

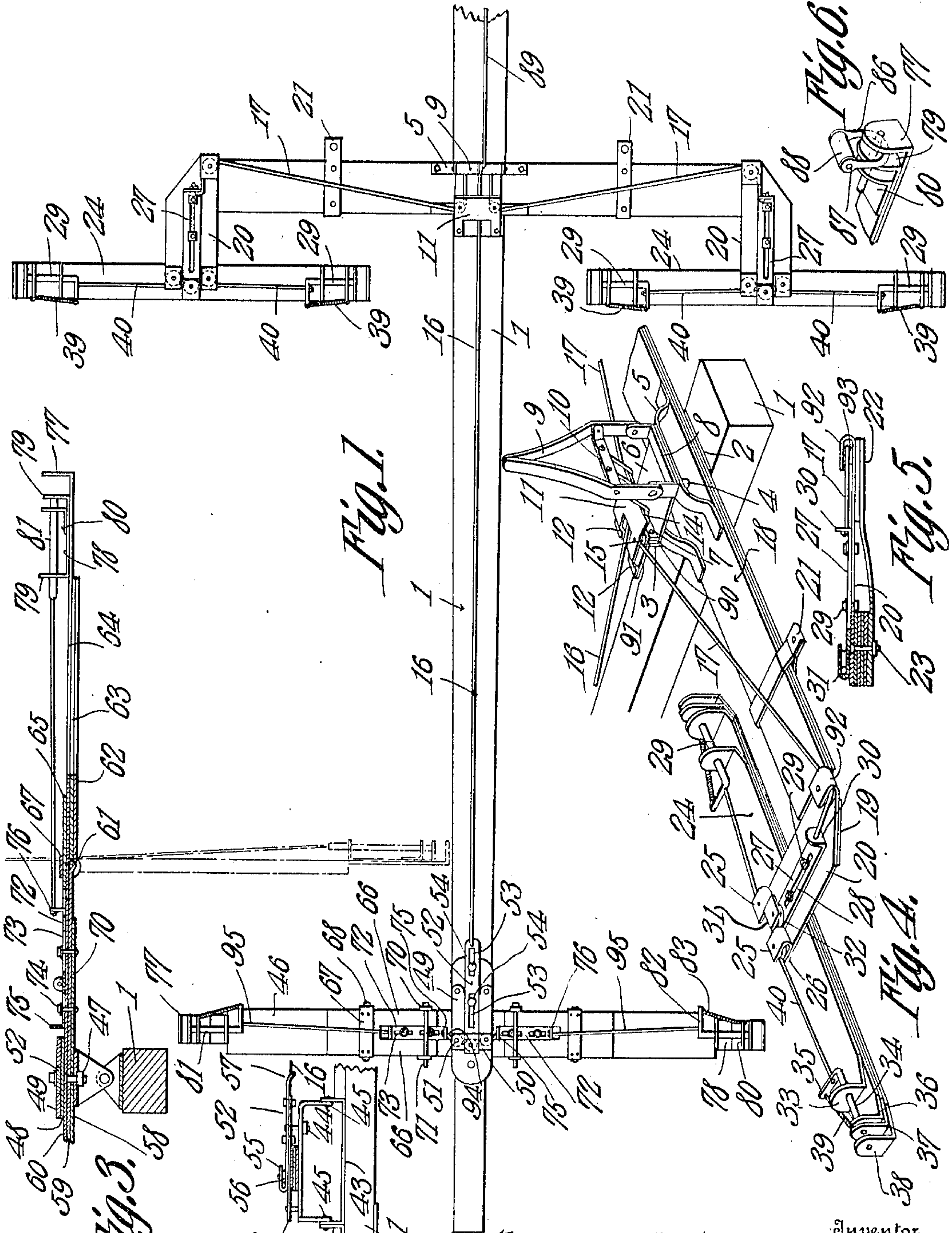
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HORSE DETACHER.

APPLICATION FILED MAR. 5, 1909.

947,376.

Patented Jan. 25, 1910.



Witnesses

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# UNITED STATES PATENT OFFICE.

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HORSE-DETACHER.

947,376.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed March 5, 1909. Serial No. 481,287.

*To all whom it may concern:*

Be it known that I, CLARENCE B. CUMMONS, a citizen of the United States, residing at Plainview, in the county of Hale and State of Texas, have invented a new and useful Horse-Detacher, of which the following is a specification.

The objects of the invention are, generally, the provision, in a merchantable form, of a device of the class above specified, which shall be inexpensive to manufacture, facile in operation and devoid of complicated parts; specifically, the provision of a double-tree, swingle-trees, and breast yoke, of novel and improved construction and of novel means for assembling them with each other and with the elements by which they are carried; and more particularly the provision of novel means for detaching draft animals when attached to the said breast yoke and swingle-trees; other and further objects being made manifest hereinafter.

The invention consists in the novel construction and arrangement of parts hereinafter described, delineated in the accompanying drawings, and particularly pointed out in that portion of this instrument wherein patentable novelty is claimed for certain distinctive and peculiar features of the device, it being understood that within the scope of what hereinafter is thus claimed divers changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

Similar numerals of reference are employed to denote corresponding parts throughout the several figures of the drawings.

In the accompanying drawings:—Figure 1 shows my invention in top plan; Fig. 2 is a side elevation of the end of the tongue and the mechanism mounted thereon; Fig. 3 is a vertical longitudinal section of the breast yoke; Fig. 4 is a perspective of the double-tree and swingle-tree, parts being broken away; Fig. 5 is a side elevation of the extension piece, showing its attachment to the swingle-tree and the double-tree; Fig. 6 is a detail perspective of the elevis.

In carrying out my invention, I provide, primarily, a tongue, denoted in the several figures by the numeral 1. I further provide a wear-plate, denoted by the numeral 2 and having its forward end 3 upturned substan-

tially at right angles to its body portion. Mounted upon this wear-plate 2 is a double-tree 18, having its forward edge in contact with the upturned end 3 of the wear-plate. The double-tree 18 is assembled with the tongue 1 by means of a pivot bolt 4, which passes through the double-tree 18 and through the wear-plate 2, into engagement with the said tongue 1. Mounted upon the said double-tree 18 intermediate its ends and above the wear-plate 2 is a bridge piece 5 extending longitudinally of the double-tree 18. Transversely mounted upon the bridge piece 5 is a strip 6. At the point where the strip 6 crosses the forward edge of the bridge piece 5 it is upbent substantially at right angles to the upper face of the bridge piece, as denoted by the numeral 90, and it is again flexed into a plane substantially parallel to the plane of the upper face of the bridge piece and forwardly extended beyond said bridge piece as denoted by the numeral 91. Mounted upon the rear face of the portion 90 of the strip is a clip 7, and through this clip 7 and the portion 90 of the strip, and the forward end 3 of the wear-plate 2 are passed bolts whereby the several parts are assembled. Mounted upon the upper face of the strip 6 adjacent its rear edge is a U-shaped standard 8, between the arms of which is pivoted a bifurcated lever 9. An attaching member 10 is transversely mounted between the arms of the lever 9 and has its terminals bent substantially at right angles to its body portion, these rectangularly bent portions of the member 10 being pivotally connected with the arms of the lever 9. The guide plate 11, is attached at its forward edge to the forwardly extending portion 91 of the strip 6, and this guide plate is centrally cut away at its forward edge to form arms 12, the rear edge of the guide plate being upstanding, as denoted by the numeral 14. This guide plate 11 is spaced from the strip 6 and between the guide plate and the strip are journaled for rotation pulleys 15, disposed adjacent the sides of the guide plate. These pulleys 15 are spaced apart, and between them and between the arms 12 of the guide plate is disposed a flexible element 16, one end of which is made fast to the attaching member 10, the other terminal thereof being carried forward along the tongue 1 and operatively connected with certain mechanisms, which will be hereinafter described. Other flexible elements 17 are provided, and



the rear terminals of these elements 17 are made fast to the attaching member 10, their forward terminals being passed between the plate 11 and the strip 6 and about the pulleys 15 and laterally flexed into alinement with the double-tree 18, the element 17 being operatively connected with certain horse detaching mechanisms which will be described hereinafter. At this point it may be stated that when the lever 9 is operated the pivotal connection between the member 10 and the lever 9, together with the upturned rear end 14 of the guide plate 11, furnish means whereby the flexible elements 16 and 17 may be led fairly and smoothly between the guide plate 11 and the strip 6.

The double-tree 18 is fashioned from a plurality of plates superposed upon one another, one of these plates being terminally extended beyond the others, as denoted by the numeral 19, to form a suitable attaching plate for an extension piece 20, which projects forward from the double-tree 18 substantially at right angles thereto. Between this extension piece 20 and the bridge piece 5 the double-tree 18 is provided with a rearwardly extending member 21, having a suitable aperture to receive stay chains or the like. Mounted upon the lower face of the extension piece 20 is a bracket 22, the swingle-tree 24 being disposed between the terminal of the bracket 22 and the terminal of the extension piece 20 and being retained in place by and pivoted upon a bolt 23, passing through the bracket and the extension piece.

The rear terminal of the extension piece 20 is over-bent upon itself and forwardly extended to form a clip 92, and within this clip is housed and journaled for rotation a pulley 93. The forward end of the extension piece 20 carries clips 25, spaced apart laterally and each provided with a pulley 26, the clips 25 preferably being U-shaped in form, and the pulley 26 being inclosed between their arms. Mounted upon the upper face of the extension piece 20 is a slide 27, and this slide 27 is provided with a longitudinally disposed slot 28, designed to receive bolts 29, having their lower ends mounted in the extension piece 20. These bolts 29 serve to maintain the slide 27 in its place and to limit its movement to a direction longitudinal of the extension piece 20. The forward end of the slide is back-bent to form a hook 31, which registers between the clips 25 of the extension piece, and the rear end of the slide is upturned as denoted by the numeral 30, to form an attaching plate for the forward terminal of the flexible element 17 after it has been carried about the pulley 93.

The swingle-tree 24 is fashioned from a plurality of superposed plates, the upper plate of the series being the shortest, and the plates beneath it increasing in length to the lowest one of the series, which is the longest.

The terminals of the several plates, of which the swingle-tree 24 is formed are upturned substantially at right angles to the body portion of the plates to form guides 33, 36, 37 and 38, and these several guides are provided with alined apertures designed to receive, slidably, a bolt 34, the inner end of which is turned at a right angle, as denoted by the numeral 35. A flexible element, preferably a coil spring 39, has one of its terminals attached to the end 35 of the bolt 34, its other terminal being attached to one of the guides, preferably to the guide 36. This spring 39 serves as a means to hold the bolt 34 normally in register with the apertures in the several guides, it being understood that the end of the trace chain or tug is commonly inserted between the guides 37 and 38, in which position it will be engaged by the bolt 34, the same being actuated by the spring 39. Each end of the swingle-tree 24 is equipped and arranged in the manner above described, and the bolts 34, which are slidably mounted in the remote ends of the swingle-tree are connected by means of a flexible element 40. This flexible element 40 is passed to the front of one of the pulleys 26, thence to the rear of the pulley 32 which is mounted in the hook 31 of the slide, thence in front of the other pulley 26 and terminally attached to the other locking bolt 29.

The outer end of the tongue 1 carries a shoe 41, which preferably is fashioned from a single strip of metal bent upon itself to form an upwardly projecting hook. One end of the shoe 41 is rigidly attached to the lower face of the tongue 1, the other terminal thereof being rigidly attached to the upper face of the tongue and terminally up-bent, substantially at right angles to the tongue, as denoted by the numeral 42. Mounted upon the upper face of the tongue at its outer end is a channel piece 43, one of the upstanding ends of which is brought into contact with the upturned end 42 of the shoe. The pivot plate 44 is disposed longitudinally of the tongue 1 and is provided with depending arms to register between the arms of the channel piece 43, the member 44 being united pivotally at 45 with the channel piece.

The breast yoke, denoted generally by the numeral 46 is united with the pivot plate 44 by means of a suitable connecting bolt 47. The breast yoke is free to turn in a horizontal plane upon the element 47, and to turn with the pivot plate 44 in a vertical plane upon the connections 45 whereby the pivot plate 44 is assembled with the channel piece 43. Mounted above the breast yoke 46 and disposed longitudinally of the tongue 1 is a strip 48, which is rigidly assembled by means of bolts or the like with the pivot plate 44, the breast yoke 46 being disposed between the said strip and the pivot plate. Mounted upon the upper face of the strip 48



are a pair of clips 49, spaced apart and disposed adjacent the edges of the said strip. The forward terminals of the clips 49 are back-bent, as denoted by the numeral 50, and within these back-bent portions are housed and journaled for rotation pulleys 51. A slide 52 resembling the slide 27 is mounted between the clips 49, the said slide being provided with longitudinally disposed slots 53 through which pass bolts 54 into connection with the strip 48, the slide being free to move upon the said bolts. The slide is provided with a hooked end 55 which is disposed between the back-bent ends 50 of the clips, and within this hooked portion 55 is housed and journaled for rotation a pulley 56. The rear end 57 of the slide is downturned to form a suitable attaching place for the forward end of the flexible element 16, which, extending rearward, is connected with the lever 9.

The breast yoke 46 comprises a plurality of superposed plates 58, 59 and 60, the plates 59 and 60 uniting at their outer ends to form an eye 61. The outer end of the breast yoke is comprised of plates 62, 63 and 64, which terminate in alinement adjacent to the eye 61. Rigidly mounted upon the upper surface of the plate 64 is an extension plate 65 which projects beyond the eye 61 and upon the upper face of the plate 60, the portion of the extension plate 65 which extends inward beyond the eye 61 being bifurcated to form arms 66. The extension plate 65 carries a clip 67, having its ends downturned and provided with apertures alined with the eye 61, and through these apertures and through the eye is passed a pivot bolt 68, whereby the outer portion of the breast yoke is pivotally connected with that portion which is mounted upon the tongue 1.

The plate 58 is provided with upstanding ears 70, having apertures to receive a transversely disposed pin 71, which, when the outer end of the breast yoke is upturned to bring the arms 66 into contact with the upper surface of the plate 60, will serve to maintain the outer end of the breast yoke in alinement with the central portion which is pivoted upon the tongue 1. Mounted upon the upper face of the plate 60 and disposed between the arms 66 of the extension plate is a slide 72, having slots 73, designed to receive bolts 74, which pass through the plates 58, 59 and 60. The slide 72 is free to move in the direction of the length of the breast yoke 46 upon the bolts 74. The adjacent ends 75 of the slides 72 are upturned, and these adjacent upturned ends are connected by a flexible element 94, which passes in front of the pulleys 51 and to the rear of the pulley 56. The remote ends of the slides 72 are upturned as denoted by the numeral 76, and from each of these upturned ends 76 a flexible element 95 extends to

terminal connection with a bolt 81 which is slidably mounted at the extremity of the breast yoke. The extremity of the plate 64 is up-bent at right angles to form a guide 77, and upon the plate 64 adjacent the guide 77 is mounted a U-shaped piece 78, the up-standing arms of which form other guides. Between the guides 79 which are formed by the arms of the U-shaped piece 78, is mounted an L-shaped member 80, which constitutes the fourth guide of the series. These several guides 77, 79 and 80 are provided with alined apertures in which is slidably mounted the bolt 81, the inner end of which is over-bent, as denoted by the numeral 82. A flexible element 83 preferably a coil spring, has one of its terminals attached to the head 82 of the bolt, its other terminal being attached to one of the guides, preferably, as shown, the guide 80. This spring 83 serves to maintain the bolt normally in registration with the apertures in the several guides, after the manner of the spring 39, which is used in connection with the swingle-tree.

The space between the guide 77 and the outer of the guides 79 is designed to receive a suitable clevis member 86, whereby the breast strap may be assembled with the breast yoke, and this clevis member 86 comprises a shaft 87, upon which is journaled for rotation a roller 88.

In practical operation, should the draft animal become unduly fractious, or attempt to run away, the lever 9 may be drawn rearward, by means of a suitable pull cord 89, which may be attached thereto. As the lever 9 moves rearward the flexible element 17 will move over the pulleys 15 and 93, causing the slides 27 to move rearward upon the extension pieces 20. As the slides 27 move rearward the pulley 32 which is carried by each of the slides, will engage the flexible element 40, causing the bolt 34 to be withdrawn from the guides 37 and 38, whereby the traces will be freed from the ends of the swingle-trees.

While the foregoing operation is taking place, the flexible element 16 will be drawn rearward by means of the lever 9, and as the flexible element 16 moves rearward it will draw with it, rearwardly, the slide 52, the pulley 56 engaging the flexible element 94 intermediate its ends, and causing its ends to move toward each other. The ends of the flexible element will draw toward the tongue 1 the slides 72, and the remote terminals of the slides 72, carrying with them the flexible elements 95, will withdraw the bolt 81 from the guides 77, and the outer of the guides 79, thus freeing the clevis members 86 from the breast yoke 46. The draft animals, by the foregoing operation will be set entirely free from the tongue 1, and the tongue 1 will then drop to the ground. By providing the shoe 41 upon the terminal of the tongue 1,



the said tongue at its outer end will move over any obstacle which it may encounter as it strikes the ground and moves forward under the impulse which it received from the draft animals while they were attached to the vehicle. By means of this shoe the tongue is prevented from coming into sudden abutment with a stump, rock or other obstacle which might be disposed upon the surface of the ground.

It will be seen that I have provided means whereby the breast yoke may have movement in a horizontal plane or in a vertical plane relative to the tongue 1, and, although the breast yoke is permanently assembled with the tongue, I have provided means, in the form of the removable pins 71, whereby the remote terminals of the breast yoke may be dropped into a depending and out-of-the-way position when not in use.

The arrangement of cords and pulleys upon the breast yoke and the swingle-tree is such that these members may reciprocate in a horizontal plane without withdrawing the locking bolts from their positions in the several guides whereby they are carried. It is to be understood that although this device is designed primarily as a horse detacher, the horse-detaching mechanism in no way impairs the usefulness of the device. The draft animals may be set free from the swingle-trees and the breast yoke in the usual manner, the heads 35 and 82 of the bolts furnishing a means whereby they may be readily grasped by the hand to withdraw the locking bolts from the positions in which they are normally held by means of the several retractile springs hereinbefore described.

It will be seen that the foregoing device represents a double-tree, swingle-trees, and a breast yoke of novel and improved construction, and that the horse-detaching means which are used in connection therewith are simple in construction and not likely to become disarranged through use or rendered accidentally inoperative.

Having thus described my invention, what I claim as new, and desire to protect, by Letters Patent, is:—

1. In a device of the class described, a tongue; a double tree and a breast yoke pivoted to the tongue; swingle trees pivoted to the double tree; a bridge piece mounted upon the double tree; a bifurcated lever fulcrumed upon the bridge piece; an attaching member terminally pivoted between the bifurcations of the lever; a guide disposed upon the bridge piece; pulleys located between the guide plate and the bridge piece; harness engaging means carried by the terminals of the breast yoke and the swingle trees; flexible elements passed about the pulleys and terminally connected with the attaching member and with the harness en-

gaging means of the swingle trees; and a flexible element connected at one end with the attaching member, and at the other end connected with the harness engaging means of the breast yoke.

2. In a device of the class described, a supporting element; a strip mounted upon the supporting element; a breast yoke pivoted between the strip and the supporting element; harness-engaging means carried by the remote terminals of the breast yoke; a slide mounted upon the breast yoke upon either side of the strip; flexible elements uniting the remote terminals of the slides with the harness-engaging means; a flexible element uniting the adjacent terminals of the slides; a slide mounted upon the strip and arranged to engage the flexible element uniting the slides of the breast yoke; and means for operating the strip-mounted slide.

3. In a device of the class described, a supporting element; a bridge piece carried by the supporting element; a bifurcated lever fulcrumed upon the bridge piece; an attaching member terminally pivoted between the bifurcations of the lever; a guide plate superposed upon the bridge piece and having its rear terminal upwardly bent; pulleys disposed between the guide plate and the bridge piece; flexible elements passed about the pulleys and arranged to be engaged by the upturned end of the guide plate, and terminally connected with the attaching member; and horse-detaching means operatively connected with the flexible elements.

4. In a device of the class described, a supporting element; a bridge piece carried by the supporting element; a lever fulcrumed upon the bridge piece; a guide plate superposed upon the bridge piece and having its rear terminal upwardly bent; pulleys disposed between the guide plate and the bridge piece; flexible elements passed about the pulleys and arranged to be engaged by the upturned end of the guide plate, and terminally connected with the lever; and horse-detaching means operatively connected with the flexible elements.

5. In a device of the class described, a supporting element; a bridge piece carried by the supporting element; a strip mounted upon the bridge piece and terminally disposed above the bridge piece; a guide plate mounted upon the terminal of the strip and spaced therefrom, the guide plate being centrally cut away and having its rear terminal up-bent; a bifurcated lever fulcrumed upon the strip; an attaching member pivoted between the bifurcations of the lever; a flexible element having one of its terminals connected with the attaching member, the flexible element being forwardly extended through the opening in the guide plate, and arranged to be engaged by the upturned end



of the guide plate; and horse-detaching means operatively connected with the flexible element.

6. In a device of the class described, a  
5 supporting element; a bridge piece carried by the supporting element; a strip mounted upon the bridge piece and terminally disposed above the bridge piece; a guide plate  
10 mounted upon the terminal of the strip and spaced therefrom, said guide plate being centrally cut away, and having its rear terminal up-bent; a lever fulcrumed upon the strip; a flexible element having one of its

terminals connected with the lever and being forwardly extended through the opening 15 in the guide plate, and being arranged to be engaged by the upturned end of the guide plate; and horse-detaching means operatively connected with the flexible element.

In testimony that I claim the foregoing as 20 my own, I have hereto affixed my signature in the presence of two witnesses.

CLARENCE B. CUMMONS.

Witnesses:

W. B. MARTINE,

J. F. SAUDER.