

No. 682,934.

Patented Sept. 17, 1901.

J. A. HEINTZ.
SLEIGH.

(Application filed Apr. 20, 1901.)

(No Model.)

2 Sheets—Sheet I.

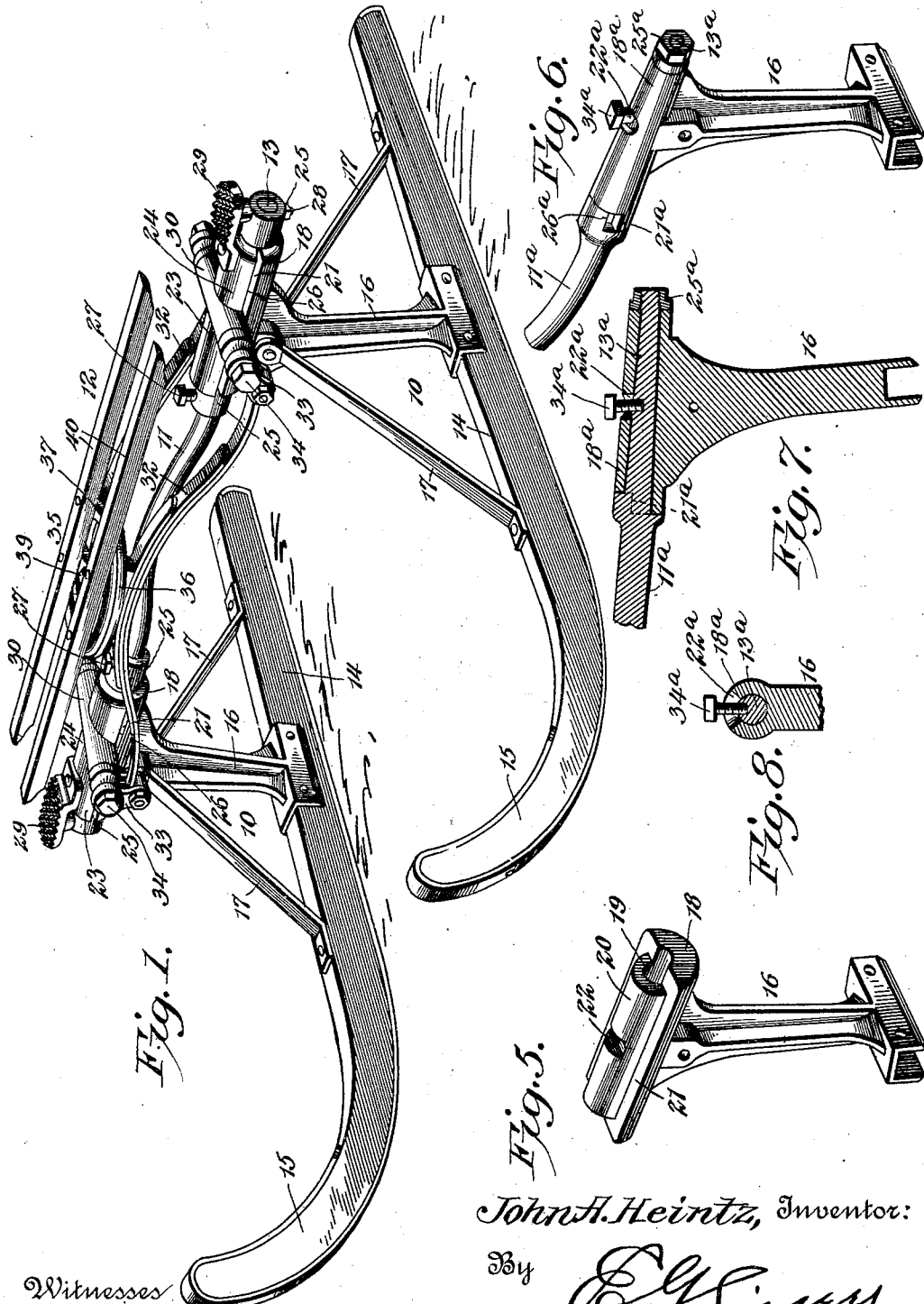


Fig. 1.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

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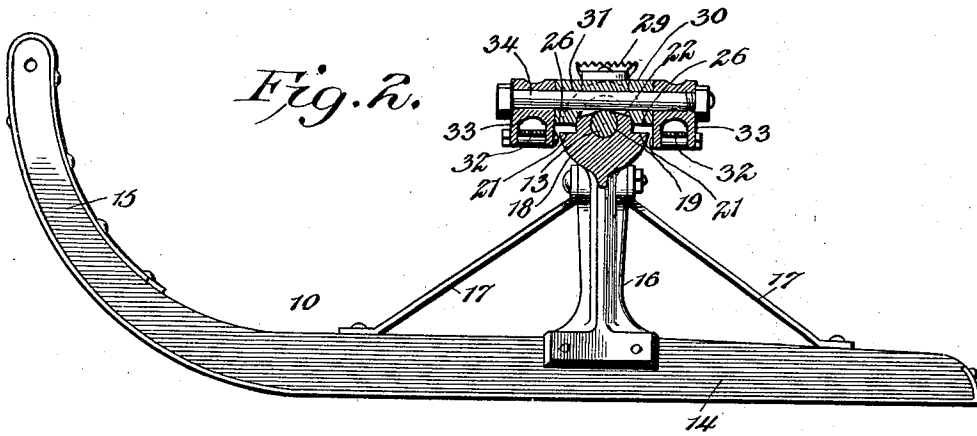


Fig. 3.

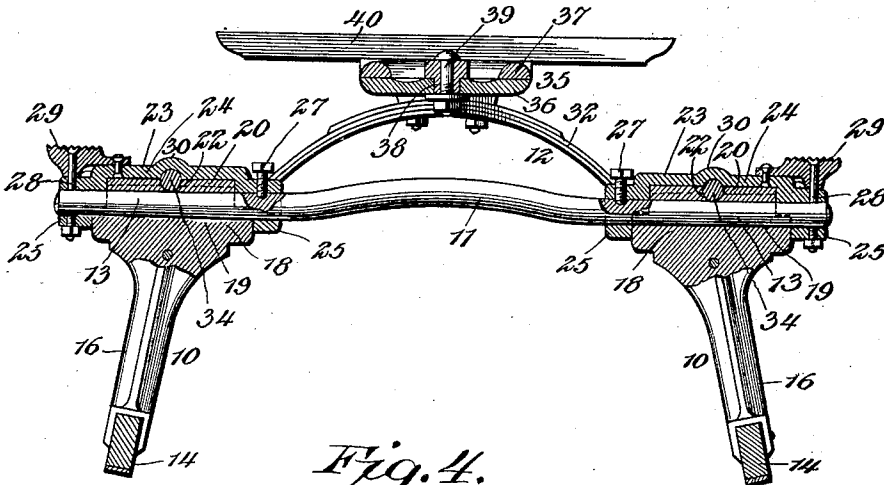
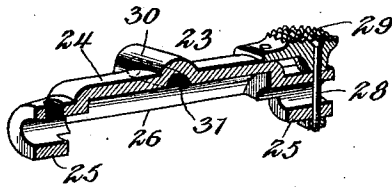


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN A. HEINTZ, OF MENOMONIE, WISCONSIN.

SLEIGH.

SPECIFICATION forming part of Letters Patent No. 682,934, dated September 17, 1901.

Application filed April 20, 1901. Serial No. 56,763. (No model.)

To all whom it may concern

Be it known that I, JOHN A. HEINTZ, a citizen of the United States, residing at Menomonie, in the county of Dunn and State of Wisconsin, have invented a new and useful Sleigh, of which the following is a specification.

This invention relates to sleighs; and one object is to provide a construction in which the runners have an independent limited swinging movement, so that they will accommodate themselves to uneven portions in the roadway.

A further object is to provide novel means for fastening the knee to the frame, so as to permit of a limited swinging movement of said knee, but securely hold the same against longitudinal movement and accidental displacement.

A still further object is to provide a construction in which the weight of the body is directly over the knees and runners instead of on an intermediate connecting bar or rod, as in the ordinary sleigh, and, furthermore, to employ springs in this connection which will absorb the jolts and jars to which the runners may be subjected.

In the following specification there is described the construction and operation of the preferred embodiment of the invention, and said construction is illustrated in the drawings which accompany and form a part of the specification; but it will be understood that such changes may be made as are within the scope of the appended claims.

In the drawings, Figure 1 is a perspective view of a front bob embodying the present invention. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a cross-sectional view. Fig. 4 is a perspective view of a section of the bearing-block. Fig. 5 is a detail perspective view of a detached knee. Fig. 6 is a detail perspective view of a modified form of knee and axle. Fig. 7 is a longitudinal sectional view through the same. Fig. 8 is a vertical cross-section through the upper end.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

Referring first to Figs. 1 to 5 of the draw-

ings, it will be seen that two runner-sections 10 are connected by an axle 11, upon which is supported spring-gear 12. The axle 11 is in the form of a continuous bar having at its ends the spindle portions 13. The runner-sections 11 each comprise a runner 14, having a forwardly-upturned end 15 and carrying an upstanding knee 16, bifurcated at its lower end and embracing the runner and held against movement by the braces 17. The upper end of this knee is provided with an enlarged transverse head or journal-boxing 18, having an opening 19 through the same to receive the spindle 13 of the axle. The upper face of the box has an inset semicircular bearing-face 20, which forms a continuous flange or shoulder 21, and has a transverse notch 22, for the purpose hereinafter shown.

Located upon each journal-box 18 is a bearing-block 23, which comprises an intermediate semicylindrical body portion 24, that bears upon the corresponding face 20 of the journal-box and is provided at its ends with collars 25, which surround the axle at the opposite ends of said journal-box. The edges of the semicylindrical body portion are normally spaced from the flange 21 of the journal-box, as shown in Fig. 2, and thus form abutting shoulders 26, which limit the swinging movement of the knee. The bearing-block 23 is rigidly fixed to the axle by means of a set-screw 27, that passes through the inner collar 25 and engages said axle, and also by means of a bolt 28, that passes entirely through the outer collar and spindle and also serves as means for fastening a step 29 in place upon the bearing-block. Each bearing-block is furthermore provided intermediate its ends and directly above the knee with a transverse supporting-arm 30, the ends of which project upon opposite sides of said block. This arm is provided with a longitudinally-disposed opening 31, which aligns with the transverse notch 22 of the journal-box. Bowed springs 32 connect the corresponding ends of the opposite arms 30, the ends of said springs being fastened to the arms by means of hanger-links 33, which are pivoted upon bolts 34, that pass through the openings 31 of the arms and the notches 22 of the journal-boxes. Secured to the springs

at their highest and central points is the fifth-wheel 35, the lower section 36 of which is fastened rigidly thereto, while the upper section 37 is pivotally connected to the lower section by means of an integral journal-stud 38, which passes through the central opening in the lower section, and by a pivot-bolt 39, which passes through the entire wheel. It will be observed that the journal-stud 38 relieves the pivot-bolt of all strain. The bolster 40 is fastened upon the upper section 37 of the fifth-wheel and supports the body of the vehicle. By this construction it will be seen that the sleigh-knees of the opposite runners each have an independent swinging movement, which is, however, limited by the shoulders of the bearing-blocks that are rigidly attached to the axle and have no independent movement therefrom. These bearing-blocks also serve to hold the knees against longitudinal movement and accidental displacement, and thus perform a double function. As a further security the pivot-bolts 34, engaging in the transverse notches 22 of the journal-boxes of the knees, assist in both limiting the swinging movement and holding the knees against longitudinal movement, so that all other fastening means might be dispensed with, if desired. Perhaps the most important feature, however, is the manner of distributing the weight and placing it directly over the knees, so that the axle is entirely relieved of the same, and a much lighter structure can be employed. Furthermore, it permits the use of springs which will absorb the jar and pitch of the runners when passing over rough roads, and said springs distribute the weight on opposite sides of the knee. In certain classes, however, it may be undesirable to employ springs, and the weight of the body may be placed directly upon the axle, in which case the modified construction shown in Figs. 6, 7, and 8 is employed. In this form the axle 11^a and spindle 13^a are used; but the stationary shoulders 26^a, corresponding practically to the shoulders 26 of the above-described construction, are formed integral with said axle. The knee is of the same general construction, having the journal-box 18^a, the stop-shoulders 21^a, however, being formed only at the inner end and coacting with the stationary shoulders 26^a of the axle, as in the former construction. This journal-box 18^a is also provided with a transverse notch or opening 22^a, through which passes a set-screw 34^a, that engages the axle and corresponds to the relatively stationary bolt 34 of the other construction. A nut 25^a is screwed on the outer end of the spindle. In this construction the fifth-wheel is designed to be secured directly to the axle.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape,

proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a sleigh, the combination with an axle having terminal spindles at its opposite ends and provided with outstanding shoulders located contiguous to the spindles, of sleigh-knees having journal-boxes mounted on the spindles and provided with outstanding shoulders that coact with and are arranged to abut against the shoulders of the axle to limit the swinging movement of the knees.

2. In a sleigh, the combination with an axle having terminal spindles at its opposite ends and provided with outstanding shoulders, of sleigh-knees having journal-boxes mounted upon the spindles, said journal-boxes being provided with outstanding shoulders located beneath the shoulders of the axle and arranged to abut against the same to limit the swinging movement of the knees, and means located at the opposite ends of the spindles to prevent longitudinal movement of said knees.

3. In a sleigh, the combination with an axle having a terminal spindle, and provided with an outstanding shoulder located contiguous to the spindle, of a sleigh-knee having a journal-box mounted upon the spindle and provided with an outstanding shoulder that coacts with and is arranged to abut against the shoulder of the axle to limit the swinging movement of the knee, and an auxiliary holding device secured to the axle and engaging the journal-box intermediate its ends.

4. In a sleigh, the combination with an axle having a terminal spindle and provided with an outstanding shoulder located contiguous to said spindle, of a sleigh-knee having a journal-box mounted upon the spindle and provided intermediate its ends with a transversely-disposed notch, said journal-box being furthermore provided with an outstanding shoulder located beneath the shoulder of the axle and arranged to abut against the same to limit the swinging movement of the knee, and a holding-pin secured to the axle and engaging in the transverse notch of the journal-box.

5. In a sleigh, the combination with an axle having a terminal spindle, of a knee having a journal-box rotatably mounted on the spindle, a body-supporting spring arranged longitudinally of the axle and having one end located beyond the inner ends of the terminal spindle and the journal-box, a support for the spring secured to the axle and arranged over the journal-box, and a link connecting the end of the spring and the support.

6. In a sleigh, the combination with runner-sections having journal-boxes, of an axle connecting the runner-sections and engaging in the journal-boxes, a spring having its opposite ends located above the runner-sections

tions, and means located over the journal-boxes for connecting the ends of the springs to the axle.

7. In a sleigh, the combination with runner-sections having journal-boxes, of an axle connecting the runner-sections and engaging in the journal-boxes, a spring having its opposite ends located above the runner-sections, and means located over the journal-boxes for connecting the ends of the springs to the axle, said means also constituting a stop to limit the swinging movement of the runner-sections.

8. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass, whereby the knees are pivotally mounted thereon, and bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle at the opposite end of said journal-boxes to prevent their longitudinal movement upon the axle.

9. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass, whereby the knees are pivotally mounted thereon, said journal-boxes being provided with shoulders, and bearing-blocks arranged longitudinally of the journal-boxes, and rigidly secured to the axle at the opposite ends of said journal-boxes to prevent their longitudinal movement upon the axle, said blocks being provided with shoulders that coact with those of the boxes to limit the swinging movement of the latter.

10. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass whereby the knees are pivotally mounted thereon, bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle at the opposite ends of the journal-boxes to prevent their longitudinal movement upon the axle, and a body-supporting spring connecting the bearing-blocks.

11. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass whereby the knees are pivotally mounted thereon, said boxes being provided with shoulders, bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle at the opposite ends of said journal-boxes to prevent their longitudinal movement upon the axle, said bearing-blocks being provided with shoulders that coact with those of the boxes to limit the swinging movement of the latter, and a bowed body-supporting spring connecting the bearing-blocks.

12. In a sleigh, the combination with an axle having spindles at its ends, of sleigh-

knees having journal-boxes through which pass the spindles whereby the knees are pivotally mounted thereon, bearing-blocks arranged longitudinally of the boxes and rigidly secured to the axle at the opposite ends of said boxes, transversely-disposed projecting arms carried by the bearing-blocks, and a body-supporting spring connecting said arms.

13. In a sleigh, the combination with an axle, of knees having journal-boxes at their upper ends through which the ends of the axle pass whereby the knees are pivotally mounted thereon, bearing-blocks arranged longitudinally of the journal-boxes and rigidly secured to the axle, transversely-disposed arms carried by the bearing-blocks and having their ends projecting upon opposite sides of the same, and springs connecting the corresponding ends of said arms.

14. In a sleigh, the combination with an axle having spindles at its ends, of sleigh-knees having journal-boxes through which the said spindles pass whereby the knees are pivotally mounted thereon, said boxes being provided with outstanding stop-shoulders, bearing-blocks arranged longitudinally over the boxes and having collars that surround the spindles at the opposite ends of the boxes, means carried by the collars and engaging the spindles to hold the same against independent movement, shoulders arranged on the bearing-blocks and coacting with the shoulders of the boxes to limit the swinging movement of the latter, transversely-disposed arms carried by the bearing-blocks and having their ends projecting upon opposite sides of the same, bowed springs arranged longitudinally of the axle and having links at their ends, and bolts passing through the transverse arms and engaging said links to fasten them to the arms.

15. In a sleigh, the combination with an axle, of a knee having a journal-box at its upper end that receives the axle, a bearing-block located over the journal-box and secured to the axle, and a body-supporting spring secured at one end to the bearing-block.

16. In a sleigh, the combination with an axle having a terminal spindle, of a knee having a journal-box rotatably mounted on the axle-spindle, a body-supporting spring arranged longitudinally of the axle and having one end located beyond the inner end of the knee journal-box, and a connection between said end of the spring and the axle.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN A. HEINTZ.

Witnesses:

P. L. WHITTIER,
ERICK MELBYE.