

J. A. TOOMEY.

STAKE FOR CARS.

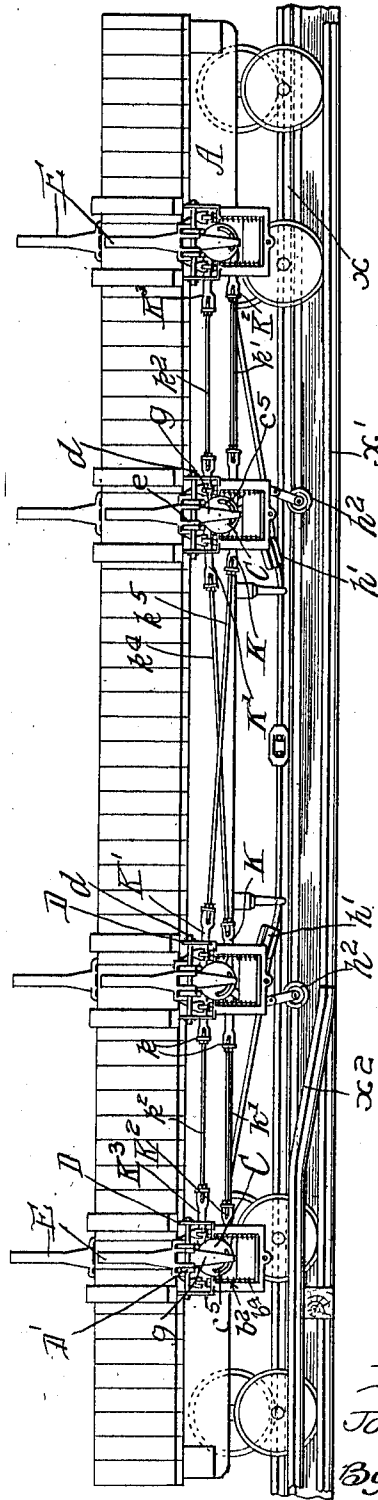
APPLICATION FILED NOV. 18, 1908.

1,004,311.

Patented Sept. 26, 1911.

4 SHEETS—SHEET 1.

Fig. 1



Witnesses
R. A. White.
Harry R. L. White

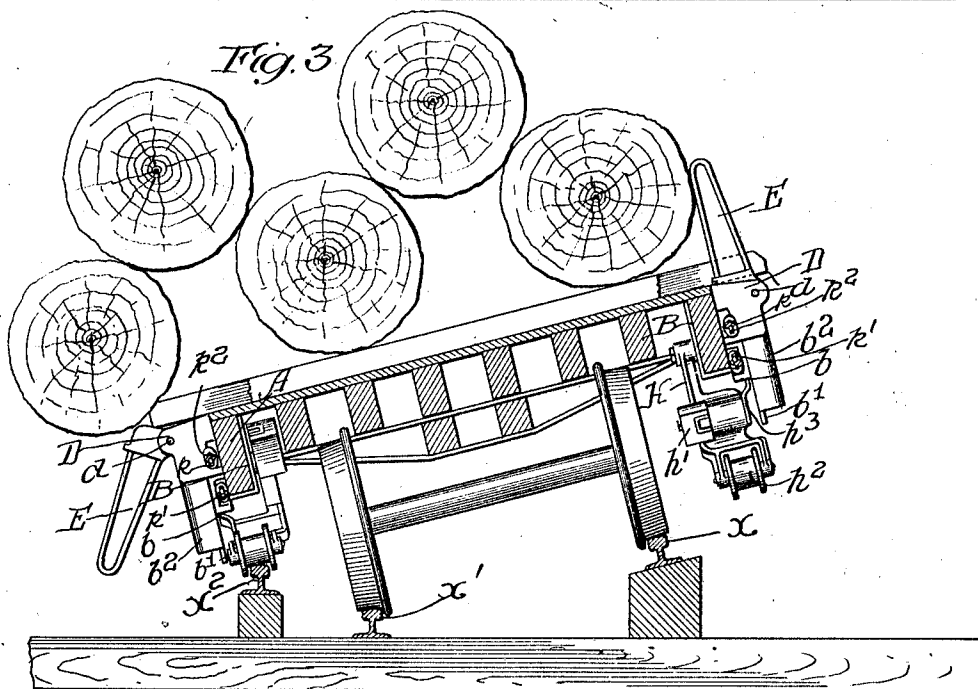
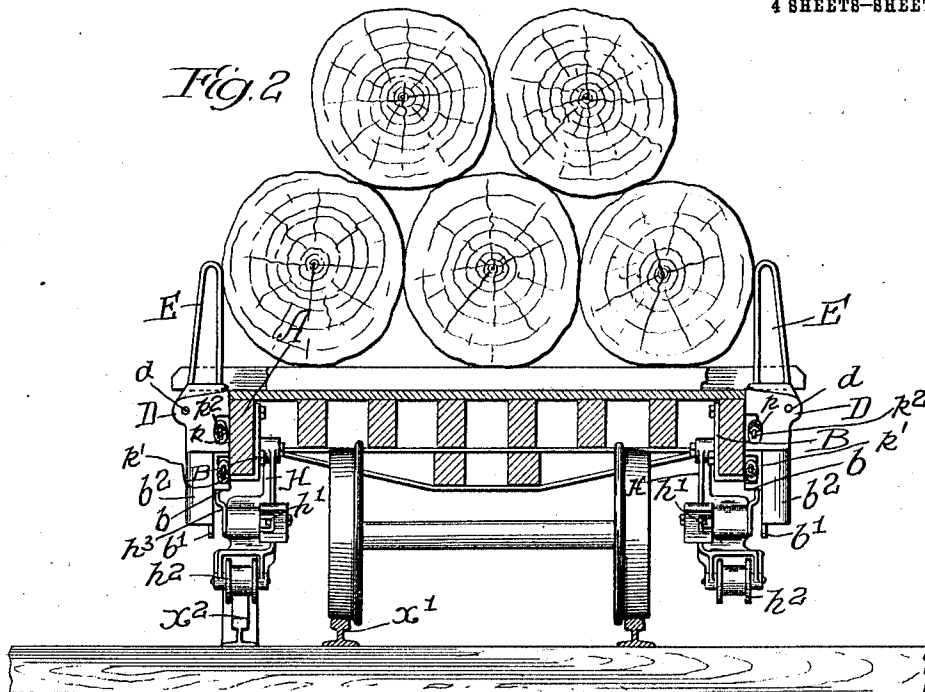
Inventor
John A. Toomey
By Charles E. White
Att'y.

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4 SHEETS-SHEET 2.



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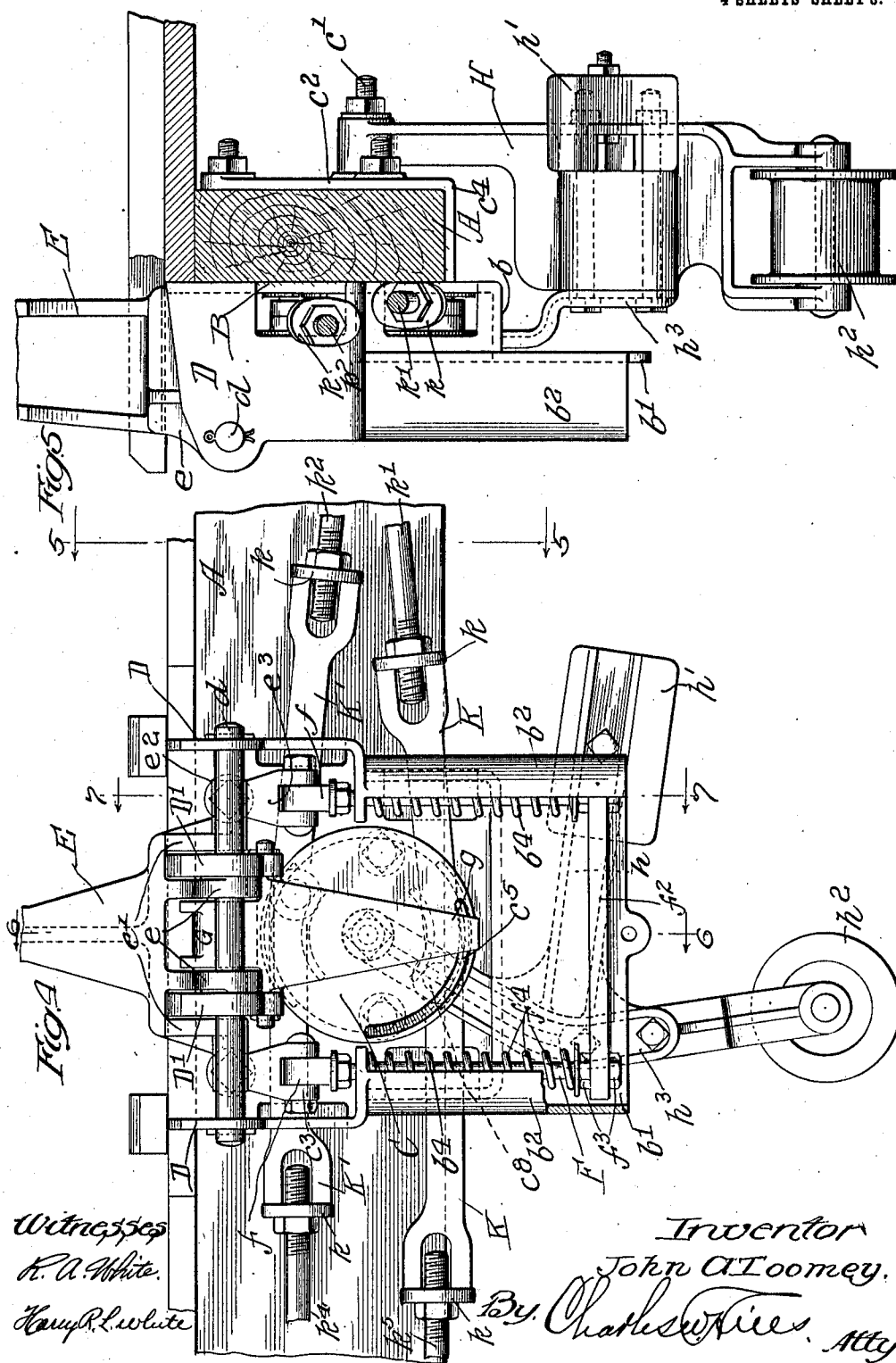
Inventor
J. A. Toomey.
By Charles W. Fries Atty.

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Harry R. White

Inventor
John A. Toomey.
By Charles W. White, Atty.

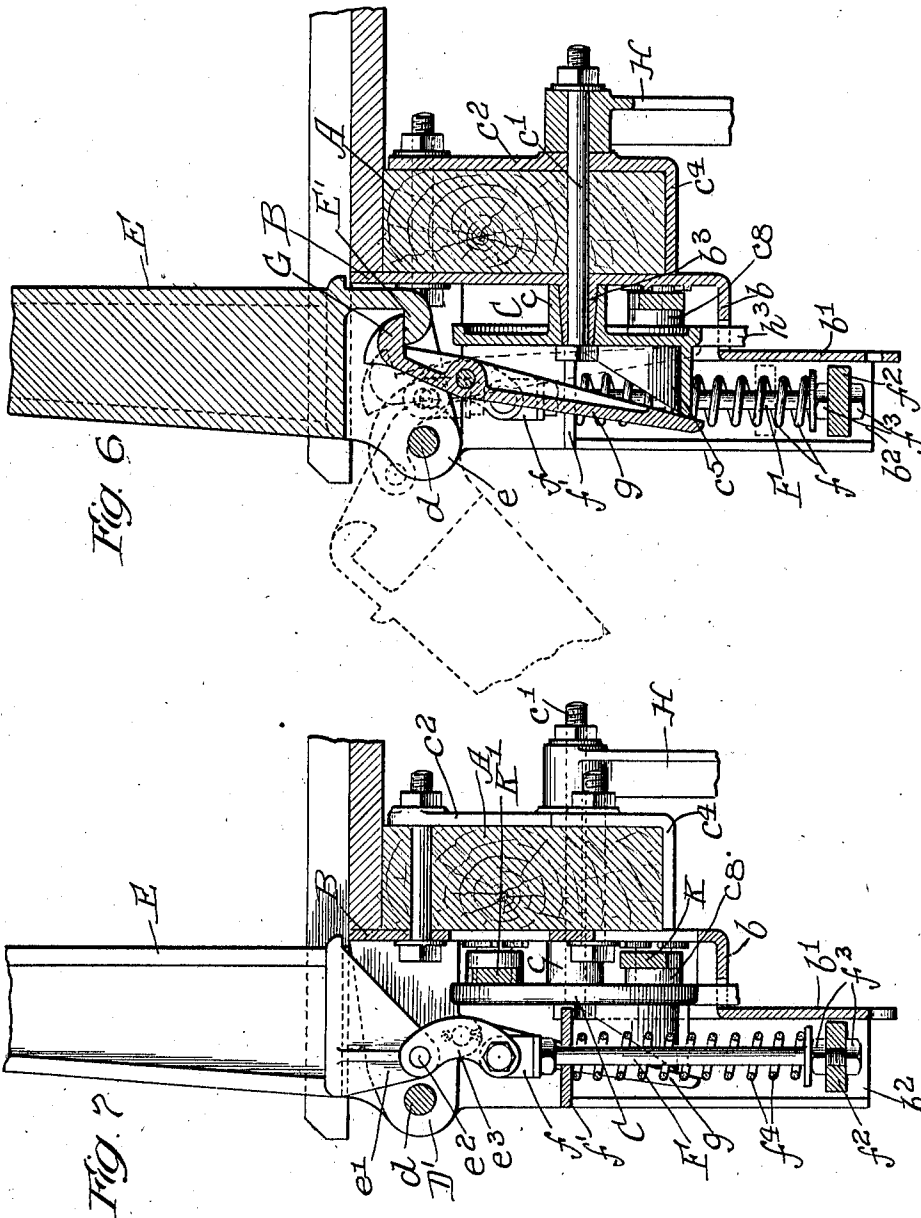
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4 SHEETS—SHEET 4.



Witnesses
R. A. White,
Harry R. L. White

Inventor
John A. Toomey,
By Charles W. Fier, Atty.

UNITED STATES PATENT OFFICE.

JOHN A. TOOMEY, OF CHICAGO, ILLINOIS.

STAKE FOR CARS.

1,004,311.

Specification of Letters Patent.

Patented Sept. 26, 1911.

Application filed November 18, 1908. Serial No. 463,322.

To all whom it may concern:

Be it known that I, JOHN A. TOOMEY, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Stakes for Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This application relates to stakes for cars of that class known as "logging" cars, and on which the logs, extending longitudinally the car and held from movement by the stakes, can be rolled from the car only when the stakes are removed or depressed. Heretofore cars of this class have usually been provided with temporary stakes of wood, which are inserted in the stake pockets and when it is desired to unload the car, are removed or chopped off to permit the logs to be rolled from the deck.

The object of this invention is to afford a car stake adapted to be secured on the sides of a car provided with a locking means whereby the stake is normally held in an upright position, and also provided with a mechanism connected with all of the stakes on the same side of the car adapted to simultaneously unlock or release the stakes.

It is also an object of the invention to afford a car equipped with stakes adapted to normally lock when in upright position and connected by means permitting all the stakes on one side of the car to be simultaneously and automatically released to discharge the load thereover.

It is the further object of the invention to afford a logging car having adjustable stakes thereon, said stakes being physically connected by a mechanism adapted when actuated to release all the stakes on that side of the car and to provide in connection therewith a trigger adapted to actuate the release mechanism by engagement with a third rail placed alongside of the track.

It is a further object of the invention to provide in connection with the car provided with stakes such as described, a tippie adapted to incline the deck of the car at an angle sufficiently to cause the logs to roll therefrom when the stakes are released and provided in connection therewith with suit-

able means for releasing all the stakes on one side of the car.

The invention embraces many novel features and consists of the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a side elevation of a device embodying my invention showing the car upon the tippie. Fig. 2 is an enlarged central section of a device embodying my invention, showing the same with the stakes locked. Fig. 3 is a similar view showing the car upon the tippie and the stakes upon the lower side of the car released. Fig. 4 is an enlarged fragmentary front elevation of the stake and the locking and adjusting means therefor. Fig. 5 is a section taken on line 5—5 of Fig. 4. Fig. 6 is a section taken on line 6—6 of Fig. 4. Fig. 7 is a section taken on line 7—7 of Fig. 4.

As shown in the drawings: A, indicates the side sill of a car of the usual type ordinarily used for logging purposes, and constructed in any suitable manner for the purpose of supporting logs or the like on the deck or platform thereof. Said car, as shown, is provided with stakes, as shown four in number, on each side, although, of course, a greater number may be employed, if desired, said stakes being adapted to be released in discharging the load. Each of said stakes, as shown, comprises the stake and the locking and releasing mechanism therefor, said locking mechanism affording the means for securing the stake to the car side, and serving in lieu of a stake pocket. Said locking mechanism, as shown, comprises first a casting or forging of metal adapted to be rigidly bolted to the car sill, and comprising a plate B, which extends downwardly alongside of the outer face of the sill and horizontally outward therefrom, as indicated by *b*, below the sill and from the outer edge, said outwardly turned portion of the casting or forging having in each side thereof, and integral with the outer downwardly extending portion *b'*, semi-cylindric casings *b''*, one on each side thereof and opening inwardly. Integrally secured on the sill plate B, and affording part of said casting or fitting, is a conical projection *b'''*, adapted to afford a self-fitting journal for a locking cam C. Said locking cam, as shown, is provided with a central

hub c , bored to fit on said bearing projection b^3 , and is retained in place thereon by means of a pivot bolt c' , which extends there-
 5 through and through the sill and also through a back plate c^2 , bolted on the inner side of the sill and extending downwardly beneath the same, and provided with an out-
 10 wardly turned flange c^4 , which bears against the sill plate B, on the rear side thereof, and below the sill. Said casting or sill plate is
 also provided on each side thereof near the top with integral, outwardly projecting
 15 flanges D, through which extends the pintle or shaft d , on which the stake E, is pivotally engaged. Said stake may be of any
 suitable structural form to afford strength with comparatively light weight, and is pro-
 20 vided on the front side thereof at its lower end with knuckles e , which extend outwardly beyond the center of the stake and through
 which the pintle d , extends. Said stake is also provided at its lower end with bracket
 25 arms e' , one on each side thereof, which extend laterally and outwardly from the stake, as shown in Figs. 4 and 7, and are provided
 with gudgeons e^2 , extending longitudinally of the car and in alinement, on which are
 30 journaled the upper ends of links e^3 , which are convex on the inner side or that adjacent the sill, and concave on the outer. At
 their lower ends, said links pivotally engage the eye f , in the upper end of the tension rod
 F, one of which lies on each of the cylindric casings on each side of the sill plate. As
 35 shown, said tension rods extend through a transverse web or head at the upper end of each casing, and at their lower end extend
 through a connecting bar f^2 , and are engaged thereto by suitable nuts f^3 , as shown
 40 in Figs. 4, 6 and 7. A strong coiled spring f^4 , is engaged on each rod and bears against the web or head f' , and against the connect-
 ing bar f^2 , and serves at all times to force said rods downwardly, thereby throwing the
 45 stake to upright position, as shown in Fig. 7.

Pivotally engaged on brackets D' , which extend from the sill plate forwardly upon
 the outer side of each arm e , of the stake, and provided with an aperture for the pin-
 50 tle d , which extends therethrough, is a dog or latch comprising a tail g , which extends downwardly below the cam or locking plate
 and a head G, which extends upwardly beneath the lower end of the stake and is
 55 adapted to engage the outwardly engaging lip E' , thereon, as shown in Fig. 6.

Secured on the locking cam C, near the periphery thereof, and on the lower side is
 an inclined face or web c^5 , adapted when the
 60 cam plate is rotated in one direction to engage the tail g , and force the same into en-
 gagement with a lip or shoulder E' , on the stake and when rotated in the opposite di-
 65 rection acts to release said tail and permit the dog to release said lip, as shown in dot-

ted lines in Fig. 6. As shown, the dog head G, when in position to engage the lip, ex-
 tends inwardly from the pivot sufficiently that upward draft thereon by the stake occa-
 70 sioned by the outward pressure on the top of the stake, serves to release the latch when
 the tail of the latch is free to move inwardly.

Means are provided for automatically ro-
 75 tating all the cam or locking plates on the same side of the car simultaneously to re-
 lease all the stakes, and also to return and lock the same in normal position after the
 stakes have been released. For this pur-
 80 pose, as shown, the pivot bolt c' , extends beyond the back sill plate c^2 , and pivoted
 thereon is a lever H, one for each of the middle stakes. Said lever, as shown, is bent
 at its middle toward the adjacent end of the car and on the inner or concave side of the
 85 same is provided at its middle with an integral arm h , provided at its end with a
 weight h' . At the lower end of each of said levers is provided a roller or wheel h^2 .
 Bolted on said lever on the outer side there-
 90 of, is a curved arm h^3 , which curves inwardly and upwardly through a slot in the
 lower horizontal portion of the sill plate b , and is rigidly secured to the cam or locking
 plate, and may be integral therewith, if
 95 preferred.

On the rear side of the locking or cam plate, are provided crank pins c^6 , one above
 and the other below the center thereof, as
 100 shown in Figs. 4, 6, and 7, and pivotally engaged on each of the same are connecting
 bars K—K', each provided at the end with an adjusting nut k , adapted to engage the
 threaded ends of the connecting rods k^1 — k^2 ,
 105 extending from the outer ends of the connecting bars K—K', to the inner ends of the
 connecting bars K²—K³, on the front or rear stake mechanism, and as shown, cross rods
 k^4 — k^5 , connect the inner end of each of the
 upper connecting bars of one of the middle
 110 stake mechanisms with the end of the lower connecting bar of the adjacent middle stake
 mechanism, thus crossing said rods, and of necessity causing the locking plates at one
 end of the car to rotate oppositely from the
 115 locking or cam plates at the other end, and consequently the inclined webs or cams on
 said plates which engage the tail with the dog, are inclined oppositely, the inclination
 in each instance being toward the middle of
 120 the car.

The operation is as follows: The car pref-
 erably is unloaded upon the tippie, as shown
 in Fig. 3, in which the outer track rail X, is
 125 elevated sufficiently above the inner track
 rail X', to cause the logs to roll from the car when the stake on the lower side of the
 car is released, and, for releasing said stakes
 a third rail X², is provided on said lower
 130 side of the car and inclining upwardly at

the one end to permit one of the rollers h^2 , of the actuating levers to engage the same, as shown in Figs. 1, 2, and 3. As the car passes onto the tippie and at about the point where the inclination of the deck of the car has been sufficient to discharge the load therefrom, said roller engages on the inclined end of the rail X^2 , and as the car moves forwardly, said roller moving up the incline shifts all said cam or locking plates simultaneously by partly rotating them, those at one end of the car rotating oppositely from those at the other, thus releasing the tails of all of the locking dogs at the same moment. The tail of the locking dog is now permitted to swing inwardly instantly releasing the stake, and permitting the same to swing outwardly under pressure of the logs against the same, thus putting the springs f^2 , under tension, as shown in dotted lines in Fig. 6, by drawing the links f^5 , upwardly over the pintle d . When the car is unloaded after the last log has rolled from the car, the tension of said springs tends to throw the stakes to upright position and simultaneously the weight h' , tends to swing the lever h , downwardly to the position shown in Figs. 1 and 4, thus again forcing the head of the dog inwardly into engaging position and locking the stake in place.

Of course, the stake may be of any desired length or other dimensions and numerous details of construction may be varied without departing from the principles of this invention, and, of course too, while the invention is described with reference to logging cars, stakes of the class described may be employed in connection with cars used for any other purpose, if desired, without departing from the principles of this invention.

I claim as my invention:

1. A car stake adapted for permanent attachment to the side of a car, a spring normally holding the stake in elevated position, a detent for locking the same in elevated position, a releasing lever, and connections to permit all the stakes on one side of the car to be simultaneously released.

2. In combination with a car, stakes hinged thereto, means normally elevating said stakes, a lock for holding the same elevated, and operative connections for simultaneously releasing all the stakes on one side of the car.

3. In combination with a car of the class described, stakes hinged to the side thereof and normally locked in elevated position, and operative connections for simultaneously and automatically releasing all the stakes on one side of the car.

4. A device of the class described embracing car stakes adapted to be hinged to a flat car, a dog acting to hold said stakes

in upright position, operative connections adapted to simultaneously release the dogs from all the stakes on one side of the car, and a lever for actuating the same adapted to be engaged by a releasing device arranged at one side of the track therefor.

5. The combination of a flat car, of stakes hinged thereto, mechanism locking the stakes in upright position, a tippie, an inclined rail adjacent thereto, and a lever connected with all of said locking mechanisms on one side of the car and adapted to engage the inclined rail to simultaneously release said stakes.

6. A flat car, stake locking mechanisms bolted on the side sills thereof at suitable distances apart, a stake hinged to each, a lock for normally supporting said stakes in upright position, means for automatically releasing all said locks on one side of the car simultaneously, and springs engaging said stakes and adapted to return the same to normal locking position after each release.

7. In a device of the class described hinged car stakes and releasing mechanism adapted to operate by contact with an obstruction at the side of the track to release the stakes to swing downwardly and means acting also to return the car stakes to normal after each release.

8. In a device of the class described a hinged car stake and automatically releasing means acting normally on all the stakes on one side of the car simultaneously, a detent supporting each stake in upright position and a spring acting on each stake to return the same to normal after each release.

9. A car stake adapted to be hinged to the side of a car to swing outwardly, a spring acting to return the stake to normal after each release, a lock for engaging each stake in operative position, and means for actuating all the locks on one side the car simultaneously both to lock and to release the stakes.

10. The combination with a logging car of stakes hinged thereto and normally locked in operative position, an inclined track section, an inclined rail adjacent thereto, a lever connected with each stake to release all the stakes simultaneously on one side of the car and a roller on the end of said lever adapted to engage the inclined rail as the car approaches unloading position.

11. In a device of the class described a car, stakes pivoted thereto, means for locking the stakes in upright position, means for simultaneously and automatically releasing all the stakes on the same side of the car and means for tipping the car adapting the logs to swing the stakes downwardly by gravity.

12. In a device of the class described a

plurality of stakes adapted to automatically swing downwardly by pressure exerted thereagainst and means for automatically returning the stakes to normal position.

5 13. In a device of the class described a plurality of stakes, means for holding the stakes in vertical position, means for releasing the stakes to swing downwardly and means for returning the stakes to vertical
10 position.

14. In a device of the class described a car, stakes secured thereto, means for tipping the car and means for automatically releasing the stakes to swing downwardly
15 when the car is tipped.

15 15. In a device of the class described mechanism for including a car sidewise, stakes pivoted to the car, mechanism for locking the stakes in upright position, mechanism for automatically releasing the locking mechanism to permit the stakes to automatically swing downwardly and springs for automatically returning the stakes to normal position after the material has rolled
20 from the car.

16. In a device of the class described means for tipping a car, stakes secured to the car and means for automatically releasing the stakes when the car tips adapting the load to automatically shift the stakes to permit the load dumping.
25

17. In a device of the class described means for tipping a car, stakes secured to the car, means for releasing the stakes adapting the load to automatically shift the stakes to permit the load dumping, and means for automatically returning the stakes to normal after the load is dumped.
30

18. In a device of the class described a plurality of stakes, mechanism for releasing each stake, connecting rods connecting the mechanism for all the stakes on the same side of the car necessitating all the releasing mechanism operating simultaneously and means for automatically operating the releasing mechanism.
35

19. In a device of the class described a plurality of stakes, mechanism for releasing each stake, connecting rods connecting the mechanism for all the stakes on the same side of the car necessitating all the releasing mechanism operating simultaneously, means for automatically operating the releasing mechanism and means adapted to return the releasing mechanism to normal by gravity.
40

20. In a device of the class described a plurality of stakes, mechanism for releasing each stake, connecting rods connecting the mechanism for all the stakes on the same side of the car necessitating all the releasing mechanism operating simultaneously, means for automatically operating the releasing mechanism, means adapted to return the releasing mechanism to normal by gravity, and
45

means adapted to automatically return the stakes to vertical position.

21. In a device of the class described a plurality of stakes, means for locking each stake in vertical position, means connecting all of the locking mechanisms to simultaneously unlock all the stakes, and means compressed by downward swinging of the stake to automatically return the stakes to normal.
50

22. In a device of the class described, stakes, connected mechanisms for automatically releasing the stakes to swing downwardly and independent mechanisms for each stake for swinging the same to vertical position.
55

23. In a device of the class described, car stakes, an independent locking mechanism for each, mechanism for simultaneously unlocking all of the stakes, and an independent spring operated mechanism for returning each stake to normal.
60

24. In a device of the class described a car stake pivoted to swing downwardly, a pivoted member for engaging the stake in vertical position, a rotary cam for locking the pivoted member to hold the stake in vertical position and mechanism for automatically rotating the cam to release the pivoted members.
65

25. In a device of the class described a car stake pivoted to swing downwardly, a pivoted member for engaging the stake in vertical position, a rotary cam for locking the pivoted member to hold the stake in vertical position, means connecting the rotary cams of all the stakes on the same side of the car to simultaneously rotate all the cams and release the pivoted members to permit the stakes swinging downwardly, means for actuating the connecting means and an inclined rail for automatically operating the means to actuate the connecting means.
70

26. In a device of the class described a car stake pivoted to swing downwardly, a pivoted member for engaging the stake in vertical position, a rotary cam for locking the pivoted member to hold the stake in vertical position, means connecting the rotary cams of all the stakes on the same side of the car to simultaneously rotate all the cams and release the pivoted members to permit the stakes swinging downwardly, and means rotatable with the cams to return the same to locking position by gravity.
75

27. In a device of the class described a car stake pivoted to swing downwardly, a pivoted member for engaging the stake in vertical position, a rotary cam for locking the pivoted member to hold the stake in vertical position, means connecting the rotary cams of all the stakes on the same side of the car to simultaneously rotate all the cams and release the pivoted members to permit the stakes swinging downwardly, means ro-
80

tatable with the cams to return the same to locking position by gravity, and springs connected with each stake to return the stakes to vertical position.

5 28. In a device of the class described a pivoted stake, an oscillatable member for locking the stake in vertical position, a rotatable member engaging the oscillatable member to rigidly hold the same to lock the stake and mechanism for automatically rotating the rotatable member to release the oscillatable member.

15 29. In a device of the class described a pivoted stake, an oscillatable member for locking the stake in vertical position, a rotatable member engaging the oscillatable member to rigidly hold the same to lock the stake, means for rotating the rotatable member to release the oscillatable member to permit the stakes swinging downwardly, and a spring for automatically returning the stake to normal after each downward swing of the stake.

20 30. In a device of the class described a pivoted stake, an oscillating member for locking the stake in vertical position, a rotatable member engaging the oscillatable

member to rigidly hold the same to lock the stake, means for rotating the rotatable member to release the oscillatable member to 30 permit the stakes swinging downwardly, and a gravity acting weight adapted to rotate the rotatable member to force the oscillatable member to locking position.

31. In a device of the class described a 35 pivoted stake, an oscillating member for locking the stake in vertical position, a rotatable member engaging the oscillatable member to rigidly hold the same to lock the stake, means for rotating the rotatable member to release the oscillatable member to permit the stakes swinging downwardly, a gravity acting weight adapted to rotate the rotatable member to force the oscillatable member to locking position, and means for 45 automatically returning the stake to vertical position after the load is dumped.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JOHN A. TOOMEY.

Witnesses:

K. E. HANNAH,
LAWRENCE REILESTEIN.