENING.

SPECIFICATION forming part of Letters Patent No. 276,209, dated April 24, 1883.

Application filed October 3, 1882. (No model.)

To all whom it may concern:

Be it known that we, G. W. ARNOLD and F. E. ARNOLD, citizens of the United States, residing at Ionia, in the county of Ionia and State of Michigan, have invented certain new and useful Improvements in Harrow-Teeth and the Fastenings thereof; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention consists in a novel combination of harrow-tooth and the means of securing it on the frame of the harrow, as hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of one form of tooth with its clamping device and a section of the frame. Fig. 2 is a similar view of another form of tooth with like attachments. Fig. 3 is an inside face view of one-half of the clamping device. Fig. 4 is a vertical section of the clamping device, taken on the center line.

The same letters appearing on the several figures indicate like parts.

A represents a section of the wooden frame of a harrow; B, a spring harrow-tooth, and C the device for clamping and securing the latter to the frame.

In Fig. 1 the tooth is represented as curving in the same direction as the curve of its eye portion, which, and for about one-half of the length of the tooth, is supported by an additional leaf, *a*, at the part subjected to the greatest strain.

In Fig. 2 the tooth is represented as curving in the opposite direction from the curve of its eye portion, which is considered the best form for a single leaf-tooth, as when it springs its deflection near the fastening is toward the curl or eye portion, the point is farther from the frame, is less liable to become clogged with

weeds or grass, and the greatest flexure is toward the point of the tooth, where it is less liable to break.

The clamping device C consists of two lugs or cheeks, which are formed with an annular groove, *c*, in the face to receive the eye of the tooth. These cheeks or jaws are secured to the frame of the harrow each by a single bolt, *b*, while a bolt, *b'*, passes horizontally through the two jaws and through the eye of the tooth, clamping the latter firmly in the grooves *c*. The position of the tooth may be adjusted at any time by loosening the bolt *b'* and turning the eye of the tooth in the grooves *c* to raise or lower its point, and again tightening the bolt. On a full-sized harrow this annular groove gives over six inches bearing on each edge of the eye of the tooth, which holds it firmly without overstraining the bolt *b'*.

Spring harrow-teeth have heretofore been fastened to the frame by one or more bolts passing through them, which renders them liable to break at such perforations, while by clamping the edges of the eye the spring is not weakened, and the position of the tooth can be easily adjusted, as hereinbefore described.

We are aware that flat spring-teeth have been clamped edgewise, as in Patent No. 233,718; also that rake-teeth have been clamped between angle-plates, as in Patent No. 82,972. These, therefore, we do not claim as the equivalents of our invention.

What is here claimed as new, and desired to be secured by Letters Patent, is—

The combination of the two elbow-jaws C, having annular grooves *c* in their faces, with the bolt *b'*, and curled eye of the flat-spring harrow-tooth B, substantially as and for the purpose specified.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORG W. ARNOLD.
FRED E. ARNOLD.

Witnesses:

A. B. CLARK,
C. R. CALKINS.