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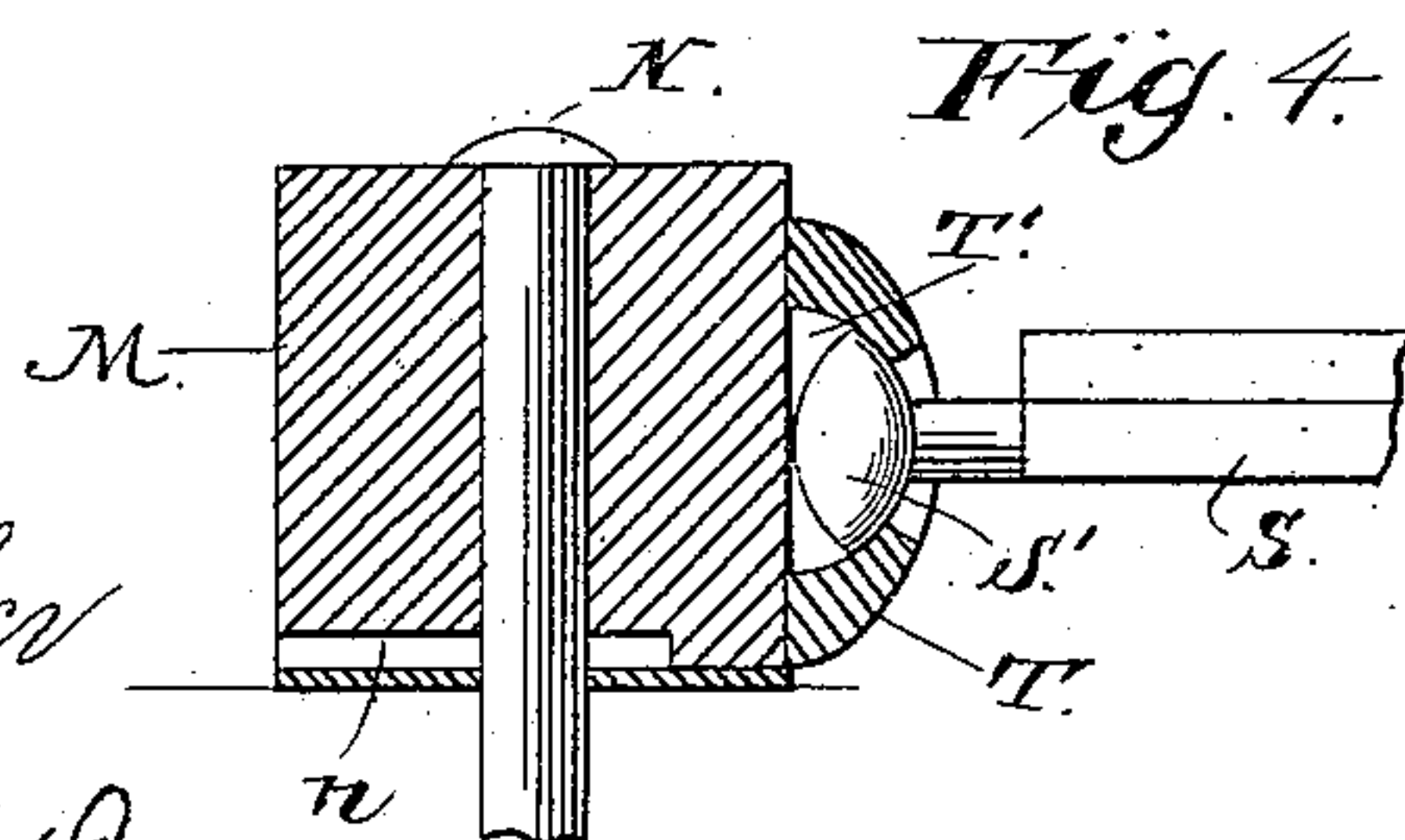
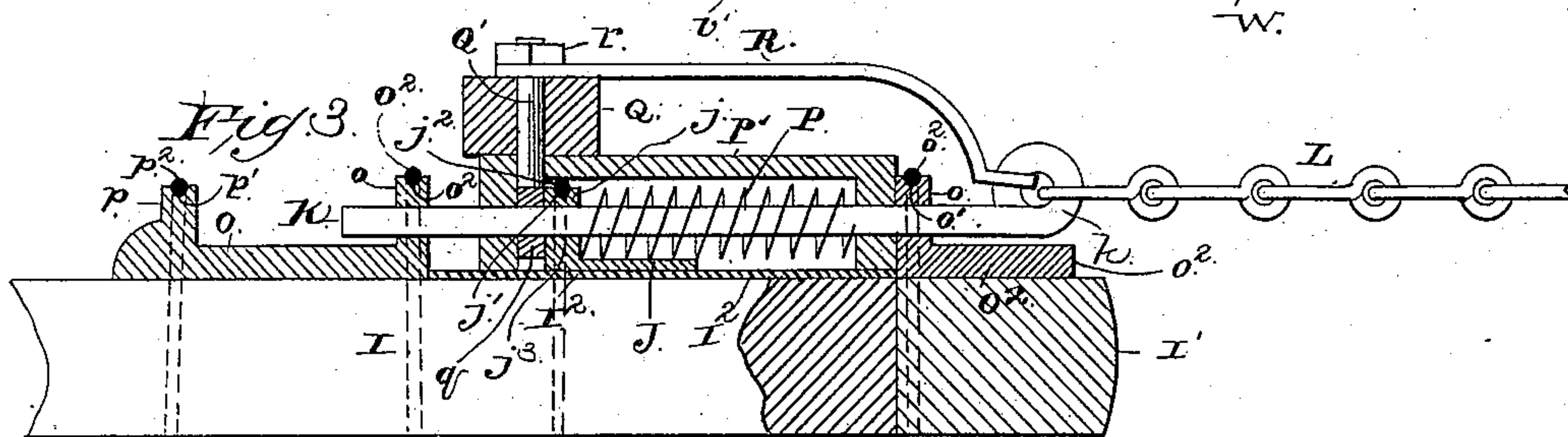
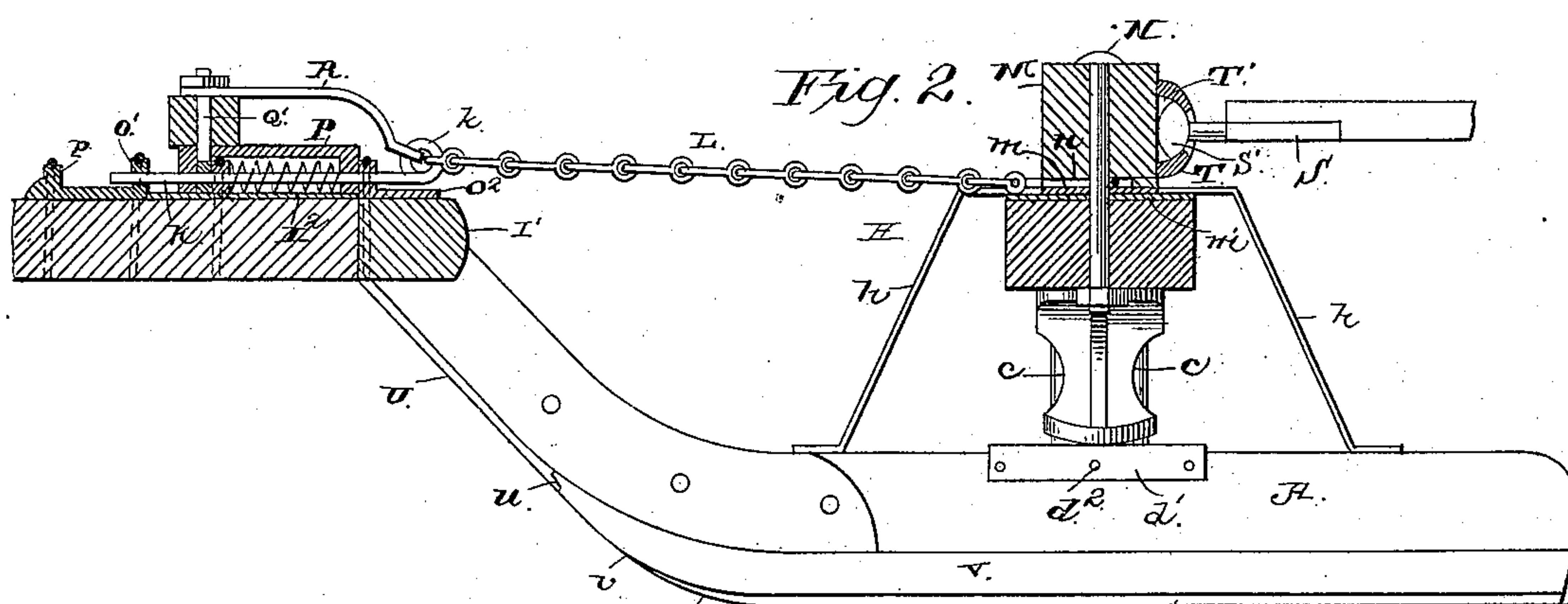
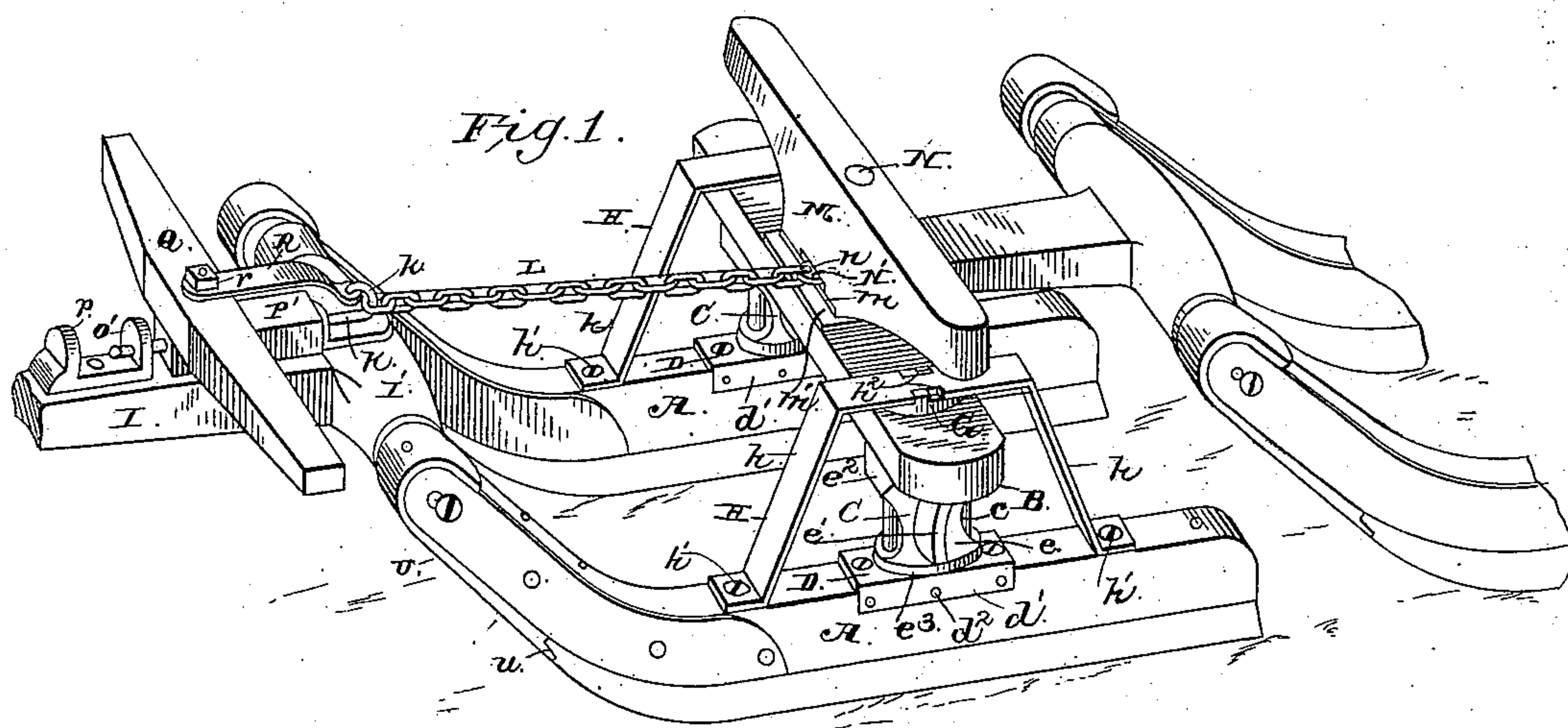
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J. HOREY & C. MARSH.

BOB SLEIGH.

No. 333,224.

Patented Dec. 29, 1885.



**WITNESSES**

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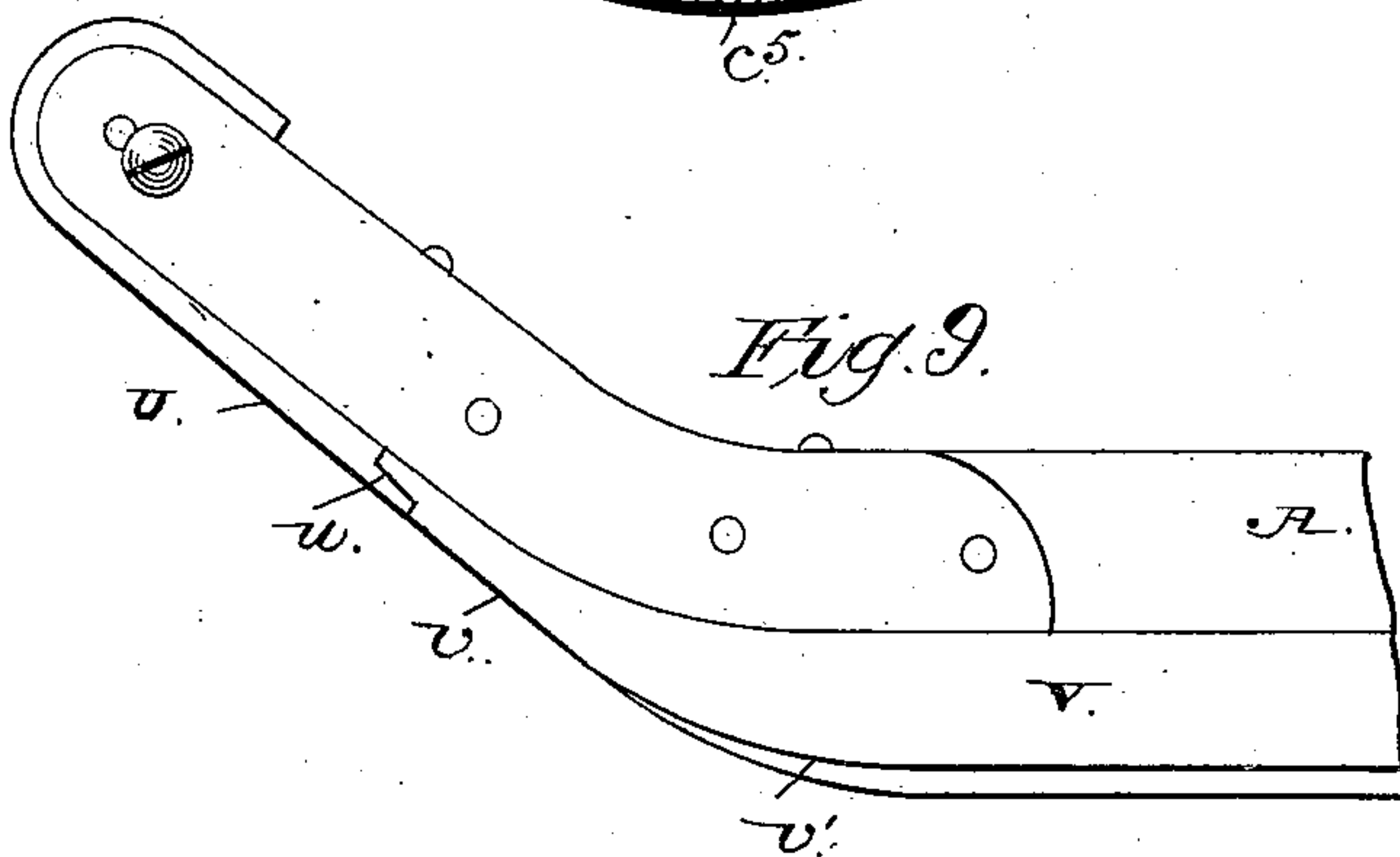
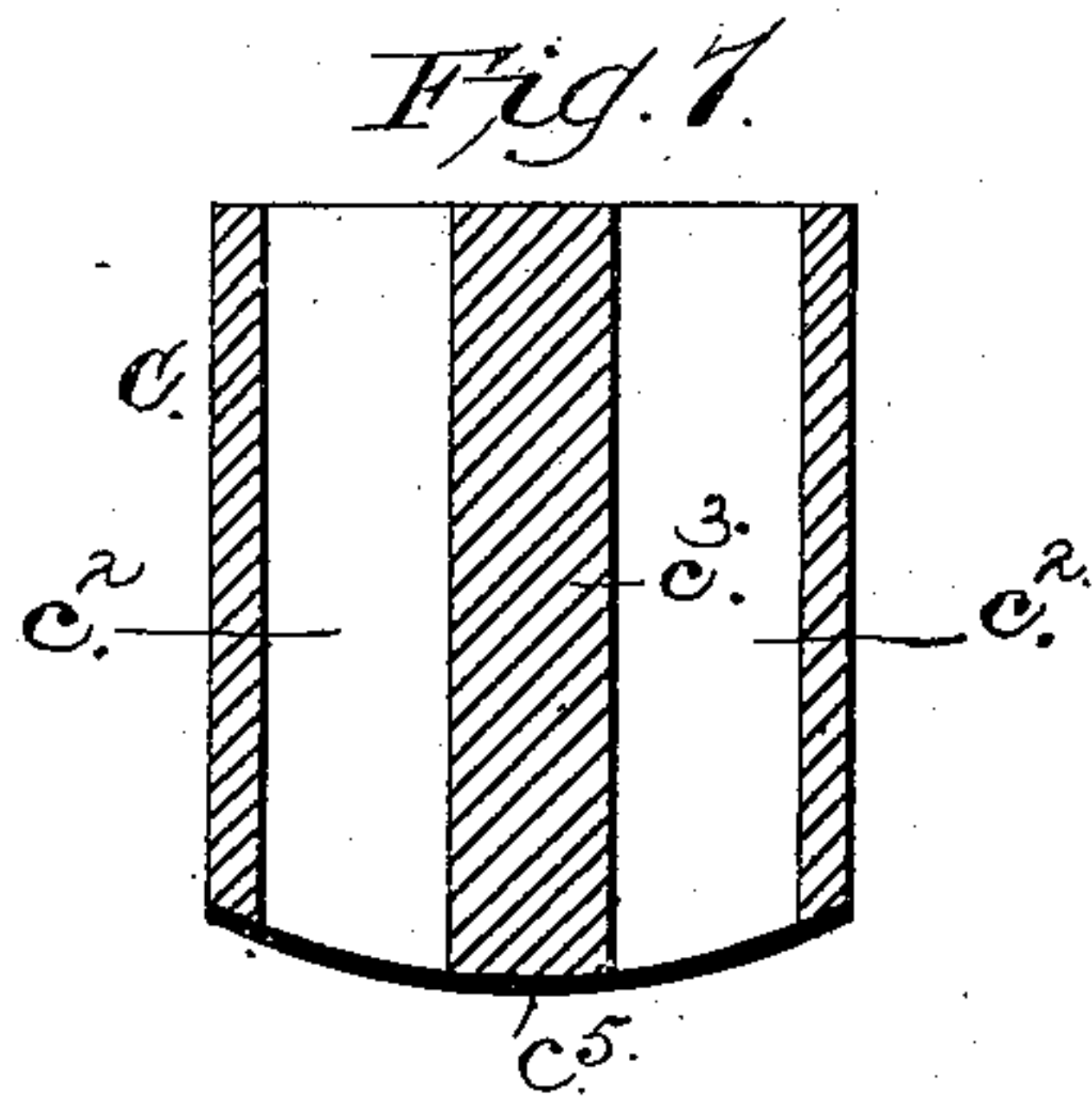
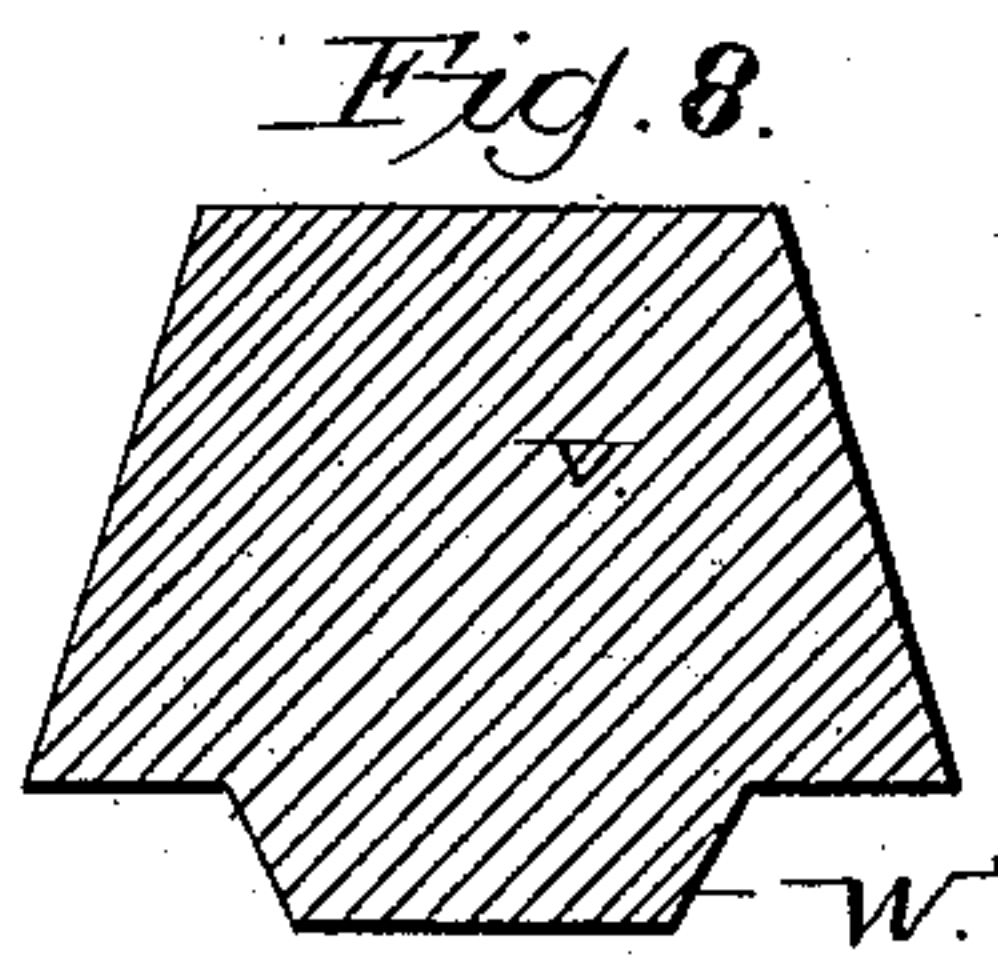
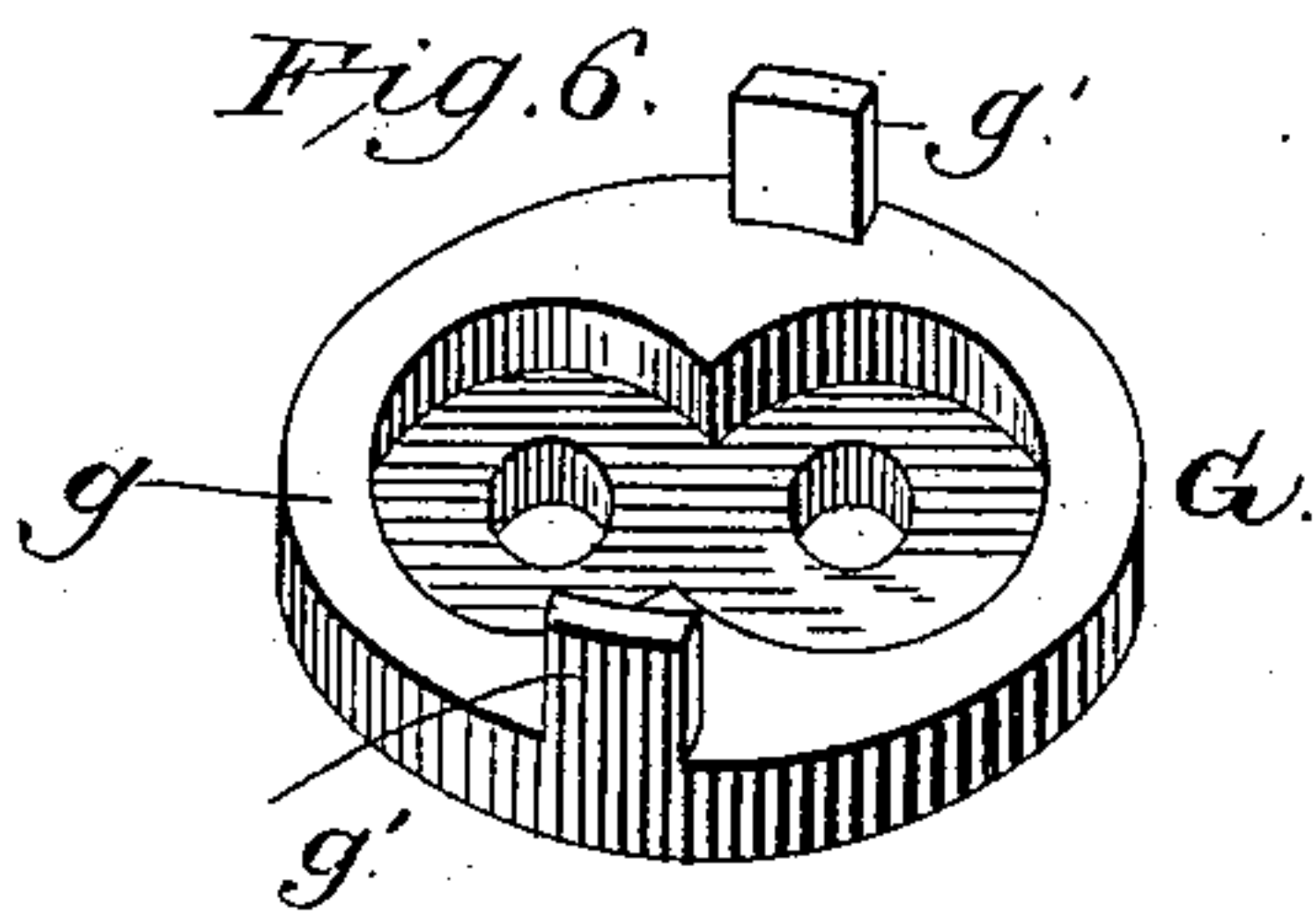
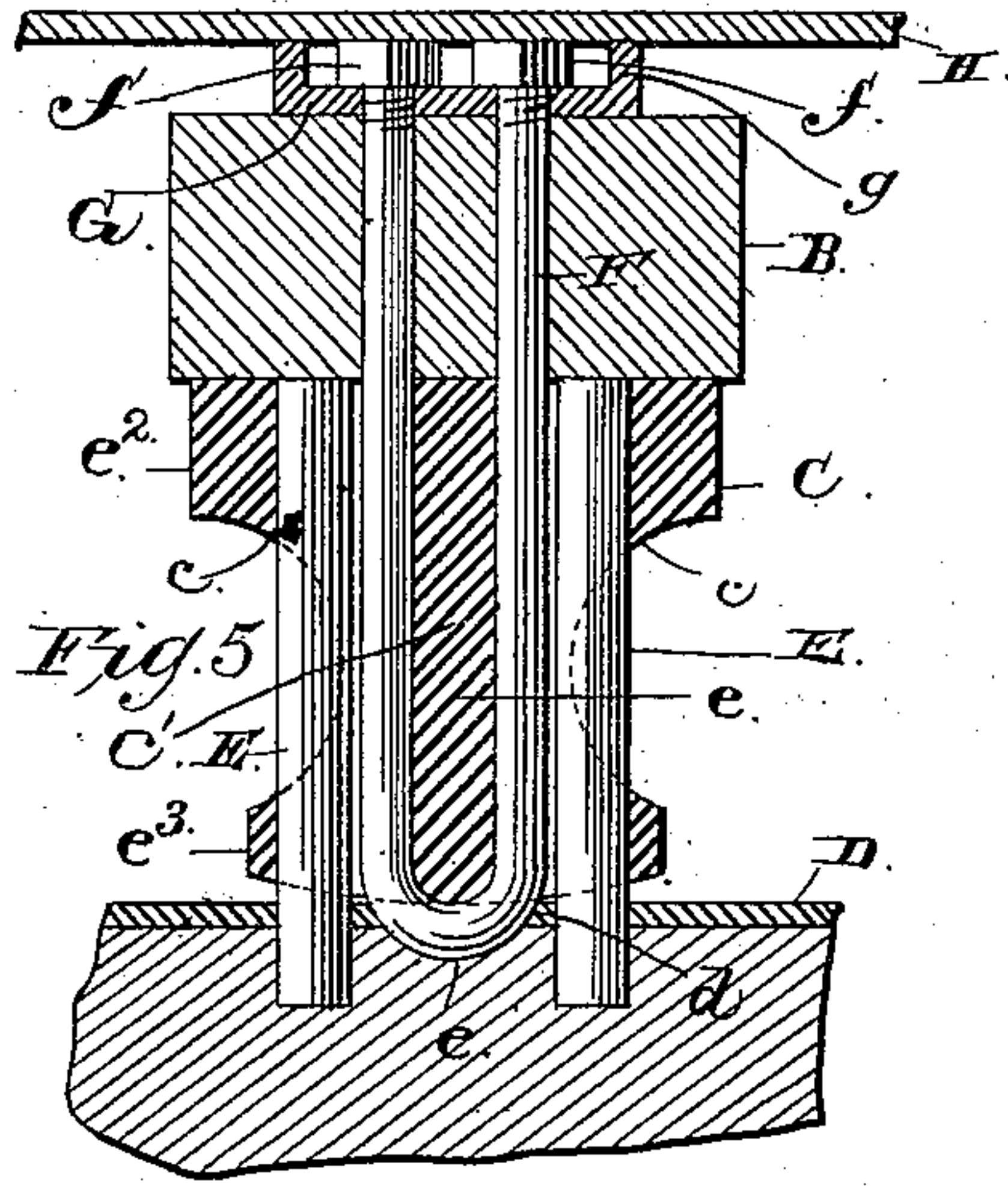
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# UNITED STATES PATENT OFFICE.

JOHN HOREY AND CANFIELD MARSH, OF ROSENDALE, WISCONSIN.

## BOB-SLEIGH.

SPECIFICATION forming part of Letters Patent No. 333,224, dated December 29, 1885.

Application filed August 13, 1885. Serial No. 174,312. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN HOREY and CANFIELD MARSH, citizens of the United States, residing at Rosendale, in the county of Fond du Lac and State of Wisconsin, have invented a new and useful Improvement in Bob-Sleighs, of which the following is a specification, reference being had to the accompanying drawings.

Our invention has relation to improvements in bob-sleds of the class known to the art as "loose-jointed" sleds; and the novelty consists in the construction, combination, arrangement, and adaptation of the several parts for service substantially as hereinafter fully set forth, and particularly pointed out in the claims.

It is the object of our invention to provide a loose connection to permit of a rocking motion between the sled runner and knee and the knee and beam, while providing strength, durability, and simplicity between the several parts; to obviate the objection of the sleds getting out of alignment (or the track) with each other; to prevent straining the several parts between the sleds when one of them is turned over; to provide for a straight draft between the front sled and those in rear thereof, and to transmit the strain and draft thereto; to permit the first sled to turn sharply around in turning angles or corners; to take up slack in the traces when going down a hill or declivity, and to prevent cutting up of the roads, which has heretofore been the great objection to devices of the class herein shown.

We illustrate an embodiment of our invention in the drawings hereto annexed, and in which—

Figure 1 is a perspective view of two bob-sleds constructed and connected together in accordance with our invention. Fig. 2 is a vertical longitudinal section through the middle of one of the sleds. Fig. 3 is an enlarged detailed sectional view of the spring-coupling or draft-link. Fig. 4 is an enlarged detail view of ball-and-socket coupling between the bolster of the foremost sled and the draft bar or pole of the rear sled. Fig. 5 is an enlarged detailed sectional view of sleigh-knee and its connections, and Fig. 6 is a detailed perspective view of the plate for securing the knee and bolts for suspending the knee from the cross-beam. Fig. 7 is a modified view of the knee or stand-

ard. Figs. 8 and 9 are details of the runner-shoe.

Like letters of reference indicate corresponding parts in all the figures of the drawings.

Referring to the drawings, A A designate the sled-runners, having their front ends upwardly bent or curved, as is usual. The runners may be of any preferred construction or material, and connected together by a beam, B, elevated above the runners and supported by knees or standards C C, one being provided for each runner and end of the beam. The knee or standard C is preferably cast in one piece, and comprises a body, *e*, side flanges, *e' e'*, for strength and lightness, an enlarged head, *e<sup>2</sup>*, adapted to fit against the lower under surface of one end of the beam B, and a foot, *e<sup>3</sup>*, through which passes the lower bent end of a sustaining-rod, F, the lower rounded bent ends of said rod being adapted to fit in a socket, *d*, formed in a plate, D, which has cheeks *d' d'*, adapted to fit on opposite sides of one of the runners A, to which the plate D is connected by bolts or screws *d<sup>2</sup>*. The knee or standard C may have cut-away portions *c c* on their outer faces, which are separated from each other by an intervening wall, *c'*, as shown in Fig. 5; or, in lieu of the cut-away portions on its outer faces, it may have two longitudinal bores, *c<sup>2</sup> c<sup>2</sup>*, of the form shown, separated from each other by a wall, *c<sup>3</sup>*, each longitudinal opening being adapted to receive two rods, E F, which will be fully described presently.

In the construction shown in Figs. 5 and 7 it will be understood that each knee has the construction described, that shown in Fig. 5 having openings or apertures in its head and foot, which communicate with the cut-away portions *c c*, which are arranged longitudinally and permit the rods E F to pass. The knee is connected to and suspended from the lower surface of the beam B, at the end thereof by means of a rod, F, which passes through the beam and down through one of the openings or cut-away portions of the knee or standard, then bent under the lower edge of the wall *c' c<sup>3</sup>*, and thence up the opposite opening or cut-away portion of the knee and through the beam. The upper end of the staple or rod F is screw-threaded and receives fastening-nuts *f f*, which bear on their lower surfaces on a plate, G, having a peripheral



flange,  $g$ , and two upwardly-projecting nibs or shoulders,  $g'$   $g'$ , one arranged on each side of the plate and opposite to each other. The rods or bolts E are first passed through and secured in the runner A, two bolts being provided to each runner, which pass through the plate D on opposite sides of the socket or recess  $d$  in said plate, and thence through the openings in the lower end or foot of the knee, said bolts lying parallel with and alongside of the staple-like bolt F. The lower surface of the foot of the knee is slightly rounded, or, as at  $e^5$ , to permit the knee to rock or move back and forth on its bearing-plate D, as is obvious.

H designates a rave, one arranged at each side of the beam B and to each runner, the lower ends of the inclined portions  $h$  of which are bent to provide flanges to connect the device to the upper surface of the runner by means of bolts  $h'$ , while the horizontal upper portion of said rave is adapted to bear on the upper surface of the plate G, and is provided with cut-away portions or notches  $h^2$  on each side, in which fit the projecting lugs or shoulders  $g'$  of said plate, the notches  $h^2$  being of greater length than the width of the shoulders, to permit of the free rocking motion of the beam and its attached knees or standards.

From the foregoing it will be observed that the beam and knees are free to rock back and forth when required, and that they are securely and firmly connected together and to the bearing-plate and runners without danger of displacement; and, further, that the strain and wear upon the standard is taken up and decreased in a great degree by providing the extended bearing-surface and lug or shoulder at the foot thereof. The knee being firmly bolted to the beam and held in position by the rods E, foot and lug of the knee, no endwise movement of the beam and knee can take place.

I designates the draft-pole secured at its rear end to a cross-bar,  $I'$ , pivoted at its ends in the elevated bent front arms of the runners, as is usual.

$I^2$  designates a plate suitably secured upon the upper surface of the draft-pole, at the rear end thereof, by means of bolts or screws. At about the middle of the plate  $I^2$  is located another plate, J, having a lug or projection,  $j$ , having a groove,  $j'$ , in its face, in which fits a staple or wire,  $j^2$ , the ends of which pass through the draft-pole and serve to fasten the plate in position, said lug  $j$  having an aperture,  $j^3$ , through which passes a bolt or pin, K, having an eye,  $k$ , at its rear end, with which connects a chain or rod, L, extending to the bolster M, pivoted centrally upon the beam B by means of a king-bolt, N, passing through said bolster and beam, the meeting surfaces of the beam and bolster having wear-plates  $m$   $m'$ , bolted or otherwise fastened thereto. The lower under surface of the bolster, at the front side thereof, is cut away, as at  $n$ , and between the inner wall of the cut-away portion and plate  $m'$  of said bolster is arranged a plate,  $N'$ , having two eyes, to one

of which one end of the chain is connected, while the other eye engages the king-bolt N.

O  $O^2$  designate plates arranged at the front and rear ends, respectively, of the plate  $I^2$ , each plate being provided with an upwardly-extending lug,  $o$ , having a groove,  $o'$ , therein, and in this groove of the stud is secured a staple, band, or rod,  $o^2$ , which passes through the pole I and secures the plates in position thereon. The front plate, O, has a similar lug,  $p$ , at its front, having a groove,  $p'$ , and a securing-staple,  $p^2$ ; but this lug is not perforated, and serves as a stop for the sliding bolt K, which abuts against said stop-lug and passes through the perforated lugs of the plates. Between the lugs  $o$  and  $j$  and over the rod or sliding bolt K is fitted a coiled or helical spring, P, inclosed in a case,  $P'$ , against the rear wall of which the rear end of said spring bears, while at its front end it bears against the lug  $j$ . The spring-case  $P'$  fits over the lug  $j$  and spring and between the plates O  $O^2$ , and is adapted to slide with the spring in its movements, and has its rear and front walls perforated or apertured for the passage of the sliding link or bolt K, which serves to connect the several parts together, while permitting of their movement.

Q designates the whiffletree, of any preferred construction or material, pivoted centrally upon a pin or bolt,  $Q'$ , formed into an eye,  $q$ , at its lower end, which passes through the spring-case and fits upon the bolt K loosely, so as to slide freely thereon and between the lug  $j$  and front wall of said case, while the upper end of said bolt  $Q'$  receives a link, R, connected at its rear end to the link K, and secured in position at its front end over said bolt  $Q'$  by a nut,  $r$ , fitting on a screw-threaded portion thereof.

It will be observed from the foregoing that when strain or draft is exerted upon the whiffletree Q it will be transmitted to the bolt  $Q'$ , which will force the spring-case  $P'$  forward against the action of the spring P and carry the bolt K also with it through the medium of the link R, thus drawing upon the chain L and transmitting through the same a large portion of the strain and draft to the bolster M, to which the draft-pole of the rear or second sled is connected by the means which I will presently describe.

It will be further observed that when the sled is descending a hill or declivity the traces will become slack, and that strain upon the whiffletree and its connections will cease. The spring P will then draw the bolt K, the spring-case, the whiffletree, and its pivotal bolt rearwardly, and thus take up the slack in the traces or increase the tension thereon to prevent the same from sagging and coming in contact with the horses, &c. The strain upon the bolster, cross-beam, and rear-sled pole will also cease, the connecting-chain becoming slack, when the sliding bolt K is drawn backward by the spring P. To the front end of the draft-pole of the rear sled is secured a plate, S,



by means of bolts or screws or otherwise, said plate having a ball or sphere, S', at its front end, adapted to engage a concavity, T', in a plate, T, having side flanges, by means of which and  
5 suitable bolts it is secured to the bolster at the rear side thereof, as clearly shown.

It will be observed that the front sled can be turned sharply around without overturning or upsetting the rear sled, the pivoted  
10 bolster and ball-and-socket coupling permitting of such movement, and when either of the sleds is overturned very little strain will come upon the several parts, which are adapted to give or yield and accommodate themselves to  
15 the various positions.

U designates a plate secured upon the bent front end of each of the runners, said plate having a bent or curved portion fitted over the upper ends thereof, and having at its lower  
20 end a cut-away portion or notch, u, on its inner surface next the lower face of the runner, in which is adapted to fit the notched front end, v, of a shoe, V, to form a tight joint. The front end of the shoe is bent, as shown at v', and  
25 tapered longitudinally, while the body thereof is beveled or made tapering from top to bottom outwardly on its side edges—that is to say, it is made wider at the bottom than at the top, which fits against the lower face of  
30 the runner snugly, and is secured thereto by screws or bolts, as is obvious. The shoe is provided with a longitudinal flange or ridge, W, on its lower face, which projects downwardly therefrom, said flange or rib extending  
35 half or three-fourths across the lower face of the shoe, and equidistant from each side thereof, the front end tapering or merging into the shoe, as shown. The rib is preferably made integral with the shoe in casting or forging  
40 the same, but it may be made separate therefrom and secured thereto by any preferable means.

We have found that in sleds of this class the principle objection is that they cut off the road  
45 or track. We have overcome this objection by providing a shoe having a broad base and a rib projecting downwardly from the lower face thereof, as when in traveling soft roads the rib sinks down into the snow, &c., and  
50 permits the lower broad face of the shoe, to bear upon the road and when traveling over hard smooth roads the rib alone is in contact with the surface of the road.

A sled constructed in accordance with our  
55 invention is simple, possesses great strength and durability, efficient in operation, not liable to become broken or strained when draft is exerted thereon or one of the sleds is overturned, does not cut the road and can be turned  
60 squarely around without danger of overturning.

We do not limit ourselves to the particular means shown and described for securing the plates O O' J, &c., nor to the precise construction shown herein, as we are aware that various changes in details of construction and  
65 form and proportion of parts can be made

without departing from the principle or sacrificing the advantages of our invention, the essential features of which will be readily understood from the foregoing description, taken  
70 in connection with the drawings.

In order to define the nature and scope of our invention, we would state that heretofore it has been proposed to provide a shoe having  
75 a rib and bolted to the runner; but we taper the front end of our shoe and notch the same, and to fit the said notched tapered end into a bent protecting-plate which is also notched, thus providing a secure connection and close  
80 joint between the posts.

We are also aware that it is not new to provide a draft-link and whiffletree connection with a sliding piece having a spring-actuated bolt and guides therefor, the whiffletree being  
85 pivoted in the sliding piece; also it is not new to provide a universal-joint coupling between two bob-sleighs.

Having thus fully described our invention, what we claim as new, and desire to secure by  
90 Letters Patent, is—

1. In combination with a draft-pole, a casing mounted thereon, a spring-actuated sliding bolt arranged within said casing, a pivot-bolt connected to the sliding bolt and projecting  
95 through the case, a whiffletree pivoted on said pivot-bolt, a pivoted bolster, and connections between the whiffletree and sliding bolt and the bolster, substantially as described.

2. The combination, with a draft-pole, a  
100 sliding casing mounted thereon, a sliding bolt passing through the case, a spring arranged around the bolt within the case, a stop-lug against which the spring bears, guide-plates for the bolt arranged at the ends of the case  
105 and serving as limiting-stops thereto, a vertical bolt pivotally connected to the sliding bolt between the end wall of the spring-case and the stop-lug therein, a whiffletree mounted on said bolt, a pivoted bolster, and a chain connecting the sliding bolt and bolster, substantially as described.  
110

3. The combination of the runners, a cross-beam, knees or standards having sockets or slots and secured to the cross-beam, a bolt, F,  
115 passing through the beam and the seats in the knee, around the lower end of which it is bent, a plate, G, arranged on each end of the beam and having a flange and apertures for the ends of the bolt F, nuts f, fitted on the  
120 ends of the bolt within the flange of the plate, and a rave having notched side edges arranged to bear against lugs g' of the plate G and serve as limiting-stops thereto, substantially as described.  
125

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

JOHN HOREY.  
CANFIELD MARSH.

Witnesses:

FRANK BOWE,  
C. H. ANDERSON.