No. 679,334. Patented July 30, 1901.

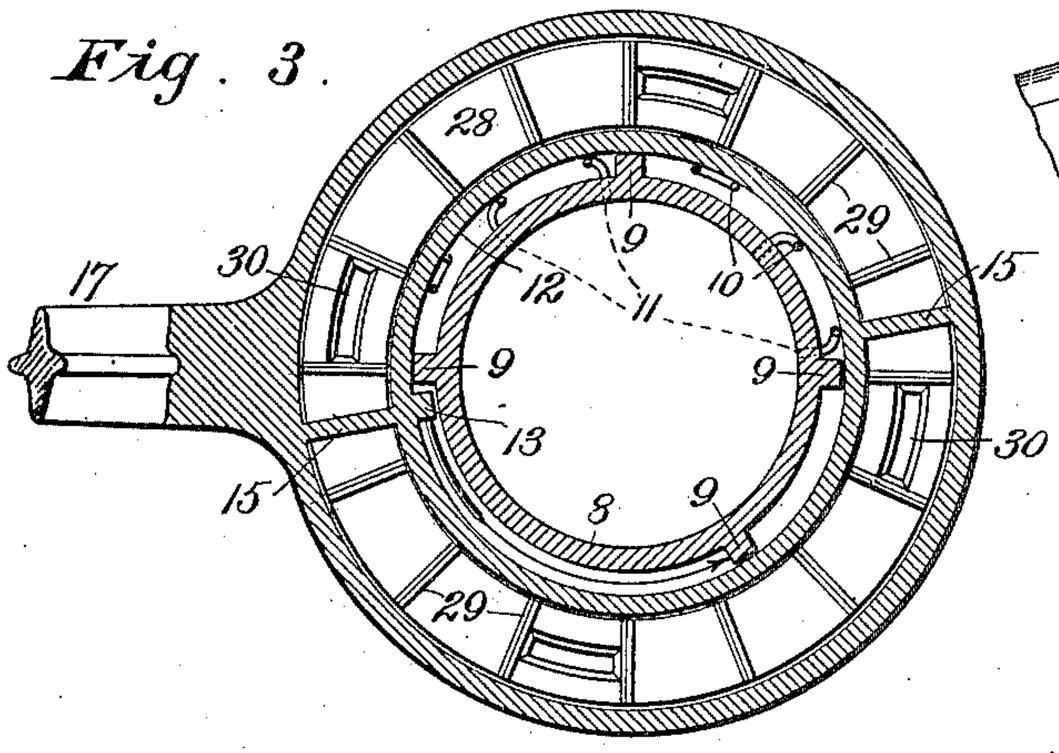
C. W. PRINCE.

HITCHING DEVICE.

(Application filed Dec. 8, 1900.)

(No Model.)

Fig. 3.



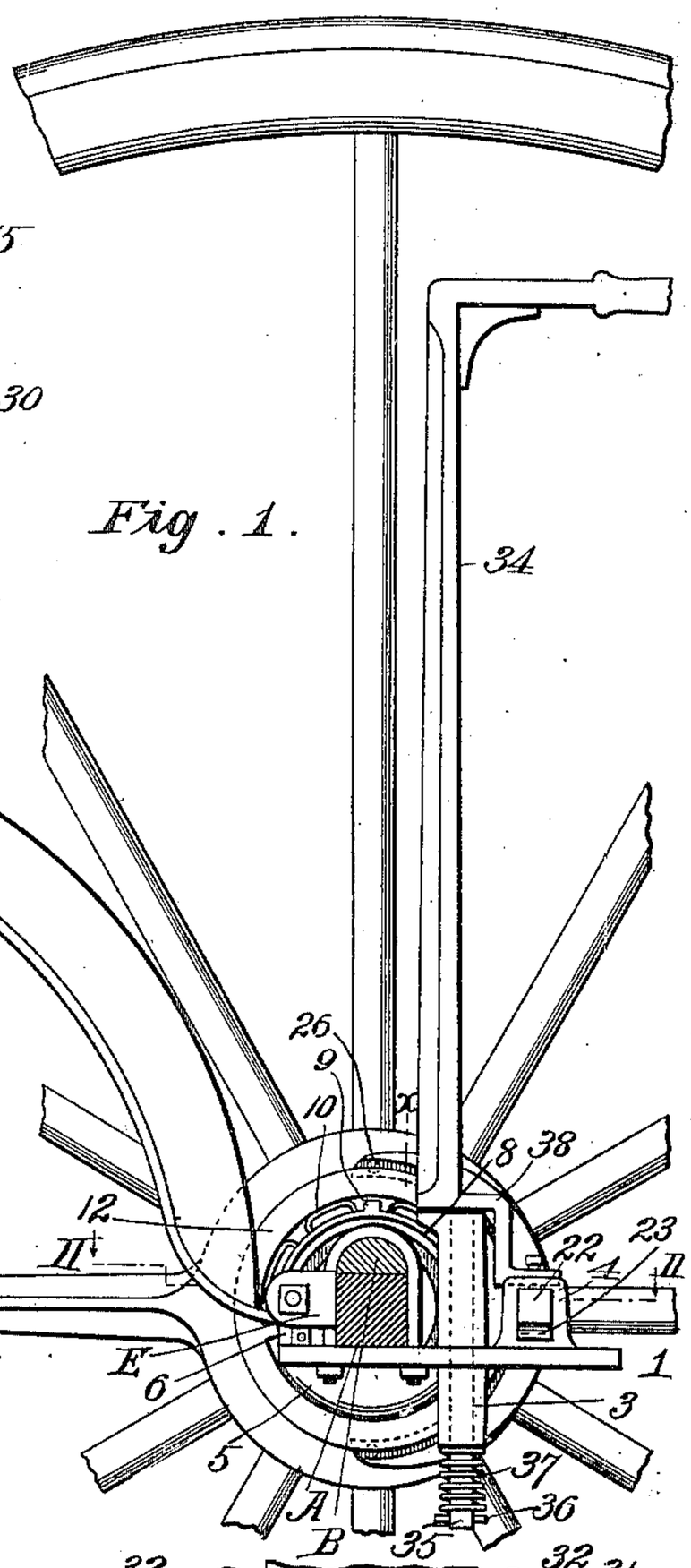


Fig. 1.

Fig. 4.

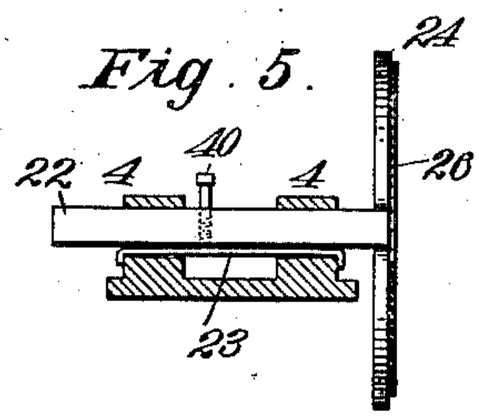


Fig. 5.

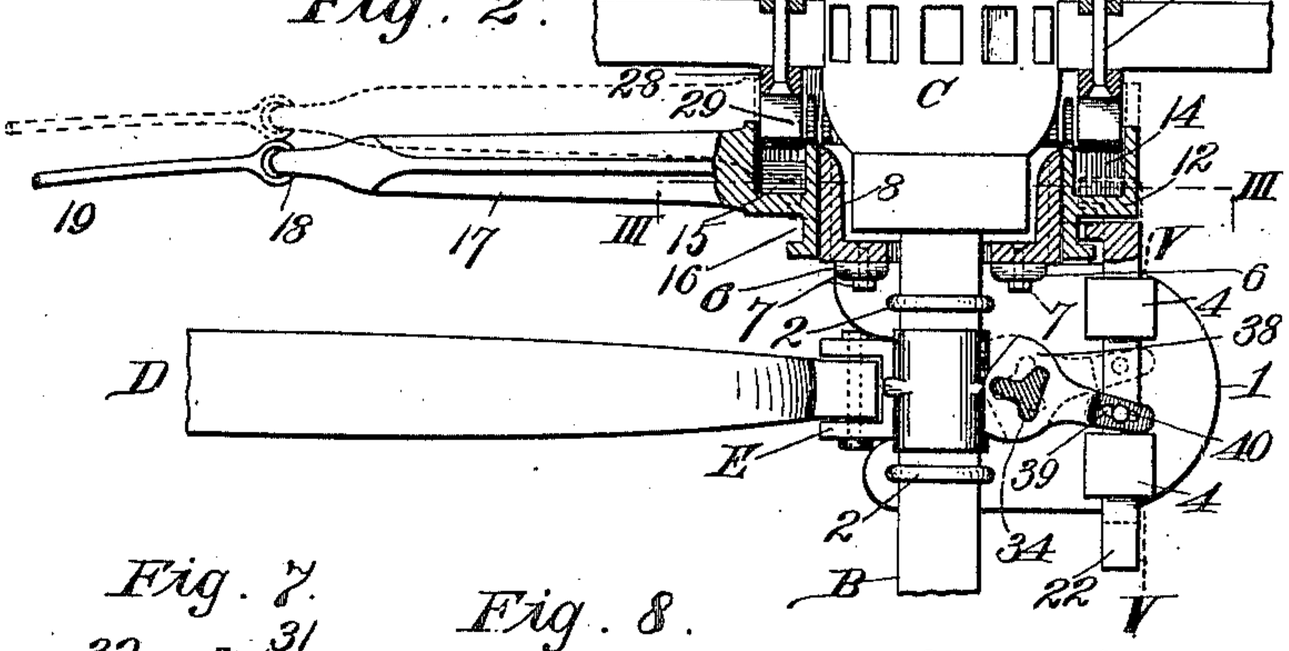


Fig. 2.

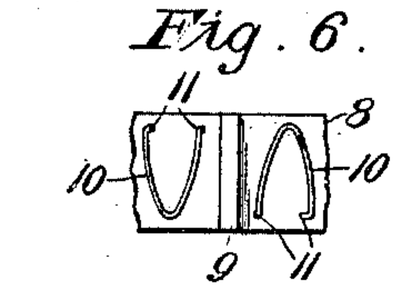


Fig. 6.

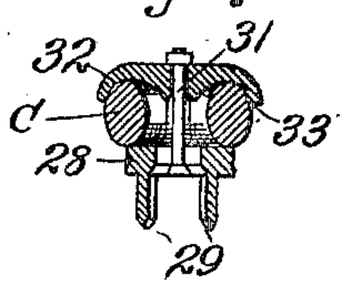


Fig. 7.

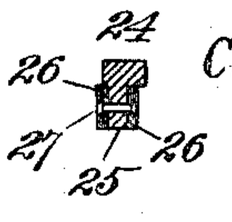


Fig. 8.

Witnesses:
H. C. Rodgers.
Geo. C. Keefer

Inventor:
Charles W. Prince
By Fischer & Thorpe
attys.

UNITED STATES PATENT OFFICE.

CHARLES W. PRINCE, OF KANSAS CITY, MISSOURI.

HITCHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 679,334, dated July 30, 1901.

Application filed December 8, 1900. Serial No. 39,130. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. PRINCE, a citizen of the United States, and a resident of Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Hitching Device, of which the following is a specification.

My invention relates to hitching devices for the purpose, primarily, of locking one of the wheels of a vehicle against free rotation; and my object is to produce a device of this character which can be quickly and easily attached to any style of wheeled vehicle embodying stationary axles and a body portion supported above the same without marring, changing, or in any way interfering with any original part of the vehicle.

A still further object is to produce a device of this character which can be easily and quickly operated, is efficient for the purpose intended, and possesses the desirable features of simplicity, strength, durability, compactness, and cheapness of construction.

With these objects in view the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood by those skilled in the art reference is to be had to the accompanying drawings, in which—

Figure 1 represents a vertical cross-section of a vehicle-axle and shows the inner side of a hitching device embodying my invention. Fig. 2 is a horizontal section taken on the line II II of Fig. 1. Fig. 3 is an enlarged vertical section taken on the line III III of Fig. 2. Fig. 4 is a detached view showing the third rein and the loop which connects the same with the bit. Fig. 5 is a vertical section taken on the line V V of Fig. 2. Fig. 6 is a broken view showing a part of the stationary hub-inclosing bearing-sleeve with antirattling-strings thereon. Fig. 7 is a cross-section showing the means for securing the stationary clutch on the wheel. Fig. 8 is a cross-section taken on the dotted line X of Fig. 1.

Referring to the drawings, the axle, as shown, is composed, as usual, of the metallic portion A and the superposed wood portion B, secured thereon in the usual manner. C designates the wheel, journaled upon the axle in the usual manner. D designates one of the thills or shafts secured upon the axle in the usual manner by means of the thill-coupling E. All of the parts referred to are of the usual or any preferred type.

The mechanism of my improved attachment is constructed as follows: 1 designates a horizontal base-plate arranged below the axle at opposite sides of thrill-coupling E, and 2 inverted U-shaped bolts or clips which extend through and bolt the plate firmly up against the axle and incidentally assist in holding the portions of the axle together. Rearward of the thill-coupling and preferably about its center the plate is provided with an elongated vertical bearing 3, which extends both above and below the plate a considerable distance, and rearward of said bearing are formed the transversely-alined guides 4 for a purpose which hereinafter appears. At its outer end the base-plate is provided with a depending segmental flange 5 and in the plane of said flange at opposite sides of the axle with upwardly-projecting lugs 6, to which are bolted, as at 7, the stationary bearing-sleeve 8, loosely enveloping and concentrically surrounding the inner end of the hub of said contiguous wheel, said sleeve being provided with longitudinal ribs 9, extending parallel with the axle, and at its outer side with springs 10 between certain of said ribs, said springs being preferably made of spring-wire bent to V shape and having their ends bent inward and engaging the sleeve, as at 11, as shown most clearly in Fig. 6.

12 designates a slidable clutch-collar journaled upon the ribs 9 of sleeve 8 and provided with an inwardly-projecting stop-rib 13, adapted to operate between a pair of the ribs 9, the distance between said ribs corresponding to that which the clutch-collar is free to rotate, as hereinafter explained. The clutch-collar is annularly grooved in its outer face, as at 14, and is provided with a pair of teeth 15, diametrically opposite, bridging said groove, but projecting from its face only about half-way to the outer side of the collar, as shown clearly in Fig. 2. At its inner side the collar is diametrically reduced, by preference, and formed with an annular groove 16, and is provided with a forwardly-projecting arm 17, terminating in a closed hook or loop 18, connected by the third rein 19 with the semicircular loop 20, adapted to be engaged with the

bit or bridle adjacent to the bit at opposite sides of the horse's head in order that when said rein is drawn taut, in a manner hereinafter explained, it will not tend to guide the horse to the right or left, but will cause him to back without turning, the said third rein being guided, preferably, through an eyebolt 21, depending from the proximate thill.

22 designates a slide-bar, preferably of rectangular form and fitting snugly in the guides 4 of the base-plate, being formed rectangular as the cheapest and most practical way of guarding against turning in said guides, its longitudinal reciprocatory action being resisted by the spring 23, extending through and secured in said guides and pressing against the bar. At its outer end the bar is formed with a segmental arm or yoke 24, formed with a similarly-shaped rib 25, which fits loosely in the groove 16 of the slidable clutch-collar, corresponding strips of leather 26 being riveted to said rib, as at 27, and engaging the opposite walls of said groove, so as to provide a bearing which eliminates noise and friction and which may be replaced cheaply when necessary, though in practice these leather shoes will last a very long time.

28 designates the companion clutch member, the same being arranged concentrically around the hub and embodying a plurality of teeth 29, preferably sixteen, which telescope into the groove of the clutch-collar, but not sufficiently far to engage the teeth 15 of the same, unless the collar is thrown to operative position. (Represented by dotted lines, Fig. 2.) When the vehicle is in motion, the teeth of clutch member 28 ride within the clutch-collar, which prevents mud clogging up the teeth, and said member 28 is provided with longitudinal slots 30, through which extend outwardly between certain of the spokes of the wheel clamping-bolts 31, said bolts also extending centrally through the clamping-plates 32, which bridge the space between contiguous spokes and are provided with cavities 33, engaging the latter to prevent any lateral slippage thereon. The teeth of both clutch members are beveled to a point, so that in case their ends come together when the slidable clutch member is thrown outward the latter under such impact will turn or twist sufficiently to dispose and cause its teeth 15 to enter the adjacent spaces between the teeth 29 of clutch member 28. As thus interlocked the parallel sides of its teeth are brought together, which sides, extending about radially of their axis of rotation, cannot slip past each other under any lateral strain applied when the horse moves forward or backward. Obviously, therefore, no extraneous means of holding the clutch members interlocked are necessary.

The means for sliding the clutch-collar inward or outward through the medium of the slide-bar 22 is a lever or crank 34, extending vertically between the driving side of the vehicle and the contiguous wheel and having a reduced spindle 35, journaled in the long bearing-sleeve 3 and provided with a cross pin or shoulder 36 at its lower end, against which and the lower end of the bearing-sleeve presses the spiral expansive spring 37, encircling said spindle, the function of this spring being to hold the crank squarely down upon the upper end of the bearing-sleeve, and thus insure a connection which is at once firm, substantial, and noiseless. Said crank is provided with a supplemental crank-arm 38, provided with a longitudinal slot 39, engaging a pin 40, projecting upward from the slide-bar, this pin-and-slot connection being necessary, as the arm of course follows a different course in action from that of the slide-bar.

In practical operation when it is desired to hitch the horse the driver grasps crank 34 and forces it outward. As a result he slides the slide-bar 22 and forces the slidable clutch-collar to the position shown in dotted lines, Fig. 2, where it is interlocked with the outer clutch member in the manner hereinbefore explained. When in this relation, if the horse takes a step or two forward he rotates the wheel and through the medium of the interlocked clutch members rotates the clutch-collar in the direction indicated by the arrows, Figs. 1 and 3, until the rib of the collar strikes the rib of the bearing-sleeve contiguous to the point of the arrow, when said sleeve renders further free forward movement of the wheels impossible, as will be readily understood. By this time, however, the horse has no desire to advance farther, because the action of the clutch-collar results in drawing the third rein taut, and therefore pulling the horse's head downward and rearward. As soon as he feels this restraint he immediately backs, only taking a step or two, until rib 13 of the collar is again in contact with the sleeve-rib 9, adjacent to the feather of the arrow shown in Fig. 3. It will thus be seen that the device prevents the horse wandering away from the point where the driver left him.

The detail construction and arrangement of the parts may obviously be modified in various minor particulars and mechanical equivalents may be substituted without departing from the essential spirit and scope of the invention.

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

1. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding companion clutch member supported adjacent thereto, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a support carried by the axle, for said means, an arm or yoke engaging the sliding clutch member to adjust it toward or from its companion clutch member, without interfering with its rotatable action, and a lever projecting upward between the body of the vehicle and the contiguous wheel within con-

venient reach of the driver for the purpose of operating said arm or yoke, substantially as described.

2. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding companion clutch member supported adjacent thereto, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a support carried by the axle, for said means, and provided with guides, a slide-bar mounted in said guides and provided with an arm or yoke embracing the sliding clutch member and adapted, without interfering with its rotatable action to move the same toward or from the companion clutch member, and a lever fulcrumed on said support, and pivotally connected to said slide-bar to operate the same, substantially as described.

3. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding companion clutch member supported adjacent thereto, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a spring or springs interposed between said means and the sliding clutch member to eliminate rattling of the latter, a support carried by the axle, for said means, and provided with guides, a slide-bar mounted in said guides and provided with an arm or yoke embracing the sliding clutch member and adapted, without interfering with its rotatable action to move the same toward or from the companion clutch member, and a lever fulcrumed on said support, and pivotally connected to said slide-bar to operate the same, substantially as described.

4. In a hitching device for horses, the combination of a vehicle, a clutch member secured to a wheel thereof, a sliding and companion clutch member supported adjacent thereto, and provided with an arm, means to limit the rotatable action of the last-named clutch member to a fraction of a revolution, a support carried by the axle, for said means, an arm or yoke engaging the sliding clutch member, without interfering with its rotatable action, a lever projecting upward between the body of the vehicle and the contiguous wheel within convenient reach of the driver for the purpose of operating said arm or yoke, and a rein connected to the bridle and to the arm of said clutch member, substantially as and for the purpose set forth.

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

CHARLES W. PRINCE.

Witnesses:
H. C. RODGERS,
G. Y. THORPE.