C. E. BAUMER, B. BAUMER, W. R. KING & M. E. BAUMER.

HORSE RELEASING DEVICE.

APPLICATION FILED NOV. 24, 1909.

967,157. **Patented Aug. 16, 1910.**

2 SHEETS—SHEET 1.

Fig. 1.

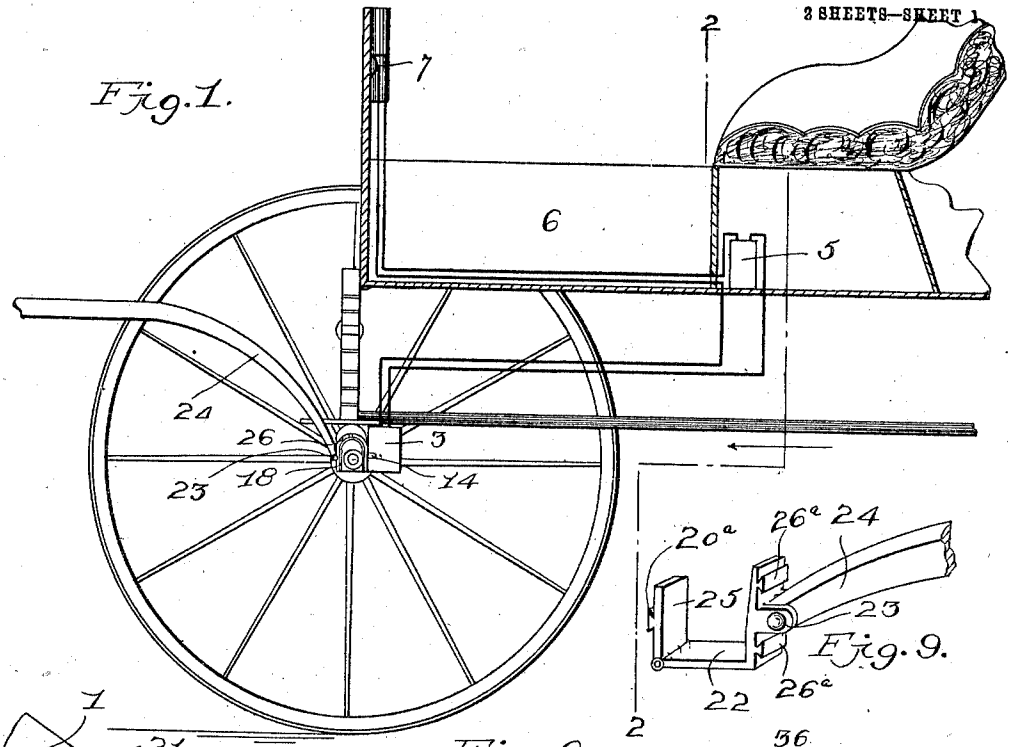

Fig. 9.

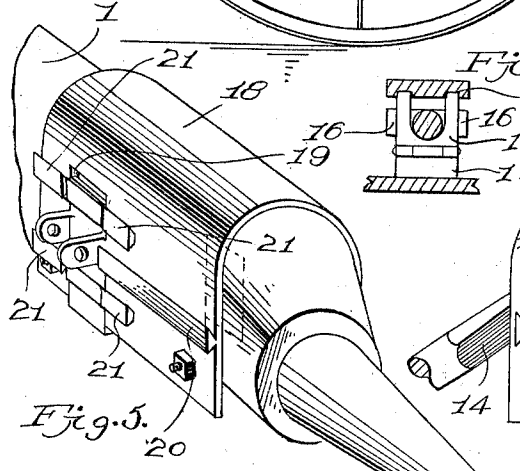

Fig. 5.

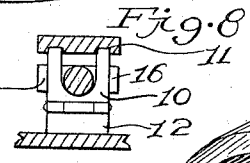

Fig. 8

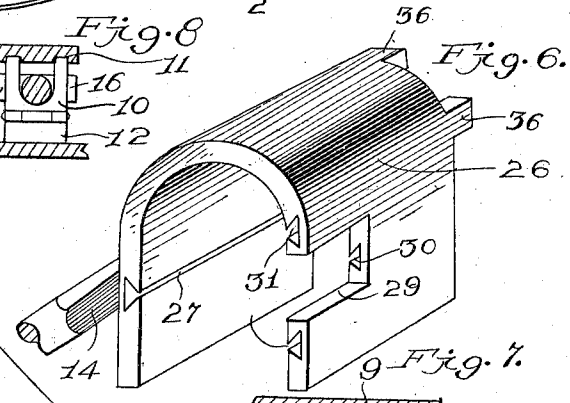

Fig. 6.

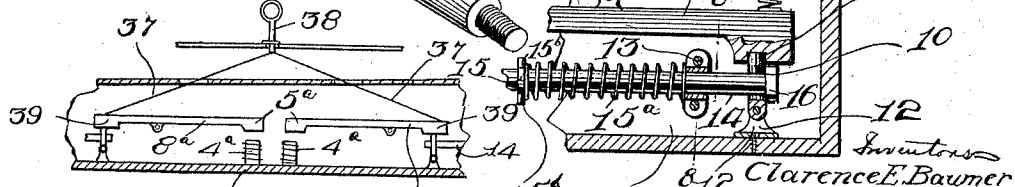

Fig. 7.

Fig. 10.

Witnesses

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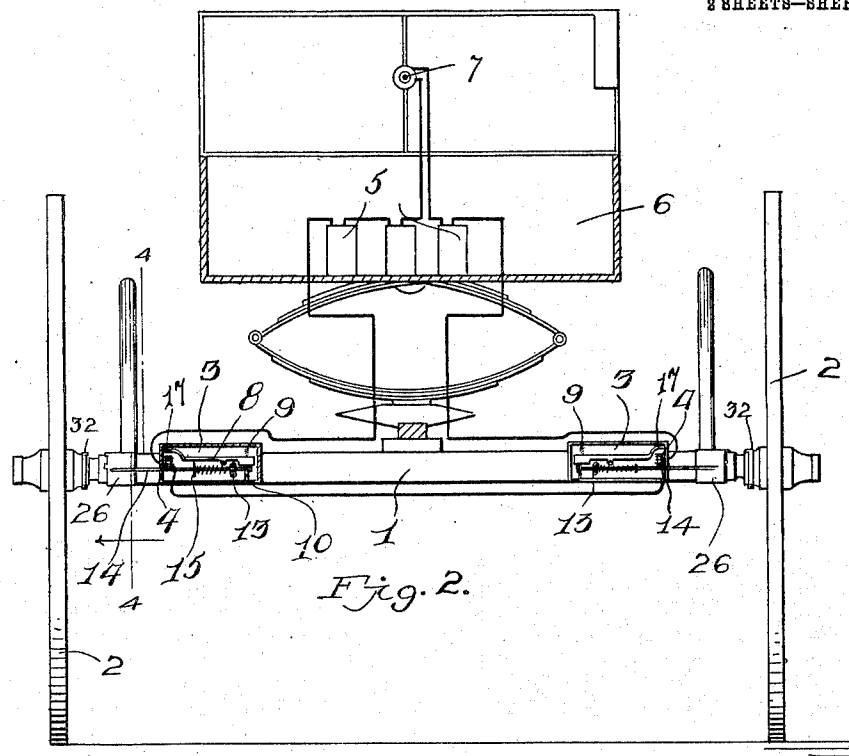

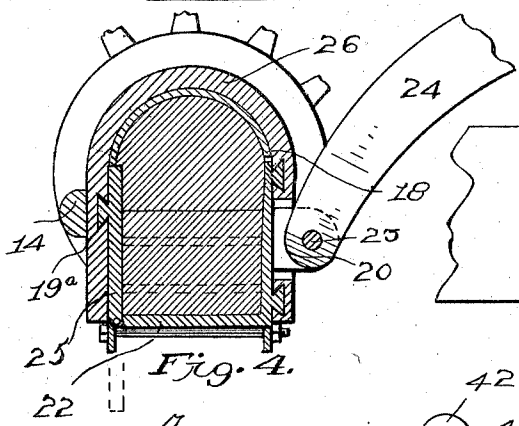

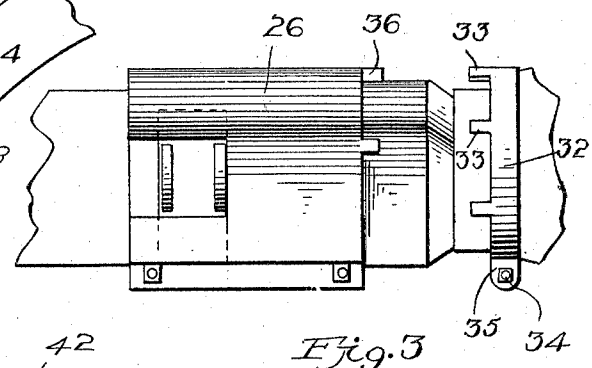

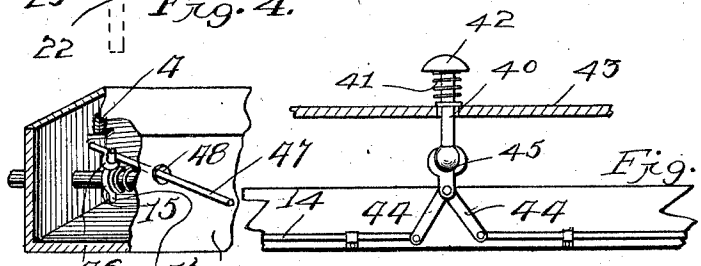

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HORSE-RELEASING DEVICE.

967,157. Specification of Letters Patent. **Patented Aug. 16, 1910.**

Application filed November 24, 1909. Serial No. 529,741.

To all whom it may concern:

Be it known that we, CLARENCE E. BAUMER, BERTHA BAUMER, WILLIAM R. KING, and MARY E. BAUMER, citizens of the United States, residing at Troy, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Horse-Releasing Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a horse releasing device and has for its object the provision of means for facilitating the quick detaching of a horse from a vehicle.

Another object of this invention is the provision of means for quickly stopping the vehicle after the horse has been detached therefrom.

With these and other objects in view, this invention consists of certain novel constructions, combinations and arrangement of parts, as will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a side elevation of the device showing the body of the vehicle in section. Fig. 2 is a section taken on line 2—2 of Fig. 1, looking in the direction of the arrow. Fig. 3 is a front view of the interlocking means for the axle. Fig. 4 is a section taken on line 4—4 of Fig. 2, looking in the direction of the arrow. Fig. 5 is a detail perspective view of one end of the axle showing the clip adapted to engage the shaft-securing member, carried by the axle. Fig. 6 is a detail perspective view of the sleeve, adapted to fit over or engage the clip carried by the axle. Fig. 7 is a fragmentary sectional view of one end of the casing, showing the operating mechanism, adapted to control the releasing device. Fig. 8 is a section taken on line 8—8 of Fig. 7. Fig. 9 is a detail perspective view of the shaft-connecting member. Fig. 10 is a modification of the means for releasing the operating mechanism. Fig. 11 is an additional modification of the means for releasing the operating mechanism. Fig. 12 is a detail view of the casing holding the operating mechanism, in section, showing the means for re-setting the operating mechanism.

Referring to the drawings by numerals, 1 designates the front axle of the vehicle, which is supported by means of wheels 2. The axle 1 carries upon the rear side thereof and near each end a casing 3, which casings carry the operating mechanism, as hereinafter described. Within each casing 3 are positioned magnets 4, which are electrically connected with a series of cells 5 adapted to be carried by the body of the vehicle 6. A push-button is also carried by the vehicle and is electrically connected with the mentioned circuit and through the medium of the push-button 7, the circuit can be closed and the magnets 4 energized. Within each casing 3 is also pivotally mounted an armature or releasing member 8. One end of the member 8 is adapted to overhang the magnets 4, and is also adapted to be attracted by the same when the magnets are energized. The armatures 8 are provided with enlarged outer ends, which ends are adapted to be normally engaged by coil springs 9 for holding the same in engagement with the trigger member 10. The upper ends of the trigger member 10 are adapted to engage notches 11 formed upon the under surface of the armature 8. The trigger member 10 is hingedly secured or mounted within said casing 3 upon a supporting member 12. The trigger 10 is hinged to the support 12 by means of a spring hinge for normally holding the same in a vertical position, or the position as shown in the drawings.

Within each casing 3 and upon one side thereof is secured a bracket 13, through which is adapted to pass a plunger 14, which plunger is adapted to operate the shaft-attaching means hereinafter described. A collar 15 is carried by the shaft or plunger 14 intermediate the end of the casing and the bracket 13, and the coil spring 15^a is interposed between the bracket 13 and the collar 15 and normally exerts an outward pressure upon the shaft 14. The shaft 14 is provided at one end with a pair of laterally extending ears 16 constituting a substantially T-shaped end, and said ears are adapted to engage the trigger member 10, as clearly shown in Figs. 7 and 8. When the trigger member is held by means of the armature 8 in the position shown in Fig. 7 and the ears engage the trigger member, the plunger will be held in a retracted position. When the circuit is closed through the medium of the push-button 7 and magnets 4 energized, the inner ends 17 of the armatures 8 will be attracted, which will release the trigger members 10 from the

armatures and allow the T-shaped end of the plungers 14 to be disconnected from the trigger member and allow the plunger 14 to be thrown to a forward position, which will operate the T-shaped attaching means hereinafter described.

A clip 18 is carried near each end of the axle 1 and is substantially U-shaped in cross section. The clip 18 is provided intermediate its ends upon each side thereof with a notched portion 19 in which notched portion is adapted to fit the fingers of the shaft-connecting member, hereinafter described. The clip 18 is secured to the axle 1 by any suitable fastening means and said clip is provided upon one side with a dove-tail tongue 19^a which extends the entire length of the clip 18 and which relieves the strain from the sleeve 26. Upon the opposite side of the casing 18 is also formed a longitudinally extending dove-tail tongue 20, which tongue terminates at the end of the notched portion 19 of the clip 18. A tongue 21 is positioned upon each side of the longitudinal tongue 20 and said tongues terminate short of the outer end of the clip 18 and extend upon each side of the notched portion 19.

The shaft-connecting member 22 is substantially L-shaped and is provided with a plurality of forwardly extending ears 23, between which is mounted a shaft 24. The shaft-connecting member 22 is provided also with a hinged lip or finger 25, and therefore, it will be obvious that through the medium of the lip member 25, the shaft supporting member is adapted to fit within the notches 19 of the clip 18, as is clearly shown in Fig. 5. A dove-tail tongue 20^a is formed upon the lip-portion 25 and a dove-tail tongue 26^a is formed above and below the ears 23 upon the L-shaped portion of the shaft connecting member.

A sleeve 26, which is substantially U-shaped, is adapted to fit over the clip 18, said sleeve being provided upon the inner surface of one side thereof with a dove-tail groove 27, which is adapted to engage the dove-tail tongue 19^a, of the clip 18 and the tongue 20^a of the lip 25. The sleeve 26 is provided on one side thereof with a notched portion 29, which is adapted to incase the ears 23 of the shaft-connecting member 22, as shown in Fig. 4. The sleeve 26 is provided upon its inner surface with a groove 30 upon the opposite side of the casing to the first-mentioned groove, and the groove 30 is adapted to engage the tongue 20 of the casing. The sleeve is also provided upon its inner surface with a plurality of grooves 31, which are adapted to be engaged with the tongues 21 of the clip 18 and the tongues 26^a of the shaft connecting member. It will therefore be obvious that since the grooves extend for only a limited distance within the sleeve 26, that the sliding movement of the sleeve 26 will be limited in one direction upon the clip 18.

A band 32 is adapted to be carried by the hub of the wheel 2, and is adapted to work in a groove or notch formed upon said hub, and said band is provided upon one side with a plurality of projections 33. The band is tightened or adjusted upon the hub of the wheel by means of a bolt 34, which passes through the angularly disposed ears 35 of the band. One end of the sleeves 26 is provided with a plurality of teeth or lugs 36, which are adapted to engage the projections 33, of the band 32, when the sleeve is released so as to come into engagement with the band 32. The rod or plunger 14, is connected at its outer end to the sleeve 26, and it will therefore be obvious that as soon as the plunger 14 is released, that through the medium of the spring 15^a, that the casing 26 will be forced outwardly, or toward the wheel, so as to come into engagement with the bands 33. At this movement, the shaft-connecting member 22 will also be released, and will be allowed to drop out of engagement with the clip 18, and the horse thereby, will be freed from the vehicle. At the same time, it will be obvious that through the medium of the lugs 36, and the extension 33, that the wheels will be locked in a set position and the motion of the vehicle will be stopped. However, if it be so desired the band 32 can be so mounted upon the hub as to allow the band to rotate slightly upon the hub and cause the vehicle to come to rest merely through the friction caused by the band 32 sliding over the hub.

In Fig. 10 there is shown another embodiment of the invention, wherein 8^a designates a plurality of armatures which have connected to their outer ends cables or ropes 37. Magnets 4^a are carried by the supporting casing 3^a and are adapted to attract the free ends 5^a of the armatures 8^a for releasing the operating plungers 14. In the embodiment shown in Fig. 10, one casing only is employed and the operating plungers 14 have their inner ends held within the casing 3^a by means of the trigger members 10 in the same manner as described and shown in Figs. 1 and 2. The enlarged ends 39 also engage the trigger members as previously described and said ends may be released from said trigger members by pulling upon the plunger member 38 which is connected to the cables 37.

In Fig. 11 there is shown still another embodiment of the invention, wherein the plungers 14 are operated directly by a foot lever 40. The foot lever is normally held in an extended position by means of a coil spring 41, which is interposed between the knob 42, and the bottom of the vehicle 43. The inner ends of the plungers 14 are con-

nected by means of links 44, which links are in turn connected to a connecting member 45, which is directly connected by means of a ball and socket joint to the foot lever 40.

Of course the mechanical mechanism just mentioned can be used in place of the electrical operating mechanism in cases where it is more convenient and expedient to do so. The object of the mechanical operating device as shown in Fig. 11 is to slide the sleeves 26 upon the axle or casing so as to detach the shafts from the vehicle.

It will be obvious, that by having the shaft-connecting member so supported upon the clip 18, by means of the sleeves 26, that the strain will be entirely upon the substantially L-shaped member 22, and will not fall upon the hinged member 25 thereof.

The collar 15 is provided with a plurality of projections 15^b which are adapted to be engaged by the hook 46 of the lever member 47 which is adapted to reset the operating mechanism. Each casing 3 is provided with an aperture 48 through which is adapted to be inserted the lever member 47, for allowing the hook 48 to engage one of the extensions 15^b of the collar 15 for drawing the plunger 14 within the casing 3 and resetting the same.

What we claim is:—

1. In a device of the class described, the combination with a support, a casing carried thereby, shaft-attaching means engaging said support, means engaging said shaft-attaching means for holding the same in engagement with said support, and said last-mentioned means extending into said casing, an armature coöperating with said last-mentioned means for holding the same within said casing and electrical means cooperating with said armature whereby the armature may be released and the shaft-attaching means also released.

2. In a device of the class described, the combination with an axle, of shaft connecting means, means adapted to engage said shaft connecting means for holding the same in engagement with said axle, armatures coöperating with said last mentioned means for normally holding the same in a locked position, and electrical means cooperating with said armatures, whereby when said electrical means is actuated said armatures will be released and said shaft connecting means will be operated.

3. In a device of the class described, the combination of a clip substantially U-shaped in cross section, said clip provided with a notch upon each side thereof, a substantially U-shaped shaft-attaching member adapted to fit within said notches, and adapted to straddle said axle, said shaft attaching member provided with a plurality of forwardly extending ears, a sleeve adapted to pass over said clip, said sleeve provided with a notch upon one end thereof, said shaft-attaching member adapted to be positioned within said notch and adapted to be held therein by means of said sleeve, and means coöperating with said sleeve, and adapted to slide the same upon said clip for releasing the shaft-connecting member from said clip.

4. In a device of the class described, the combination with an axle, of a clip carried by said axle, a shaft-supporting member substantially L-shaped connected to said clip, said shaft supporting member provided with a plurality of ears, adapted to support a shaft, a finger or lip hingedly secured to said L-shaped shaft-supporting member, and means passing over said clip, and engaging said shaft-supporting member for holding the same upon or in engagement with said axle.

5. In a device of the class described, the combination with an axle, wheels supporting said axle, of clutch means carried by said wheels, a clip carried by said axle, said clip provided with a plurality of dove-tail tongues, a sleeve adapted to slide upon said clip, said sleeve provided with a plurality of grooves, adapted to interlock with said tongues carried by said clip, interlocking means formed upon one end of said sleeve, and means coöperating with said sleeve, and adapted to reciprocate the same upon said casing for causing the sleeve to come into engagement with the clutch device carried by the wheel.

6. In a device of the class described, the combination with an axle, wheels supporting said axle, of a clip carried by said axle, a plurality of tongues carried by said clip, some of said tongues terminating short of one end of said clip, a sleeve slidably mounted upon said casing, grooves formed upon the inner face of said sleeves, some of said grooves terminating short of one end of said sleeve, said grooves adapted to engage said tongues for holding the sleeve upon said clip against displacement therefrom, and means coöperating with said sleeve, and adapted to reciprocate the same.

7. In a device of the class described, the combination with an axle of a casing carried by said axle, near each end thereof, shaft-connecting means carried by said axle, means engaging said shaft-connecting means for holding the same in engagement with the axle, plunger rods connected to said last-mentioned means, and having the inner ends thereof positioned within said casings, means engaging said inner ends for locking the plunger rods in a set position, and electrical means adapted to coöperate with said locking means for releasing the same, and allowing the shaft-connecting means to be also released.

8. In a device of the class described, the

combination with an axle, of shaft-connecting means carried thereby, a casing carried by said axle, a plunger rod carried by said casing, means positioned upon said rod and within said casing and adapted to exert an outward pressure upon said rod, means engaging the inner end of said rod for holding the same in a retracted position, and electrical means coöperating with said last-mentioned means for releasing said last-mentioned means and allowing the shaft-connecting member to actuate.

9. In a device of the class described, the combination with an axle, of a casing carried thereby, shaft-connecting means carried by said axle, of a plunger rod connected to said shaft-connecting means and having its inner end positioned within said casing, a trigger member engaging the inner end of said plunger rod, an armature pivotally mounted within said casing, one end of said armature adapted to be engaged by said trigger member for holding the same in a set position, means carried by said plunger rod and exerting an outward pressure upon the same, electromagnets carried by said casing and adapted to attract the free ends of said armature, and electrical means connected to said magnets, for energizing the same.

10. In a device of the class described, the combination with an axle, wheels supporting said axle, of a clip carried by said axle, said clip provided with notches formed upon each side thereof, a shaft-connecting member adapted to fit in said notches, and a sleeve adapted to slide upon said clip and adapted to engage said shaft-connecting member, for holding the same in engagement with said axle.

11. In a device of the class described, the combination with an axle, of a plurality of casings supported thereby, shaft detaching means carried by said axle, plunger rods, means engaging said rods for normally holding the same within said casings, said rods engaging said shaft detaching means, means engaging said rods and exerting an outward pressure thereon, and means coöperating with said plungers for releasing the same and allowing the shaft detaching means to operate.

In testimony whereof we hereunto affix our signatures in presence of witnesses.

CLARENCE E. BAUMER.
BERTHA BAUMER.
WILLIAM R. KING.
MARY E. BAUMER.

Witnesses to the signature of Clarence E. Baumer:

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G. A. BRANNAN.

Witnesses as to the signatures of Bertha Baumer, Wm. R. King, and Mary E. Baumer:

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M. E. SENTELL.