

F. A. KIRCH.  
Sleigh-Brakes.

No. 136,839.

Patented March 18, 1873.

Fig. 1.

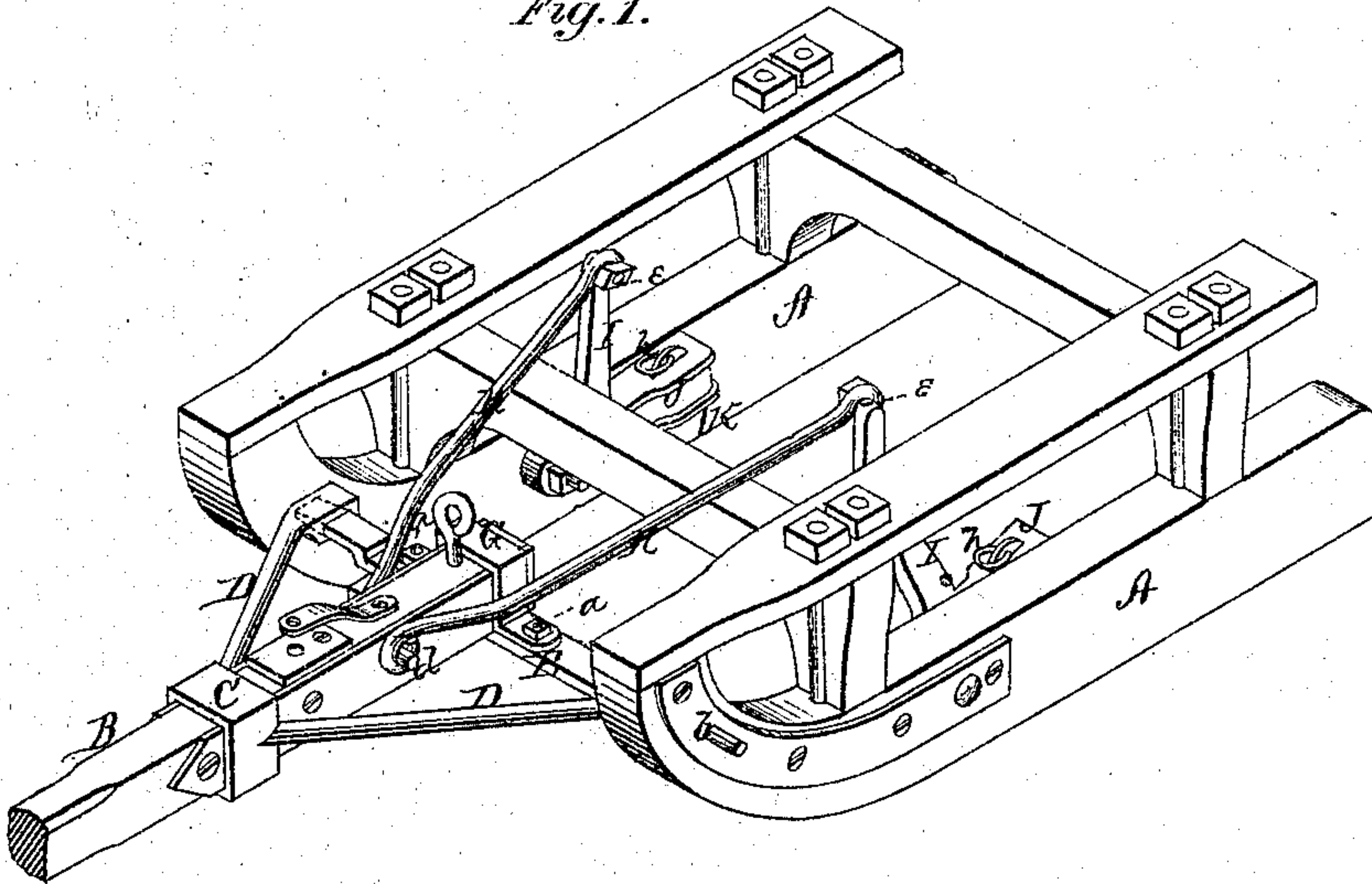


Fig. 2.

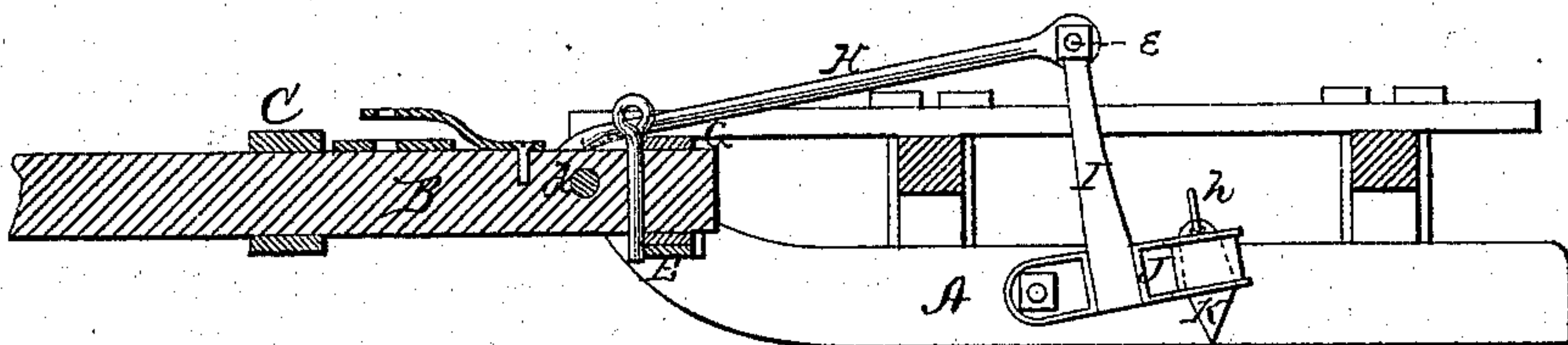
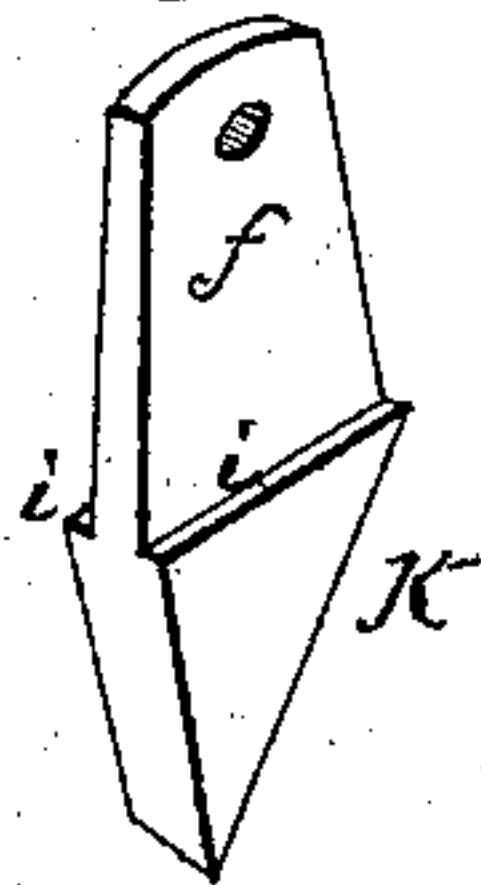


Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

FRANCIS A. KIRCH, OF MANSFIELD, PENNSYLVANIA.

## IMPROVEMENT IN SLEIGH-BRAKES.

Specification forming part of Letters Patent No. **136,839**, dated March 18, 1873.

*To all whom it may concern:*

Be it known that I, FRANCIS A. KIRCH, of Mansfield, in the county of Tioga and State of Pennsylvania, have invented certain new and useful Improvements in Sleigh-Brakes; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing and to the letters of reference marked thereon which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a sleigh-brake, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a perspective view, and Fig. 2 a longitudinal vertical section, of a sled with my brake attached. Fig. 3 is a perspective view of one of the brake-teeth.

A A represent the runners of a sleigh, constructed and connected together in any of the known and usual ways. B represents the tongue, which passes through and moves back and forth in a square socket, C. This socket is on each side provided with a stay-rod, D, which runs back and outward toward the inner side of the front end of the runner. In the heel or rear end of each rod D is a mortise for the passage of the end of the cross-bar E, which is made in two parts overlapping each other in the center, and fastened together by means of bolts *a a*. The ends of the cross-bar E are provided with tenons *b* to pass through the runners A, and be fastened on the outside thereof by nuts screwed on, or key-holes punched and keys inserted. Inward from the shoulders, at the base of the tenons *b*, the ends of the bar E are wedge-shaped for a short distance where they pass through the mortises in the heels of the stays D D, the said mortises being shaped to correspond with such wedge-shape, which keeps the stays on the cross-bar in their proper positions. The bolts *b b* which fasten the splice

in the cross-bar E also secure a U-shaped hasp, G, on top of the same, in which the rear end of the tongue B is inserted. H H represent two rods, the front ends of which are pivoted by a single bolt, *d*, one on each side of the tongue B, and their rear ends are placed on pins *ee* in the upper ends of two levers, I I, one on each side of the sleigh. The lever I is attached at its lower end at or near the center of a dog, J, which is pivoted at its front end to the inner side of the sleigh-runner A. In the rear end of the dog J is a mortise for the insertion of the shank *f* of a wedge-shaped tooth, K. At the base of the shank or tenon *f* are formed shoulders *i i*, which, when the shank is inserted in the mortise on the dog J, bear against the under side of the same. The tooth is then held in place by a ring, *h*, passed through a hole in the upper end of the shank *f* above the dog, as shown, so that the tooth can be taken off for repairs.

The operation of this brake is readily seen. When the team backs the tongue B slides through the socket C and hasp G, pushing, by means of the rods H H, the levers I I toward the rear. These levers being attached to the dogs J J between the fulcrums and the teeth a very slight movement will suffice to lower the teeth and brake the sleigh.

The teeth K K, being of the form shown in the drawing, if they should strike any obstruction they will raise the sleigh and pass over without any injury; and when dull they can readily be removed for sharpening by simply twisting the rings *h h*, so that they can be taken out.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The square socket C with stays D D, having wedge-shaped mortises in their rear ends, in combination with the oscillating cross-bar E having wedge-shaped shoulders at its ends to pass through said mortises, as herein set forth.

2. The tooth K, provided with the shank or tenon *f* and shoulders *i i*, and held rigidly in a mortise on the dog J by a ring, *h*, and allowing the tooth to be removed, substantially as herein set forth.

3. The pivoted dog J with removable tooth

K, and the lever I attached to the dog between the fulcrum and the tooth, substantially for the purposes set forth.

4. The combination of the sliding tongue B, rods H H, levers I I, dogs J J, and removable teeth K K, all constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of February, 1873.

FRANCIS A. KIRCH.

Witnesses:

D. H. PITTS,  
G. D. SPURR.