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PATENTED DEC. 31, 1907.

W. J. LA FLEUR.
ATTACHMENT FOR SLED RUNNERS.

APPLICATION FILED JUNE 17, 1907.

2 SHEETS—SHEET 1.

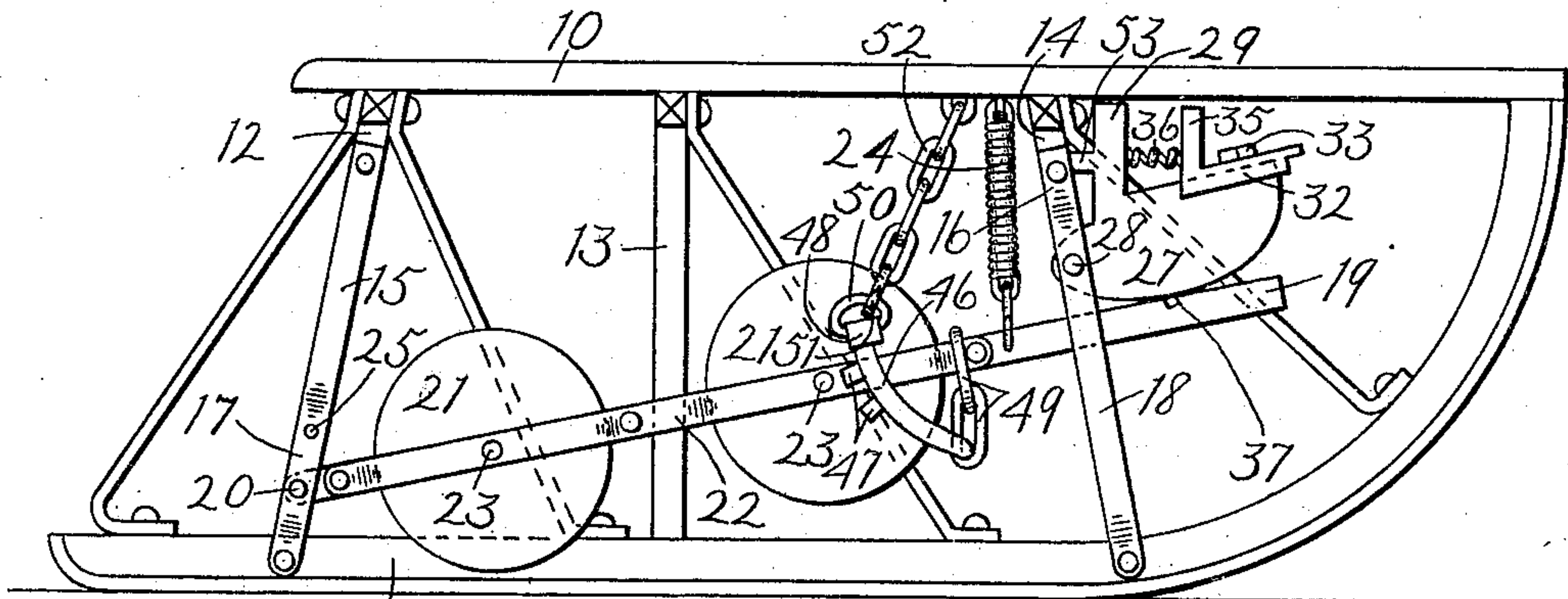


FIG. 1.

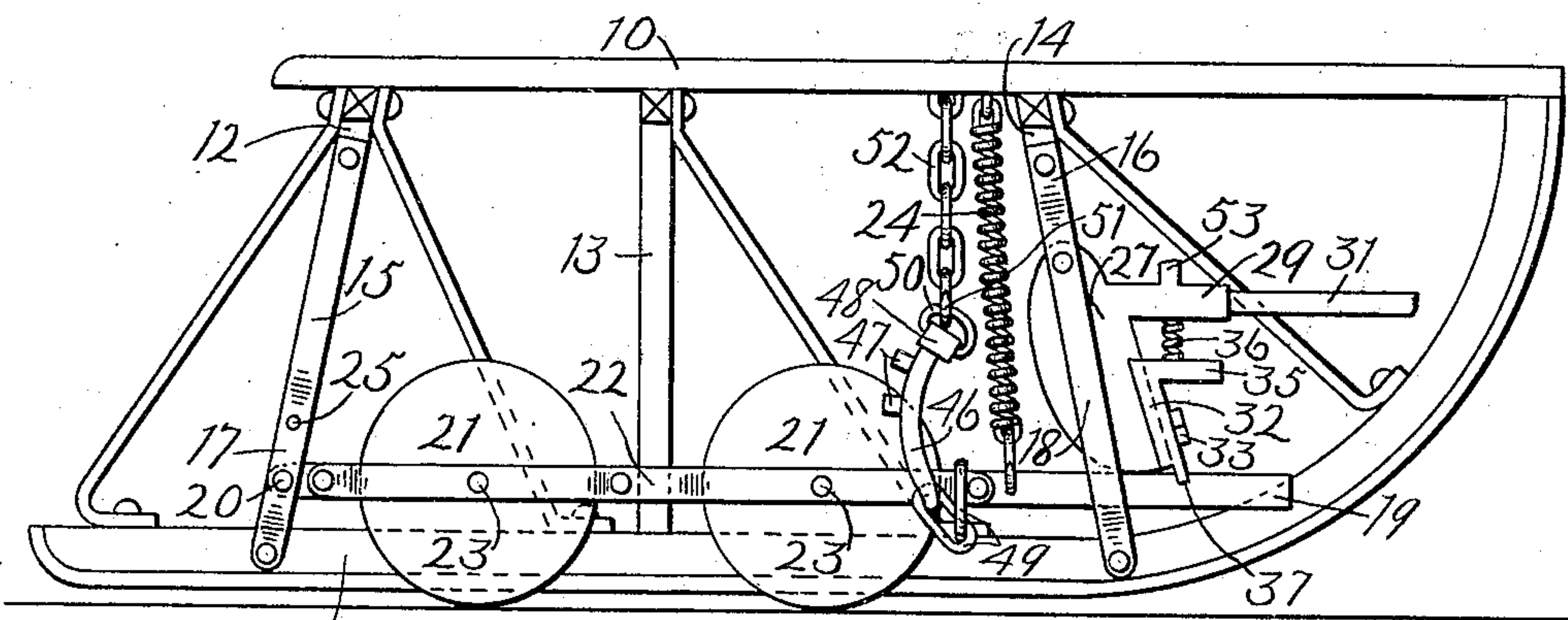


FIG. 2.

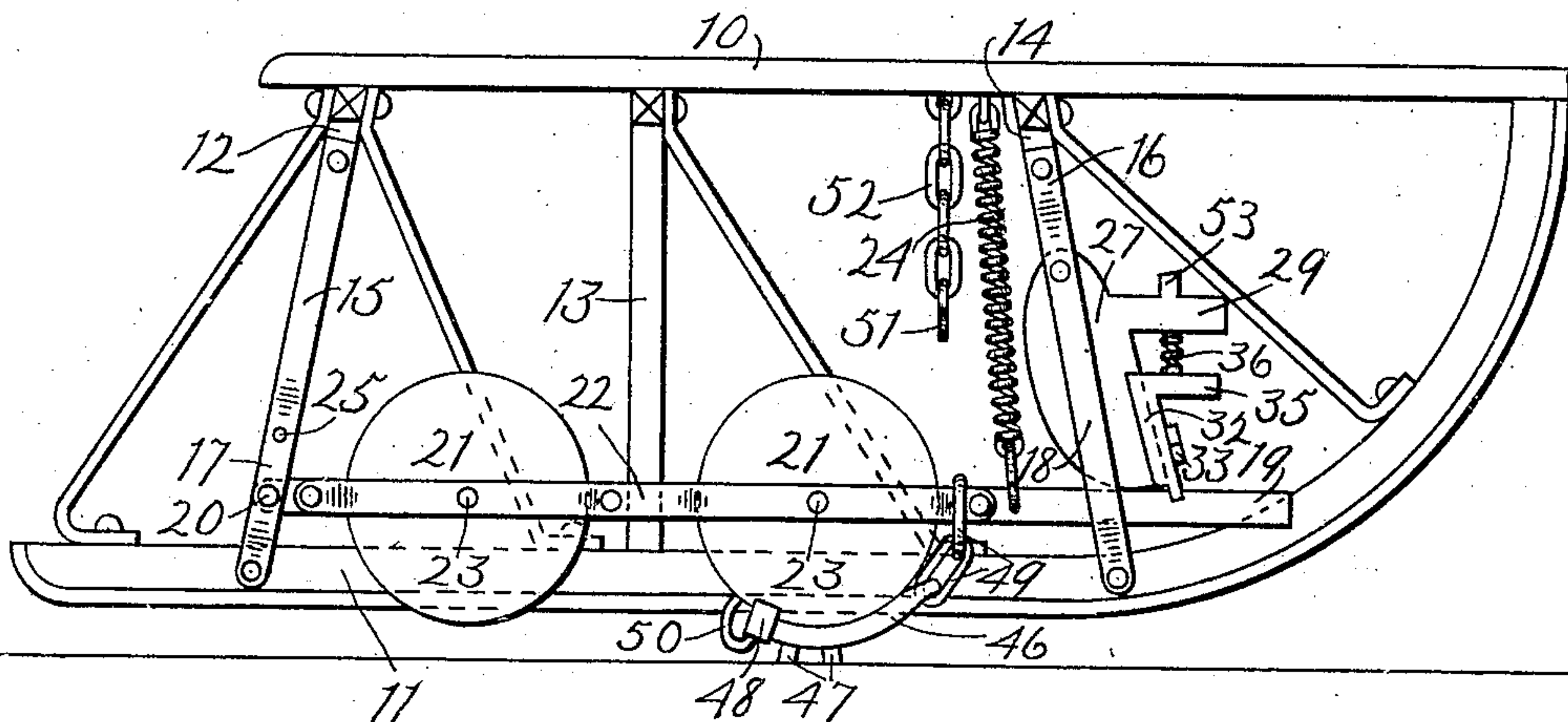


FIG. 3.

WITNESSES

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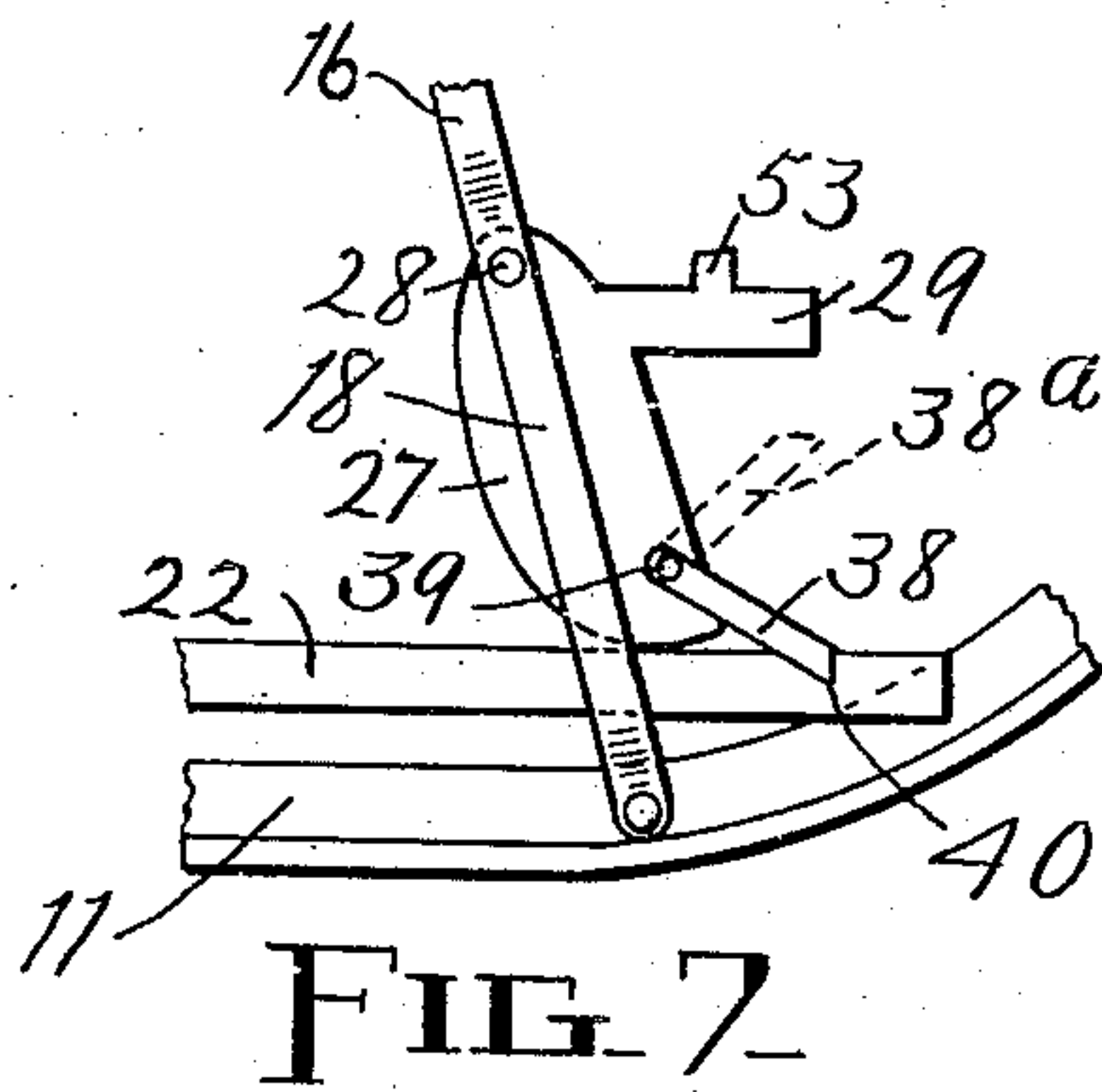
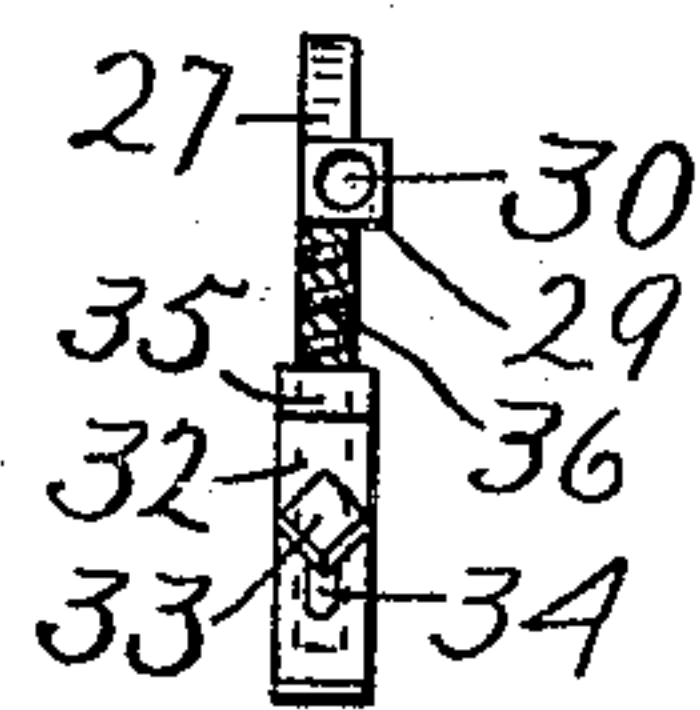
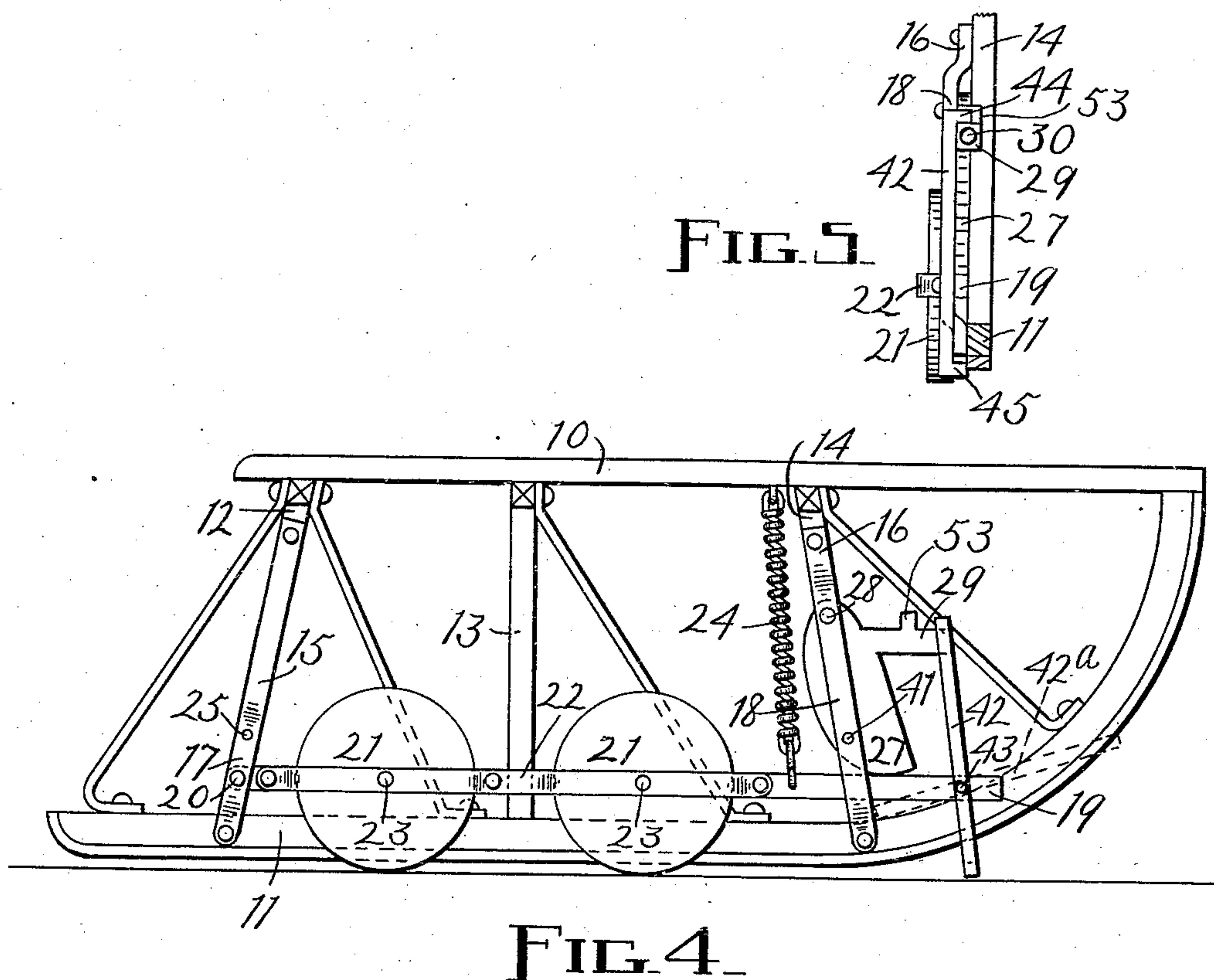
Webster & Co.,
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2 SHEETS—SHEET 2.



WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM J. LA FLEUR, OF NORTHAMPTON, MASSACHUSETTS.

ATTACHMENT FOR SLED-RUNNERS.

No. 874,969.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed June 17, 1907. Serial No. 379,338.

To all whom it may concern:

Be it known that I, WILLIAM J. LA FLEUR, a citizen of the United States of America, residing at Northampton, in the county of Hampshire and State of Massachusetts, have invented certain new and useful Attachments for Sled-Runners, of which the following is a specification.

My invention relates to improvements in attachments for the runners of sleighs or sleds, especially truck-sleds used for carrying heavy loads, and more particularly to the roller attachment which forms the subject matter of United States Letters Patent, No. 847,789, issued to me March 19th, 1907; and said invention comprises, in addition to the lever and roller or rollers of said patent, a spring for raising and a cam for depressing said lever, locking means for said cam and lever, a brake shoe adapted to be inserted beneath one of the rollers, a trip for automatically releasing the cam and lever, and such other features as may be required to render the invention effective, efficient, and practicable, all as hereinafter set forth.

The objects of my invention are, first, to provide strong, durable and simple means for easily and quickly operating or causing to be operated the roller attachment for a sled runner, either to elevate the runner with which such attachment is connected clear of the ground, bridge, floor, or other surface where there is no snow or ice, and thus hold it while the sled is drawn forward in the manner of a wheeled vehicle, thereby obviating the frictional resistance that would otherwise be present, or to lower said runner after the bare place has been passed; second, to furnish a roller attachment with a drag or brake capable of retarding the movement of the sled in descending a slippery incline or hill; third, to afford means for securing the pivoted end of the lever at a point higher up than that where it is normally pivoted, in order to give the rear roller more of an elevation and so keep it out of the snow when the latter is of some considerable depth and such roller would be liable to impede the progress of the sled, and, fourth, to compactly and conveniently embody the several features which make up my invention in an attachment which is adaptable to heavy sleds generally.

It will be understood that as a usual thing the four runners of a sled are all equipped alike, the attachment members

which are employed with one runner being employed with the others, excepting possibly in the case of the brake shoes one pair of which may in some instances be sufficient for a sled. It will be understood further that the lever may be provided with only one roller instead of with two, the number of rollers being inconsequential so far as this invention is concerned.

I attain the above-mentioned objects by the means illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a sled having my invention incorporated therewith, the rollers being elevated and in their inoperative position; Fig. 2, a similar view showing the rollers down in their operative position; Fig. 3, a view with the rollers depressed and the brake shoe beneath one of them; Fig. 4, a side elevation of the sled and attachment, showing means for locking and releasing the cam and lever which means includes a trip, the brake shoe and the supporting chain therefor being omitted; Fig. 5, a front elevation of the trip shown in the preceding view, with the cam and other associated parts; Fig. 6, a front elevation of the cam and latch shown in the first three views, and, Fig. 7, a detail view in side elevation illustrating a modified form of latch for the cam and lever.

Similar figures refer to similar parts throughout the several views.

One side of a sled is shown in the first four views and a portion thereof appears in the last view, the same comprising in part a top rail and a runner with three uprights or supports between. Straps, offset at 17 and 18, respectively, to accommodate an operating lever, are fastened at their upper ends to the supports 12 and 14, respectively, and at their lower ends to the runner. The lever has its rear terminal pivoted at 20 to the strap 15 and the support 12 and has its forward part confined between the strap 16 and the support 14, the arrangement being such that said lever can move up and down between the offset 18 and said support 14. Rollers are connected with the lever 19 by means of an angular strap 22 securely bolted against the outside of said lever, the trunnions of said rollers being received into suitable openings in the lever and strap. These members are substantially the same as corresponding members in the aforesaid patent.

The lever 19 forward of the pivot 20 is normally retained in its elevated position, with the rollers 21 in their inoperative position clear of the road-bed or other surface, by means of a spring 24 attached at the upper end to the top rail 10 of the sled and at the lower end to said lever, such spring being strong enough to hold up not only the lever and rollers but the other parts presently to be described which bear or rest upon and depend from the lever. In the event that it is desired to raise the pivoted end of the lever 19 higher so as to raise the rear roller 21 still more, as when there is some little depth of snow and no likelihood of encountering bare places on the road, this can be done by removing the pivot 20 from the position which is usually occupied, moving up the rear end of said lever until the hole therein is in line with a hole 25 higher up in the offset 17 of the strap 15, and inserting said pivot in the alining holes, a hole in the support 12 in line with the hole 25 being also required for this purpose.

As a means of bringing the rollers 21 into contact with the road-bed or other surface, against the resiliency of the spring 24, and of lifting the runner 11 above such road-bed or other surface, I provide a cam 27 pivoted at 28 to the offset 18 of the strap 16 and to the support 14. The cam 27 is thus located above the forward terminal of the lever 19 between the support 14 and the strap 16 or its offset. Extending upward or forward from the corresponding edge of the cam 27, according to the position of the same, is a projection 29 having a longitudinal passage or recess 30 in the end to receive one end of an operating lever or bar 31 which may be of any suitable length. The bar 31 is detachable and is used only while operating the cam. Said bar is shown in Fig. 2, all but the terminal which is adjacent to and connected with the cam being broken off. In practice the bar 31 while in a vertical position is first inserted at its lower end in the recess 30, then it is swung forward and downward into a horizontal position or until the cam 27 assumes the position shown in Figs. 2, 3, and 4, after which said bar may be removed from the projection 29. As the cam is turned down on its pivot 28 it forcibly depresses the lever 19 at its front or free terminal, raises the runner 11, and brings the weight of this side of the sled onto the rollers 21. Now if the cam be locked in place, it will be seen that the lever 19 will be held securely in a substantially horizontal position with the rollers below the bottom of the runner in active or operative position, the pivots 20 and 28 carrying the weight of the sled on this side.

Any one of several devices may be employed for fastening or locking the cam 27 in operative position, and I will next proceed to describe that which is illustrated in

Figs. 1, 2, 3 and 6. This comprises a latch 32 in the form of a channel adapted to receive or to fit over the straight edge of the cam 27, against which and in sliding relation to which such latch is retained by means of a bolt 33 passing through a slot 34 in said latch into said edge of the cam. The latch 32 has a handle 35 at the end adjacent to the projection 29, and a spring 36 is interposed between said handle and said projection to normally force said latch outward or downward. The bolt 33 and the ends of the slot 34 limit the reciprocal movement of the latch. A notch 37 is provided in the upper edge of the lever 19 in such a position that it receives the outer or lower end of the latch when the cam 27 is swung downward to depress said lever, the spring 36 yielding at this time to permit said latch to click into said notch; thus the latch is held in engagement with the lever and the cam is prevented from releasing the latter.

To return the parts to their inoperative position, grasp the handle 35 and draw the latch 32 out of engagement with the notched part of the lever 19, compressing the spring 36 meanwhile. As soon as the latch clears the lever the weight which the rollers are supporting supplemented and succeeded by the force of the spring 24 immediately acts on the one hand to throw up and on the other to draw up said lever and cam into the positions which they occupy in Fig. 1. The bar 31 may be utilized to assist in unlocking the cam and to prevent the lever with said cam from rising too suddenly and violently. Upon the release of the handle 35 the spring 36 actuates the latch to force out its free end again in readiness for the next engagement with the lever. The runner is now down in normal and operative position.

In place of the latch hereinbefore described, an arm 38, Fig. 7, may be used, the same having one end pivoted at 39 to the cam 27 and the other end adapted to enter a notch 40 in the lever 19, similar to the notch 37, to hold said cam and lever in their active positions. The arm 38 has to be manipulated by hand in locking as well as in unlocking the parts, so that it is not as convenient as the latch 32. The arm is represented in its inoperative or disengaged position by the dotted lines 38^a.

A pin 41, Fig. 4, may be substituted for either the latch or the arm as a fastening medium for the swinging members, the pin in this case passing through alining holes in the offset 18, the cam 27 and the support 14, when said cam is down as far as it is intended to go, thus securing the same which in turn secures the lever 19 in its horizontal position. In Fig. 4 I also show a trip 42 pivoted at 43 to the lever 19 above and below which said trip extends. At the upper end of

the trip 42 is a lug 44 designed to engage the cam projection 29 and hold down the cam 27 to prevent it from releasing the lever 19, and at the lower end of said trip is a lug 45 designed to come to rest against the bottom edge of said lever when the trip is actuated out of engagement with said projection. The pin 41 is employed with the trip 42, and these parts are intended more particularly for an attachment to be used with a fire apparatus such as a steam fire engine or hose wagon mounted on runners.

The practical operation of the trip 42 is as follows: After the rollers have been brought into service and the parts secured by the pin 41, the cam projection 29 is engaged by the trip and said pin removed, the bar 31 being employed to assist in the operation. Now the lever and cam are locked in operative position by the trip and will so remain until the vehicle is drawn out of the fire station when, in passing over the threshold or some other elevated or projecting member which may be especially provided for the purpose at or near the door, said trip is actuated out of engagement with the projection 29 and the runner is permitted to come down onto the passage way at the entrance to said station, the operation of the cam and lever being the same as that already described. As the trip is thrown out of engagement it swings into the position indicated by the dotted lines 42^a, with its lug 45 in contact with the lever 19. Without the lug 45 the trip might swing too far so that the end having the lug 44 would come into contact with the road-bed and disastrous results would ensue. It should be understood, of course, that while the trip is in engagement with the cam the bottom of said trip is only a short distance from the floor. By thus equipping a fire apparatus provision is made for moving the apparatus about on the floor of the station easily and for enabling the apparatus to be started with the minimum amount of effort, since it is on rollers during the time it is in the station, and then for quickly transferring said apparatus to runners as it leaves said floor for the snow or ice covered ground outside.

The brake which I prefer to use in connection with and as a part of my attachment consists of a shoe 46 provided with one or more calks or similar projections 47 on the bottom, and with a channeled keeper 48 at the back end, and adapted to be held in place beneath one of the rollers 21, generally the forward roller when two are employed. In this case the front end of the shoe 46 is connected by two links 49 with the lever 19 in front of the forward roller 21, and a loop 50 is passed through the keeper 48 and designed to be hung on a hook 51, at the lower end of a chain 52 suspended from the sled rail 10, when said shoe is not in use, as shown in Figs. 1 and 2. The shoe must be placed in

operative position while the rollers are elevated, and then said rollers are depressed and the weight of the sled on this side is brought onto said shoe with the result that the calks 47 are forced hard against or into the road-bed and so offer resistance to the movement of the sled. When in use the shoe is arranged as shown in Fig. 3, wherein it is plainly to be seen that the links 49 support the front end of the shoe and maintain said shoe in proper relation to the roller to which it is applied, assisted by the keeper 48 which receives the adjacent portion of said roller and by reason of such connection retains the back end of the shoe in place. Before the shoe can be disengaged from the roller so that it can be hung on the chain 52 out of the way, the lever 19 must be swung up into the Fig. 1 position.

The cam projection 29 may be provided on the rear or upper edge with a lug 53, if necessary, to limit the upward movement of the cam, the position of said lug being such as to enable the lug to strike against the strap 16 when said cam rises into its highest position under the influences of the spring 24, communicated thereto through the medium of the lever.

It is evident that numerous changes of minor importance may be made in my invention without violating the spirit thereof or going outside of the scope of the claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller between its ends and having one end pivotally connected with the sled, and a spring having one end attached to the sled and the other end attached to said lever to normally retain the latter in its elevated position, the arrangement being such that the lever is retained normally by said spring above a horizontal line passing through its pivotal point.

2. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller, means for attaching one end of such lever to the sled at different elevations, and a spring arranged between the sled and said lever to normally retain the forward terminal of the lever in an elevated position.

3. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller between its ends and having one end pivotally connected with the sled, means to depress said lever into a substantially horizontal position, and a spring arranged between the sled and the lever to swing the latter upward on its pivot above such horizontal position when released from said means.

4. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller in fixed bearings and having one end pivotally connected with the sled, a cam

pivoted to the sled above the other terminal of said lever and adapted to depress the lever into a substantially horizontal position, and a spring arranged between the sled and the lever to swing the latter upward on its pivot above such horizontal position when released from said cam.

5. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller and having one end pivotally connected with the sled, a cam pivoted to the sled above the other terminal of said lever and adapted to depress the lever, such cam having a receiving part for an operating bar.

6. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller in fixed bearings and having one end pivotally connected with the sled, a cam pivoted to the sled above the other terminal of said lever and adapted to depress the lever into a substantially horizontal position, positive means to secure said cam in place when in locking engagement with the lever, and a spring arranged between the sled and the lever to swing the latter upward on its pivot above such horizontal position when released from said cam.

7. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller and having one end pivotally connected with the sled, a cam pivoted to the sled above the other terminal of said lever and adapted to depress the lever, and a latch attached to said cam and arranged to engage the lever when depressed by the cam and so lock the parts together.

8. The combination, in an attachment for sled runners, with a sled, of a lever provided with a roller and having one end pivotally connected with the sled, a cam pivoted to the sled above the other terminal of said lever and adapted to depress the lever, and a spring-pressed latch slidingly mounted on said cam and arranged to engage the lever when depressed by the cam and so lock the parts together.

9. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller and having one end pivotally connected with the sled, a cam pivoted to the sled above the other terminal of said lever and adapted to depress the lever, and a trip pivoted to the lever and adapted to en-

gage and hold said cam, when the latter is in locking engagement with the lever, and to be actuated out of engagement with the cam by an obstacle in the path of said trip.

10. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller and having one end pivotally connected with the sled, a cam pivoted to the sled above the other terminal of said lever and adapted to depress the lever, a trip pivoted to the lever and adapted to engage and hold said cam, when the latter is in locking engagement with the lever, and to be actuated out of engagement with the cam by an obstacle in the path of said trip, and means to lock the cam while the trip is being set.

11. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller between its ends and having one end pivotally connected with the sled, means adapted to be applied to said lever forward of said roller to depress the lever and roller, and a brake shoe arranged to support said roller thereon and having its forward end connected with the lever in front of the roller.

12. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller between its ends and having one end pivotally connected with the sled, means adapted to be applied to said lever forward of the roller to depress the lever and roller, a brake shoe arranged to support said roller thereon and having its forward end connected with the lever in front of the roller, and means to suspend said shoe from the sled when not in use.

13. The combination, in an attachment for sled-runners, with a sled, of a lever provided with a roller between its ends and having one end pivotally connected with the sled, means adapted to be applied to said lever forward of the roller to depress the lever and roller, a brake shoe arranged to support said roller thereon and having its forward end connected with the lever in front of the roller, and a keeper on the rear end of said shoe adapted to engage the roller.

WILLIAM J. LA FLEUR.

Witnesses:

ALLEN WEBSTER,
F. A. CUTTER.