No. 753,654. PATENTED MAR. 1, 1904.

J. H. ANDERSON.

BOB SLED.

APPLICATION FILED JULY 13, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

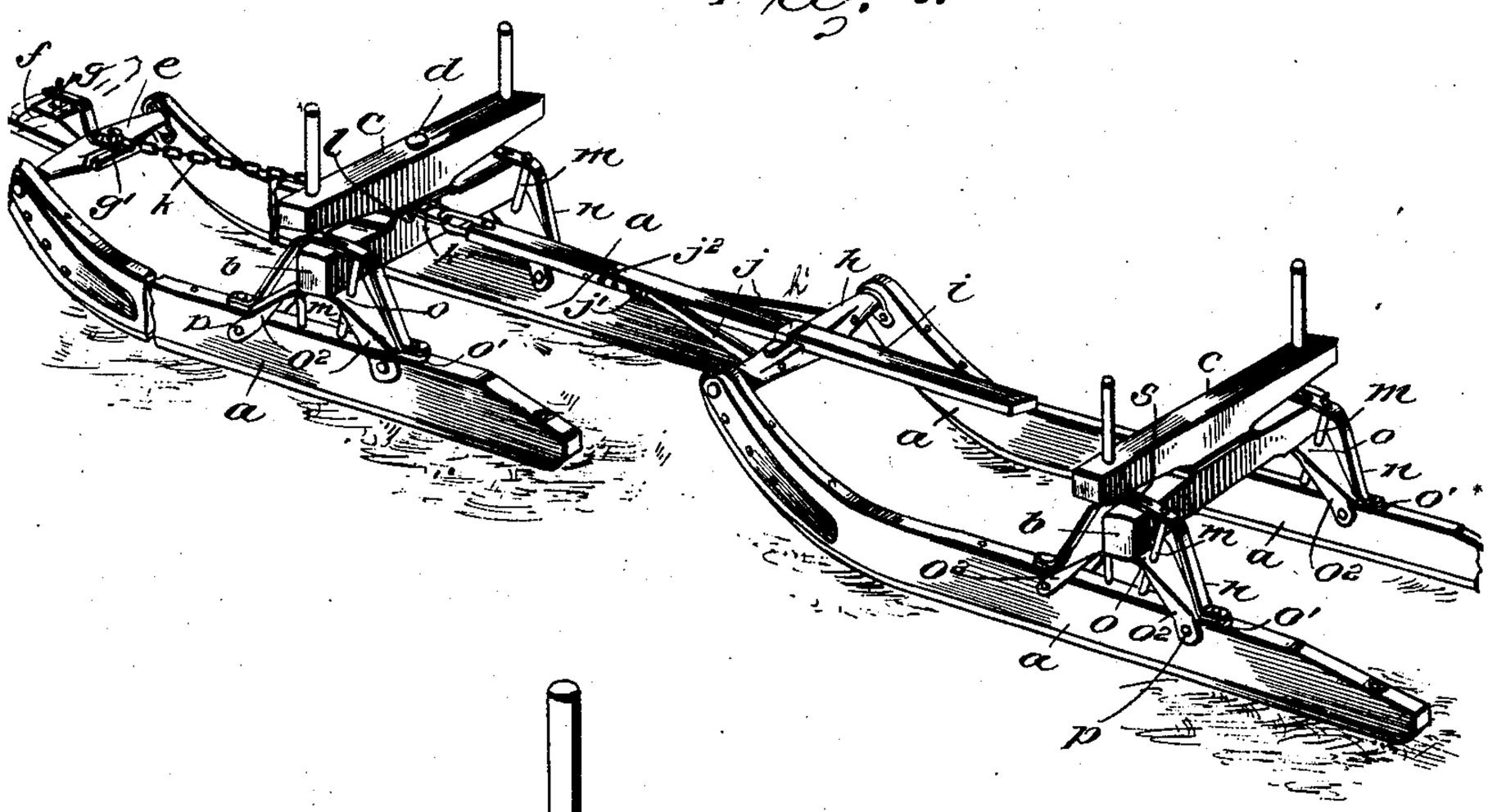
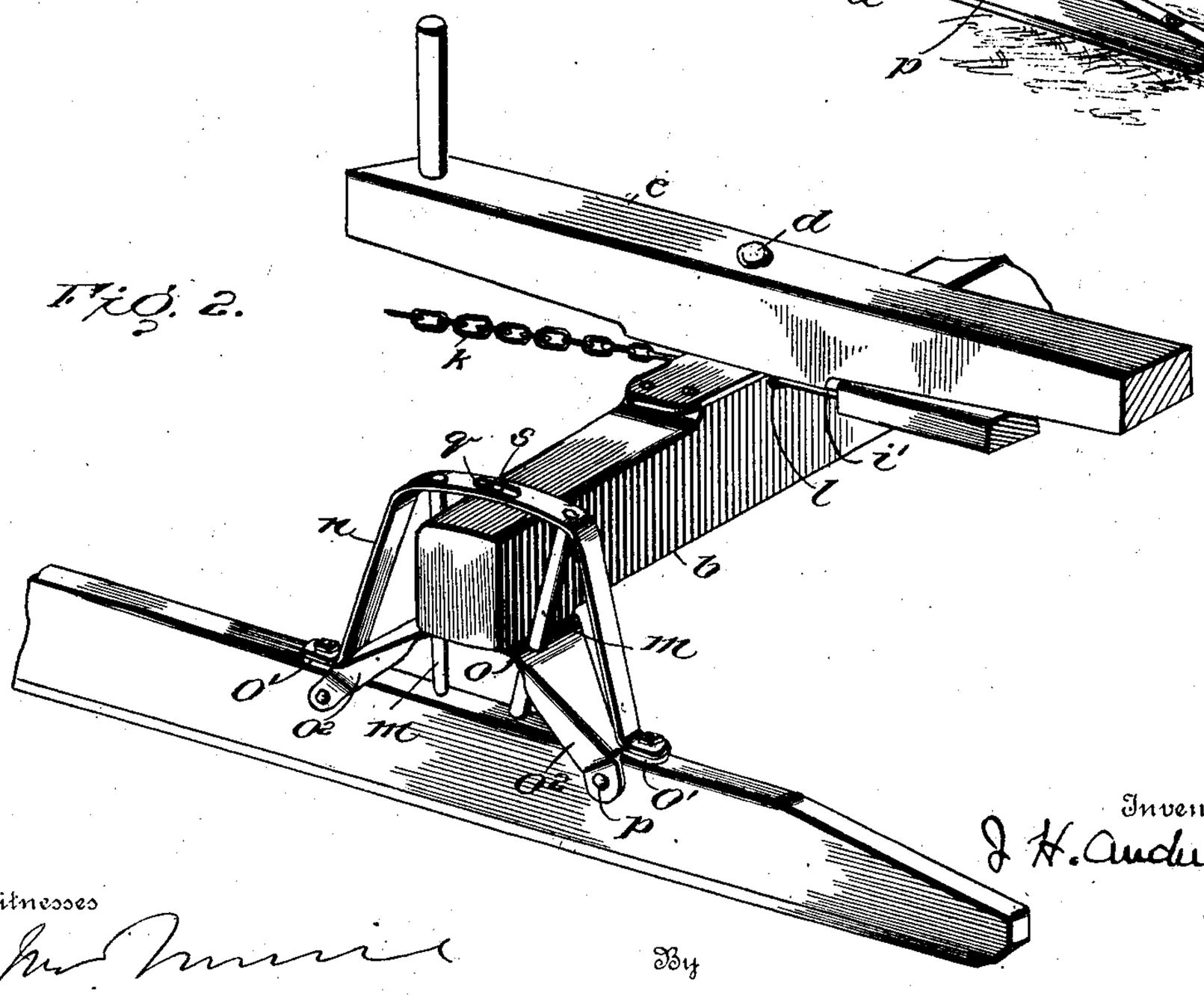


FIG. 2.



Witnesses

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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 3.

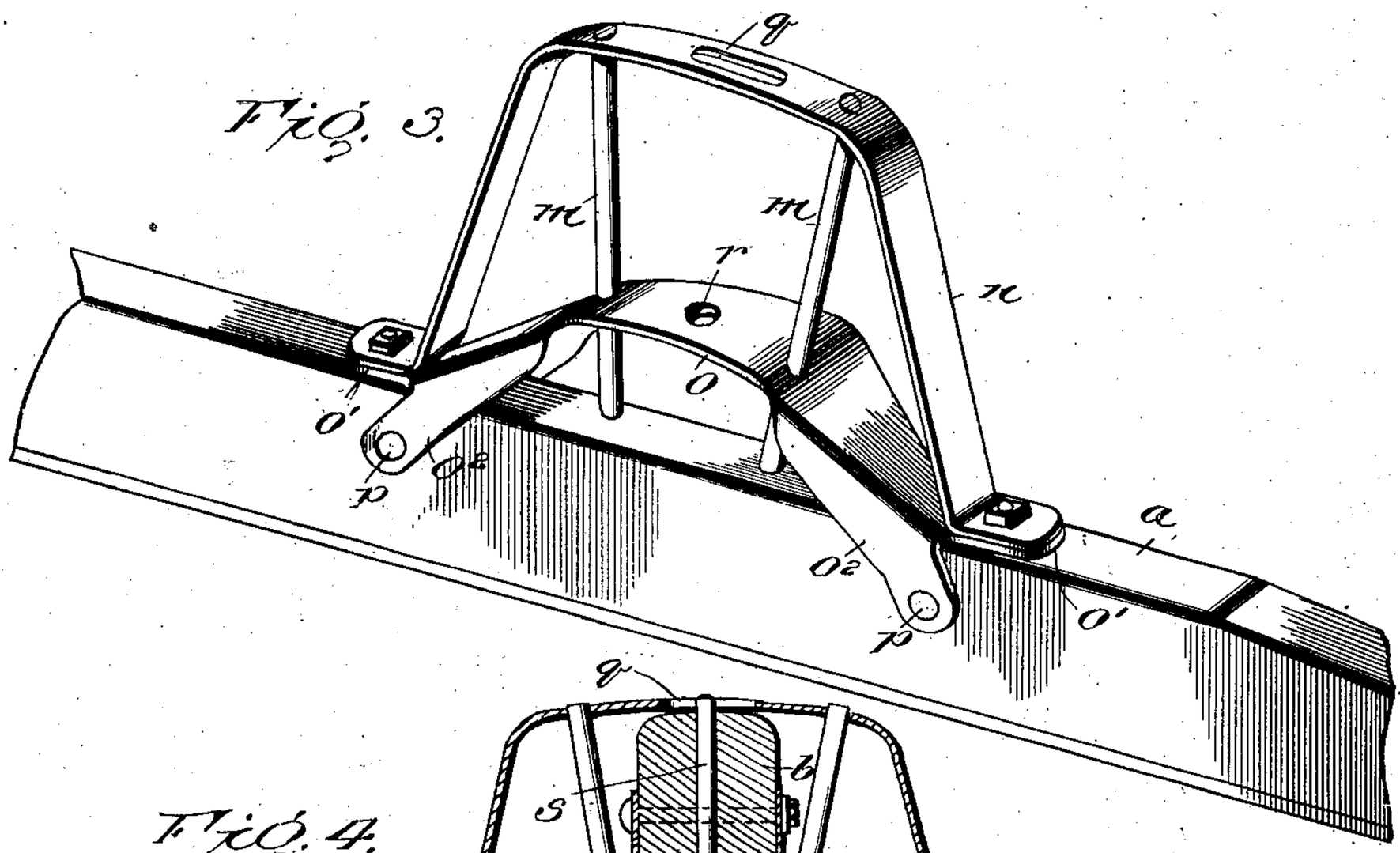
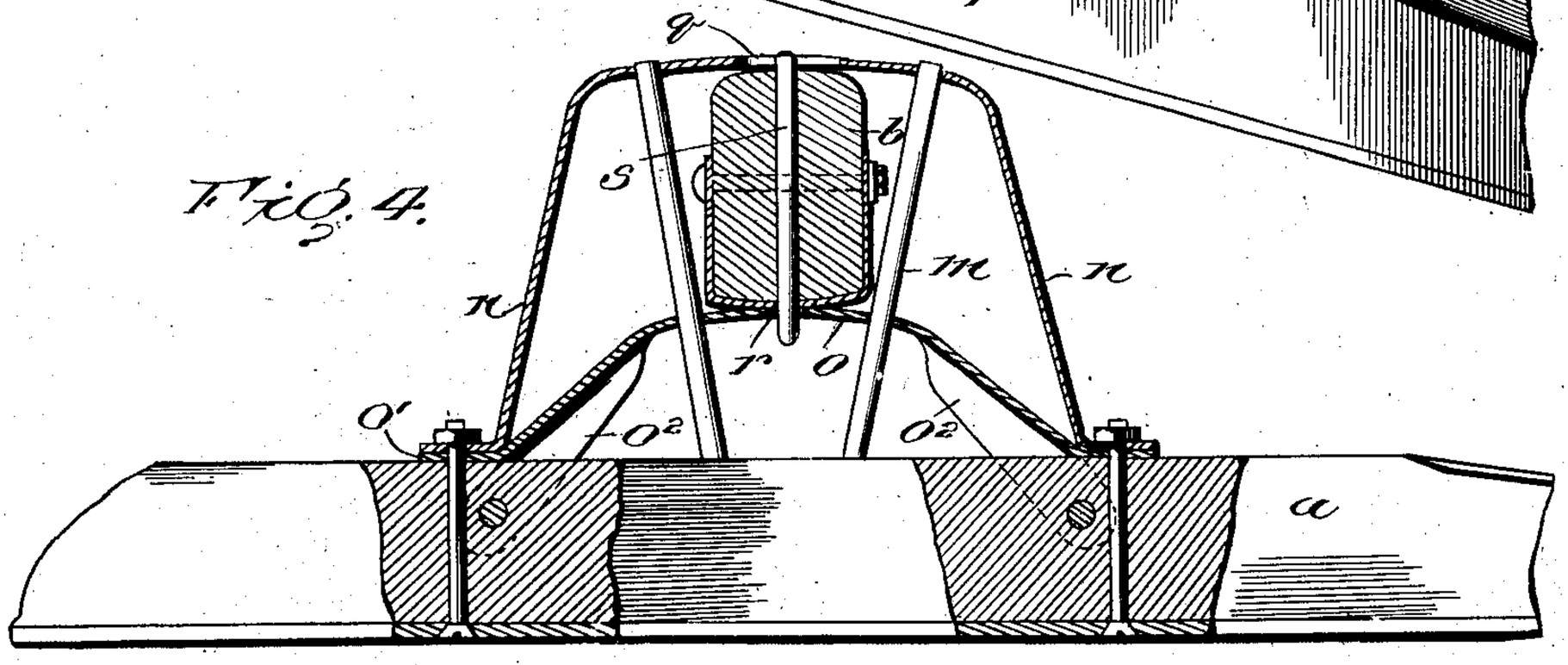


FIG. 4.



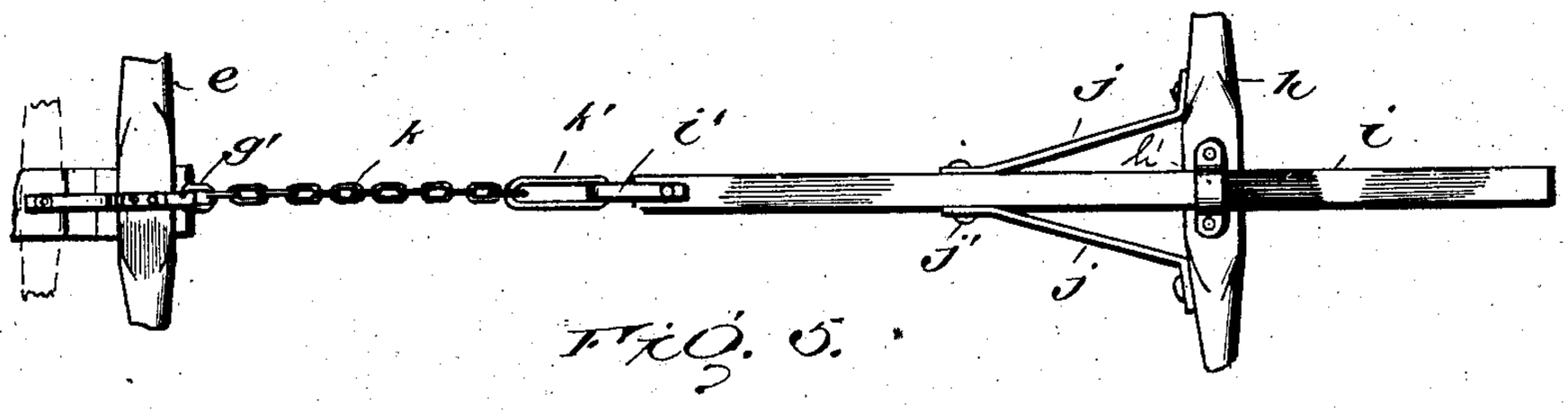


FIG. 5.

Witnesses

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No. 753,654. Patented March 1, 1904.

UNITED STATES PATENT OFFICE.

JOHN H. ANDERSON, OF LITTLEFALLS, MINNESOTA.

BOB-SLED.

SPECIFICATION forming part of Letters Patent No. 753,654, dated March 1, 1904.

Application filed July 13, 1903. Serial No. 165,330. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. ANDERSON, a citizen of the United States, residing at Littlefalls, Morrison county, Minnesota, 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.

This invention relates to certain improvements in bob-sleds; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanations of the constructions illustrated in the accompanying drawings, which merely show constructions as examples for purposes of illustration from among other forms and arrangements within the spirit and scope of my invention.

An object of the invention is to provide simple and inexpensive means for strengthening the bob-sled runners and the joints or couplings between the runners and beams, and thereby increase the life and carrying capacity of such sleds at a minimum expense.

My invention consists in certain novel features of construction and in combinations and arrangements of parts, as more fully and particularly pointed out and specified hereinafter.

Referring to the accompanying drawings, Figure 1 is a perspective view of the two sections or sleds of the bob-sled coupled together. Fig. 2 is an enlarged perspective view of a portion of the front sled, showing the beam and means for supporting the same and connecting it to the runners, the bolster being swung to one side and portions of the reach-bar and its chain connection being shown. Fig. 3 is a detail perspective view enlarged of the central portion of a runner, the beam being removed and showing the knee, the start-pins, and the rave-iron. Fig. 4 is a sectional view, partially in elevation, showing a portion of the runner and the manner of bracing the same and coupling the beam thereto, the knee and rave-iron being partially broken away and the beam shown in cross-section. Fig. 5 is a detail plan view of the reach-bar, the rear-sled roller and braces, the draft-chain from the reach-bar, and the hammer-strap and roller of the front sled, to which the draft tongue or pole is secured.

In the drawings, *a* represents the runners of the two sled-sections provided with the beams *b*, connecting the runners.

c represents the bolsters, mounted on the beams. The bolster *c* of the front-sled section is connected to its beam pivotally or loosely by the central king-bolt *d*, passing down through the bolster and into the beam.

e is what is termed the "roller," to which the draft-pole or tongue *f* of the bob-sled is rigidly secured and from which it extends forwardly. This roller *e* extends between the front ends of the runners of the front sled and is pivotally joined thereto.

g is the hammer-strap, having its rear end extended rearwardly and turned up to form a hook or eye *g'*.

h is the roller, pivotally mounted to and between the front ends of the runners of the rear sled.

i is the reach-bar, loosely confined in and movable longitudinally through an eye or strap *h'* of the roller *h*.

j represents inclined braces arranged on opposite sides of the reach *i* and at their rear ends secured rigidly to the end portions of the roller *h* and having their front ends bearing against opposite side edges of the reach-bar *i*.

j'' is a removable coupling-bolt passed transversely through the front ends of the braces *j* and through the reach-bar *i*. The reach-bar *i* is formed with a longitudinal series of holes j^2 for the coupling-bolt *j''*, so that the reach-bar when the bolt *j''* is removed can be moved longitudinally forwardly or rearwardly of the rear sled to bring any one of the bolt-holes j^2 into alinement with the bolt-holes in the front ends of the braces *j*, so that the parts can be locked together in such a position and adjustment by the coupling-bolt *j''*.

k is a loose or other suitable draft connection from the tongue *f* to the reach-bar *i*. In the specific example illustrated this connection consists of a chain at its front end con-

fined on the hook or eye g' of the hammer-strap g and at its rear end loosely confined to a clevis i', secured to the front end of the reach-bar i. This draft connection is preferably so arranged that the draft or pull of the rear sled is directly on the pole or tongue and not through the front sled. I hence, preferably, pass the draft-chain loosely through or across the beam d of the front sled, and, if desired, this result can be obtained by employing the long link k' at the rear end of the chain k and providing a slot or passage l therefor transversely through the central portion of the beam d of the front sled. In the arrangement shown the king-bolt d passes loosely through the long link k', and the link passes loosely through the transverse passage l, with its ends extended forwardly and rearwardly beyond the passage, with the clevis i' confined in the rear projecting end of the link. It will thus be observed that the pull or draft of the rear sled is directly on the hammer-strap and is entirely independent of the beam and bolster of the front sled. The bob-sled can be shortened or lengthened easily and quickly by merely removing the bolt j'' and then sliding the rear sled forwardly or rearwardly on the reach-bar i until the sled is of the desired length and then inserting the bolt j'' in the braces j and proper hole of the reach-bar.

It should be noted that the draft connection k from the rear sled is applied to the front roller e in a plane above the axial line on which said roller rocks or turns in the front ends of the sled-runners a. Hence the draft or pull of the rear sled tends to lift the draft-pole or tongue f and take the weight of the pole off the horse's neck or tends to balance the pole and relieve the draft-animal of the weight thereof. It should be also noted that I prefer to pass the reach-bar i transversely across and adjustably confine the same to the roller h of the rear sled, so that the runners of the rear sled are free to swing vertically on the ends of said roller h independently of the reach-bar i.

m represents the start-pins, driven or otherwise secured in the runners and extending upwardly therefrom. The start-pins of each pair preferably diverge upwardly—that is, they extend downwardly to the runner at an inclination converging toward each other.

n is the rave-iron, at its lower ends suitably secured to the runner in front of and behind the start-pins and arched upwardly over the beam end and secured to the upper ends of the start-pins in any suitable manner.

o is an arched knee arched or deflected upwardly between its ends, so that its raised central portion between the start-pins and a distance above the top edge of the runner forms a seat for the lower edge of the beam end. This knee is preferably formed of a strong sheet-steel plate the center of which is sufficiently wide to form the wide elevated seat for the beam, with the ends of the plate deflected downwardly and outwardly from the ends of the sheet and at their extremities formed with outturned ears o', resting on the top edge of the runner, one ear being a distance in advance of the start-pins and the other ear a distance behind the start-pins. The ends of the rave-iron n are preferably turned outwardly and rest on the ears o', and bolts are passed through the rave-iron ends and the ears o', and said parts are thereby rigidly secured down on and to the runner. The knee preferably has its end portions beyond the start-pins formed with side flanges o^2 at both edges fitting down beside the inner and outer vertical side faces of the runner. Each end of the knee is thus formed with a pair of vertical side flanges o^2, fitting the opposite side faces of the runner, and the lower ends of these flanges are extended downwardly and are rigidly secured together and to the runner by a bolt p, passed horizontally through the runner and through said extended ends of the flanges.

The knee is formed with perforations through its arched portion on opposite sides of the wide flat seat formed by the central elevated portion, and the start-pins pass down through these perforations, and by reason of the inclined or angular arrangement of the start-pins the central elevated seat portion of the knee is braced by the pins against downward as well as lateral movement. The beam at its ends rests on the wide flat seats formed by the elevated portions of the two knees secured to the runners, and I prefer to so mount the beams as to permit a rocking or oscillating movement between the beam and either or both runners or to permit the runners to oscillate vertically independently of the beam. To this end I form the top elevated portions of each rave-iron with a longitudinal slot q, arranged transversely of the top edges of the beam, and I form the top portion of the knee with the transverse perforation r, arranged about centrally of the wide flat seat formed by the knee for the beam.

s is a bolt or pin passed transversely through the beam end, with its upper end or head located loosely in the slot q and its lower end located loosely in the perforation r. These bolts or pins s confine the runners on the beam ends and against movement longitudinally of the beam and yet permit the rocking or oscillating movement by reason of the inclined arrangement of the start-pins and the movement allowed the upper ends of the pins s in the slots q as the lower edges of the beam ends rock on the elevated flat faces of the knees.

The knees can be easily and economically struck up or otherwise formed from sheet metal and by reason of their arched formation form a light, economical, and exceedingly

strong and rigid brace for the weak central portion of each runner and an exceedingly strong and rigid support for the beam.

Advantages are also attained by the peculiar arrangement shown of fastening the rave-irons and ends of the knee to the runner, and advantages are also attained by the peculiar manner of mounting the beam, so as to permit the oscillation thereof by means of a pin or bolt rigid with the beam end and projecting into the slot in the rave-irons.

It is evident that various changes and modifications might be resorted to in the forms, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the exact constructions shown.

What I claim is—

1. In combination, runners, the sheet-metal knee having an elevated seat a distance above the runner, the opposite portions of the knee extending downwardly and outwardly from the central portion thereof which forms said seat and at their lower ends having outwardly-extending ears secured on the top edge of the runner and side flanges secured to the opposite side faces of the runner, a beam resting on said seat and provided with a projection extending thereinto, start-pins on opposite sides of the beam and converging downwardly through said knee and into the runner, and a rave-iron confined to the upper ends of the start-pins and passing over the beam and with its lower ends secured on said ears of the knee.

2. In combination, sled-runners, sheet-metal knees secured thereon, each knee being arched upwardly to form a central elevated beam-seat and having its ends fitted on and secured to a runner, the knee being formed with an opening in its seat portion, start-pins rigid with the runners and passing upwardly through the knees, a beam resting on the knee-seats, the rave-irons secured to the runner and arched up over the start-pins and beams and each having an elongated guideway over the beam, the beam ends provided with projections into said openings of the knees and with projections confined in said guideways of the rave-irons.

3. In combination, a runner, start-pins, a beam, a rave-iron, and a knee arched upwardly at its central portion to form a beam-seat between the start-pins and a distance above the runner, the start-pins passing down through the knee, the ends of the knee inclined downwardly and fitting and secured to the top edge of the runner and having side flanges fitting the opposite vertical faces of the runner and secured thereto.

4. The runner, start-pins, a rave-iron, and beam, in combination with a knee arched upwardly between its ends and forming the elevated beam-seat, said beam provided with means loosely fitting in said knee and rave-iron, the opposite ends of the knee inclined downwardly from the seat and having outturned ears fitting and secured on the top edge of the runner, said knee ends having depending flanges fitting the opposite side faces of the runner with downwardly-extending ends, means securing the rave-iron ends to said ears and to the runner.

5. In combination, a runner, a beam, start-pins diverging upwardly, a knee having its end portions secured to the runner, said knee being arched upwardly at its central portion and forming a beam-seat between the start-pins, said knee formed with perforations through which the start-pins pass, whereby the knee is braced by the start-pins, and means confining the beam to said seat.

6. In combination a runner, a knee secured to the runner at its ends and arched upwardly between its ends to form the elevated beam-seat, a beam resting on said seat, start-pins on opposite sides of the beam and passing down through the knee into the runner, a rave-iron at its lower ends secured on the ends of the knee and passing over the beam, and means confining the beam to its seat.

7. In combination, a runner, a knee secured to the runner and formed with an elevated beam-seat, upwardly-diverging start-pins passing through the knee and secured to the runner, a rave-iron secured to the runner and passing over the start-pins and between the same having an elongated guideway, a beam between the rave-iron and start-pins and resting on and loosely confined to said seat and having a projection loosely confined in said guideway.

8. In combination, a runner, an upwardly-arched sheet-metal knee forming a central elevated beam-seat and at its ends secured to the runner, start-pins, a beam resting on the seat loosely, between the start-pins, a rave-iron having a longitudinal slot above the beam and a projection rigid with the beam and confined to move in said slot.

9. In combination, a runner, an upwardly-arched knee having a beam-seat with a perforation, a beam resting on said seat and provided with a projection extending into said perforation, a rave-iron having a longitudinal slot above the beam, said beam having a projection extending loosely into said slot, downwardly-converging start-pins rigid with the runner and passing through said knee on opposite sides of said beam and permitting limited independent movement of the runner with respect to the beam.

10. In combination, a runner, an upwardly-arched sheet-metal knee between its ends forming the elevated beam-seat, the ends of the knee secured on the runner, start-pins rigid with the runner and extending through the knee between its ends and said seat, a rave-iron having its ends secured down on the ends of said knee, and a beam confined on said seat

and between the start-pins and under the rave-iron.

11. In combination, a knee forming an elevated beam-seat and at its ends secured down on the runner, the runner, upwardly-diverging start-pins secured to the runner and passing through said knee between its ends and said seat, a rave-iron, a beam, and means loosely confining the beam between the start-pins, and the rave-iron and said seat.

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

JOHN H. ANDERSON.

Witnesses:

MINNIE A. SMITH,

T. C. GORDON.