No. 609,334. Patented Aug. 16, 1898.

# H. W. EISENHART.

## HARROW.

(No Model.) (Application filed Mar. 17, 1898.) 2 Sheets—Sheet 1.

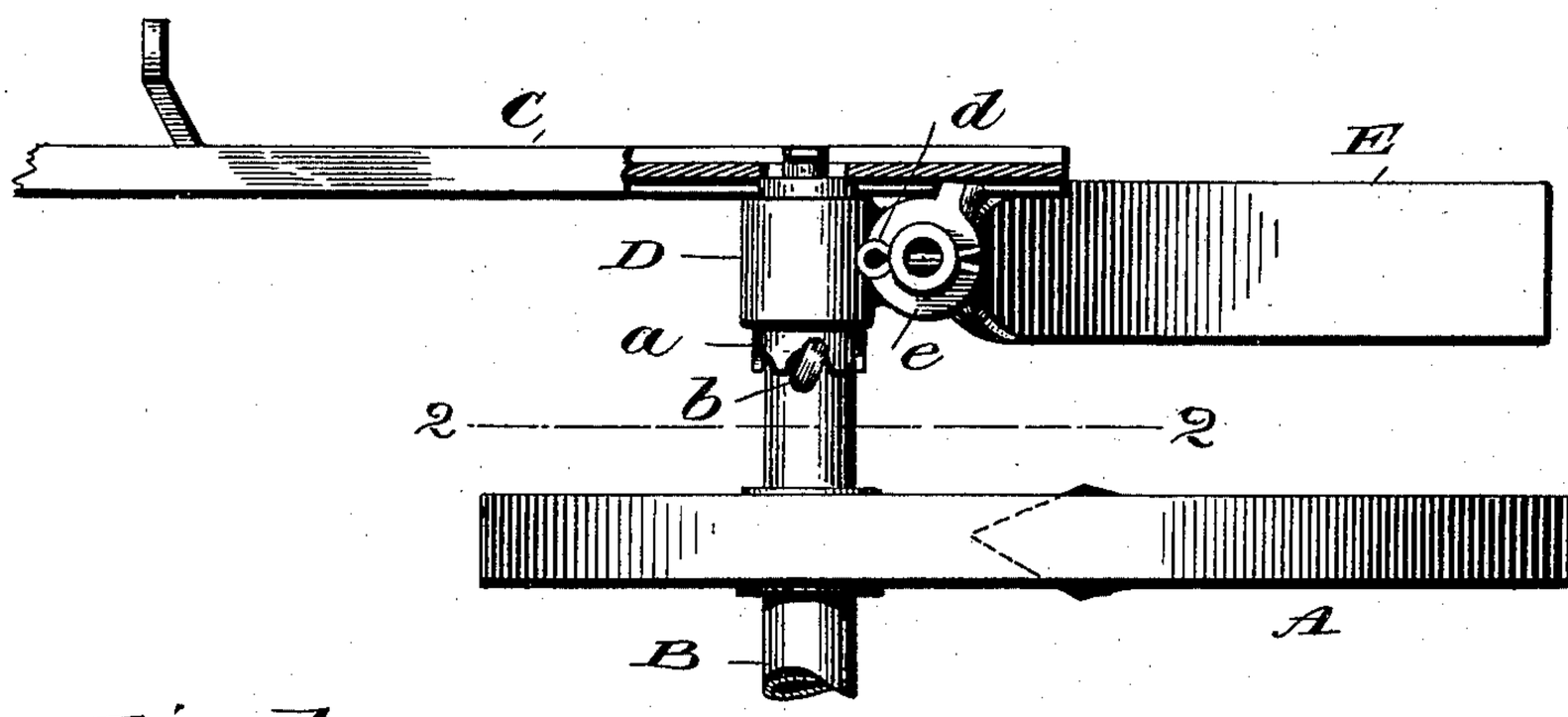
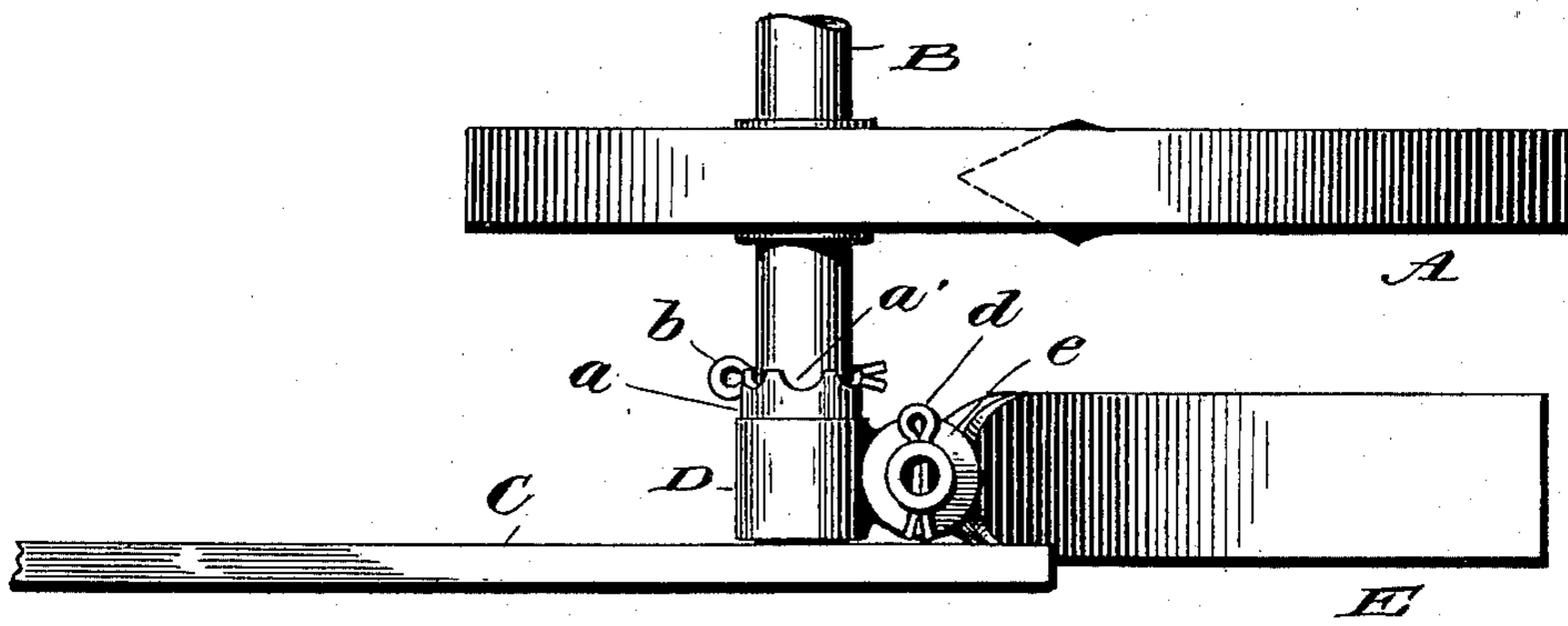



Fig. 1.



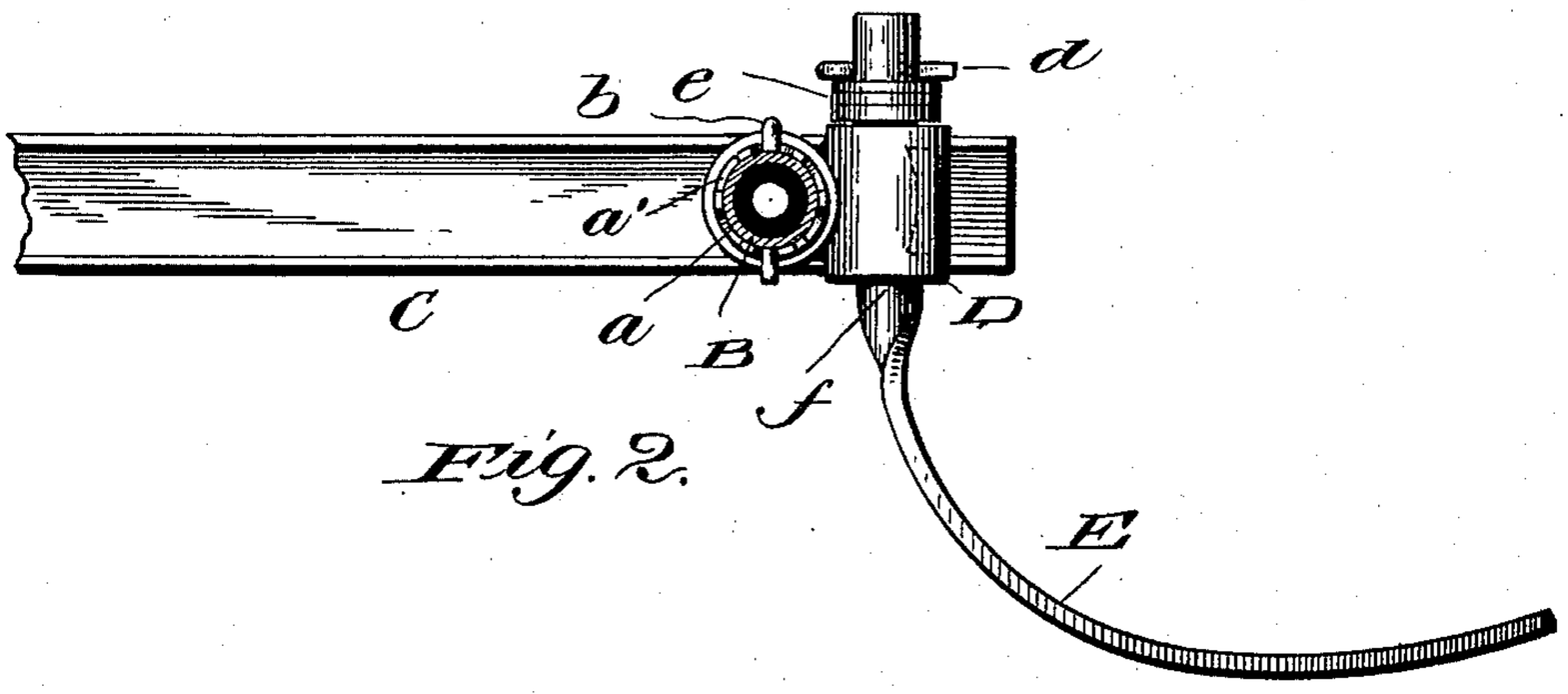




Fig. 2.

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## HARROW.

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Fig. 3.

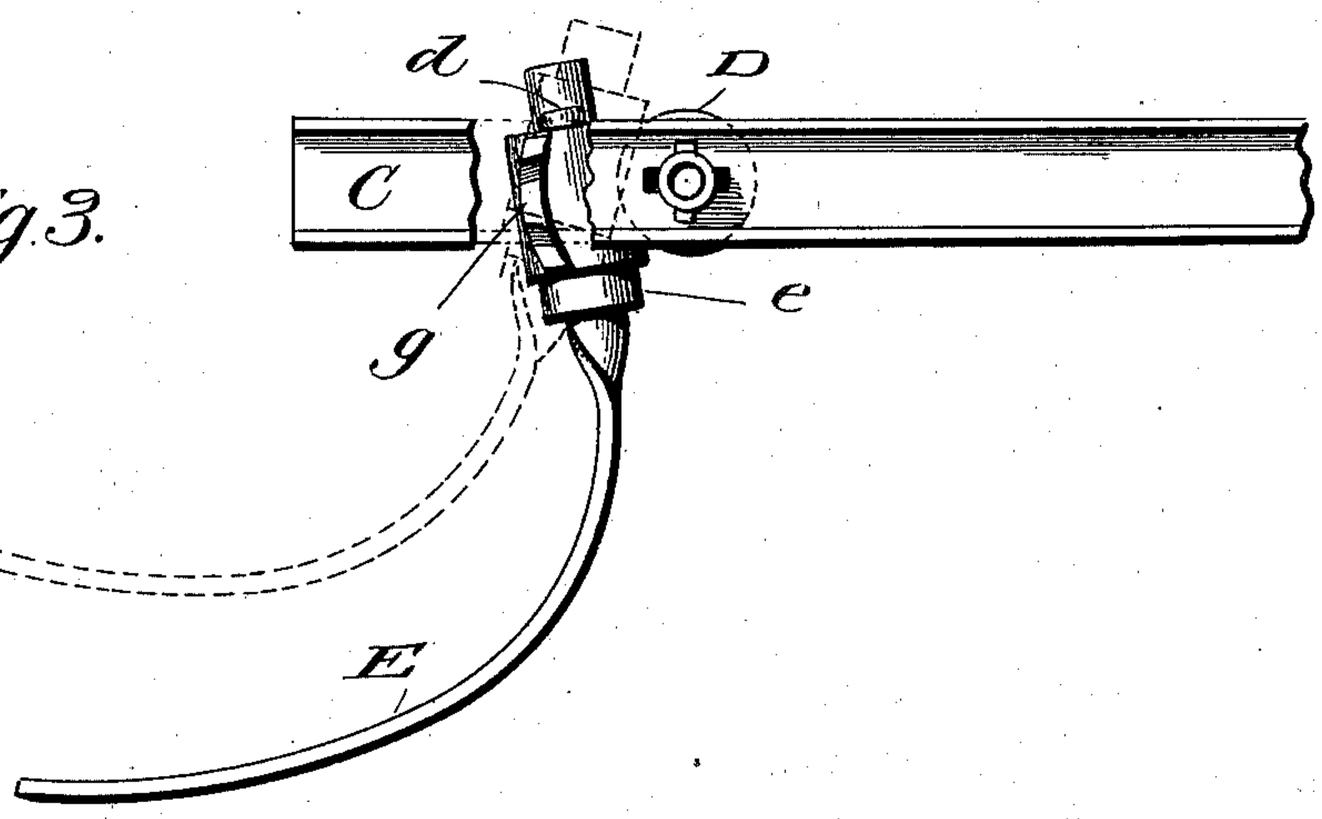



Fig. 4.

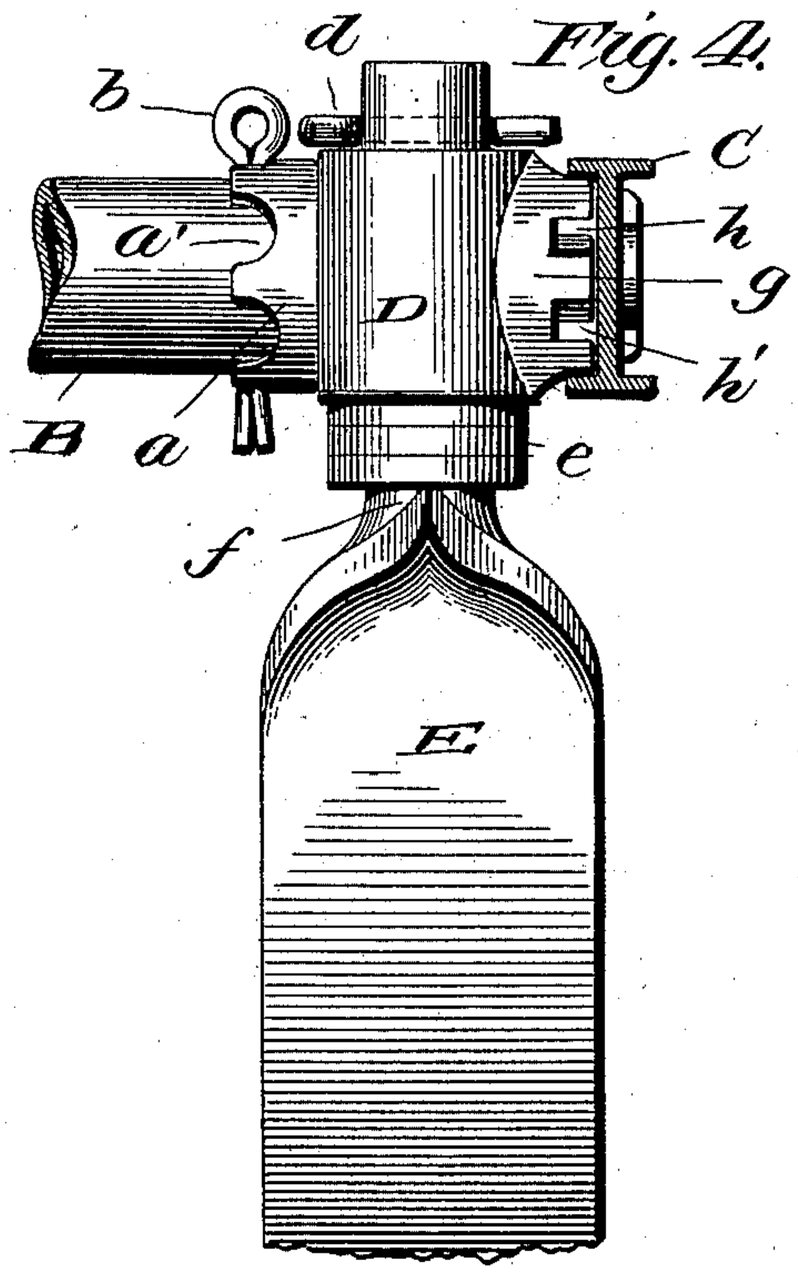
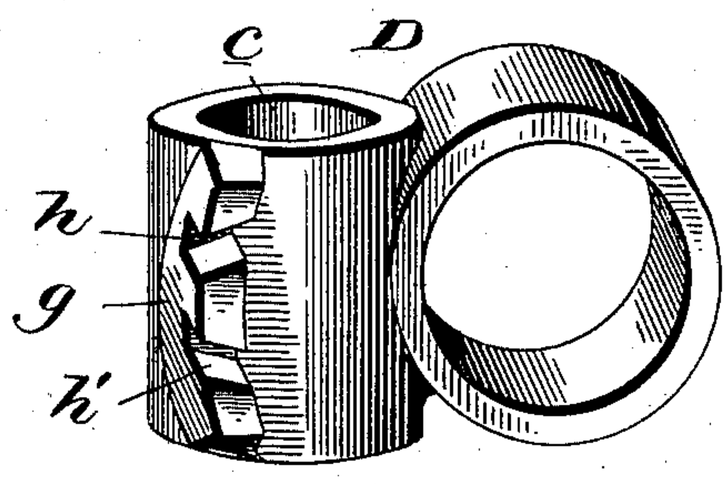



Fig. 5.

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# UNITED STATES PATENT OFFICE.

HENRY W. EISENHART, OF YORK, PENNSYLVANIA, ASSIGNOR TO THE A. B. FARQUHAR COMPANY, OF SAME PLACE.

## HARROW.

SPECIFICATION forming part of Letters Patent No. 609,334, dated August 16, 1898.

Application filed March 17, 1898. Serial No. 674,178. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY W. EISENHART, of York, in the county of York and State of Pennsylvania, have invented a certain new and useful Improvement in Harrows, of which the following is a specification.

My invention has to do with runners for use with harrows, particularly spring-tooth harrows. They are designed to measurably support the harrow and to act as gages to regulate the depth of penetration of the teeth.

Under my invention the runner is swiveled on a vertical axis—something like a furniture-caster—so that it may follow freely the direction of movement of the harrow. The bearing sleeve or block in which it is swiveled is journaled on a horizontal axis, so that the runner which it holds can be tilted or set at any desired angle, and with the bearing block or sleeve are combined means by which it may be held in adjusted position.

The nature of my invention and the manner in which the same is or may be carried into effect will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a plan of so much of a harrow as needed to illustrate the invention. The part of the harrow represented is the rear portion of one of the harrow-sections of a hinged or jointed harrow, such as shown and described in my application for Letters Patent, Serial No. 664,545, filed December 30, 1897. The axle or shaft is broken, so as to bring the sides of the frame nearer together, and one of the side frame-bars is shown partly in section. Fig. 2 is a section on line 2 2, Fig. 1. Fig. 3 is a side elevation illustrating the changes which may be effected in the adjustment of the runner. Fig. 4 is an elevation of the runner bearing-block and the shaft on which it is mounted, with the side frame-bar in section. Fig. 5 is a perspective view of the runner bearing-block detached.

The invention is applicable to harrows generally, whether "spring-tooth" or not, whether "lever" or not, and whether composed of a single frame or of a plurality of frames jointed together.

The particular harrow shown in the drawings in illustration of my invention is one having its teeth (spring-teeth) A secured on shafts B, which are mounted and rotatable in the harrow-frame C and are combined in the usual way with a lever-handle and connections, whereby the shafts may be rotated to properly adjust the teeth, means of course being provided to secure the lever-handle in its adjusted position. Harrows of this kind are well known and in general use and require no detailed description here.

The harrow is provided with adjustable swivel gage-runners in accordance with my invention. There may be any number of these runners, and they can be located at any suitable points on or in the harrow-frame. Two of them are shown in the portion of the harrow represented in the drawings. For convenience sake they are mounted upon one of the shafts B of the harrow, (in this instance the rear shaft,) one at each end of the shaft and adjoining the side of the frame. Each runner resembles the other, and consequently a description of one will answer for both.

D is the casting, which constitutes the bearing block or sleeve for the runner proper. It is tubular to fit upon the shaft B, which in this instance forms the journal, upon which the block can rotate as an axis. The casting D is held up tight against the side of the frame C, which it adjoins, by suitable means—as, for example, a washer *a*, which is held up in place by a cross-pin or split cotter *b*, which passes transversely through the shaft and is seated in notches *a'*, formed in the adjoining edges of the washer.

E is the runner proper. It is swiveled upon a vertical axis, its cylindrical stem or shank for this purpose fitting in and passing through a vertical cylindrical hole *c*, formed for it in casting D. A cross-pin or split cotter *d*, passing through the end of the shank which protrudes above the casting, holds the runner in place therein. The runner can be adjustable up and down in the casting, if desired, for which purpose its shank can be made of sufficient length to accommodate a washer or series of washers *e*, as indicated in Fig. 2. To lift the runner, the washer is interposed between the split cotter *d* and the top of the casting,

as shown in the figure last referred to. To lower the runner, the washer is removed from the position in which I have shown it and is interposed between the bottom of the casting and the shoulder *f* at the lower end of the shank of the runner. (See Figs. 3 and 4.)

By turning the bearing-sleeve or casting D upon the shaft C, on which it is mounted, the tilt or forward and backward angle of inclination of the runner E can be varied at pleasure. Means of course must be provided for securing the casting or bearing-block D in its adjusted position. Various devices which will suggest themselves to the skilled mechanic may be employed for the purpose. I prefer, however, to use for this purpose the device shown in the drawings on the score of efficiency, simplicity, and cheapness.

The frame C itself is composed of iron or steel bars of **I** cross-section.

Laterally projecting from that one of the faces of the bearing-block D contiguous to the adjoining side of the frame is a tongue *g*, which is of a shape to enter and fit between the top and bottom flanges of the **I** frame-bar. When this tongue *g* is thus placed and the bearing-block D is pressed and held up in place by the washer *a*, the block is held in one of the positions to which it may be adjusted, as shown in Figs. 2 and 4. In order to vary the adjustment, I provide in the tongue *g* notches *h h'*. Ordinarily two notches are sufficient to secure the desired range of adjustment. The top notch *h* is intended to engage the top flange of the **I** frame-bar and is inclined, so that when brought opposite to said flange it will register with the same. The bottom notch *h'* is intended to engage the bottom flange of the **I** frame-bar and is so inclined that when brought opposite to that flange it will register with the same.

To change the adjustment from that represented in Fig. 4, all that is needed is to remove the cotter *b* and to slip back the washer *a* and the bearing-block D until the tongue *g* is disengaged from the **I** frame-bar, and then, after turning the bearing-block D so as to bring the top notch *h* into register with the top flange of the **I**-bar and the bottom notch *h'* into register with the bottom flange of the **I**-bar, according to the direction in which the runner is to be tilted, to push bearing-block up toward the **I**-bar until the selected notch engages its appropriate flange on that bar and then to secure the parts in their adjusted position by the washer *a* and cotter *b*. The runner is shown in the two last-described positions of adjustment in Fig. 3 in full and dotted lines, respectively.

Having now described my invention, what I claim herein as new, and desire to secure by Letters Patent, is as follows:

The combination with the **I** frame-bar of the harrow, of the bearing-block journaled upon a horizontal axis and also movable to and from said frame-bar, a laterally-projecting tongue on said block adapted to fit between the top and bottom flanges of said bar, and also notched to engage either of said flanges, and the runner carried by and vertically swiveled in said bearing-block, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 16th day of March, 1898.

HENRY W. EISENHART.

Witnesses:
B. H. FARQUHAR,
JAMES M. CARMAN.