

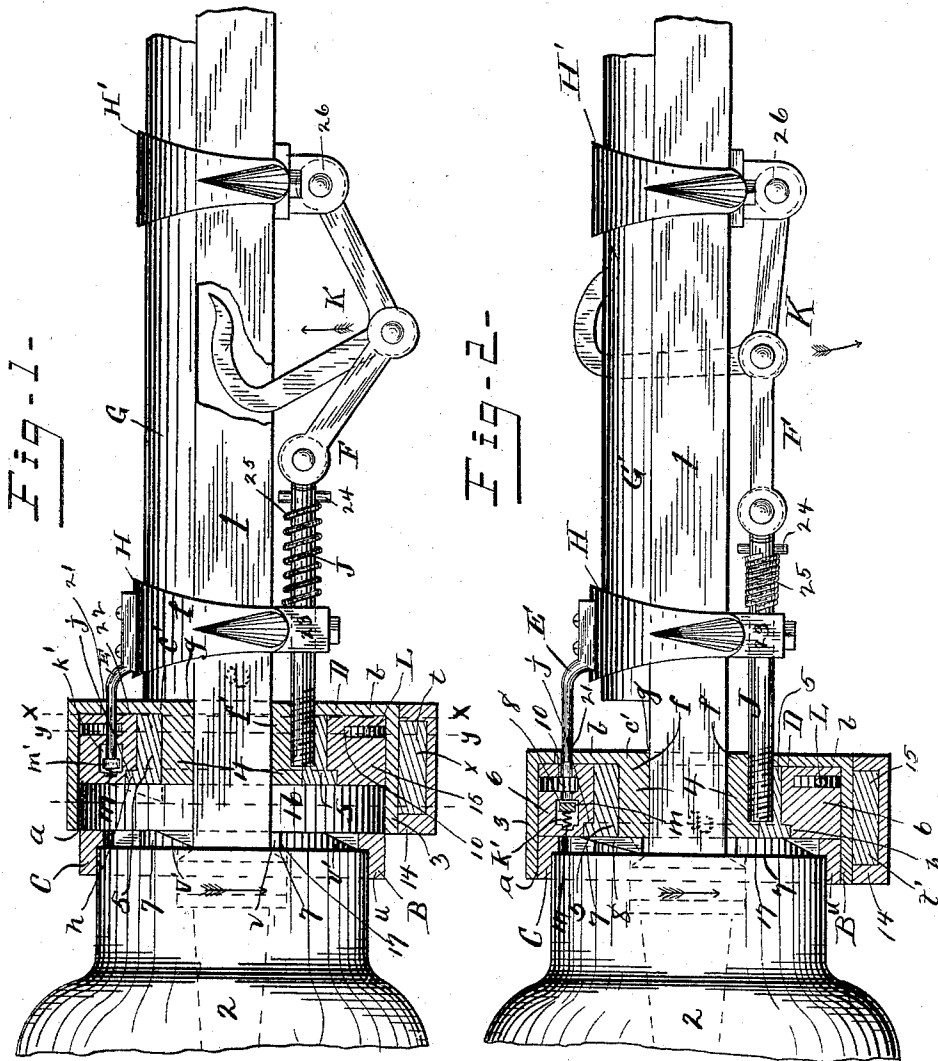
(No Model.)

4 Sheets—Sheet 1.

L. HOUSE.
HORSE HITCHING DEVICE.

No. 488,475.

Patented Dec. 20, 1892.



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Fig-3-

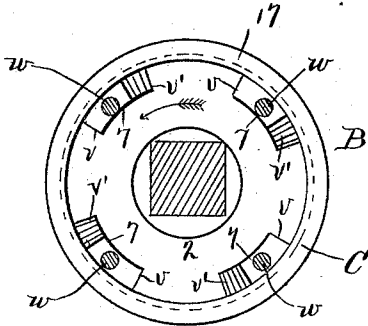


Fig-5-

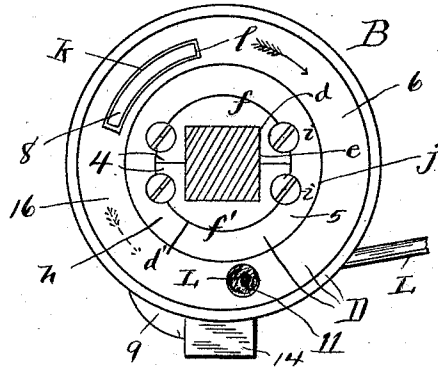


Fig-6-

Fig-7-

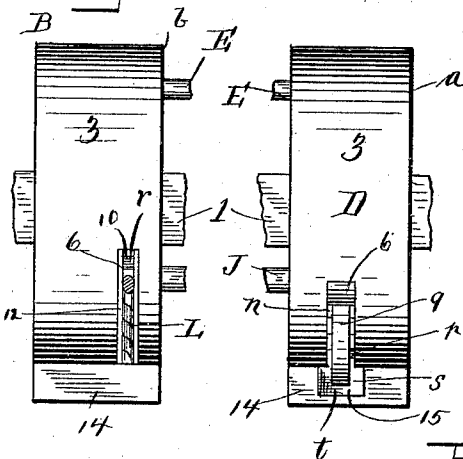


Fig-8-

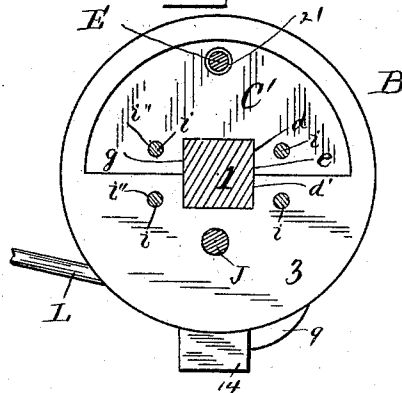
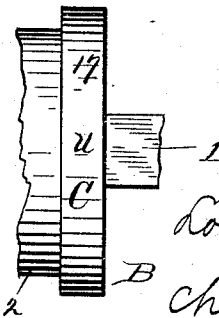


Fig-4-



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Fig-9-

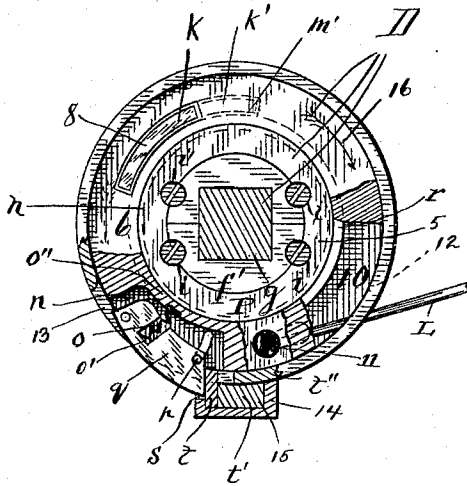


Fig-11-

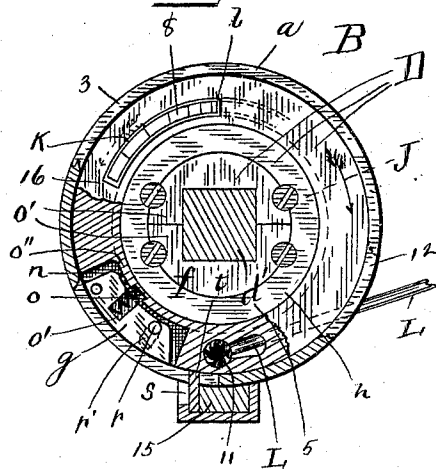


Fig-10-

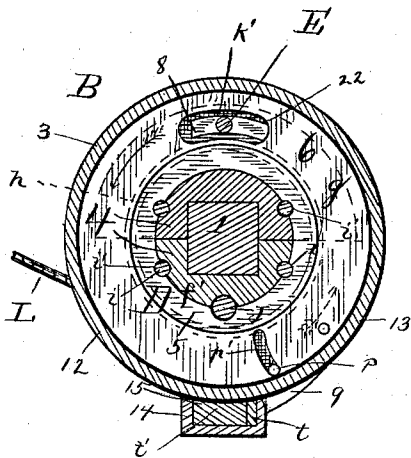
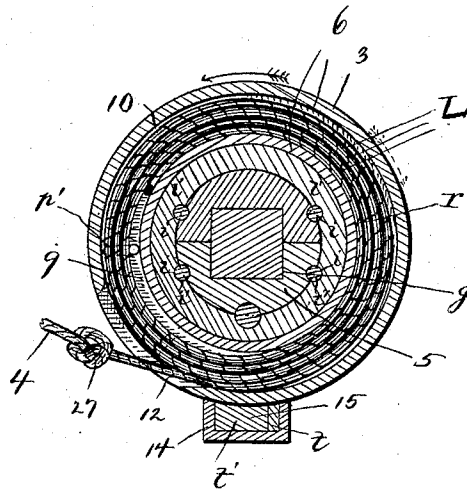


Fig-12-



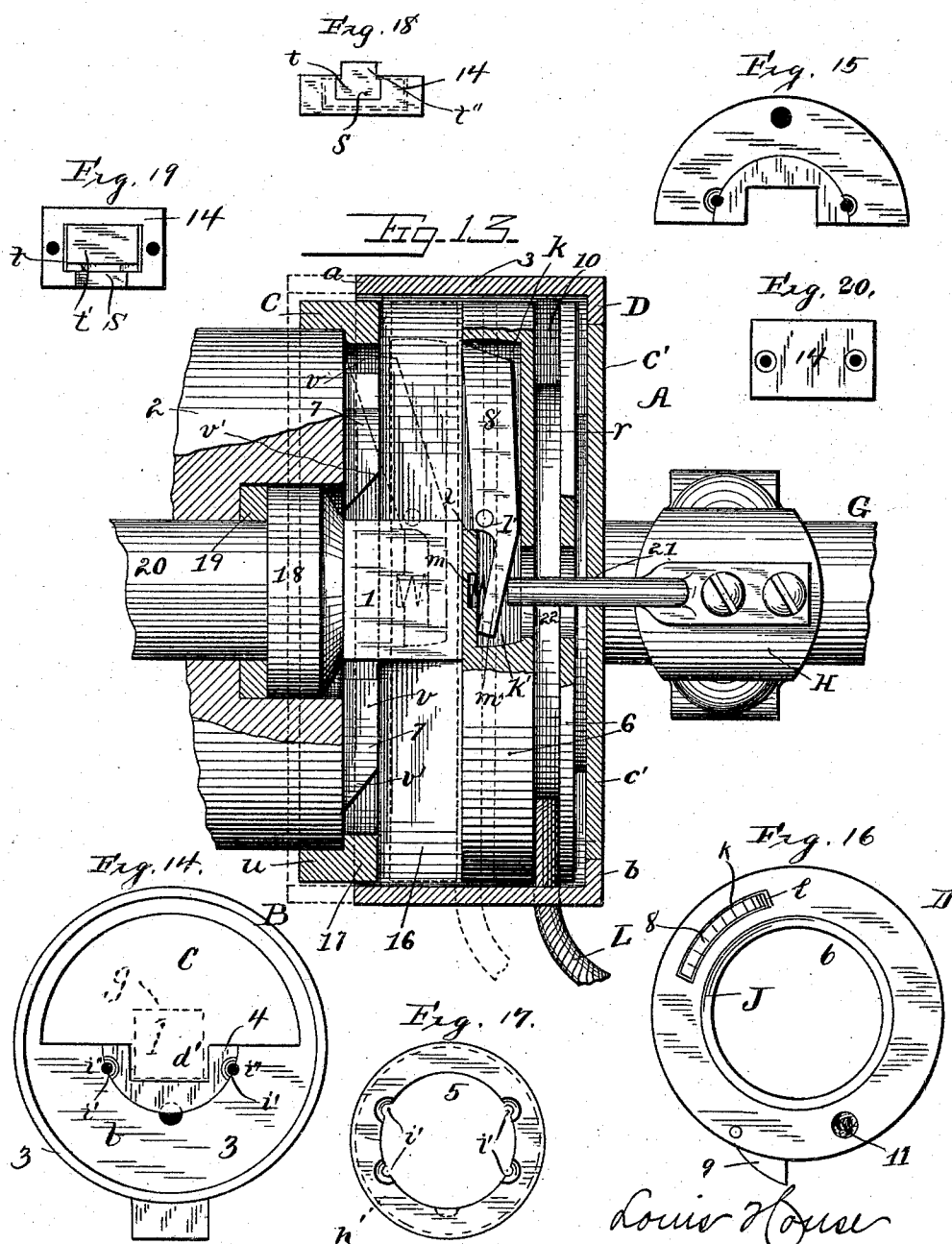
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UNITED STATES PATENT OFFICE.

LOUIS HOUSE, OF SYRACUSE, NEW YORK.

HORSE-HITCHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 488,475, dated December 20, 1892.

Application filed January 9, 1892. Serial No. 417,568. (No model.)

To all whom it may concern:

Be it known that I, LOUIS HOUSE, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Horse Hitching and Checking Devices; and I 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, reference being had to the accompanying drawings, in which—

Figure 1, is a front side view of a portion of a vehicle axle (and wheel hub) with my device attached, the clutch proper thereof shown in vertical longitudinal section and the auxiliary mechanism and parts in side elevation, and representing the appliance in its non-gearied position; Fig. 2, a similar view showing it in gear; Fig. 3, a face plan of the outer coupling member of the clutch mechanism as applied to hub of vehicle wheel; Fig. 4, a side detail of same; Fig. 5, a front face plan of the inner coupling member of the clutch mechanism erected on the vehicle axle; Fig. 6, a detail of the front side of the aforesaid inner coupling member; Fig. 7, a detail of the rear side thereof; Fig. 8, an elevation of the back face of the inward member of the clutch, as mounted on vehicle axle; Fig. 9, a plan of the front or outward face of the inner clutch-member attached to the axle, with portions represented broken away for illustration of internal parts; Fig. 10, a vertical transverse section thereof taken on line *x, x*, Fig. 1, and looking toward the rear face of the spool therein; Fig. 11, a front face plan of the inner member of the clutch mechanism, with a portion of the spool, &c, thereof, shown broken away for illustrating internal parts; Fig. 12, a vertical transverse section through the inner member of the clutch mechanism, upon line *y, y*, Fig. 1, and looking outwardly toward the wheel-hub; Fig. 13, an enlarged conjoint top-plan and horizontal longitudinal section of the major portion of my device, as mounted in place, with portions of the spool-part, &c, shown broken away to illustrate interior parts; Fig. 14, a detail, (front face,) of the spool-carrier case entering into the formation of the inner member of the clutch-portion of my device; Fig. 15, a

detail (front face) of the plate which fits into the large orifice of the inner member; Fig. 16, a detail (front face), of the spool appertaining to the inner clutch-member; Fig. 17, a detail, (front face,) of the flanged collar utilized in the aforesaid member; Fig. 18, a detail, (front face,) of the buffer-box applied to bottom of the case containing the spool, &c; Fig. 19, a top-plan detail of same; and Fig. 20, a bottom-plan detail thereof.

Similar letters and figures of reference denote corresponding parts throughout the several views.

The object of my invention is, to provide an improved horse-hitching and checking device to vehicles, so arranged as to enable the occupant of a carriage or wagon to hitch the attached horse or horses directly from the vehicle, and arranged that if the horse starts he may be reined up and prevented from running away.

It is constructed as follows: By way of exemplification of the adaptability and application of my appliance to a road vehicle, I indicate an end-portion of a vehicle axle, (preferably the forward one,) upon which and the companion axle, (provided with usual wheels,) there obviously is mounted and connected in any ordinary manner a vehicle box or body, the axle preferably being metallic, and practically square in cross-section, as indicated, having the customary wooden cap or strip secured thereto by clips, and terminating at its extremities in a cylindrical shoulder wherefrom projects a cylindrical spindle whereon the hub 2, of the vehicle wheel (comprising the hub, spokes, felly and other essentials of a proper wheel) revolves, the butt or inner-end and a portion of the nave and spokes of a wheel alone being herein illustrated.

A, represents my improved horse-hitching and checking mechanism, comprising a clutch-portion proper B, consisting of the outer-member C, secured to the inner end of the hub of a vehicle wheel, and the inner-member D, movably mounted on the forward-axle of the vehicle, adjacent to aforesaid wheel-hub, and E, an auxiliary safety-finger coactive with the inner-member of the clutch-portion; while F, broadly designates the operating mechanism for throwing the clutch-members in and out of gear.

The inner-member D, of the clutch, erected upon a transversely-square portion of the vehicle-axle, and contiguous to the hub-spindle whereon the wheel is secured, comprises the following parts: A non-rotatable yet longitudinally-movable spool-carrier case 3, of cylindrical shape, its tubular body being entirely open at its outward (or front) end *a*, and closed at its opposite inner end by a back wall *b*, (formed integral with the tubular portion,) having an orifice *c*, preferably semi-circular, practically occupying its upper-half portion, and wherein fits and is secured a similar shaped plate *c'* closing said orifice, while *d*, *d'*, represent square-shaped notches or openings, the former standing perpendicularly into the lower edge of the plate *c'*, and the latter downward into the underneath adjacent contacting edge of the back-wall body, said notches respectively being of a depth slightly greater than the semi-thickness vertically of the axle, and in width slightly wider than the total transverse thickness of the axle horizontally; said notches *d*, *d'*, conjointly creating a rectangular shaped opening *e*, of a size slightly larger than the diameter of the vehicle axle.

4, is the sectional, non-rotary, sliding hub, whereby indirectly the spool for the hitching-line L, is centrally supported, said hub extending outwardly forward from the back wall *b*, of the case 3, about half the length of said casing, the upper segment *f*, of the hub being integral with the detachable plate *c'*, of the back wall and the lower segment *f'*, integrally cast with the main body portion of said wall wherewith the cylindrical side *e* is integral; said hub having a central square opening coincident with and a continuation of the opening *e*, of the back wall of the case, and conjointly forming a transversely-square longitudinal socket or hold *g*, for the passage of that transversely-square portion of the vehicle-axle 1, whereupon said hub of the inner-member D, of the clutch construction is mounted, and adapted to limited movement parallel with the axle of the vehicle.

Inclosing and snugly fitting the periphery of the hub 4, is a collar (or bushing) 5, provided with a peripheral flange *h* at its front face, the outward front face of the collar lying vertically flush with the front face of the hub 4, and its rear face abutting against the back wall *b*, of the case 3 whereto it is rigidly held by screws (or pins) *i*, passing through holes *i'* in the back wall, the screw-stems being threaded only at their extremities where they enter in and engage with the threaded holes *i'*. As may be seen, the screw-holes *i'*, are formed where the circular-inside of the collar 5, and the circular-outside of the hub 4 come in contact, one longitudinal half of the respective holes entering the hub and the other half entering the collar, said longitudinal horizontal semi-holes or grooves conjointly forming the complete screw-holes *i'*, aforementioned, which manner of perforation, (the

screws being inserted,) insures the rigid attachment of the collar to the non-rotary hub as well as to the back wall of the case, and, moreover, through the retention of the collar and hub immovably together, serving to securely hold in place in the orifice *c* of the back wall *b*, the inserted plate *c'*, having the integral segmental portion *f*, of the spool-hub. Preferably four screw-holes, two at a side, (as shown,) are utilized for the insertion of the holding-screws aforementioned.

Mounted upon the periphery of the collar or bushing 5, is the rotatable spool 6, whereon the hitching-line L, leading to the horses' bits is wound, said spool, of annular form, circumferentially inclosing the collar 5, interposed between it and the hub 4, and loosely lying in the circular recess or cavity existent between the aforesaid collar and the cylindrical side of the spool-carrier case, the cylindrical inside of the spool being provided at its front end with a circumferential groove *j*, wherein fits the flange *h*, of the collar 5, said flange holding the spool in position for rotation upon the collar 5, and fully preventing any longitudinal movement of same thereon. The outer front face of the spool 6 stands vertically flush with the front face of the collar and spool-hub. And said collar 5, receiving direct whatever frictional wear may possibly be caused by continued revolution of the spool obviously saves the spool-hub from wear; and, in case the peripheral surface of the collar should become excessively worn it is apparent the collar may readily be replaced by a new one at a nominal cost.

8, denotes a spring-actuated dog (or pawl) of segmental shape longitudinally and of suitable dimensions, pivotally erected within a segmental recess *k*, entering into the spool-body at its front face, said recess terminating at an end in a cavity portion *k'*, the top edge of the front wall thereto forming a vertical bearing or support *l*, for the shoulder portion *l'*, of the dog when it is thrown outward for engagement with the clutch-member on the wheel-hub; the dog being pivoted at its shoulder portion; and the actuating spring *m*, (preferably spiral,) being interposed between the front wall of the cavity *k'* and the stem portion *m'* of the dog, as clearly illustrated in the drawings.

9, is another spring-actuated dog (or pawl), of segmental form edgewise and vertical with the spool, and which is pivotally disposed within a segmental-shaped recess or slot *n*, entering perpendicularly the spool body at its edge (or side), and at a brief distance from the dog 8, aforementioned, said dog 9, being flat transversely and pivoted at an end to the spool-body, its opposite end being adapted under certain conditions to drop downward a distance beyond the peripheral edge of the spool and coming in contact with an attachment to the case serve as a stop for undesired revolution of the spool; said dog having centrally a perforation *o* wherein is seated a

spring o' , (preferably spiral) that abuts against the curved boundary wall o'' , of the recess n ; said dog having at the upper part of its non-pivoted end a transverse pin p inserted therein, its inwardly projecting end entering and passing through a curvilinear slot p' , formed in the spool-body extending through to the back face thereof, the end of the pin p , extending the depth of the slot.

10, is a circumferential groove entering the periphery of the hitching-line spool, located adjacent to its inner end and slightly beyond the vertical plane whereat the dogs aforementioned are stationed, said groove, for the occupancy of the wound hitching-line extending centrally inward some distance, as shown, leaving an annular wall portion r , at its inner peripheral boundary and in width sufficient to permit of the reception of the coil or coils of the wound line, coil above coil, within same.

11, denotes a pocket-aperture extending horizontally into the front face of the line-spool at a slight distance from the location of the dog 9, and forwardly thereof in reference to the front side of the spool-case, said aperture terminating in a contracted portion that incliningly enters the line-groove 10, of the spool, whereby a knot or protuberance being formed at the rear end of the hitching-line and the line drawn inwardly through the aperture into the grooved part of the spool and thence out toward the front end of the vehicle pole or shafts a distance predetermined by the length of said line, the knot enters into the pocket-aperture and is tightly held therein by reason of the impossibility of the knotted end being drawn through the contracted portion of the aperture, whereby a positive and secure fastening for the line-end is insured, however great a strain the line may be subjected to.

12, is an elongated opening formed at the lower portion of the front side (or edge) of the cylindrical case 3, for the passage of the hitching-line from the line-spool forwardly to the horses' heads, and 13 is another elongated opening formed at the lower portion of the rear side (or edge) of the casing 3, which opening is of sufficient width and height to allow of the free play therein of the pivoted dog.

Centrally secured to the under side of the case 3, is a metallic buffer-box 14, held in place by screws or other satisfactory fastening, that side of the box facing toward the rear of my hitching mechanism having an opening s extending from the top edge of the box a distance downward, and 15, is an inclosed buffer comprising a flat metallic plate t , disposed on edge contiguous to the opening aforesaid and of greater diameter than the same, and movably fitted in the box, and a cushioning t' , of rubber (or other yielding material) interposed between the said plate and the opposite solid wall of the buffer-box, the function of the buffer being to serve as a stop for the dog 9, whenever thrown against the

plate standing before the cushioning, its construction, as is apparent, insuring a positive stop sufficiently yielding to prevent undesirable concussion or jar, the plate, as is evident, returning instantaneously back to the opening after the impact of the dog 9, against the plate, by reason of the recoil of the cushioning through its elasticity. The plate t , has an integral tongue portion t'' , entering in and movably fitting the contiguous portion of the opening in the case for the pivoted movement of afore-named dog, and whereby all possible bearing surface is presented for the contact of the engaging end of the dog therewith. The open top of the buffer-box readily permits of the insertion of the buffer in place prior to attachment to the spool-carrier case.

16, is the cylindrical chamber lying in front of the face of the spool-hub, collar and spool, whose boundary circumferentially is the tubular casing, and which chamber portion practically occupies the front half of the inward-member D, of the clutch mechanism. The outer-member C, of the clutch mechanism rigidly secured to the vertical face of the inner or butt-face of the hub of the vehicle-wheel, comprises an annular plate 17, having a circular flange u , fitting closely the periphery of the hub's inner end, said plate at its face portion having radially projecting lugs 7, disposed equi-distant apart, their faces lying flush with the face of the body of the plate, the ends of the lugs in one direction (the forward one), being abrupt as designated by the letter v , and in the opposite (rearward) direction the ends beveled or inclined as denoted by the letter v' , said outer member C, being by preference rigidly attached to the inner face of the wheel-hub by nails w , driven into the hub through holes formed in the lugs of the plate 17.

18, denotes the usual shoulder to the vehicle-axle, 19, an interposed washer, and 20, the spindle of the axle, whereon and the shoulder aforementioned, the hub 2, of the vehicle-wheel revolves.

As indicated, the internal circumference of the cylindrical case 3, of the inner clutch-member is such as to permit of the free inclosure of the periphery of the outer-member when thrown outward by the lever mechanism F.

G, is the usual axle-cap upon the axle of the vehicle, and H, H', are clips. The clip H, located at an extremity of the axle-cap and contiguous to the inner clutch-member D, has upon its top attached firmly thereto (or cast integral therewith) the safety-finger E, which finger curving slightly upward from its base portion extends horizontally and centrally outward and enters the inner clutch-member through the circular orifice 21, formed at the upper portion of the inner or rear face of the case 3; and thence, whenever the inner clutch-member D is thrown backward out of gear with the forward-member C, on the hub, extending into the cavity of the

spool wherein lies the stem portion of the dog (or pawl) 8, by means of the elongated orifice 22, at the upper portion of the rear or inner face of the line-spool intersecting the line-groove of said spool; said orifices 21 and 22 being centrally lineal, and affording unobstructed entrance of the safety-finger, which preferably is round in cross-section at its straight portion.

J, is a carrying-rod, disposed horizontally beneath the axle 1, and parallel therewith, screwed into or otherwise firmly secured at its outer forward end to the inner clutch-member D, through secure insertion of its end into a hole extending through the back wall of the case 3 and jointly through the spool-hole and collar portions, as illustrated, which rod sliding in a bearing 23, upon the bottom of the clip H, extends rearwardly inward a suitable distance. Adjacent to its inner end is a short pin 24, transversely entering the rod and having its ends protruding a distance from its periphery.

Between the bearing 23, and the pin 24, is a strong coiled-spring 25, encircling the carrying rod, one end abutting against the aforesaid bearing and the opposite end against the pin 24.

At a satisfactory distance rearward of the clip H, is secured the clip H', provided at its bottom with a hanger 26.

Extending from the perforated enlarged end of the rod J, to the perforated hanger 26 of the clip H', is a toggle-jointed foot-lever K, pivotally connected to the aforesaid parts, of such formation as to admit of the ready working of the lever by the foot of the occupant of the vehicle.

It being apparent that varied forms of lever-mechanism, operated either by the foot of a person, or the hands, or by cords traveling over pulleys connected to the inner clutch-member and leading to any desired portion of the vehicle body, may be utilized for manipulating the clutch-mechanism *per se*, I do not limit myself specifically to any particular form of clutch-operating mechanism, the form of actuating-lever herein shown merely exemplifying one form out of many that might and would accomplish the throwing outward and inward of the movable rear-member of my clutch proper, longitudinally with the vehicle axle.

27, denotes a safety-stop upon the hitching-line L, at a suitable distance from its point of attachment to the spool of the inner-member of the clutch mechanism, said stop being formed by the tying of a knot in the line subsequent to the fastening of its rearward end to said spool. Evidently, the stop 27, may be created by the securing to the line of a button or other enlargement, if deemed preferable. The function of the said line-stop is to limit the amount of line that can be wound upon the spool 6, whereby any clogging of the line thereupon, stopping required revolution of the said spool, is rendered impossi-

ble, the amount of line capable of being taken by the same being positively regulated.

By choice I utilize a hitching-line formed of flexible wire-rope of medium size, insuring as it does great strength embodied in a line of comparatively small thickness.

While preferably, as hereinbefore set forth, I attach my appliance to an end portion of the forward axle of a vehicle contiguous to the wheel thereon, it is very evident that, if deemed desirable or advantageous, it is susceptible of duplication, my device being secured to either end portion of the forward axle, or upon the other hand either singly or in duplication to the hind axle of the vehicle, although it is clear as the result of practical tests upon my part that, the employment of my attachment upon one extremity of the forward axle of a carriage or wagon is amply sufficient to insure all requisite action of the device.

Obviously, although I have not deemed it important or necessary to illustrate the shafts or pole of a vehicle and appurtenances required for the connection of a horse or horses to the vehicle, it is evident that the hitching-line or cord forming a component feature of my device extends from the line-spool forwardly along or adjacent to the shafts or pole of the carriage or wagon a satisfactory distance and connecting at its end either direct or indirectly with the animals' bits; which line, as is apparent, may be upheld on a plane horizontally with the pole or shafts by suitable pulleys or guides secured thereto, the line being retained taut and all slackness thereof prevented by the employment of a strong elastic cord or coiled spring rigidly secured by its forward end to the pole or shafts and at its rear non-attached end connected to the end of the hitching-line, whereat the customary auxiliary-lines leading to the animals' heads are fastened, whereby the main hitching-line is invariably retained taut whether in a wound or unwound state in relation to the line-spool whereto its rear end is firmly attached.

The arrows (in full lines) shown on certain figures of the drawings denote the direction of revolution of the hub of the vehicle wheel and attached outer clutch member, and the direction of rotation of the spool portion of the inner clutch-member, when the same is in engagement with and traveling rotatably therewith, while the arrows represented by dotted work illustrate the reverse or backward revolution of the aforesaid either when the inner clutch-member is thrown from engagement with the outer-member on the wheel-hub and the hitching-line rapidly unwinding from the line-spool, or when the vehicle-wheel is traveling backward through the possible backing of the horse or horses attached to the carriage or wagon.

The operation of my device is as follows: While the vehicle (carriage or wagon) is in motion the lever mechanism K stands in the

depressed position shown in Fig. 1, the inner-member of the clutch disposed rearward in non-engagement with the outer-member on the hub of the vehicle wheel, the carrying-rod J, projecting rearwardly through the expansion of the spring 25 in conjunction with the depressed lever-mechanism; but when it is desired to hitch the horse, (whether he is in motion or already brought to a standstill by checking him with the reins,) the lever is raised upward by the foot of the occupant of the vehicle, which action necessarily throws the clutch-members into gear through the movement of the carrying-rod and connected inner clutch-member outward, (the spring 25 coincidentally being compressed,) bringing the dog 8 of the line-spool into positive engagement with a lug of the outer clutch-member, whereby the animal is securely hitched or checked from undesired forward progression. If now the horse should attempt to keep on, the vehicle being in motion, or, on the other hand, attempt to start while the vehicle is stationary through prior stoppage of the horse by the reins, the revolution of the line-spool of the clutch mechanism will wind up a portion of the hitching line thereby tightening the connected lines or straps leading to the animal's bits and compelling him to stop. Should the animal back while the clutch is in gear, no injury will result to the mechanism nor will the line-spool be disturbed or the wound-up line thereon, from the fact that the spring-actuated dog or pawl 8 will in such case ride over the successive lugs of the outer clutch-member by reason of the beveled or inclined ends thereof presenting no barrier to the progress of the dog and whereby it readily passes over them. Thus it is readily perceived that in the backward motion of the animal any slackening of the hitching-cord is thoroughly prevented by the reverse action of the spring-clutch mechanism.

Obviously, by my contrivance the occupant of a road-vehicle is enabled to hitch the horse in an instant from where he (or she) is sitting, alight from the vehicle, and unhitch upon returning by so operating by the foot (or otherwise) the lever mechanism as to throw the clutch out of gear which action slackens the hitching-cord and connected lateral line or lines by the unwinding of the cable cord from the spool of the inner clutch-member of my device.

The function of the safety-finger E, of my appliance is, to act as a double safety against any possible contact or impingement of the dog or pawl 8, of the inner clutch-member with the lugs of the outer-member on the wheel hub. The action of said finger rigidly connected to an adjacent axle clip or band, being to press by its end against the spring-provided stem of the aforesaid dog 8, when the inner clutch-member is thrown rearward from its outer member, the pressure of the finger outwardly against the stem of the dog necessarily impelling the upper protruding

portion thereof inwardly, leaving the face of the spool devoid of any protuberance and whereby there is no liability through the omission of a front or back washer in the wheel-hub, or possible loose longitudinal play of the hub of the wheel along the axle-spindle, of the inner clutch-member impinging with its outer-member, as is readily apparent. Evidently, when the inner clutch-member is thrown outward for engagement by its spool-portion with its follow-member on the wheel hub, the pressure of the safety-finger is instantaneously withdrawn from the stem's end incident to the outward movement of said inner-member, the dog-actuating spring simultaneously bearing against the dog's stem throwing outward and yieldingly retaining in said position the lug-engaging part of the dog. Although the cylindrical space 16, existent between the outer and inner-member of the clutch when thrown out of gear is, under ordinary conditions, amply sufficient to insure the non-interference of the dog 8 of the inner-member with the lugs of the outer member even though said dog normally protruded beyond the face of the rotating-spool, the provision of the safety-finger E, whereby the dog is, in such position of the clutch-member retained wholly within its recess, avoids any contingency of undesirable interference with the clutch-member on the hub. The elongated perforation 22 through the spool conjointly with the circular aperture 21 in the back of the spool-carrier case, allows free entrance of the safety-finger into the inner clutch-member; while the lateral space afforded by reason of the perforation 22 being elongated, admits of the safety-finger absolutely clearing the perforation and rear face of the spool-body no matter how quickly the position of the spool is changed longitudinally.

The function of the spring-actuated dog 9 is, as hereinbefore stated, to act as a stop for retarding undesirable rotation of the line-spool of the inner clutch-member. Such positive limitation of the spool's revolution is a desideratum whenever the inner clutch-member (the spool having wound up the hitching-line to its full capacity) is thrown out of gear with its companion-member on the wheel hub allowing the wound extremity of the hitching-line to rapidly unwind as the horse moves forward unchecked by the strain of the line upon his bits and thereby free to travel onward.

The dog 9, in conjunction with the buffer 15 of the buffer-box 14 accomplishes the required action and results as follows: The clutch priorly having been thrown into gear for the stoppage or hitching of the horse, and the hitching-line commencing to wind around the line-spool, (see Fig. 11,) the line end in its circumferential progress speedily encounters and passing over bears against the laterally protruding pin *p* firmly attached to the dog 9, and adapted to move in the slot *p'*, of

the spool-body, and carrying the pin along to the inner end of said slot retains it there during the period the wound line is about the spool, and obviously thereby causing the normally projecting dog to lie wholly within the recess or chamber *n*, of the spool and absolutely out of encounter with the buffer of the buffer-box, as clearly illustrated in Fig. 12, and also in Fig. 11. Evidently, immediately following the throwing apart of the clutch-members, and the line rapidly unwinding from the line-spool, the coils of rope retain the dog 9, through inward pressure upon its pin *p*, within the spool cavity until the attached rope is all unwound, whereupon the pressure against the pin of the dog being withdrawn, the weighty end of the pivoted dog necessarily drops downward a distance beyond the periphery of the spool and impinges against the buffer in the buffer-box located upon the bottom of the spool-holding case, thereby instantly preventing further rotation of the spool until the clutch members are again thrown into gear and the action hereinbefore detailed repeated. The immense advantage and utility of the afore-described elements for the absolute stoppage of the spool's revolution when the wound line thereon is paid out, resides in the fact that, devoid of such provision the rotating spool through the momentum acquired by the sudden paying of the hitching-line would continue to revolve a certain degree subsequent to the thorough unwinding of the line therefrom, thus rendering twisting, abrupt bending, and consequent speedy rupture of the wire-rope line adjacent to its point of attachment to the spool not only possible but extremely probable, as priorly demonstrated to me by actual tests upon my part. Clearly, the barrier presented by the buffer-plate of the buffer in the buffer-box to the impinging dog 9, thoroughly controls the spool from further reverse rotation and consequently preventing the travel of the firmly secured line-end rotarily upward, but on the contrary retaining it at a point vertically central the inner-clutch and directly over the buffer-box, and whereby, the hitching-line having free exit outward through the opening 12 in the spool-case, and in non-contact with the upper edge of said opening, any kinking, angular bending or rupture of the line through otherwise certain contact and pressure against the upper boundary edge of the opening is rendered impossible, as exemplified in the drawings, and particularly so in Fig. 9.

My object in having the retarding medium (the buffer) elastic is, that whenever the depressed dog 9, strikes against it, there will be no appreciable concussion or noise resultant, and any injury to the dog or wearing of the cushion, (the impact-plate, being interposed,) impossible by reason of the force of the blow by the striking dog. As the stop (or knot) 27, formed on the hitching-line—L, a predetermined distance from its attached extremity

is larger than the line-opening 12, in the spool-inclosing case, it is apparent that said line-stop impinging against the case side will prevent the admission of an undesirable quantity of line into the case interior and about the spool and whereby all clogging is prevented. Obviously, the collar 5, of the inner clutch-member interposed between the sectional spool-hub and the rotatable line-spool, receives all the frictional wear that may be resultant from the spool's revolution, and protecting the hub from all wear; which collar may, when needful, be replaced by another at a minimum expense.

The device being composed of parts readily detachable one from the other, it is evident that whenever desirable or expedient from any cause, any given part may readily be replaced by a corresponding part without difficulty. Also, the major portion of the spool-carrying case being formed of an integral casting, great strength, durability and power of resistance to strain are fully insured.

It is clearly observant that, the central square-hole of the hub-portion of the inner clutch-member is of just sufficient dimensions to permit of the hub of said member readily sliding longitudinally a requisite distance upon the squared vehicle-axle, and is necessarily prevented from turning by reason of the vehicle-axle being angular in cross-section and the opening in the spool-hub also of angular contour.

All the portions of my appliance are easily and readily erected in proper position, or detached therefrom when desired.

My manner of mounting the inner-member D, of the clutch-mechanism in place upon the vehicle-axle is preferably as follows: Removing the wheel from the axle-spindle, I slide the integral case 3, (devoid of its attachable back plate *b*,) along the spindle of the axle and also the axle-shoulder, which it freely clears, until the proper location upon the square portion of the vehicle axle is reached, whereupon I insert in place in the orifice in the back wall of the case the attachable plate *b*, and next insert within said case the line-spool 6, followed by the interposition of the collar 5, between the segmental hub 4, and the said spool, and then securing the screws *i*, in place, the said inner-member is in operative position; the other portions of my appliance also being operatively disposed and connected as hereinbefore set forth and illustrated in the drawings. As is thoroughly apparent, the cylindrical side of the case 3, serves as a protector to the internal parts of the clutch-members, preventing as it does the ingress of mud, dirt, and also dust to any injurious degree within the interior of the clutch, whereby effective and thorough operation of same might be more or less interfered with; such cylindrical portion of the case serving as a protector whether the clutch is in or out of gear, as may readily be perceived. The clutch mechanism being in gear, the pressure of the

foot of the occupant of the vehicle upon the upwardly projecting angular arm of the lever mechanism will impel same to a depressed position releasing the pressure against the coiled spring of the carrying rod, whereby the spring expanding, the rod is carried inwardly and the attached inner clutch-member therewith, thus throwing the clutch out of gear.

While, by preference, I construct my appliance wholly or partially of malleable-iron castings, it is evident that wrought or cast-metal of any desired kind is correspondingly adapted for its construction.

By means of this simple and convenient attachment to road-vehicles the horses may be easily, quickly and perfectly hitched without the employment of common hitching devices, and also brought readily to a stop when endeavoring to run away.

Other means than the hitching line can readily be devised to support and operate the pawl so that it will drop into position where it can be engaged by the barrier, and thereby stop the rotation of the line spool the instant the hitching line is disengaged from the latter, and in the following claims in which the hitching line and pawl are named as elements I, therefore, do not wish to be understood as limiting myself to the hitching line as the supporting and operating means for the pawl unless such function is specifically given to the hitching line in the claims.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a hitching and checking device, the combination of an outer clutch member mounted upon and rotatable with the hub of a vehicle wheel, an inner clutch member supported upon the axle of the vehicle and longitudinally movable thereon, said inner clutch member having a non-rotatable hub and a rotatable line spool, the hitching line engaging said line spool, a spring-actuated pawl pivoted at one end within an opening in said line spool, a barrier adjacent to said line spool, and means for so actuating said pawl that its free end will drop out of said opening into engagement with said barrier, whereby rotation of the line spool may be prevented the instant the hitching line is unwound from the line spool.

2. The combination, in a hitching and checking device, of an outer clutch-member mounted upon and rotatable with the hub of a vehicle wheel, an inner clutch-member supported upon the axle of the vehicle and longitudinally movable thereon, means for forcing said clutch members into and out of gear with each other, said inner clutch member having a non-rotatable hub and a rotatable line-spool, a hitching line engaging said line-spool, a barrier supported adjacent to said spool, and a spring-pressed pawl pivoted at one end within an opening in said spool and having at its opposite end a transverse pin received by a curvilinear slot in said spool, said pin being

engaged by the hitching line, as specified, whereby when said hitching line is unwound from said spool said pawl will be caused to drop into engagement with said barrier and further rotation of the spool thereby prevented.

3. The combination of the clutch of a hitching and checking device, one member of which is mounted upon and rotatable with a rotating part of a vehicle, and a hitching line coiled around the other member of said clutch, with a pawl pivoted at one end to said last-mentioned clutch-member and having a transverse pin at its opposite end, said pin being engaged by said hitching line, and the pawl thereby normally held in its innermost position, and a barrier adapted to be engaged by said pawl when said line is disengaged from the latter, substantially as described and for the purposes specified.

4. In a hitching and checking device, the inner and outer members of the clutch, said outer member being mounted upon and rotatable with the hub of the vehicle wheel, and said inner member being supported by the axle of the vehicle and longitudinally movable thereon, and having a non-rotatable hub, a rotatable line spool, and a casing secured to said hub, a hitching line having its ends passing through openings in said casing, said hitching line being coiled around said line-spool, a pawl engaged and supported at its non-pivoted end by said hitching line, and a barrier supported by said case adjacent to said pawl and adapted to be engaged by the pawl when the hitching line is unwound from the spool.

5. In a hitching and checking device, the inner and outer members of the clutch, said outer member being mounted upon and rotatable with the hub of the vehicle wheel, and said inner member being supported by the axle of the vehicle wheel and longitudinally movable thereon, and having a non-rotatable hub, a casing secured thereto and a line-spool mounted on said hub, in combination with a hitching line having its ends passing through openings in said casing, a pawl within an opening in said line-spool, said pawl being pivoted at one end and having a projection at its opposite end, said projection being engaged and the pawl normally held within said opening by said hitching line, a buffer plate supported by said casing adjacent to said pawl, and an elastic backing for said buffer plate, all substantially as shown and described.

6. In a hitching and checking device, the combination of a hitching line an outer rotating clutch member mounted upon a rotatable part of a vehicle, an inner longitudinally-movable clutch member, said inner member having a rotatable line-spool formed with an opening, a pawl pivoted at one end within said opening, means for normally holding said pawl within the opening but permitting its free end to drop out of said opening when the

hitching line is disengaged from the line spool, and a barrier adjacent to said pawl and adapted to be engaged by the same when its free end is out of said opening, substantially as described and for the purposes specified.

7. A hitching and checking device, consisting of a hitching line an outer rotating clutch member mounted upon a rotatable part of a vehicle an inner longitudinally movable clutch member, said inner clutch member consisting of a non-rotatable hub, a collar or bushing thereon, and a rotatable line-spool upon said collar, said line-spool having an opening, a pawl pivoted at one end within said opening, means for normally holding the pawl within the opening but permitting its free end to drop out of the same when the hitching line is disengaged from the line spool, and a barrier adjacent to said pawl and adapted to be engaged by the same when its free end is out of said opening, said barrier having an elastic backing, substantially as described and for the purposes specified.

8. In a hitching and checking device, the outer and inner clutch members, said outer member being mounted upon a rotatable part of a vehicle and said inner clutch member being movable longitudinally and having an opening, and a spring dog pivoted within said opening and adapted to project beyond the face of the inner clutch-member and engage the outer clutch-member, in combination with a stationary finger projecting into said inner clutch member in line with an end of said dog and adapted to engage the same and keep the dog within the opening in the inner clutch member when the members of the clutch are out of engagement with each other, and a hitching line engaging said inner clutch member.

9. The combination of the outer and inner members, of the clutch, said outer member being mounted upon a rotatable part of a vehicle and said inner member consisting of a case having an open outer end, the vertical wall of said case having an orifice, a plate closing said orifice, a segmental hub, said plate and the vertical wall of the case being formed to provide an opening coincident with that through the hub, for the passage of the supporting means, a collar encircling said hub, a rotatable line spool supported on said collar, and a hitching line engaging said line spool.

10. The combination of the outer and inner members of the clutch, said outer member being mounted upon a rotatable part of a vehicle and said inner member consisting of a case having an open outer end, the vertical wall of said case having an orifice, a detachable plate closing said orifice, and a segmental hub, the upper segment of which is formed integral with said plate and the lower segment of which is formed integral with said vertical wall of the case, said plate and the vertical wall of the case being also formed to provide an opening coincident with that through the

hub, for the passage of the supporting means, a collar encircling said hub, said collar being secured to said hub and also to the vertical wall of the case, a rotatable line-spool supported on said collar, and a hitching line engaging said line spool.

11. In a hitching and checking device, the combination of the inner and outer clutch members, said outer member being mounted upon a rotatable part of a vehicle, said inner clutch member having a non-rotating hub, a rotatable line-spool, and a case secured to said hub and projecting over and protecting said line spool and hub, said case having an aperture 11, formed with a contracted end, and an opening 12, and a hitching line passing through said aperture 11 to and around said line spool and thence through said opening 12, said hitching line having an enlargement at one end to prevent said end from being drawn into said case through said aperture, all substantially as shown and described.

12. In a hitching and checking device, the combination of the inner and outer clutch members, said outer member being mounted upon a rotatable part of a vehicle and said inner clutch member having a non-rotating hub, a collar or bushing, encircling said hub and having a peripheral groove at one end, a line spool having a flange received by said groove in the collar and a hitching line engaging said line spool.

13. In a hitching and checking device, the combination of the inner and outer clutch members, said outer member being mounted upon a rotatable part of a vehicle and said inner clutch-member having a non-rotating hub, a cylindrical inclosing box or casing, to which said hub is secured, said casing being open at its outer end, a collar or bushing encircling said hub, said collar having a peripheral groove at one end, a line spool having a flange received by said groove in the collar and a hitching line engaging said line spool.

14. In a hitching-device comprising a hitching line outer and inner clutch-members and mechanism for impelling the inner member to and from the outer companion-member, said outer member being mounted upon a rotatable part of a vehicle, an annular-shaped line-spool provided peripherally with a groove for the wound-up hitching line, and at a side thereof with a recess wherein is pivotally secured a dog or pawl provided with a projecting pin adapted to travel in a slot in the spool-body, a second dog or pawl pivotally secured in a recess entering into the flat face of the spool-body, and an orifice or pocket also entering the spool's face adapted to receive and retain the end of a hitching line extending therefrom through a contracted opening out into the line-groove of the spool, said spool being adaptable for mounting upon or within the inner-member of the clutch, substantially as described.

15. A hitching and checking device consist-

ing of a hitching line an outer clutch-member comprising an annular plate having radial equi-distant lugs abrupt at one end and beveled at the opposite, secured to the inner end
5 of a vehicle-wheel and an inner clutch-member comprising a non-rotary case or box upheld by a sectional non-rotating hub portion on the axle of the vehicle contiguous to the
10 outer member, a flanged stationary collar surrounding the hub, a rotatable line-spool encircling the collar and retained against longitudinal displacement by the circumferential flange of the collar fitting within a peripheral
15 groove in the spool, a spring-actuated dog pivotally disposed within a recess entering the vertical face of the spool, a passage extending therefrom backward through the spool-body and back-wall of the case, a finger or rod connected with the vehicle-axle projecting there-
20 in and adapted at certain times to bear against

the spring-provided extremity of the dog, a peripheral groove in the line-spool adapted to receive the wound portion of the hitching-line, another spring-actuated dog pivotally erected within a recess entering into the periphery of
25 the line-spool and adapted under certain conditions to engage with the buffer-plate of the buffer erected at the bottom of the case of said inner clutch-member, and mechanism for carrying the inner member of the clutch to
30 and from the outer-member and retaining same firmly in either position, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 24th day of
35 October, 1891.

LOUIS HOUSE. [L. S.]

Witnesses:

WM. E. RAYMOND,
E. KANKEMOELLER.