

W. B. CHURCH & J. H. McCALL.
SAFETY HITCHING DEVICE.
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931,844.

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Fig. 1

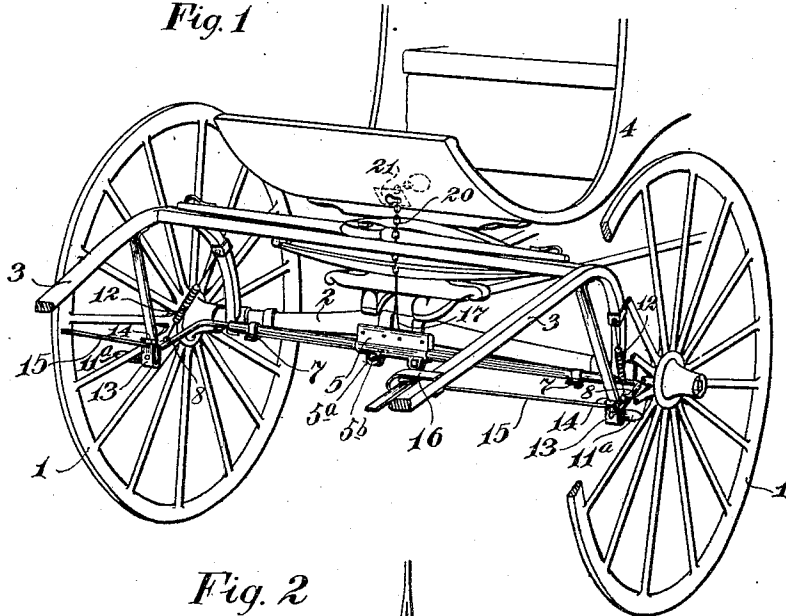


Fig. 2

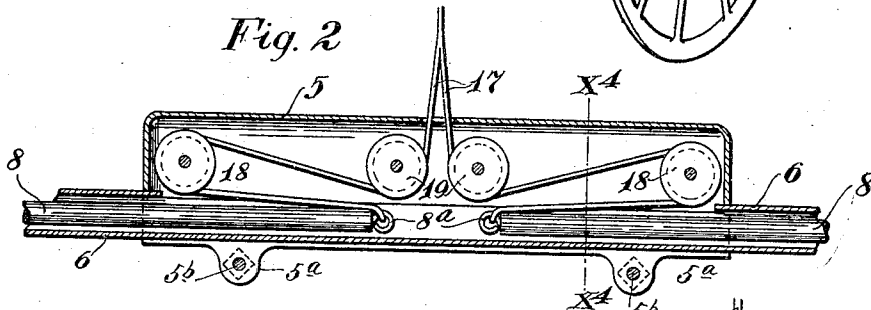


Fig. 3

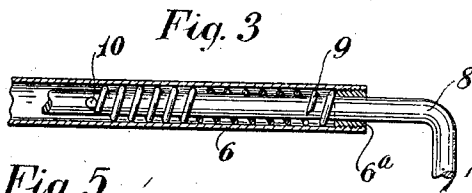


Fig. 4

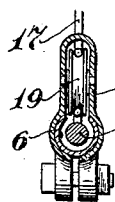


Fig. 5

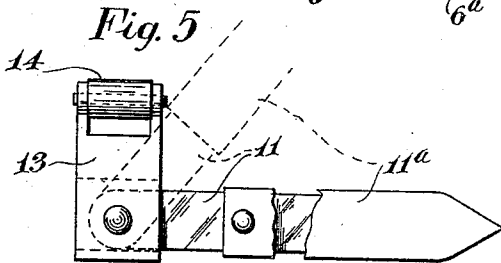


Fig. 6

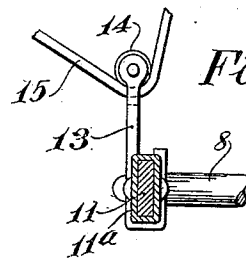
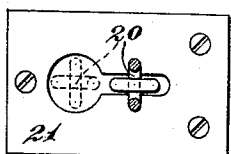


Fig. 7



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UNITED STATES PATENT OFFICE.

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SAFETY HITCHING DEVICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WILLIAM B. CHURCH and JOHN H. McCALL, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Safety Hitching Devices; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention has for its object to provide an efficient, safety hitching device for draft animals; and to this end the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claim.

The invention is illustrated in the accompanying drawings, wherein like notations refer to like parts throughout the several views.

In said drawings Figure 1 is a perspective view showing the front end portion of a wheeled vehicle equipped with our safety hitching device, some parts being broken away and others shown in sections. Fig. 2 is a detail in section showing some parts of the hitching device detached from the vehicle. Fig. 3 is a detail in section showing the spring equipped portions of the crank shafts and the mounting thereof. Fig. 4 is a detail in section on the line $x^4 x^4$ of Fig. 2. Fig. 5 is a detail in elevation, looking at the front end or nose piece of the wheel engaging part of the hitching device. Fig. 6 is a view of the same parts shown in Fig. 5 but looking outward at right angles to the position shown in Fig. 5 with the nose piece shown in section; and, Fig. 7 is a detail showing the lock plate for the pull-up device and part of the latter, in plan view.

The numerals 1 represent the front wheels; 2 the front axle; 3 the thills; and 4 the body of an ordinary four-wheeled vehicle.

To the axle 2 is secured, by clips 7 or other suitable means, a guide tube 6 which is open at its opposite ends and is slotted in the central portion thereof; and to this guide tube is secured a casing 5. The casing 5 is constructed to fit over the central or slotted portion of the tube and is provided with clamping lugs 5^a to which bolts 5^b are applied to secure the casing to the tube. Within the tubes 6 are mounted the inturned sections of a pair of crank shafts 8 which are subject to

retraction by springs 9 tending to hold the same in their innermost position, with respect to the casing 5 and the wheels 1 of the vehicle. As shown, the springs 9 encircle the inturned sections of the crank shafts 8, within the corresponding parts of the guide tube 6, and react against plug nuts 6^a screwed into the ends of the said tube 6 and radial pins 10 projecting from said shafts 8 as shown in Fig. 3. The out-turned or forwardly projecting arms of the crank shafts 8 have pivoted thereto nose pieces 11 adapted to engage with the spokes of the wheels 1. These nose pieces 11 are preferably covered with leather sheaths 11^a, as shown in Fig. 5, to prevent abrasion of the wheel spokes by the nose piece. The nose piece 11 is so pivoted to the forward arm of the crank shaft 8 that it will become rigid therewith, under the forward motion of the wheel, but that it will freely move upward, on its pivotal center, when the wheel is turned backward, thereby becoming disengaged from the wheel. The crank shafts 8 are yieldingly held at their normal level by spring hangers 12 having their upper ends anchored to the thills 3 and their lower ends to the forward arms of said crank shafts.

The front ends of the forwardly projecting arms of the crank shafts 8 are provided with up-turned clip-like brackets 13 to which the nose pieces 11 are pivoted, as shown in Fig. 5; and these clips 13 are also provided with small rollers 14 under which the hitching strap 15 can be passed.

Two hitching straps 15 are employed so as to hitch the animal on each side of the bridle bit or other head attachment, not shown. These straps 15 are anchored at their rear ends to the respective thills 3; and, from this point, a given strap passes under the roller 14 carried by the part 13 and thence through suitable guides, such as the adjacent tug guide 16, and forward to the horse's head.

The inner ends of the inturned or incased sections of the crank shaft 8 are provided with eye lugs 8^a to which are attached a pair of flexible connections 17 which extend over suitably placed guide sheaves 18 and 19 journaled in the casing 5 and unite to a pull-up chain 20 which passes up through a suitably slotted retaining plate 21 properly located on the vehicle body 4. As shown the plate 21 is fixed to the inside surface of the dash board of the vehicle body 4, in position for

convenient reach by a person riding in the vehicle. The slot in the plate 21 is key shaped or large enough, at one end, to permit the free passage of the chain, while, at the other or elongated portion thereof, it is sufficiently narrow to only permit a link of the chain to be drawn therein edge or flatwise; and hence, when the chain is drawn into the narrow part of the slot, the chain and parts connected therewith will be held in whatever position they may be set.

The parts of the safety hitching device and their relations to each other have now been specified. The operation is as follows:—
 When the hitching device is out of use, the springs 9 hold the crank shafts 8 in their innermost or idle position; and, at this time, the pull-up device composed of the parts 17 and 20 will be in their lowest position and the nose pieces 11 will clear the spokes of the wheel. When it is desired to hitch the animal, the pull-up device is raised, thereby forcing the crank shafts 8 outward against the tension of their retracting springs 9 and causing the nose pieces 11 to engage with the spokes of the wheels 1; and, thereupon, under the continued forward motion of the said wheels, the crank shafts 8 will be rocked downward against the tension of their spring hangers 12 carrying with them the rollers 14 and the slack section of the straps 15, and, thereby, tightening the straps 15 and hitching the horse to the wheels of the vehicle. If the horse should back, thereby reversing the motion on the wheels 1, the nose pieces 11 will turn upward, thus causing the hitching device to be automatically disengaged from the wheel. If the horse should again start forward, the nose pieces 11 will again engage with spokes of the wheels and he will find himself fast and instantly stop. Because of their functions, the spring held shafts 8 with their nose pieces 11 may properly be termed strap tighteners, as that is really what they do. The hitching straps, it will be seen, are anchored to the vehicle and the forward ends of the hitching straps engage the opposite ends of the bridle bit or other head attachment applied to the animal; and, hence, it is only necessary to take up the slack in the hitching straps to tie the animal to the vehicle in such a way that the harder it pulls the tighter it will be tied. It must be understood that the hitching straps 15 could be anchored, at their rear ends, to other parts of the vehicle than the thills, but, of course, not to the wheels. The strap tighteners could also be carried by other parts of the vehicle as long as the same were held in proper position to act on the straps to take up the slack therein and tighten the straps under the forward motion of the wheels.

While one strap and one strap tightener serves to hitch the animal from one side of

his head, it is found that such a one sided hitch is not a reliable one for most animals. Some few animals will stand with such a hitch but most will make trouble, under the one sided hitch, for the reason that the animal feels that it is being guided or led to make a turning movement of the vehicle and will attempt to turn around and thereby cramp and sometimes overturn the vehicle or cause other kinds of trouble. Hence, the two sided or double hitch is something more than a mere duplication. It makes a reliable hitch for preventing the animal from moving ahead, without any tendency to turn it to one side.

It must be understood that the words "hitching strap" are employed in a broad or generic sense so as to include any and all kinds of flexible hitching connections. It must also be understood that the pull-up device may be composed of flexible connections of any suitable kind. We preferably employ chains for all parts of the pull-up device in practice.

By actual usage we have demonstrated the efficiency of this hitching device.

It must also be understood that this device is applicable without any material change in principle for hitching a team of animals instead of a single animal. When applied to hitch a team a main or pole strap is employed which has at its rear end two branches anchored to the hounds of the pole and engaged by the strap tighteners practically the same as when applied to the thills for a single animal; then the main or pole strap extends forward through suitable guides on the pole and has two branches at its forward end which are engaged with the inner rings of the respective animal's bridle bits. It will then operate on the same principle as for the single animal for the reason that when the two animals of the team are hitched at their inner or adjacent sides they cannot well turn the pole because the tendency would be to turn toward each other under any leading effect produced by the tightening branches of the main strap. Otherwise stated, the team does not need to have both of its animals tied on both sides of their respective heads. If the team attempts to turn to the left, the right wheel will tighten the strap and pull the near animal toward the central position. If the team attempts to turn to the right, the left wheel will tighten the strap of the off animal and turn the team back to central position. Otherwise stated, the safety hitching device herein disclosed is equally applicable for hitching a single animal or team of animals. It involves the same principles in each instance.

What we claim is:—

In a safety hitching device, the combination with the front vehicle shaft, of a guide

tube carried thereby, spring-pressed crank shafts slidable in said guide tube at opposite ends and normally held out of contact at their outer extremities with the spokes of
5 the vehicle wheels, a casing applied to the guide tube between the ends of the latter and having a number of guide sheaves mounted therein, flexible members connected with the inner ends of the crank shafts and movable
10 over said sheaves, and a common operating

device for said members by which the crank shafts are simultaneously forced outwardly to lock the vehicle wheels.

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

WILLIAM B. CHURCH.

JOHN H. McCALL.

Witnesses:

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