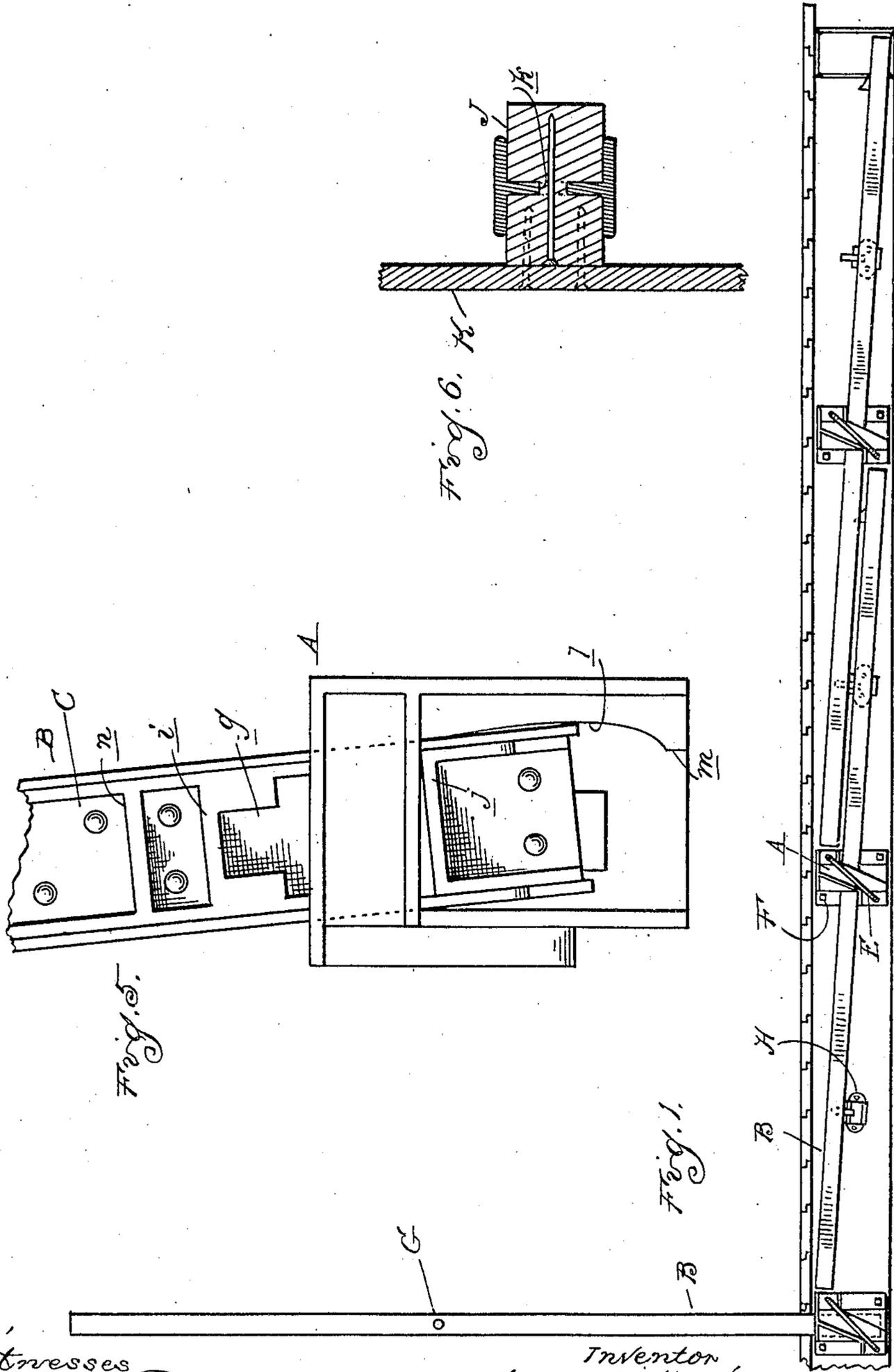


No. 843,206.

PATENTED FEB. 5, 1907.

G. L. HARVEY.
STAKE FOR VEHICLES.
APPLICATION FILED OCT. 11, 1906.

2 SHEETS—SHEET 1.



Witnesses
James P. Barry
Thos. O'Donnell.

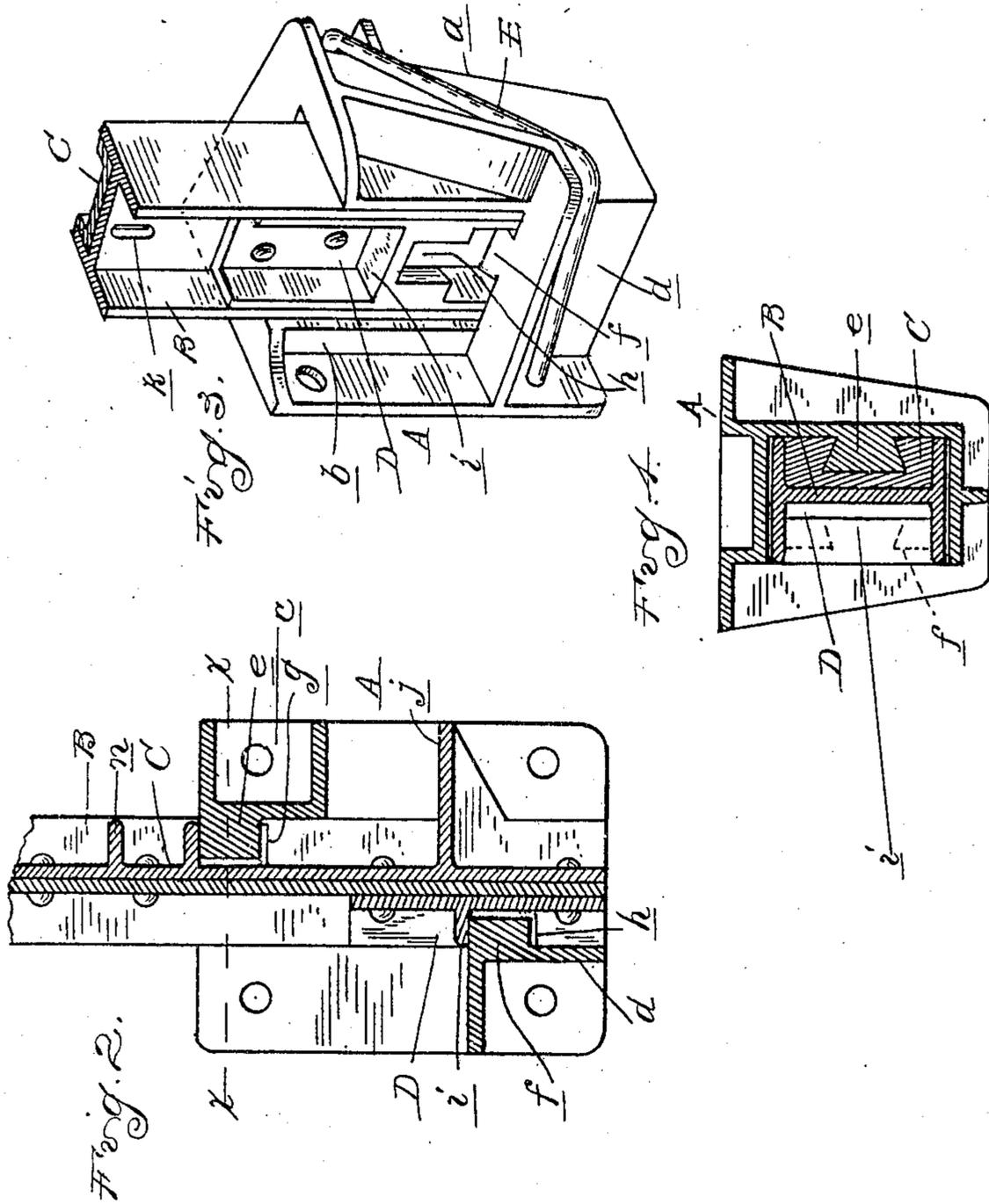
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UNITED STATES PATENT OFFICE.

GEORGE L. HARVEY, OF CHICAGO, ILLINOIS.

STAKE FOR VEHICLES.

No. 843,206.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed October 11, 1906. Serial No. 338,523.

To all whom it may concern:

Be it known that I, GEORGE L. HARVEY, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Stakes for Vehicles, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to stakes for use on vehicles, being more particularly designed for use in connection with railway flat-cars and belongs to the type known as "folding" stakes. These are characterized by the fact that they are permanently secured to the car and when not in use are folded or turned down into a substantially horizontal position adjacent to the car-sill.

It is the object of the present invention to obtain a construction in which the stake is easily erected or turned down and which in its upright position is firmly held from displacement.

A further object of the construction is to permit the use of long stakes spaced from each other by a distance considerably less than their height and which at the same time are capable of being folded or stored without interference with each other.

With these objects in view the invention consists in the construction of the stake and the cooperating pocket or socket member therefor, as hereinafter set forth.

In the drawings, Figure 1 is a side elevation of a portion of a car, showing one stake in upright position and two in folded or knockdown position. Fig. 2 is a vertical central section in a plane parallel to Fig. 1 through the stake-pocket and a portion of the stake. Fig. 3 is a perspective view thereof; and Fig. 4 is a horizontal section substantially on line $x x$, Fig. 2. Fig. 5 is a side elevation illustrating the manner of relieving the stress of the load from the stake when the latter is to be folded. Fig. 6 is a horizontal section through the stake, illustrating the manner of bracing the same.

A is the pocket member, preferably formed of cast metal and provided with a central vertically-extending recess and an intersecting horizontal recess. These recesses are formed between front and rear walls $a b$ of the pocket, which are connected at diagonally opposite corners by the bearing mem-

bers $c d$, all of said parts being preferably cast integral. The bearing members $c d$ are provided with angling faces, which form guides on opposite sides of the stake B when in upright position and also guides respectively above and below the stake when in horizontal position. The space between said bearings is sufficient to permit the turning of the stake from the perpendicular to the horizontal.

The stake member B is preferably formed of a metallic bar of structural shape—such, for instance, as an I-beam—and this bar is of a section permitting it to slide longitudinally through the recesses in the pocket. Between the stake-bar B and the pocket member there is formed an interlocking engagement, by which the stake when in use is held rigidly in upright position, the construction being preferably as follows: e and f are lugs extending inward from the bearing members $c d$, respectively, into the channels upon opposite sides of the bar B. These lugs are undercut or of dovetail shape, adapted to longitudinally engage with a complementary socket on the stake member B. The said sockets are preferably formed by cast members C and D, which are inserted in the channels of the bar B and riveted or otherwise secured to the web thereof. The sockets g and h are open at the bottom, but at the top are closed by portions i , which rest upon the lugs e and f , limiting the downward movement of the stake. The member C, in addition to forming the socket for the lugs e , extends upward and forms a reinforcement for the stake, which strengthens the latter at the point of greatest stress. The said member C also extends downward and is provided with a laterally-projecting lug or flange j , which forms a stop, preventing the movement of the stake upward a sufficient distance to disengage it from the pocket.

The pocket member A is secured, preferably, to the side sill of the car and preferably by means of a U-bolt E, extending diagonally across the pocket and having its parallel shanks arranged, respectively, adjacent to the bearings c and d , passing through apertures in the rear plate b . In addition to this securing-bolt straight bolts F are arranged at the other two corners of the pocket member, passing through apertures in the rear plate.

With the construction as described in use

the stake is first engaged with the socket by slipping it upward therethrough, and when once engaged disengagement is prevented by a stop G. This is arranged intermediate the ends of the stake, preferably near the center, and may be formed by a bolt. To secure the stake in upright position, it is turned at a sufficient angle to permit of the members C and D passing above the lugs *e f*, after which the stake is turned in vertical position and dropped downward to engage the said lugs *e f* with the sockets *g h*. By reason of the undercut or dovetail engagement these lugs and sockets will hold the stake securely to the bearings *c d*, while the bearings *i* will prevent downward movement. Thus the stake is held rigid during use.

To drop the stake, it is first raised a sufficient distance to disengage the lugs *e f* from the sockets *g h* and is then turned slightly at an angle and lowered. During the lowering the stake may be further turned, so that its final position is a substantially horizontal arrangement, with portions extending on opposite sides of the pocket member A. Thus the length of the stake may be equal to double the space between the pocket members. As the stakes are successively lowered they will be arranged so as to overlap each other, as illustrated in Fig. 1, and to hold them in this position a suitable catch may be provided, such as indicated at H. This overlapping of the stakes does not in any way interfere with the raising of any one.

I preferably form in the web of the I-bar forming the stake a plurality of elongated apertures *k*, which permit the placing of timbers in the channel of the bar and securing them by nailing through the said apertures. The reason for elongating the aperture is to avoid the necessity of accurately positioning the nails.

When the stakes are to be folded preparatory to unloading the car, they are generally subjected to considerable lateral stress, due to the load. To relieve this stress, I have provided a clearance which as soon as the stake is unlocked will permit it to move outward into an angular position, clearing the load. As shown, this is accomplished by forming a depression *l* in the inner side of the pocket member above a bearing portion *m* thereon, which normally holds the stake in vertical position. This recess will permit the lower end of the stake to move inward as soon as it is disengaged from the lugs *e* and *f*, thereby allowing the upper end of the stake to swing outward away from the load.

To facilitate the initial lifting of the stake while under the lateral stress of the load, a bearing is provided for the application of leverage, preferably a rib or cross-bar *n* on the reinforcing-casting C. This is so arranged that in the normal position of the stake it will be a slight distance above the top of the

pocket-casting A, as illustrated in Fig. 2, so that a crowbar having its fulcrum on the member A can be engaged with the rib *n* to pry upward the stake. The bearing *i* may also be used for a lower bite of the lever if necessary to disengage the stake from the lugs *e* and *f*.

In Fig. 6 is illustrated a means of bracing the stakes by connecting stakes on opposite sides of the car with cross-braces. For this purpose wooden inserts J are placed between the flanges of the stake on opposite sides of the web and are secured in position by nailing through the apertures *k* in the web. A wooden cross-brace K is then nailed or otherwise secured to these inserts.

While I have shown and described the locking means for the stake as formed of separate castings, it is obvious that these parts may be made integral with the stake proper.

In addition to its function of permitting the relieving of stress of the load from the upper end of the stake the depression *l* in the socket provides a clearance by which a bent stake may be moved through the socket.

What I claim as my invention is—

1. A vehicle-stake comprising a pocket member, a stake member in engagement therewith and adjustable therein from a vertical to a horizontal position and cooperating means on said members integral therewith for locking the stake in upright position.

2. The combination with a stake, of a pocket member therefor provided with intersecting vertical and horizontal recesses for engagement with a stake and permitting the swinging thereof, and interlocking means respectively on said stake and pocket member for holding the former in vertical position, said interlocking means being engageable or disengageable by the vertical movement of the stake.

3. The combination with a stake, of a pocket member recessed for the engagement of said stake and permitting a swinging of the latter from vertical to horizontal position, a bearing for limiting the swinging of the stake beyond the vertical position, and means of engagement between said bearing and the stake for locking the latter in said vertical position.

4. The combination with a stake, of a pocket member therefor recessed for the engagement of said stake and permitting a swinging thereof from vertical to horizontal position, diagonally opposite bearings in said pocket member for limiting the swinging of said stake, and means for interlocking said stake with both of said bearings to hold the former in upright position.

5. The combination with a stake, of a pocket member therefor permitting the swinging of a stake from vertical to horizontal position, a bearing for limiting the swinging of the stake, interlocking dovetails on

said stake and bearings engageable and disengageable by a longitudinal movement of the stake locking the latter in vertical position.

5 6. A vehicle-stake comprising a flanged bar, and a member secured to a portion thereof forming a reinforce for the bar.

7. The combination with a stake-pocket member, of a stake for engaging said pocket formed of a flanged bar and a reinforcing member arranged in the flanges of said bar and engaging the pocket member.

8. The combination with a stake formed of a flanged bar, of a pocket member with which said stake is engaged permitting of swinging the latter from vertical to horizontal position, and a combined reinforce and locking member between the flanges of said bar, and a cooperating locking member on said pocket whereby the stake is held in vertical position.

9. The combination with a sill of a vehicle, of a stake-pocket fixedly secured to said sill, a stake engaging said pocket movable therein from a vertical to a horizontal position, and cooperating members integral therewith on said pocket and stake for locking the latter in vertical position.

10. The combination with a vehicle-sill, of a stake-pocket fixedly secured to said sill, a stake in engagement with said pocket longitudinally and angularly movable therein, and means for locking the stake when in vertical position from angular movement.

11. The combination with a vehicle-sill, of a plurality of stake-pockets fixedly secured thereto, and stakes longitudinally and angularly adjustable in said pocket, each movable from a position where it extends vertically above the pocket to a position where it extends upon opposite sides of the pocket parallel to the sill and overlapping the stake in the adjacent pocket.

12. The combination with a vehicle-sill, of a stake-pocket fixedly secured thereto, a stake longitudinally and angularly adjustable in said pocket from an upright position to a horizontal position, and a catch for holding said stake in horizontal position.

13. The combination with a stake, of a stake-pocket therefor having a rectangular base and recessed for the angular adjustment therein of said stake from vertical to horizontal position, a U-bolt diagonally embracing said pocket and passing through apertures in two of the angles of said base and straight bolts for securing the other two angles of the base.

14. A vehicle-stake comprising a flanged

bar having an elongated aperture through the web portion thereof, for the purpose described.

15. In a folding stake for vehicles, a pocket member rigidly attached to the vehicle, a flanged stake member, and a reinforcing member secured to said stake extending into and above the pocket.

16. In a foldable vehicle-stake, a pocket member and a stake member engaging the same longitudinally and angularly movable therein in a plane parallel to the side of the car, and means for permitting a limited movement of the stake to relieve the same from the lateral stress of the load upon a slight shifting of said stake in the socket.

17. A folding vehicle-stake comprising a pocket member, a stake member adjustable therein from vertical to horizontal position, means for locking said stake in vertical position, and means for permitting a limited movement of the stake to relieve the same from the lateral stress of the load upon the disengagement of said locking means.

18. The combination with a stake, of a pocket member having separated bearings for the stake, and a clearance intermediate said bearings permitting the movement through said pocket of a bent stake.

19. In a vehicle-stake comprising a pocket member and a stake member, cooperating bearings on said stake and pocket members for the application of leverage to initially move the stake.

20. A vehicle-stake comprising a stationary pocket member, a stake member adjustable therein in a plane parallel to the side of the vehicle in a knocked-down position, and means operating in the initial movement of said stake for relieving the same from the lateral stress of the load.

21. The combination with a metallic vehicle-stake having a flanged section, of a wooden insert for filling said section, and a brace for said stake secured to said insert.

22. The combination with a vehicle-stake having a flanged section and an aperture through the web of said section, of a pair of wooden inserts arranged upon opposite sides of said web and nailed to each other through the aperture therein, and a brace for said stake secured to one of said inserts.

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

GEORGE L. HARVEY.

Witnesses:

JAMES P. BARRY,
NELLIE KINSELLA.