

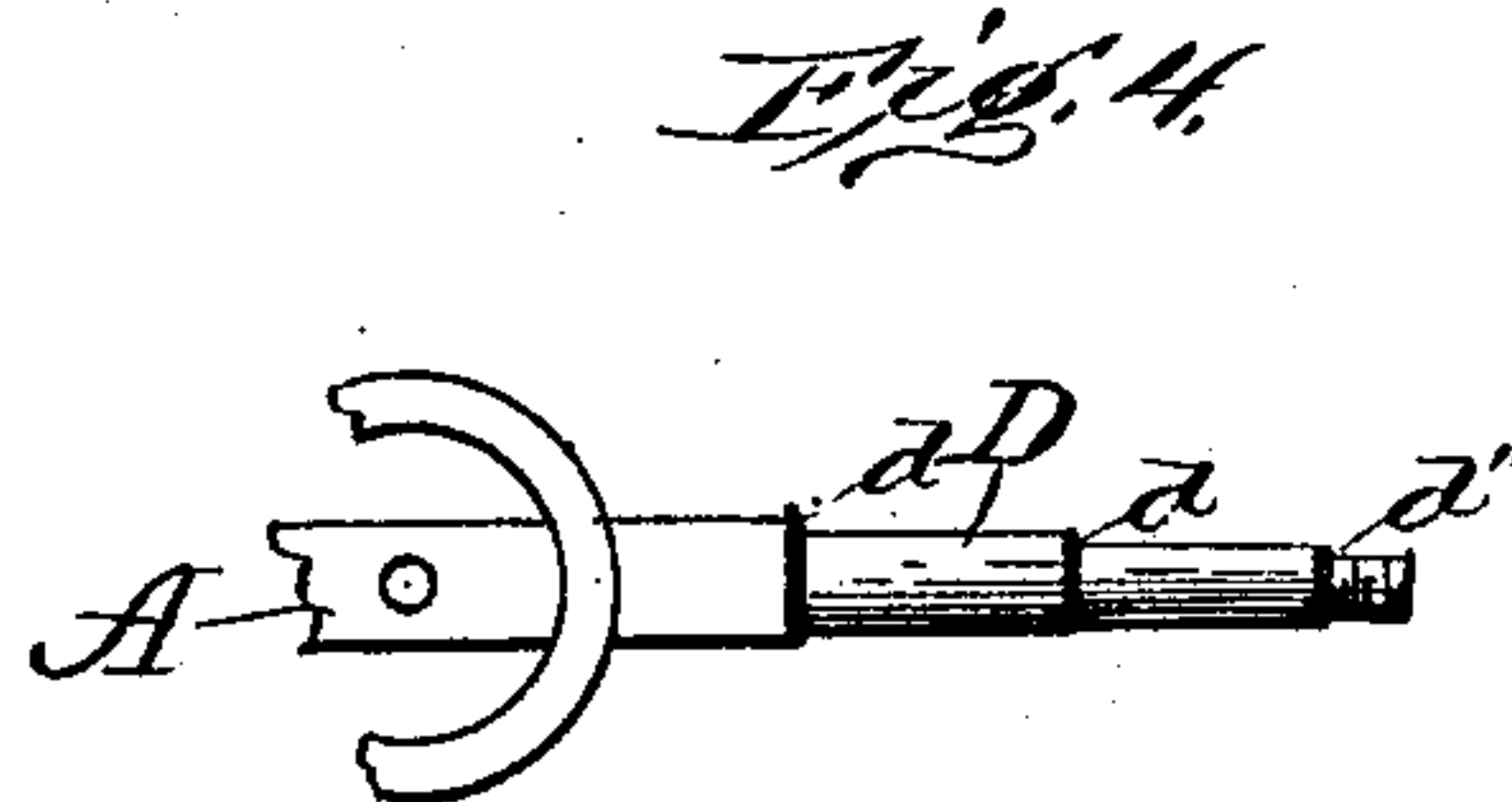
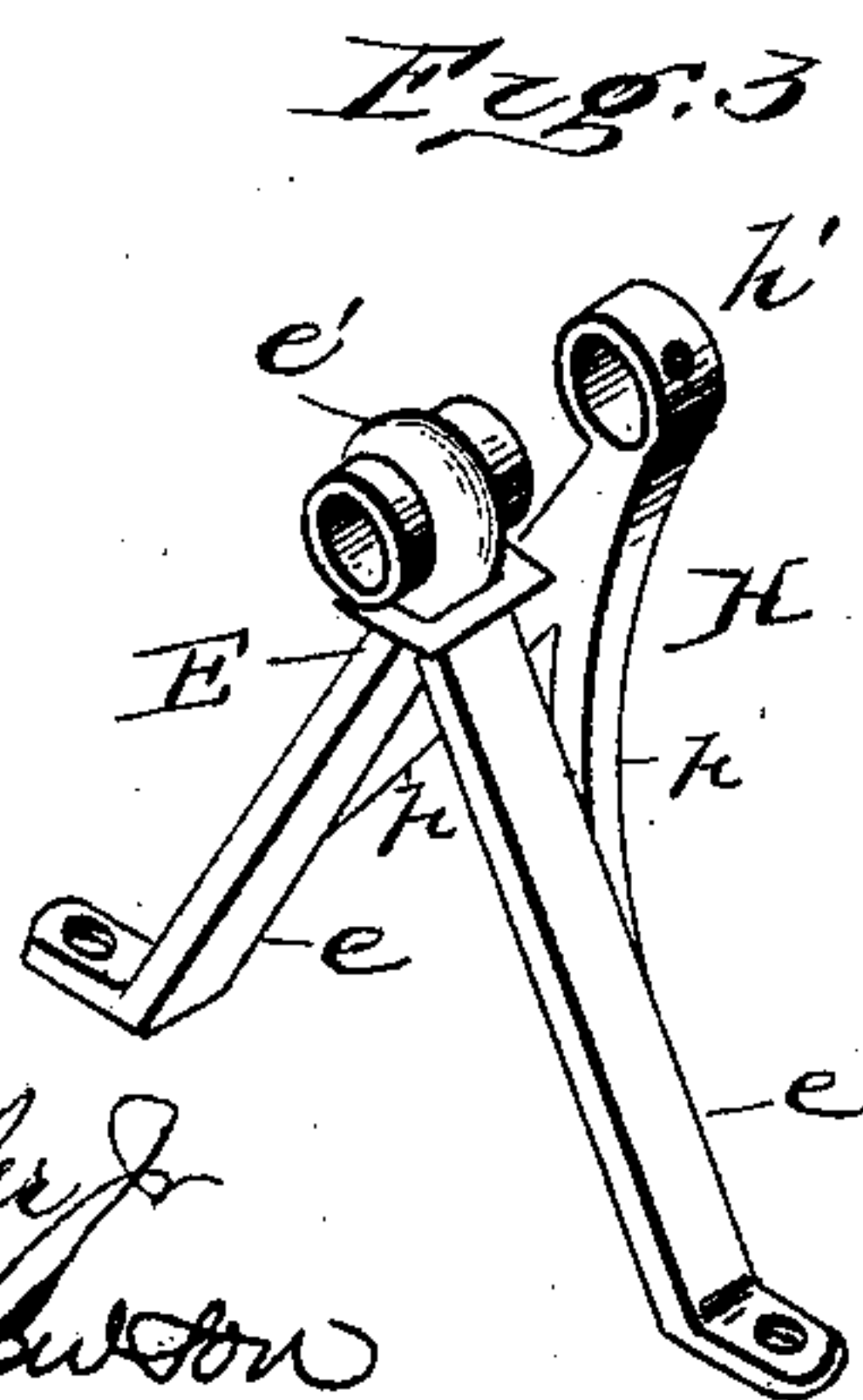
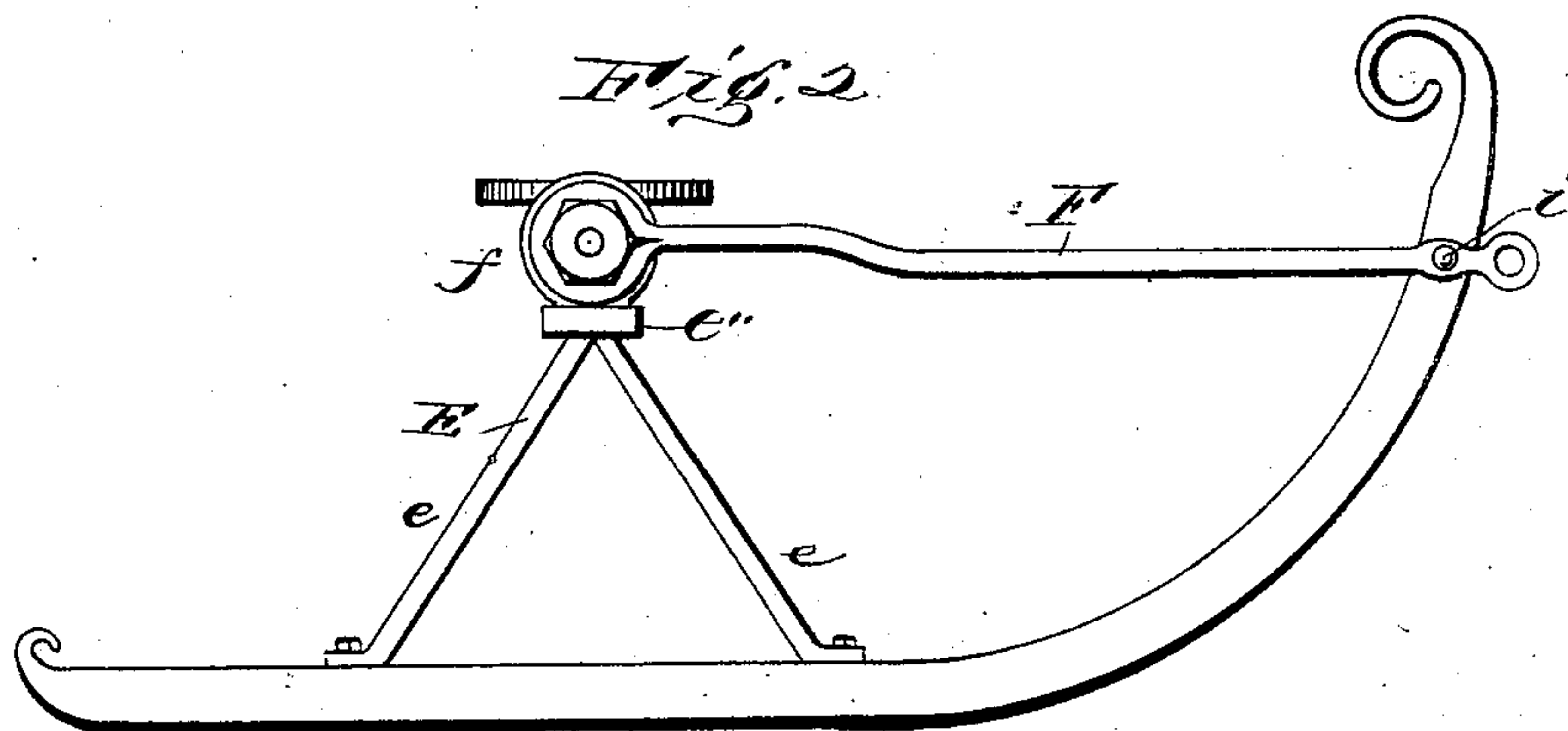
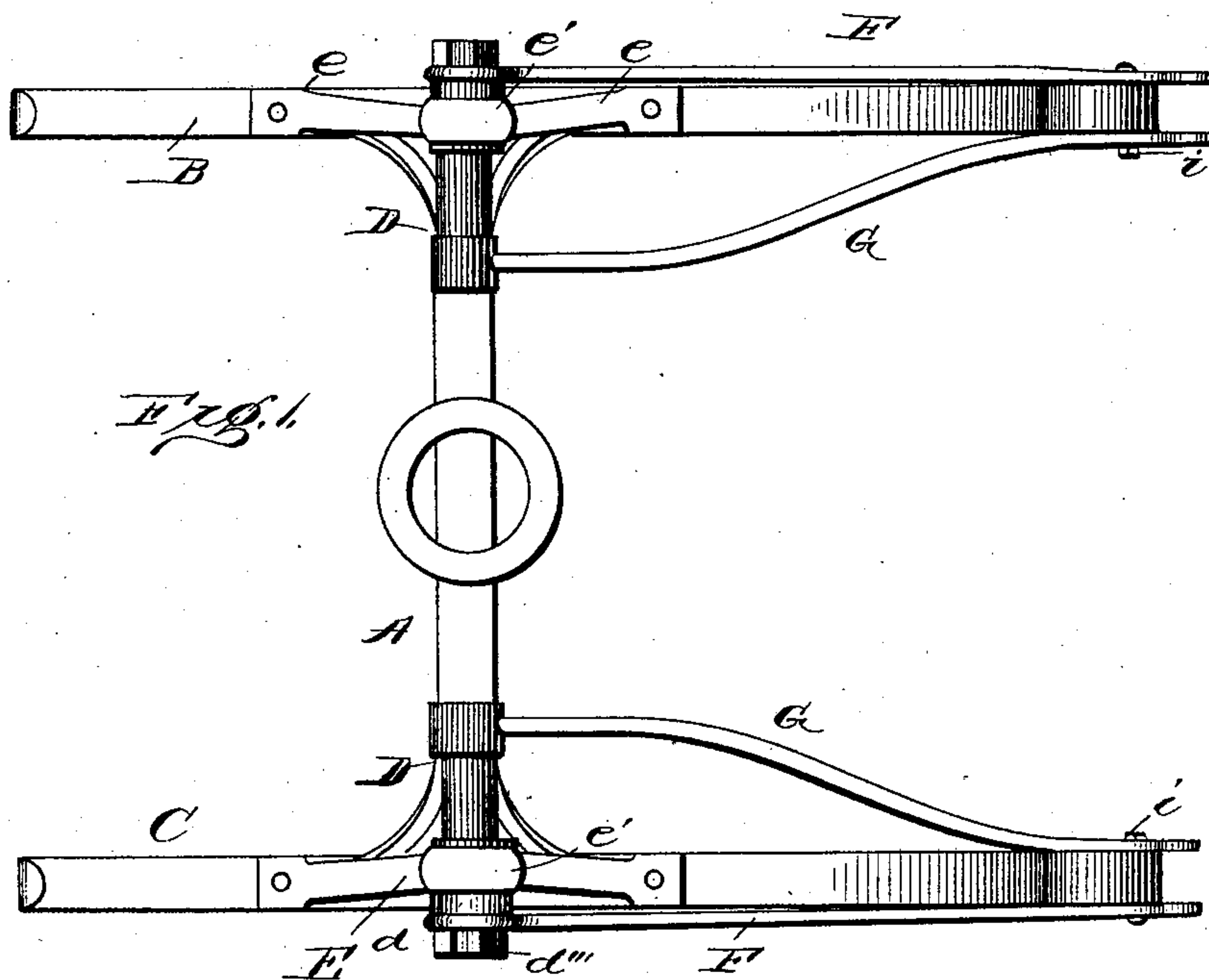
No. 606,800.

Patented July 5, 1898.

N. T. CANFIELD.
BOB SLED.

(Application filed July 14, 1896.)

(No Model.)



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UNITED STATES PATENT OFFICE.

NATHAN T. CANFIELD, OF LYNXVILLE, WISCONSIN.

BOB-SLED.

SPECIFICATION forming part of Letters Patent No. 606,800, dated July 5, 1898.

Application filed July 14, 1896. Serial No. 599,104. (No model.)

To all whom it may concern:

Be it known that I, NATHAN T. CANFIELD, a citizen of the United States, residing at Lynxville, in the county of Crawford and State of Wisconsin, have invented certain new and useful Improvements in Bob-Sleds; and I do hereby 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.

My invention relates to improvements in bob-sleds in which each runner has a knee so braced as to reduce to a minimum the side-wise strain on the axle-spindle when the runner strikes an obstruction or drops in a rut or depression in the road, and said knee is furthermore connected to the axle-spindle, so as to have a free turning or oscillating movement on said spindle for the purpose of yielding automatically to any obstruction it may encounter lying in the path of the sleigh.

With these ends in view my invention consists in the novel combination of devices and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of the bob-sled in which the knees are braced and connected to the axle-spindle as contemplated by my invention. Fig. 2 is a side elevation. Fig. 3 is a detail perspective view of one of the knees and its braces detached from the runner and axle. Fig. 4 is a view of axle and spindles. Like letters of reference denote corresponding parts in all the figures of the drawings.

A designates the axle, and B C are the runners. These parts may be of the usual or any preferred construction. The runners may be made of either metal or of wood shod with metal, and said runners may be of any appropriate shape and dimensions. The axle A is provided at its ends with spindles D, which are constructed to present shoulders d , d' , and d^2 , said spindles being threaded beyond the shoulders d^2 for the reception of the usual nut. Each runner is connected with

one of the axle-spindles by a knee E of novel construction, and the connection between the upturned front end of the runner and the axle-spindle is effected by means of the outside and inside braces F G, presently described more fully.

The knee E, which I provide as the means for connecting the runner to the axle-spindle, is of the forked or bifurcated variety, in which the legs $e e$ diverge from a point below the axle-spindle until they reach the runner, the legs $e e$ of each knee being provided with feet, through which are passed the rivets or bolts that serve to rigidly fasten the knee to the runner. At its upper end each knee is provided with an eye or loop e' , and this eye or loop e' of the knee is loosely fitted on the reduced end of the axle-spindle in a manner to enable the knee to have a free turning or oscillating movement on said spindle. In the practical construction of my improved knee a bar of metal of appropriate strength and cross-sectional contour is selected, and this metallic bar is bent at its middle into a circular form to produce the loop or eye e' , after which the metal is welded or united together and preferably reinforced by a band or sleeve e'' , which is fitted around the united part of the knee just below the loop or eye e' , and, finally, the ends diverge to form the legs e . Although I have described in detail one way of making the knee from a solid bar of metal, I would have it understood that I do not strictly limit myself to a knee made in the described manner.

The external brace F for the upturned front end of the runner consists of a single rod, which is suitably attached at its front end to the runner, while the rear end of this brace-rod F is provided with a loop f , which is fitted over the reduced end of the axle-spindle and abuts against the eye or loop e' of the knee, said loop f of the brace-rod being held or confined in place against movement in one direction by the loop or eye e' of the knee E, and it is likewise held against movement in the opposite direction by the nut d''' or its equivalent, attached to the outer extremity of the axle-spindle.

The inside brace G for the front end of the runner is combined with a brace H for the knee E. This brace H for the knee is forked

or bifurcated at its lower part to produce the branches *h h*, and this knee-brace is so arranged that the branches *h* thereof are united to the legs *e* of the knee, the union between
 5 said parts being effected by welding the brace branches *h* to the knee-legs or in any suitable way. The upper end of the brace II is carried upwardly a suitable distance and provided with or formed into the loop *h'*, and
 10 this loop is arranged with reference to the knee-loop *e'* so that the axes of the two loops are in alinement, whereby the loops *e'* and *h'* of the knee and its brace are adapted to fit on the axle-spindle. These loops *e'* and *h'* are
 15 spaced, as shown by Figs. 1 and 3, so that the loop *e'* of the knee will fit against the shoulder *d'* of the axle-spindle, while the loop *h'* of the brace fits and works against the shoulder *d* between the spindle and the axle proper.

20 The inside brace *G* has its front end suitably attached to the runner; but the rear end of said brace *G* is rigidly attached to the loop *h'* of the knee-brace II. The joint between this brace *G* and the knee-loop *h'*, as shown,
 25 is secured by forming a threaded opening in the loop *h'* and by threading the rear end of the brace-rod *G*, so that the rod may be screwed into the tapped aperture in the brace-loop *h'*; but it is evident that a skilled mechanic may
 30 depart from this particular way of joining the brace and loop *h'* without departing from the scope of my invention.

I prefer to connect the forward ends of the brace-rods *F G* to the upturned end of the
 35 runner by means of a single bolt *i*, which passes through apertures in the brace-rods and in the runner; but the brace-rods may be connected independently to the runner, if preferred.

From the foregoing description, taken in 40 connection with the drawings, it will be seen that I have provided a simple, yet strong and durable construction of the knee, in which the knee is free to have a turning or oscillating movement unrestrictedly on the axle-spindle, and which at the same time is so confined 45 and braced as to reduce to a minimum the sidewise strain on the knee and axle-spindle.

By mounting the knee on the axle-spindle to permit the knee to turn or oscillate freely 50 the runner is given such play as to yield to any obstruction in its path or to drop into a rut or depression without danger of overturning or tipping the sleigh, and at the same time the construction of the knee gives to the runner 55 a certain extent of flare which reduces to a minimum any liability or tendency to cause tipping of the sleigh.

Having thus fully described my invention, what I claim as new, and desire to secure by 60 Letters Patent, is—

A bob-sled or sled-runner for attachment to the axle of a vehicle having an axle with spindles provided with an intermediate shoulder, a runner the knee thereof having a vertical member and a diverging member with 65 eyes, the inner eye of the knee being adapted to abut against the inner shoulder of the spindle, the eye of the vertical member carrying a sleeve which abuts against the intermediate shoulder, substantially as shown. 70

In testimony whereof I affix my signature in presence of witnesses.

NATHAN T. CANFIELD.

Witnesses:

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 A. H. LONG,
 L. F. S. VIELE.