

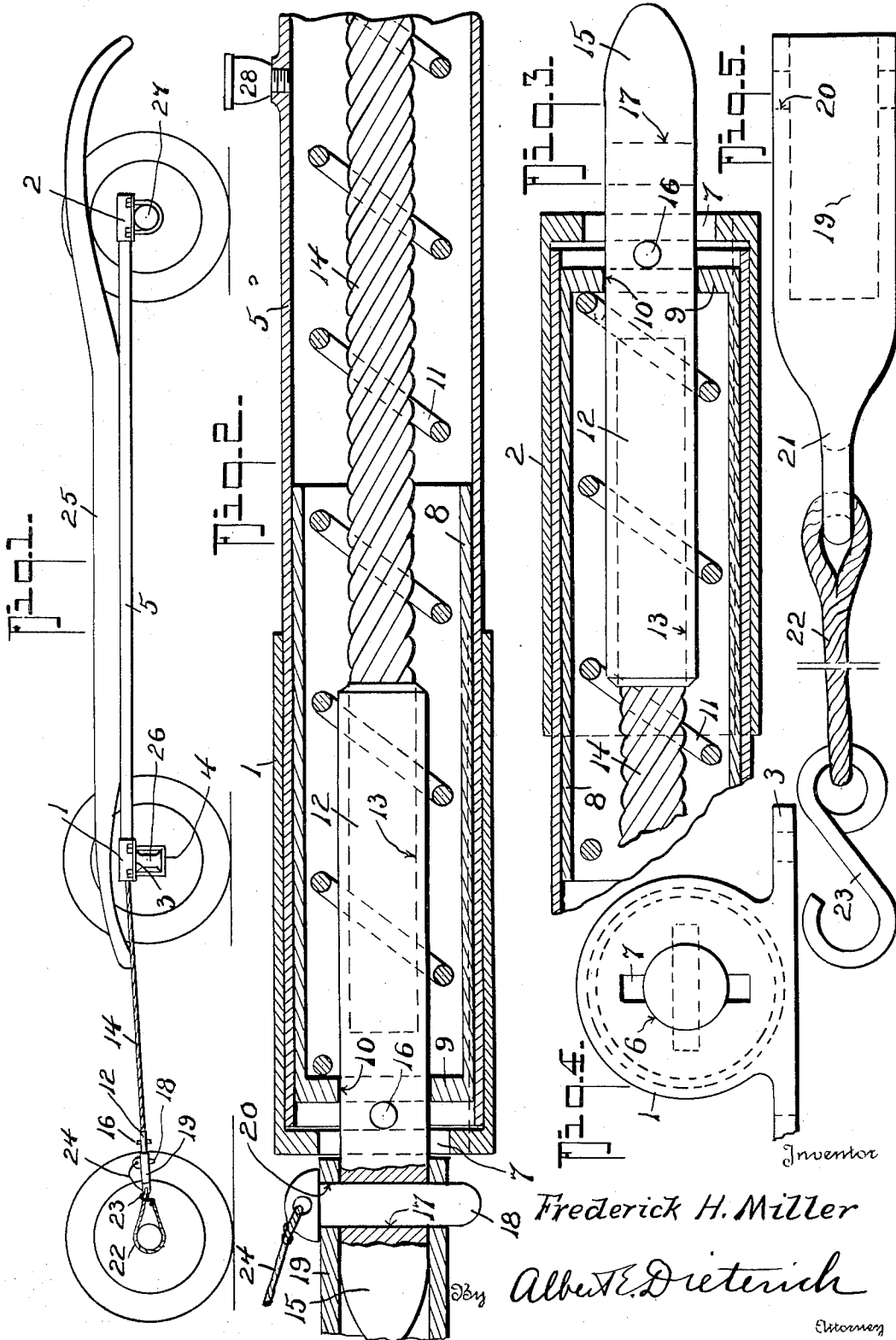
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TOWING DEVICE

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TOWING DEVICE

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My invention relates to devices commonly known as tow lines by which one motor vehicle may tow another or be towed by another when for any reason it is desirable to do so.

One of the objects of my invention is to provide a tow line that will always be ready for instant use, i. e., be located in such position on the vehicle that it will be unnecessary to lift up seats or open tool boxes to get at the rope.

Again, it is an object to provide a towing device wherein the tow line is held contained within a tube or casing that is longitudinally supported beneath the vehicle, preferably on the front and rear axles thereof in such a manner that it will be protected against the elements, such as dirt, water, ice, snow, etc., and thus leave it free for smooth and easy operation when it is necessary or desirable to use it. Again, it is an object of my invention to provide a towing device with a spring retracted line that can be used from either end of the vehicle and a line of as great a length as possible.

When towing a car there is always danger when coming to certain unforeseen stops, such as railroad crossings or traffic stops, that the towed car will run over the tow rope; my invention therefore has for an object to provide a towing device which overcomes this objection by taking up slack all the time as the same occurs and preventing the cable from touching the ground at any time.

Further, it is an object of my invention to provide a towing device in which the slack take-up spring works in both directions so that the tow line can be used to connect with either a towing vehicle in front or a vehicle to be towed in the rear.

Further, it is an object of my invention to provide a towing device in which the slack take-up spring also serves as a shock absorber.

Further, it is an object to provide a towing device in which provision is made to protect the spring against being mashed and tangled by overcompression and functionally to interpose between the tow line and the spring a rigid abutment just prior to the time when the spring reaches its maximum safe compression limit.

Again, it is an object of my invention to provide a towing device of small diameter and of such design and construction that it can be applied to any existing make of car without substantial alterations in the structure thereof.

Other objects of my invention will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects

and ends, the invention still further resides in the novel details of construction, combination and arrangement of parts, all of which will be first fully described in the following detailed description, then be particularly pointed out in the appended claims, reference being had to the accompanying drawing in which:

Figure 1 is a diagrammatic view illustrating the invention in use.

Figure 2 is an enlarged longitudinal section of one end of the device, the tow line being in the housed or retracted position.

Figure 3 is a view similar to Figure 2, showing the other end of the device.

Figure 4 is an end elevation of the device shown in Figure 2, with the connecting loop attachment removed.

Figure 5 is an elevation of the connecting loop attachment, the coupling pin being omitted.

In the drawing in which like numerals of reference designate like parts in all of the figures, 1 and 2 represent similar sockets having flanges 3 through which suitable clips 4 may be passed to bolt the sockets to the front or rear axles 26 and 27 of the vehicle 25. Each socket 1 and 2 has one end provided with a web having an opening 6 for the passage of the rigid coupling head of the tow line. It also has a slot 7 to pass the stop pin 16 of the head 12.

The protected tube or housing 5 has its ends fitted into the sockets 1 and 2 and extends the length of the vehicle from socket to socket. Some play may be left between the ends of the tube 5 and the heads of the sockets 1 and 2 if desired to allow for any slight variations in the distance between axle and axle which may be due to one cause or another (as, for instance, temperature changes which cause expansion and contraction.)

Fitted within the tube 5 at each end and slidable therein with a relatively close sliding fit are pistons 8, the outer ends of each of which have openings 10 for the passage of the coupling heads 12 of the tow line 14, these heads being socketed at 13 to receive the ends of the tow line 14 to which they are rigidly secured by welding or any other suitable way. The free ends of the coupling heads 12 have tapered noses 15 to assist in their entry into the sockets 19 of the attachment by which the end of the tow line is connected to the towing vehicle or to the vehicle being towed, as the case may be. This attachment consists of a socket 19 having pin holes 20 through which, and through the slots 17 in the coupling heads 12, the coupling pins 18 may be

passed. The attachment also includes a short length of rope 22 one end of which is secured to the eye 21 of the socket 19 and the other end is secured to a hook 23 so that the rope 22 may be looped around an axle and the hook 23 caught in the eye 21 (see Figure 1). In order that the coupling pin 18 may not be lost it may be connected by a tie rope 24 to the socket eye 21. The attachment just referred to is small, the length of the rope 22 being less than a foot, and can be carried in a pocket of the vehicle door or any other convenient place so as always to be at hand.

An oil or grease cup 28 may be provided by means of which the tube 5 may be supplied with lubricant if desired.

In the normal position of the parts when the vehicle is not towing or being towed, the stops 16 are passed inwardly through the slot 7 and the head 12, given a quarter turn. (See Figures 2 and 3). When in this position the tension of the spring presses the heads 9 against the pins 16 and in turn presses those pins against the closed ends of the sockets 1 and 2, this holds the tow line against rattling. When it is desired to have the vehicle towed or to tow a vehicle, as the case may be, the particular end of the tow line to be pulled out is given a quarter turn to bring the pin 16 out through the slot 7 and the socket attachment 19 is connected. The connection of the socket may be made first and then the member 12 be given a quarter turn to line up the pin 16 with the slot 7 if desired. Upon pulling out the end of the tow line the spring 11 will be compressed.

The length of the pistons 8 are such that just before the spring reaches its maximum compression these pistons will engage one another and thus form a rigid abutment, the head 9 of the advance piston resting against the end of the socket 1. The pin 16 of the rear head 12 thus imparts its force through the rigid abutment 8—8 and advance socket 1 to the adjacent axle of the vehicle. When the tow line is released the spring 11 will retract it. The tapered nose 15 of the head 12 that is within the pipe 5 during the towing act will easily find its way through the opening in the socket 2 or 1 as the case may be, and pass out again to the neutral position. In the practical embodiment of my invention the tube 5 may be made of tubing having a diameter of $\frac{7}{8}$ " outside and $\frac{3}{4}$ " inside; a $\frac{1}{4}$ " steel wire rope and a No. 10 piano wire spring may be used. A tube of the diameter stated can be pushed through any 1" opening in the running gear and the socket members 1 and 2 may be fitted over the ends of the pipe member with ease.

It will be seen from the foregoing description taken in connection with the accompanying drawing that my towing device will maintain a taut rope while towing; it can be attached to all models of cars without alterations of the same; all moving parts are enclosed when not in use, thus insuring long life of the frail parts; no part of the device is exposed to get caught on road obstructions; the construction of the device is neat and parts are easy to replace and the cost of the complete device is not much more than that of a good tow rope; when attached to a car it becomes a part of the same and is not readily recognizable as a towing device; it insures safety and eliminates worry and danger connected with a car running over the tow rope; due to its light construction it may not absorb shocks under all conditions, the prime object being to keep the

rope taut once the car is under way and to maintain the same taut when the car is brought to a stop, although to the extent of the spring's power it serves also as a shock absorber.

Other objects of my invention will be clear to those skilled in the art to which it relates.

What I claim is:

1. A towing device including a pair of sockets, means securing said sockets beneath a vehicle at the front and back thereof respectively, a protecting tube having its ends located in the respective sockets, a tow line extending the length of said tube and including coupling heads projecting through apertures in the remote ends of said sockets, and spring means within said tube and extending from end to end thereof for holding said tow line taut, said spring means including pistons slidable within the respective ends of said tube, a spring extending from piston to piston within the tube, and abutments on the tow line heads against which said pistons abut.

2. A towing device including a pair of sockets, means securing said sockets beneath a vehicle at the front and back thereof respectively, a protecting tube having its ends located in the respective sockets, a tow line extending the length of said tube and including coupling heads projecting through apertures in the remote ends of said sockets, and spring means within said tube and extending from end to end thereof for holding said tow line taut, said spring means including pistons slidable within the respective ends of said tube, a spring extending from piston to piston within the tube, and abutments on the tow line heads against which said pistons abut, said sockets having provisions to pass said abutments when they are in one position and to prevent passage of said abutments when they are in another position.

3. A towing device including a pair of sockets, means securing said sockets beneath a vehicle at the front and back thereof respectively, a protecting tube having its ends located in the respective sockets, a tow line extending the length of said tube and including coupling heads projecting through apertures in the remote ends of said sockets, and spring means within said tube and extending from end to end thereof for holding said tow line taut, said spring means including pistons slidable within the respective ends of said tube, a spring extending from piston to piston within the tube, and abutments on the tow line heads against which said pistons abut, said abutments comprising radial projections on said heads, said sockets having slots to pass said abutments when they align with the slots only.

4. A towing device including a pair of sockets, means securing said sockets beneath a vehicle at the front and back thereof respectively, a protecting tube having its ends located in the respective sockets, a tow line extending the length of said tube and including coupling heads projecting through apertures in the remote ends of said sockets, spring means within said tube and extending from end to end thereof for holding said tow line taut, and a coupling attachment comprising a socket to receive the outer end of a coupling head, means to hold said socket to said head, a flexible cable having at one end a hook and having its other end connected to said socket for the purposes described.

5. A towing device including a pair of sockets, means securing said sockets beneath a vehicle at the front and back thereof respectively, a pro-

5 tecting tube having its ends located in the re-
 spective sockets, a tow line extending the length
 of said tube and including coupling heads pro-
 jecting through apertures in the remote ends
 10 of said sockets, and spring means within said
 tube and extending from end to end thereof for
 holding said tow line taut, said spring means in-
 cluding pistons slidable within the respective
 15 ends of said tube, a spring extending from pis-
 ton to piston within the tube, and abutments on
 the tow line heads against which said pistons
 abut, and a coupling attachment comprising a
 socket to receive the outer end of a coupling
 20 head, means to hold said socket to said head, a
 flexible cable having at one end a hook and hav-
 ing its other end connected to said socket for
 the purposes described.

6. A towing device including a pair of sockets,
 means securing said sockets beneath a vehicle at
 the front and back thereof respectively, a pro-
 25 tecting tube having its ends located in the re-
 spective sockets, a tow line extending the length
 of said tube and including coupling heads pro-
 jecting through apertures in the remote ends
 of said sockets, and spring means within said
 tube and extending from end to end thereof for
 holding said tow line taut, said spring means
 including pistons slidable within the respective
 30 ends of said tube, a spring extending from pis-
 ton to piston within the tube, and abutments on
 the tow line heads against which said pistons
 abut, said sockets having provisions to pass said
 abutments when they are in one position and to
 prevent passage of said abutments when they are
 35 in another position, and a coupling attachment
 comprising a socket to receive the outer end of a
 coupling head, means to hold said socket to said
 head, a flexible cable having at one end a hook
 and having its other end connected to said socket
 40 for the purposes described.

7. A towing device including a pair of sockets,
 means securing said sockets beneath a vehicle
 at the front and back thereof respectively, a pro-
 45 tecting tube having its ends located in the re-
 spective sockets, a tow line extending the length
 of said tube and including coupling heads pro-
 jecting through apertures in the remote ends of
 said sockets, and spring means within said tube
 and extending from end to end thereof for hold-
 50 ing said tow line taut, said spring means in-
 cluding pistons slidable within the respective

ends of said tube, a spring extending from pis-
 ton to piston within the tube, and abutments
 on the tow line heads against which said pistons
 abut, said abutments comprising radial projec-
 tions on said heads, said sockets having slots
 80 to pass said abutments when they align with
 the slots only, and a coupling attachment com-
 prising a socket to receive the outer end of a
 coupling head, means to hold said socket to said
 head, a flexible cable having at one end a hook
 85 and having its other end connected to said
 socket for the purposes described.

8. In combination with the front and rear
 axles of a vehicle, a towing device comprising
 a pair of sockets, means to secure said sockets
 to the front and rear axles of the vehicle, a tube
 having its ends held in said sockets respectively,
 said sockets each having a wall at its outer end
 provided with an aperture, a tow line normally
 located within said tube and having heads at its
 90 ends one of which projects into the aperture of
 one socket wall and the other projects through
 the aperture of the other socket wall, cup-
 pistons located one at either end of said tube
 and having opposed open ends, a coil spring hav-
 95 ing its ends in said pistons and extending from
 one piston to the other within the tube, lugs ex-
 tending laterally from the heads of the tow line
 to lie between the outer ends of the pistons and
 the adjacent sockets respectively, the sockets
 100 having slots to pass said abutments only when
 the abutments are in alignment with the slots.

9. A towing device including a pair of sockets,
 means securing said sockets beneath a vehicle
 at the front and back thereof respectively, a
 110 protecting tube having its ends located in the
 respective sockets, a tow line extending the
 length of said tube and including coupling heads
 projecting through apertures in the remote ends
 of said sockets, and spring means within said
 115 tube and extending from end to end thereof for
 holding said tow line taut, said spring means
 including pistons slidable within the respective
 ends of said tube, a spring extending from piston
 to piston within the tube, and abutments on the
 120 tow line heads against which said pistons abut,
 said pistons being hollow and of a combined
 length greater than that of the spring when fully
 compressed.

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