W. H. STEVENSON.

SLED BRAKE.

APPLICATION FILED MAY 13, 1909.

944,520. Patented Dec. 28, 1909.

Fig. 1.

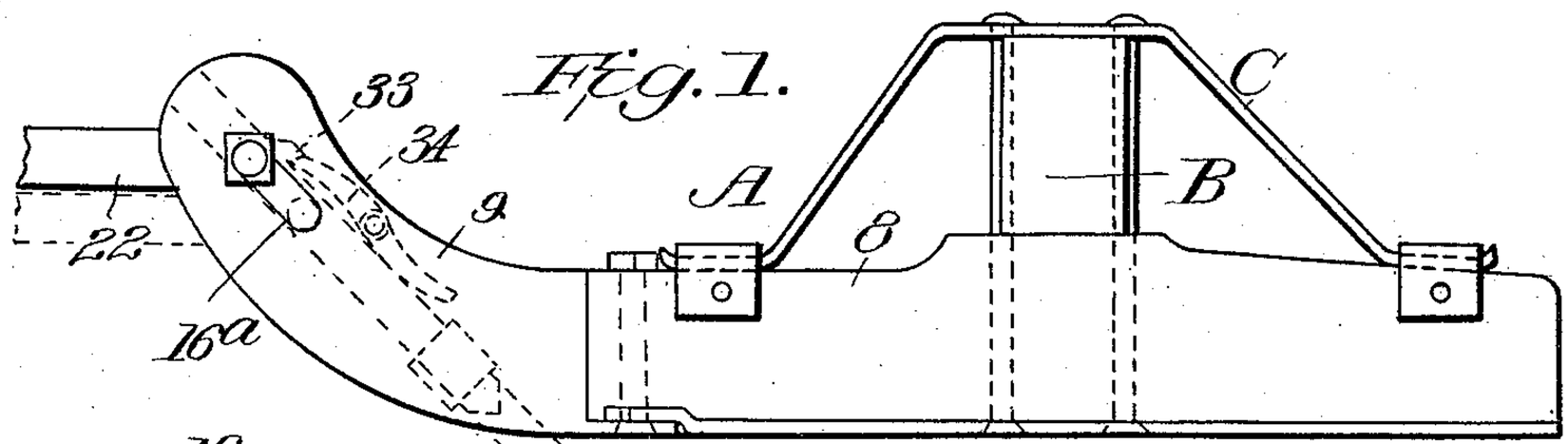


Fig. 2.

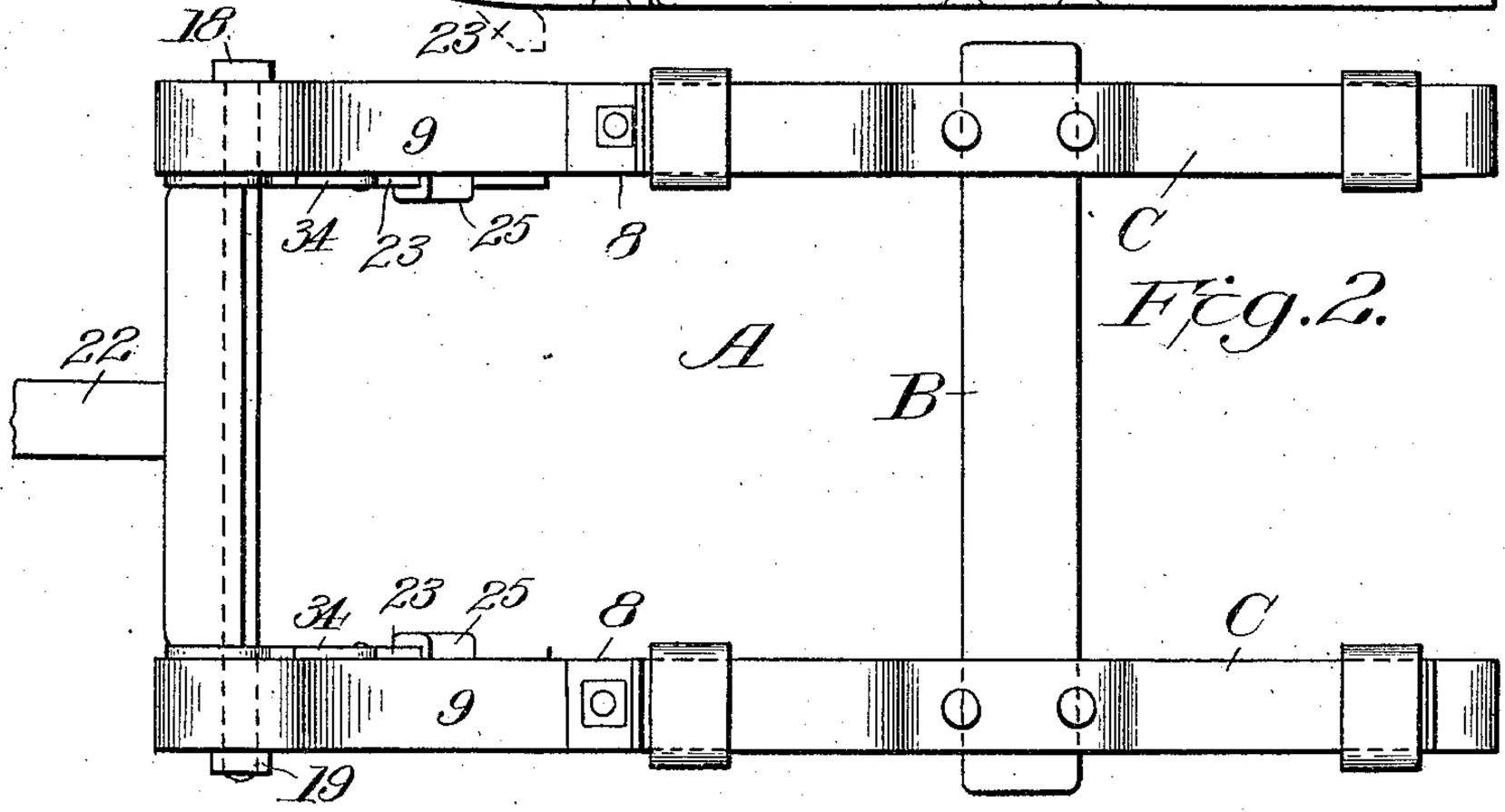


Fig. 3.

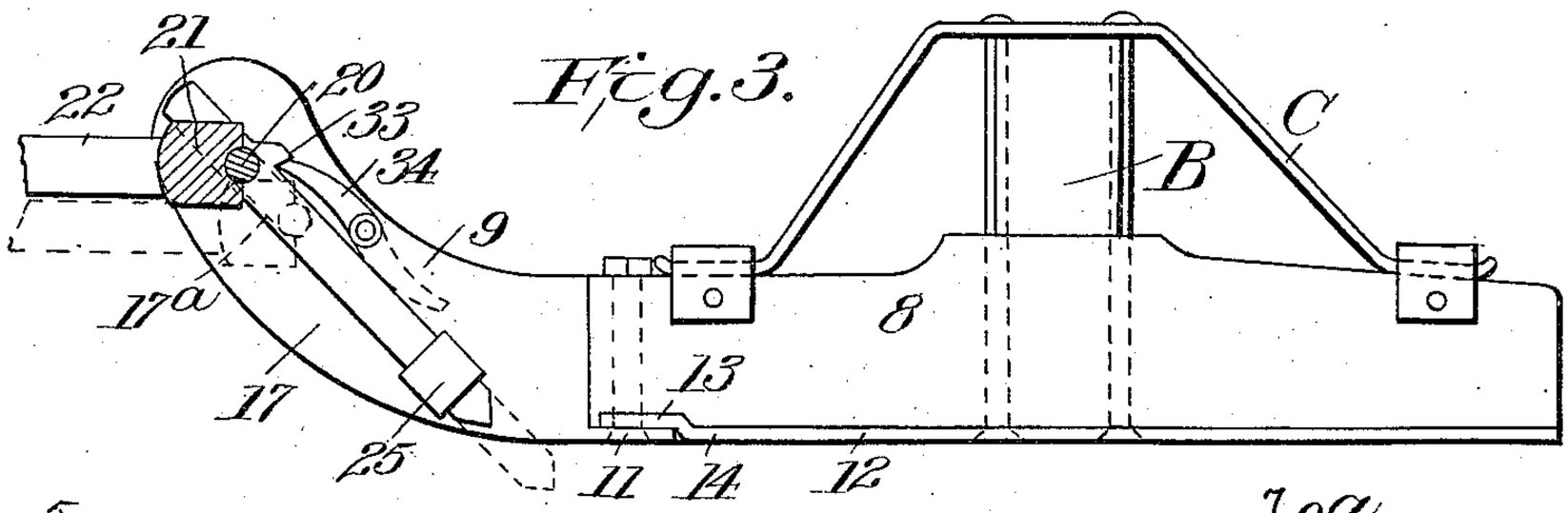


Fig. 4.

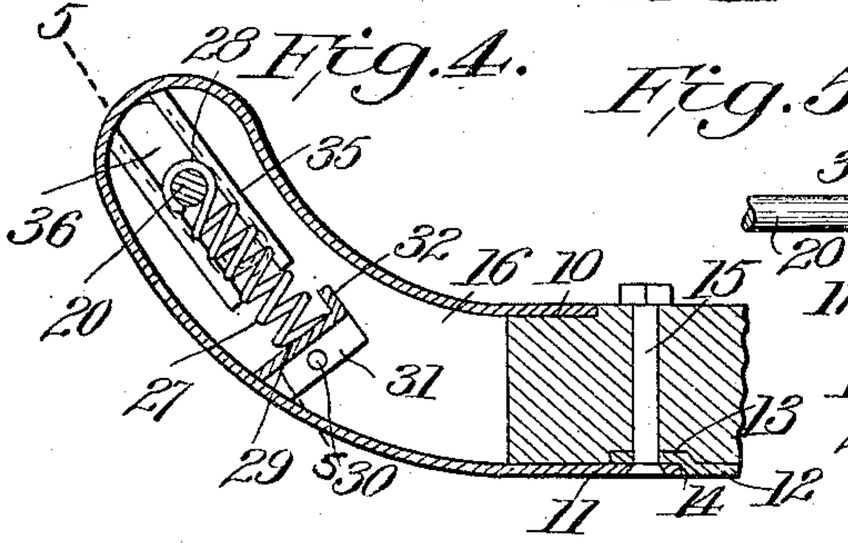


Fig. 5.

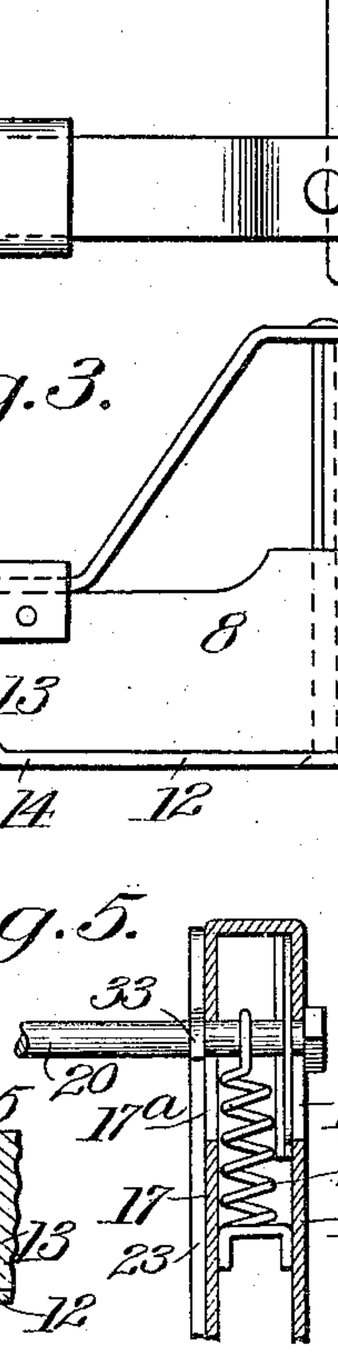


Fig. 6.

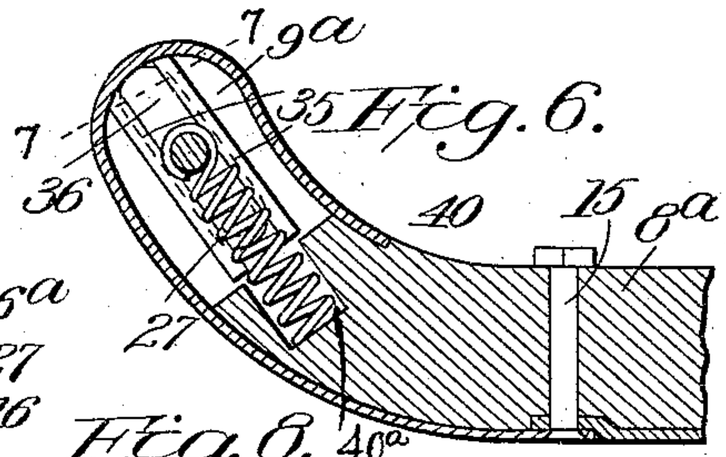


Fig. 7.

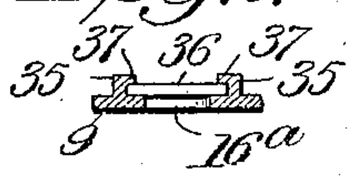
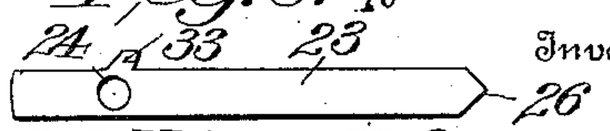


Fig. 8.



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UNITED STATES PATENT OFFICE.

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SLED-BRAKE.

944,520. Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed May 13, 1909. Serial No. 495,728.

To all whom it may concern:

Be it known that I, WILLIAM H. STEVENSON, a citizen of the United States, residing at Kilbourn, in the county of Columbia and State of Wisconsin, have invented certain new and useful Improvements in Sled-Brakes, of which the following is a specification.

This invention relates to sled brakes and it may be described as consisting of certain improvements upon the device of this class for which Letters Patent of the United States, No. 862,523 were issued to me on the 6th day of August, 1907.

The present invention has for its objects to improve the general construction of the device; to improve and facilitate the action of the brake prongs; and, generally speaking, to provide a device of the class referred to which shall possess superior advantages in point of simplicity, durability and general efficiency.

A further object of the invention is to so locate the brake prongs with reference to the devices that are used for rendering said brake prongs temporarily inactive as to insure certainty and efficiency of operation without danger of bending or otherwise injuring the draft rod to which a pole is usually attached.

A still further object of the invention is to provide means for excluding obstructions, such as snow and ice, from the interior of the brake mechanism where it would seriously interfere with the successful operation of the device.

A still further object of the invention is to provide a casing to support the brake mechanism which may be readily attached to the front end of a wooden runner, whether the latter be composed simply of a straight piece of wood or whether the front end of such runner be previously bent or turned slightly in an upward direction, but not sufficient to form a complete runner, these ends being attained by the device in its preferred form and by a slightly modified form of the device.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawing has been illustrated a simple and preferred form of the invention together with a slightly modified form; but it is desired to be understood that no limitation is necessarily made to the precise structures herein illustrated but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings—Figure 1 is a side elevation of a sled bob equipped with the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation showing the inner side of one of the runners. Fig. 4 is a vertical sectional view taken through the front end of one of the runners. Fig. 5 is a transverse sectional view taken on the plane indicated by the line 5—5 in Fig. 4. Fig. 6 is a vertical sectional view illustrating a slightly modified form of the casing. Fig. 7 is a sectional detail view taken on the plane indicated by the line 7—7 in Fig. 6. Fig. 8 is a detail view in side elevation showing one of the brake prongs detached.

Corresponding parts of the several figures are denoted by like characters of reference.

This invention which is applicable to all kinds of sleds, has in the drawings been shown as applied to an ordinary sled bob A the runners of which 8—8 are connected or assembled in the usual manner by means including the bolster B and braces C.

In the preferred form of the invention which has been illustrated in Figs. 1 to 5 inclusive, the runners have been shown as being composed of a straight piece of timber of suitable dimensions upon the front or forward end of which is mounted a casing composed of an upwardly curved sleeve 9 which may be made of cast or malleable iron or other suitable material and the curvature of which is such as to cause the said sleeve or casing to constitute the upwardly curved forward end of the runner. The sleeve 9 is made of a cross sectional area to suitably correspond with that of the body of the runner which latter is tenoned at its forward end as will be best seen at 10 in Fig. 4 so that a flush joint will be made. The lower part of the sleeve is extended longitudinally in a rearward direction to form a lip or tongue 11 which extends a suitable distance rearwardly beneath the runner to a point where it joins and is overlapped by the shoe 12; the latter being formed with an upwardly offset forward terminal shown at 13 which overlaps the lip 11 and affords a

shoulder 14 upon which the latter abuts. The sleeve and the forward end of the shoe are securely connected with each other and with the runner by fastening means such as a bolt 15; it being obvious, however, that any suitable additional fastening means may be employed if it shall be found necessary or desirable.

The sleeve or casing 9, as previously stated, is of forwardly and upwardly curved or arcuate form and of a cross-sectional shape and area corresponding with that of the runner to which it is to be applied; the latter being square or rectangular in cross section as is well understood. The said sleeve or casing which is obviously a hollow structure includes the two side walls or plates 16 and 17 which may be properly described as constituting respectively the outer and the inner side walls; the outer side wall of each sleeve being that upon the outer side of the sled bob while the inner side wall is that which faces the space between the two runners after the latter have been assembled to constitute the bob. These outer and inner side walls are provided with elongated slots, most clearly seen in Fig. 5 of the drawing where said slots have been designated respectively 16^a and 17^a, said slots being inclined downwardly and rearwardly as shown, they being located about mid-way between the upper and lower sides of the sleeve or casing. These slots, which are intended to accommodate the draft member with which the brake prongs are connected and to admit of such movement of the brake prongs as to render said prongs active or inactive as may be desired, are intended in a full sized device to be of a length of probably four and one-half inches, and said slots are preferably located at a distance approximately equal to their length from the forward extremities of the sleeves or casings, or the side walls of the latter, thus disposing the lower extremities of said slots approximately nine inches from the forward extremities of the sleeves or casings.

The draft member above alluded to, is preferably composed of an iron rod 20 of suitable dimensions, which is extended through the slots of the sleeves in such a manner as to be capable of working or playing freely in said slots; the outer extremities or terminal ends of said rod being provided with means, such as a head 18 and a nut 19 whereby it will be securely retained in position. The rod 20 may be reinforced by means such as a cross bar 21 of wood or other suitable material which may be connected therewith in any convenient manner. Draft attaching means such as a pole, a portion of which is shown at 22, may be connected with the draft member composed of the parts 20 and 21 in any suitable well known and convenient manner.

The brake prongs 23 are provided at a suitable distance from their upper or forward ends with eyes or apertures 24 whereby they are loosely mounted upon the rod 20 adjacent to the outer surfaces of the inner side walls 17 of the sleeves or casings. It is to be observed that the apertures 24 are to be formed at a distance from the upper or forward ends of the brake prongs approximately equal to the length of the slots 16^a and 17^a so that when the draft rod 20 is located adjacent to the upper or forward ends of the slots the upper or forward ends of the brake prongs will be in approximate alinement with the upper or forward extremities of the sleeves or casings. The latter are equipped with loops or keepers 25 which slidably accommodate the brake prongs which will thus be sustained in a suitable downwardly and rearwardly inclined position, in alinement with the slots 17^a in the inner side walls of the casings, said slots being thus at all times covered and protected by the brake prongs which will serve to prevent snow and other obstructions from entering into the interior of the sleeve or casing through said slots. The brake prongs are to be of such dimensions, longitudinally, that when they are raised or lifted until their upper or forward ends are in alinement with the upper or forward ends of the sleeves or casings, their lower extremities, which are equipped with earth-engaging points 26 shall be slightly above the under sides of the sleeves or casings so that they will not dig into the snow-covered or frozen surface of the ground and thus interfere with the progress of the sled. If on the other hand, it is desired to retard the progress of the sled by means of the brake, the brake prongs will be capable of sliding downwardly to an extent only limited by the movement of the draft rod 20 in the slots in which it is mounted, thus causing the points to dig into the surface and thereby retard the progress of the sled.

The draft rod 20 carrying the brake prongs is normally forced in a forward direction by the action of suitable helical springs 27 which are suitably disposed within the hollow sleeves or casings, the upper ends of said springs being preferably but not necessarily connected with the draft rod by means of terminal loops 28 formed upon said springs while the lower ends of the springs are supported upon cross pieces or brackets 29 which may be secured in the interior of the sleeves or casings by means such as bolts or rivets 30 extending through flanges 31 that project downwardly from the brackets and through the proximate side walls of the casings. The brackets 29 may also be provided with upturned flanges as indicated at 32, see Fig. 4, in order to prevent any possibility of displacement of the

springs. The latter, by their expansive action, serve to project the draft rod 20 together with the brake prongs, in an upward and forward direction while the holdback movement of the draft will obviously tend to lower the draft rod as well as the brake prongs against the tension of the springs.

The brake prongs are provided at a suitable distance from their upper and forward ends, preferably in approximate registry with the eyes or apertures formed for the reception of the draft rod, with teeth or ratchets 33 adapted to be engaged by pawls 34 which are pivotally mounted exteriorly upon the inner side walls of the casings so as to co-act with the ratchets, when desired, for the purpose of maintaining the brake prongs in an elevated and inactive position as is sometimes desired; for instance, when it shall be desired to back the sled. It will be readily observed that the brake prongs and the pawls co-acting therewith being disposed adjacent to the inner side walls of the sleeves or casings constituting a part of the runners, the said members will be considerably closer to the longitudinal center of the draft rod than would be the case if said members were disposed adjacent to the outer sides of the runners as is the case with the means utilized for rendering the brake mechanism temporarily inactive which has been shown in my former patent No. 862,523, previously referred to; there will consequently be much less danger of bending or otherwise obstructing the draft rod than was the case under the construction previously resorted to.

The outer side walls of the sleeves or casings are provided upon their inner surfaces with ribs 35, as clearly seen in Figs. 4, 5, and 7 of the drawing. These ribs are for the twofold purposes of strengthening and reinforcing the casings and to serve as guides for narrow elongated plates 36 of sheet metal or other suitable material which are loosely mounted upon the draft rod 20 adjacent to the inner surfaces of the outer side walls of the casings for the purpose of covering and obstructing the slots in order to exclude snow and other obstructions. These snow-excluding plates are made of a length approximately equal to or slightly exceeding twice the length of the slots which they are intended to cover, and the draft rod is extended through apertures approximately mid-way between the ends of said plates, thus, when the brake prongs are inactive, the upper portions of said plates will extend upwardly approximately to the upper ends of the casings while the lower portions of the plates will cover and obstruct the slots when the brake prongs are lowered to an active position, the slots will be obstructed by the upper portions of the plates as is very obvious. The ribs 35 are provided with overhanging flanges 37 whereby the snow-excluding plates will be securely retained and properly guided in close proximity to the inner surface of the outer side walls of the casings.

Under the slightly modified construction of the invention illustrated in Fig. 6 of the drawing, the sleeve or casing, here designated 9^a is simply changed by so modifying its construction and general outline as to adapt it to be fitted upon the forward end of a runner body 8^a which has been slightly bent or turned in a forward direction as shown at 40. In other respects the construction will be precisely as hereinbefore shown and described. Under this construction the spring supported bracket shown in the preferred form, may well be dispensed with, a socket or recess 40^a for the accommodation of the lower end of the spring being formed in the forward end of the runner.

From the foregoing description taken in connection with the drawing hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains.

While the general brake construction outlined in my previous patent above referred to, is capable of being successfully applied to sled bobs of ordinary construction, the present improvement, including the sleeves or casings, is particularly useful when applied to the construction of new sleds at factories where such are turned out in large numbers inasmuch as it saves or greatly reduces the necessity for upturning the front ends of the wooden runner bodies, which frequently results in straining and otherwise injuring the grain of the wood.

It will be readily understood how when it shall be desired to retard the progress of the sled, the stoppage of the draft will cause the draft rod 20 carrying the brake prongs to be projected downwardly against the tension of the supporting springs until the points of the prongs dig into the surface of the ground, thus retarding the progress. When, on the other hand, it shall be desired to back the sled, the pawls 34 may be manually operated to place them in engagement with the ratchets upon the brake prongs when the latter are in a raised position, thus rendering the brake prongs stationary and inactive while the sled is being backed.

The invention, as will be seen from the foregoing, is not only simple and inexpensive, but it has been found to be thoroughly efficient for the purposes for which it was provided.

Having thus described the invention, what is claimed is:

1. In a device of the character described, a wooden runner body, a casing mounted upon the forward end of the body and provided with slots in its side walls at a dis-

tance from the upper end of the casing approximately equal to the length of the slots, a brake-prong slidably supported adjacent to the outer surface of the inner side wall of the casing, ribs provided with overhanging flanges and disposed upon the inner surface of the outer wall of the casing adjacent to the slots, a snow-excluding plate slidably mounted between the ribs, the flanges of the latter and the inner surface of the outer walls of the casing, and means for actuating the brake-prong and the snow-excluding plate.

2. In a device of the character described, a wooden runner body, an arcuate sleeve or casing fitted and mounted securely upon the forward end of the wooden body, said casing being provided with slots in the side walls thereof at a distance from the upper end of the casing approximately equal to the length of the slots, a brake prong supported slidably adjacent to the outer surface of the inner side wall of the casing, ribs provided with overhanging flanges formed upon the inner surface of the outer side wall of the casing adjacent to the sides of the slot, an elongated snow-excluding plate fitted slidably between the ribs, the overhanging flanges of the latter and the inner surface of the outer side wall of the casing, and means for actuating the brake prong and the snow-excluding plate.

3. In a device of the character described, a sled bob comprising a pair of wooden runner bodies, arcuate casings fitted and mounted securely upon the forward ends of said wooden bodies and constituting the forward ends of the runners, said casings being provided with inclined slots formed in the side walls thereof at a distance from the upper extremities of said side walls approximately equal to the length of the slots, a draft rod extending through the slots and equipped with means whereby it will be retained against displacement, springs within the casings engaging the draft rod to force the latter upwardly and forwardly in the slots, means within the casings to support the lower ends of the springs, brake prongs mounted upon the draft rod adjacent to the outer surfaces of the inner side walls of the casings, keepers upon said side walls confining the brake prongs and supporting them slidably in alinement with the slots in said inner side walls, teeth or ratchets upon the brake prongs at a distance from the upper extremities thereof, pawls tilted upon the proximate side walls of the casings and adapted to engage the ratchets to support the brake prongs in inactive position.

4. In a device of the character described, wooden runner bodies, and arcuate casings connected with the forward end of said wooden bodies and constituting the forward part of the runners, the side walls of said casings being provided with inclined slots, a draft rod extending through said slots, brake prongs connected with said draft rod adjacent to the outer surfaces of the inner side walls of the casings, snow-excluding plates connected with the draft rod and guided adjacent to the inner surfaces of the outer side walls of the casings in proximity to the slots therein, brackets supported within the casings and provided with upturned flanges and actuating the springs interposed between said brackets and the ends of the draft rod.

5. In a device of the character described, a sled bob comprising wooden runner bodies, suitably connected and provided at their forward ends with acuate casings constituting the forward ends of the runners, the side walls of said casings being provided with inclined slots, a brake prong supporting the draft rod supported slidably in the slots, springs for actuating the draft rod to force it in an upward and forward direction, snow-excluding plates carried by the draft rod and operating adjacent to the inner surfaces of the outer side walls of the casings to cover the slots therein, teeth or ratchets upon the brake prongs which are supported adjacent to the upper surfaces of the inner side walls of the casings, and pawls pivoted upon said side walls and adapted to engage the ratchets of the prongs and support the latter in inactive position.

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

WILLIAM H. STEVENSON.

Witnesses:

AUGUST BILTSE,

FRED A. SOELDNER.