W. F. DROSTE.

CAR STAKE.

APPLICATION FILED JULY 26, 1913.

1,073,892. **Patented Sept. 23, 1913.**

Fig. 1

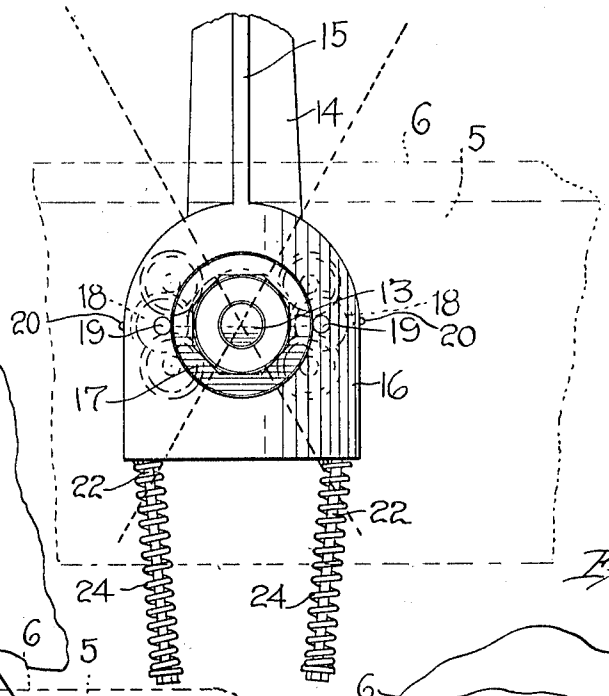


Fig. 2

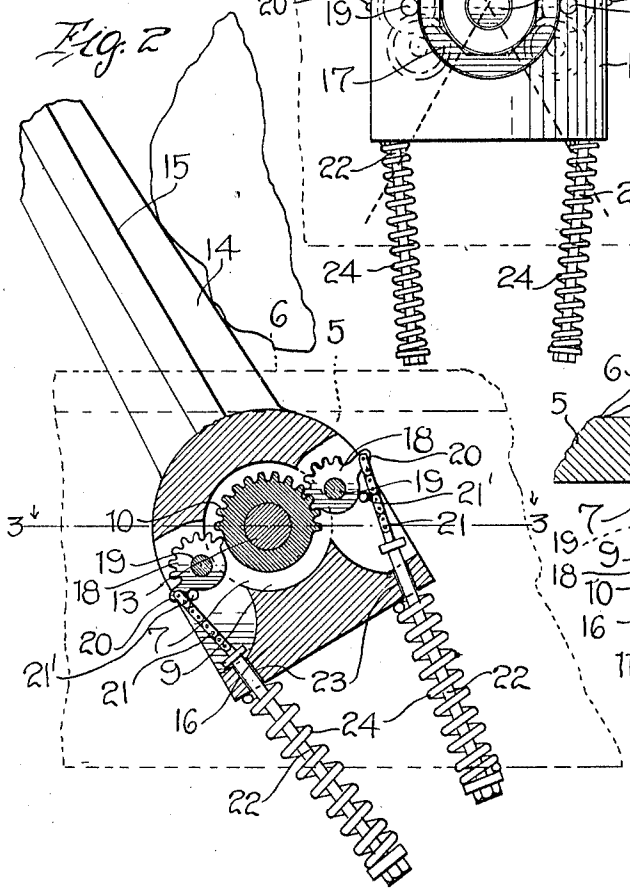
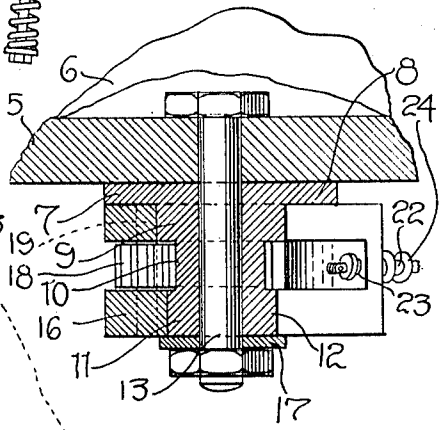


Fig. 3



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CAR-STAKE.

1,073,892. Specification of Letters Patent. Patented Sept. 23, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM F. DROSTE, a citizen of the United States, residing at Waverly, in the county of Bremer and State of Iowa, have invented certain new and useful Improvements in Car-Stakes, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in car stakes and more particularly to a device of this character which is designed for use in connection with flat cars used for grading and similar purposes, the invention having for its primary object the provision of improved means for mounting the stake whereby liability of the same being broken by the engagement of rocks or other objects therewith is obviated.

The invention has for a further object the provision of new and novel means for normally yieldingly holding the stake in an upright or vertical position upon the side sill of the car, said means admitting of the oscillatory movement of said car stake longitudinally of the car when the same is subjected to pressure.

The invention has for another and more specific object, the provision of a car stake provided upon its lower end with a housing, a mutilated gear rigidly fixed to the side sill and disposed centrally within the housing, additional mutilated gears mounted within said housing and movable with the stake around said fixed gear, and means connected to said latter movable gears for returning the car stake to its normal vertical position.

The invention has for still another object the provision of a device of the above character which is simple and durable in its construction, may be easily and quickly mounted in proper position upon the car without necessitating any alterations in its construction, and may be manufactured at comparatively small cost.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a side elevation of my improved car stake showing the same mounted upon a flat car; Fig. 2 is a view similar to Fig. 1, the gear housing being in section and showing the stake after the same has been moved out of its normal vertical position; Fig. 3 is a section taken on the line 3—3 of Fig. 2.

Referring in detail to the drawing, 5 designates one of the longitudinal sills and 6 the platform of a flat car such as is commonly employed in grading a road bed and analogous work. To the outer face of the car sill 5, a spindle generally indicated by the numeral 7 is rigidly fixed. This spindle embodies a circular base or attaching plate 8 having a cylindrical hub or extension 9 projecting from one face thereof. Upon this hub or extension the mutilated gear 10 is integrally formed, the teeth of said gear extending through an arc of substantially 180 degrees and above the axial center of the spindle. The outer end 11 of the spindle 7 is of solid cylindrical form but of less diameter than the spindle section 9. This outer end section 11 of the spindle provides a substantially semi-circular flange 12 projecting beyond the plane of the untoothed peripheral face of the mutilated gear 10. The spindle 7 is provided with a central longitudinal bore to receive the attaching bolt 13 which extends through an opening provided in the car sill 5. The attaching plate 8 is also provided with suitable openings to receive the fastening screws or bolts whereby the spindle is rigidly fixed to the car sill.

The car stake 14 consists of a metal casting which preferably tapers from its lower to its upper end and is provided upon its outer face with a central longitudinally tapering rib 15. The lower end of this stake has integrally formed therewith an enlarged housing 16, the opposed walls of which are provided with openings of relatively different diameters to receive the spindle sections 9 and 11 respectively upon which said stake is adapted to oscillate. A suitable washer plate 17 is arranged upon the outer end of the attaching bolt 13 over the opening in the outer wall of the housing 16.

Within the casing 16 of the stake the half gears or pinions 18 are rotatably mounted upon the rods or shafts 19 which are fixed at their ends in the opposed walls of the housing. The teeth of these mutilated pinions are normally disposed above the shafts 19 and adapted for meshing engagement with the stationary mutilated gear 10, said pinions being located upon opposite sides of the stationary gear as clearly shown in the drawing. Each of the mutilated pinions 18 is provided at one end of its series of teeth with an ear or lug 20 to which one end of a short chain 21 is connected. These lugs are adapted to engage the stop pins 21′ to limit the rotation of the pinions 18 in one direction. The other end of this chain is attached to a rod 22 loosely disposed through an opening 23 in the bottom wall of the housing 16. A coil spring 24 is arranged upon this rod between a nut threaded on the lower end thereof and the under side of the housing.

From the foregoing the construction and manner of operation of my invention will be clearly and fully undersood. When rock or other material is being unloaded by means of a steam shovel from the flat car, in the be clearly and fully understood. When rock or other material is being unloaded by means of a steam shovel the flat car, in the event that the upstanding stake 14 should be struck, the stake will rock or turn upon the spindle 7, and one of the mutilated pinions 18 carried by said stake, meshing with the teeth of the stationary half gear 10 will be rotated, while the untoothed portion of the other pinion 18 slides upon the untoothed part of the gear 10 between the spindle extension 9 and the semi-circular flange 12 thereof. It will be obvious that in this movement of the stake, the pinion which is rotated will exert a pull upon the rod 22 which is connected to said pinion through the medium of the chain 21. In this movement of the rod 22, the spring 24 arranged thereon is placed under tension. Thus when the pressure of the obstruction against the stake 14 is removed, said spring will exert a pull upon the chain 21 thereby reversing the rocking movement of the pinion 18 to which said chain is connected and returning the stake 14 to its normal upright position. By thus mounting the stake so that it will readily yield to pressure, liability of the same being broken when struck by the objects being loaded upon the car is eliminated. The stake is, however, at all times normally held in its upright vertical position against casual or unintentional movement.

The invention as above described consists of comparatively few parts which are all of simple form, thereby conducing to small cost in the manufacture of the device and admitting of its easy and quick application to the car without necessitating the employment of skilled labor or requiring any alteration in the car construction. The device is also extremely durable as well as highly serviceable and efficient in practical use.

While I have shown and described the preferred construction and arrangement of the several elements employed, it will be understood that the invention is susceptible of various modifications therein and I reserve the right to resort to all such legitimate changes as may be fairly embodied within the spirit and scope of the invention, as claimed.

Having thus described the invention, what is claimed is:

1. The combination with a car, of a stationary element fixed thereto, a stake movable with relation to said stationary element, and means normally acting to yieldingly hold said stake in a vertical position with relation to the car, said means including movable members carried by the stake and coacting with said stationary element.

2. The combination with a car, of a spindle fixed to the side sill of the car, a stake mounted upon said spindle for rocking movement, said spindle being provided with a series of teeth, and means carried by the stake for yieldingly holding the same in a vertical position with relation to the car, said means including a movable element coacting with the teeth of said spindle.

3. The combination with a car, of a spindle fixed to the side sill of said car and having a series of teeth formed thereon, a stake mounted upon said spindle for rocking movement, a pair of mutilated pinions rotatably mounted upon the stake on opposite sides of said series of teeth and meshing therewith, springs normally acting to hold the stake in an upright position upon the car sill, and means connected to the respective pinions for tensioning the springs when the stake is rocked upon the spindle.

4. The combination with a car, of a spindle fixed to the side sill of said car and having a semi-circular series of teeth formed thereon intermediate of its ends, a stake provided with a housing upon its lower end mounted for rocking movement upon said spindle, mutilated pinions rotatably mounted in said housing upon opposite sides of the spindle and meshing with the teeth thereof, a pair of rods movable through the bottom wall of the housing and connected to the respective pinions, and springs arranged upon the lower ends of said rods to yieldingly hold the stake in a normal upright position upon the car sill.

5. The combination with a car, of a spindle fixed to the car sill and provided with a semi-circular series of teeth intermediate of its ends, a stake having a housing formed

upon its lower end mounted for rocking movement upon said spindle, a pair of mutilated pinions rotatably mounted in said housing upon opposite sides of the spindle and meshing with the teeth thereof, a pair of rods movable through the bottom wall of the housing, flexible connections between the rods and the respective pinions, and coil springs arranged upon said rods exteriorly of the housing to yieldingly hold the stake in a normal upright position upon the car sill.

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

WILLIAM F. DROSTE.

Witnesses:

G. O. VAN DEY,

C. C. RUNYARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."