

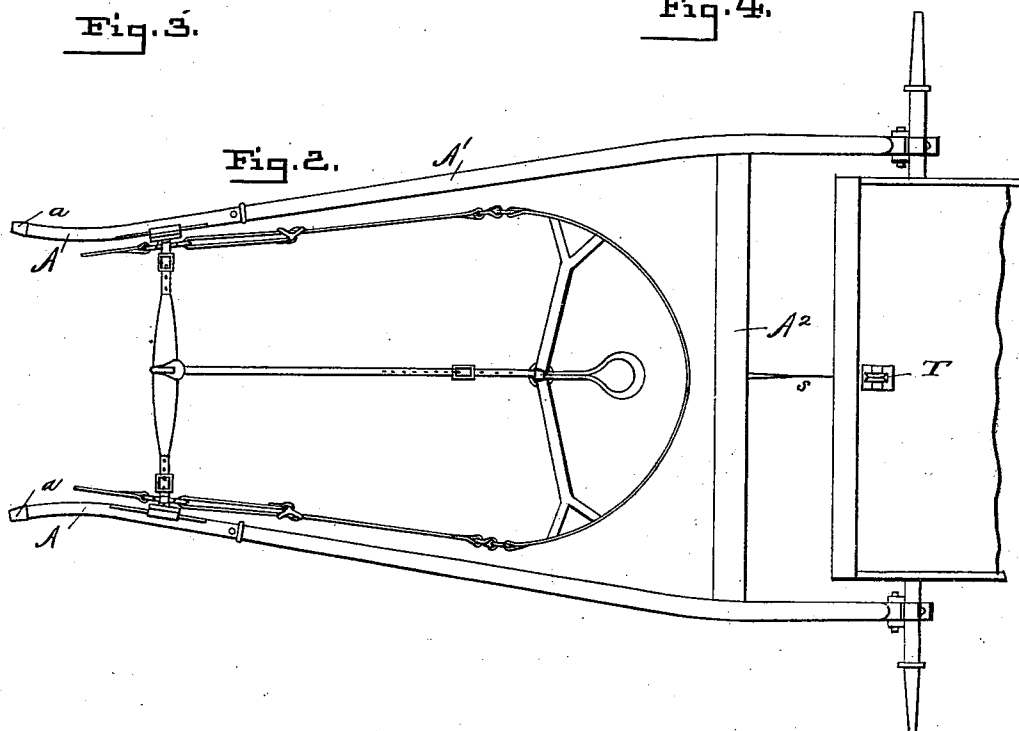
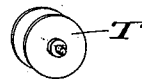
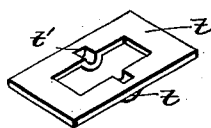
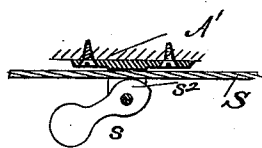
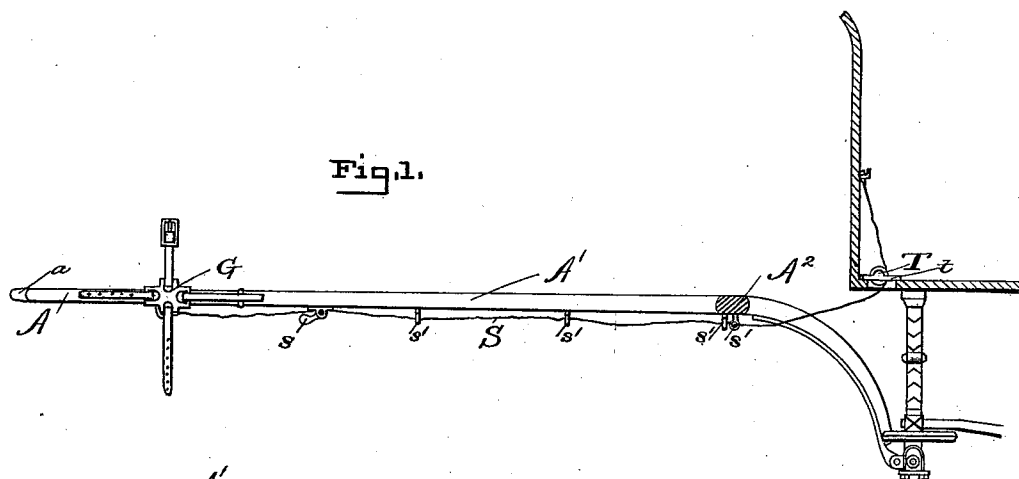
(No Model.)

J. E. NORWOOD.
HORSE DETACHER.

2 Sheets—Sheet 1.

No. 510,284.

Patented Dec. 5, 1893.



WITNESSES: _____

A. O. Babendreier.
Alvan Macauley.

INVENTOR: _____

Jno E. Norwood
By Chas B. Mann
att'y.

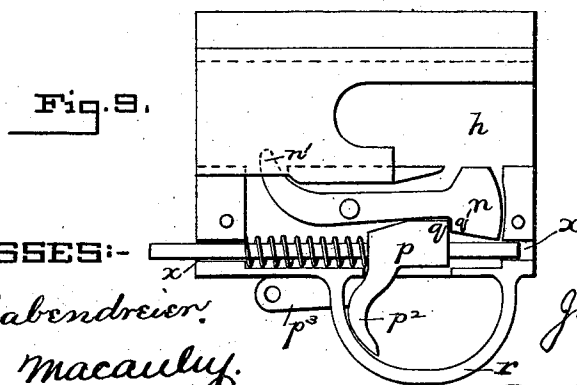
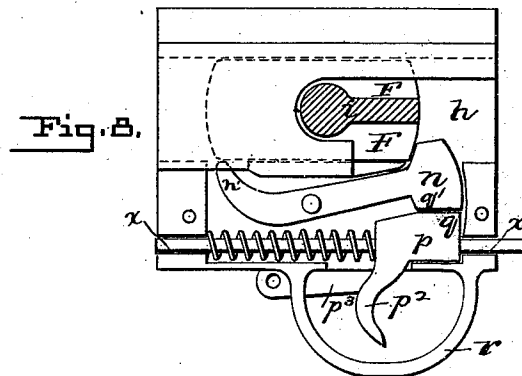
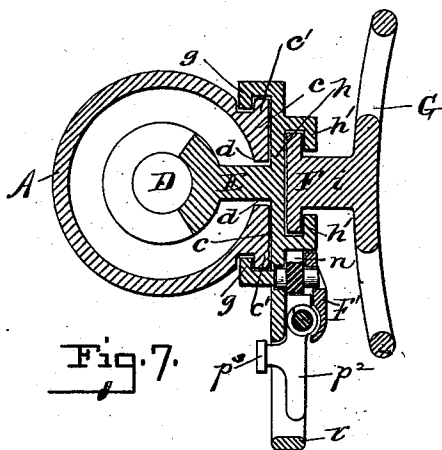
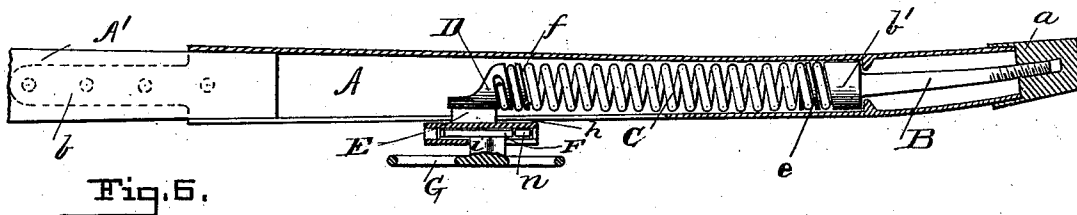
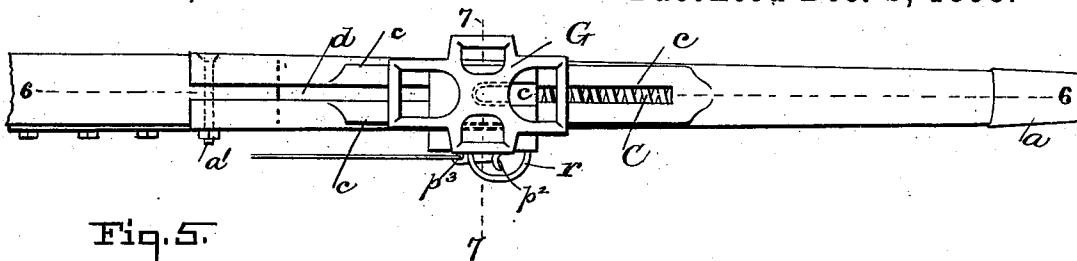
(No Model.)

2 Sheets—Sheet 2.

J. E. NORWOOD.
HORSE DETACHER;

No. 510,284.

Patented Dec. 5, 1893.



WITNESSES:-

A. C. Babendreier.
Alvau Macaulay.

INVENTOR:-

Jno E. Norwood
By Chas B. Mann
att'y

UNITED STATES PATENT OFFICE.

JOHN E. NORWOOD, OF BALTIMORE, MARYLAND.

HORSE-DETACHER.

SPECIFICATION forming part of Letters Patent No. 510,284, dated December 5, 1893.

Application filed January 28, 1893. Serial No. 460,029. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. NORWOOD, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Vehicle-Shafts, of which the following is a specification.

This invention relates to an improvement in vehicle shafts to adapt the same for attachment of the harness, without the use of single-tree, traces, shaft-loops or tugs, and with only one point of attachment on each side, and also with provision for cushioning the strain in pulling and backing.

The invention is illustrated in the accompanying drawings, in which—

Figure 1, is a vertical, longitudinal section, through the wagon body and running gear, and showing the releasing device, in side elevation. Fig. 2, is a top plan view of the shafts and a portion of the wagon body and showing the harness. Fig. 3, is a detail of the weighted cam, for controlling the releasing device. Fig. 4, is a detail of the grooved roller shown in Fig. 2. Fig. 5, shows an inside, side-elevation of the shaft and harness-attachment. Fig. 6, shows a longitudinal section on the line 6—6, of Fig. 5. Fig. 7, shows a cross-section on the line 7—7, of Fig. 5.

Fig. 8, shows a side view of the slide-piece, with the casing F' of the lock removed, and the neck of the shank of the harness attachment, in cross-section. Fig. 9 shows a similar view of the lock, the parts thereof being in the released condition.

In carrying out my invention, I provide a metallic tubular shaft, or shaft-end, A, with a suitable cap, *a*, fastened on its outer extremity, and a tongue, *b*, projecting from the other or inner extremity, for fastening the tubular shaft-end, to the shaft proper, A', over which it fits,—a bolt, *a'*, also passing transversely through the shaft proper, and shaft-end, to fasten them together. Said shaft-end, has a longitudinal slot, *d*, in one side and extending out of its inner extremity, whereby it will be seen, that should the shaft-end become loose on the shaft proper, owing to the shrinkage of parts, the shaft-end may be contracted by tightening up the bolt, *a'*, so as to have it tightly fit the shaft. A slide-way *c*, extends on both sides of the slot, a por-

tion of its length, and projects over the rounded surface of the shaft, to form slide-ways, or flanges, *c'*. The end of the tubular shaft is tapered; and the threaded end of the headed-bolt, B, is externally secured to said tapered end, by the cap-nut, *a*, which turns loosely on the shaft-end, and which may be extended as shown, to form the shaft-end. The head of the headed-bolt, has a screw-thread *f*, cut thereon, and one end of a spiral spring, C, engages the said thread. This spring occupies the tubular shaft-end, and its opposite end engages a screw-thread, *f*, on a block, D, movable longitudinally in said shaft-end. This spring occupies the tubular shaft-end. A neck, E, formed integral with the block, engages the slot *d*, in the tubular shaft-end and connects the said block, with a slide-piece, *c*, on the exterior of the shaft, and formed with clips, *g*, which take under the flanges, *c'*, of said slide-way, and hold the slide-piece on the same.

The foot-piece, F, has a slide-way, *h*, formed by the clips, *h'*, to receive a harness attachment, and a case F', for a lock. In the present instance the harness attachment comprises a center-piece or frame, G, having four loops to which the back-band, belly-band, tug-strap, and breeching are respectively attached. A foot-piece, F, is secured to the said center-piece by the shank, *i*. The center-piece however is not limited to the construction shown because its form may be varied without departing from my invention. Said foot-piece, is adapted to fit the slide-way, *h*, and a lock in the casing F', holds said foot-piece in the slide-way. This lock, in the present instance, comprises a latch, *n*, for engaging the end of the foot-piece, F, and pivoted at the middle, said latch, having an arm, *n'*, projecting into the slide-way, *h*. A spring actuated bolt, *p*, sliding in bearings *x*, in the casing F', is arranged to hold the latch in engagement with the foot-piece, F, and upon withdrawing the bolt, the foot-piece, may push the latch out of the way and pass out of the slide-way. The bolt, has a shoulder, *q*, which locks behind a shoulder, *q'*, on the latch, and is thereby prevented from pushing the latter out again. When the piece F, is inserted, into its slide-way again, it will encounter the projecting arm, *n'*, and thereby

throw the latch, n , out behind the foot-piece, whereupon the bolt springs out behind the latch, and holds it in this locked position. The bolt is made with a trigger, p^2 , and an arm, p^3 , formed integral therewith, projecting out of the lock-casing, and by means of a pull on either this trigger, or on the arm-piece, the bolt may be readily withdrawn and the horse released from the shafts. A guard, r , protects the trigger to prevent an accidental release.

Since all my harness centers at one point, by means of a very simple device, I am enabled to instantly release the horse from the wagon, in case he should run away, or when it is desired to unhitch him. This device is illustrated incidentally in Fig. 1, of the drawings, in which the letter T , is a grooved roller, journaled in bearings t' , in the plate t , to the bottom of the wagon, as shown, though this location is merely one of convenience, as it might be placed anywhere. A cord or strap, S , passes under this roller and through the bottom of the wagon, to the shaft-brace, A^2 . Here it is divided longitudinally into two parts, which pass, one under each shaft, to the arm, p^3 , of the trigger, p^2 . Eyes, s' , attached to the shafts, serve as guides for the cord. The horse may be detached at any time by simply giving a pull on the releasing cord above mentioned. The weighted cams, s , are pivoted to the shaft, on the under side thereof, and the releasing cord runs between the biting end, s^2 , of the cam, and the shaft. The cam is so disposed that it will permit the strap to be drawn toward the wagon, but lock it from being drawn the other way, so that a pull on the strap, if not sufficient to entirely release the bolt, will at least draw the strap tight. The cam will secure it in its taut condition, and when the horse moves forward, the pulling strain will come on the releasing strap, between the points where the cam grips it, and where it is attached to the arm of the trigger. As the horse moves forward the spring in the shaft gives, the sliding piece moves forward, and since the trigger is held stationary and cannot move, the bolt will be drawn back and the sliding piece will pass out from the slide-way, thus entirely releasing the horse.

It will be seen that the attachment to, and detachment from the shafts, of a horse, is a very simple and quickly accomplished affair.

The spring, C , serves to cushion the pull and backward strain, and eases the horses' shoulders, and also does away with the so-called horse-motion, as the springs take up

the jerks and jars. The single spring shown, serves for cushioning the forward and the backward movement,—compressing in one instance and expanding in the other.

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

1. The combination of the tubular vehicle shaft having a longitudinal slot; a spring in said tubular shaft and secured thereto; a slide-piece fastened to the spring and moving in said tube; and a center piece for the attachment of the parts of the harness and connected with the said slide-piece by means passing through the said slot.

2. The combination of the tubular vehicle shaft having a longitudinal slot; a slide-way on the shaft and having projecting side flanges parallel with said slot; a spring in the tubular shaft; a slide-piece connected with the spring and having clips which take over the flanges of the slide-way; a center-piece or frame for the attachment of parts of the harness; and means for securing the said center-piece to the said slide-piece, as described.

3. The combination of the tubular vehicle-shaft having a longitudinal slot; a spring within the shaft; a bolt having one end attached to the spring, and screw threads at its other end; a cap-nut which turns loosely on the end of the shaft and engages the threaded end of the bolt; a sliding piece moving on a slide-way outside the vehicle shaft and connected to the rear end of the spring through the slot in the tubular shaft; a center-piece for the attachment of parts of the harness; and means connecting the said slide-piece with the center-piece.

4. The combination of a vehicle-shaft; a slide-way on said shaft; a center-piece for the attachment of parts of the harness and having a foot-piece to engage said slide-way; means to lock and hold the said center-piece; a trigger to release the said center-piece when the animal is to be detached from the shafts; a pivoted cam having one end weighted; and a releasing cord or strap connected with said trigger and passed over said cam thereby permitting said cord to be drawn freely toward the vehicle-body but holding it from being drawn the other way, as set forth.

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

JOHN E. NORWOOD.

Witnesses:

ALVAN MACAULEY,
CHAS. B. MANN, Jr.