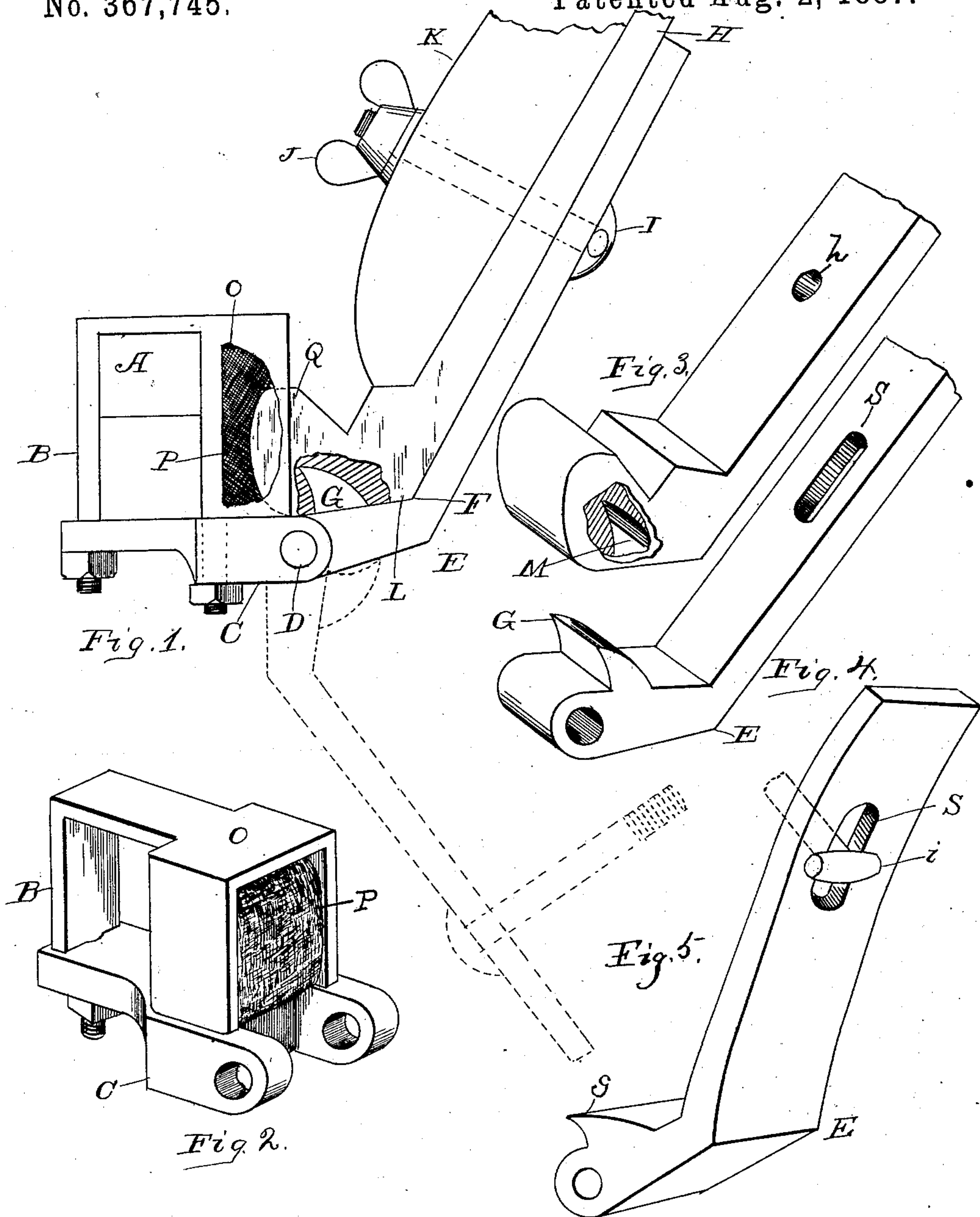


(No Model.)

M. H. DURST.
THILL COUPLING.

No. 367,745.

Patented Aug. 2, 1887.



WITNESSES:

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MURRAY H. DURST, OF WHEATLAND, CALIFORNIA.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 367,745, dated August 2, 1887.

Application filed December 24, 1886. Serial No. 222,441. (No model.)

To all whom it may concern:

Be it known that I, MURRAY H. DURST, of Wheatland, in the county of Yuba and State of California, have invented a new and useful
5 Improvement in Thill-Couplings, which improvement is fully set forth in the following specification and accompanying drawings.

Heretofore in thill-couplings the thill-irons have either been simply bolted together and
10 the anti-rattlers forced into the space between the axle and the shaft-iron butt, or else by more or less ingenious contrivances it has been endeavored to make such a coupling as would allow of the anti-rattler (rubber or spring)
15 being inserted in the proper receptacle, and then, by screwing up a bolt or by other means, bringing compression to bear on the rubber so as to prevent the coupling-bolt from rattling. With the old-style coupling thills can
20 only be changed with much work and vexation. The patented devices have overcome some of the difficulties; but no device is as yet known that is secure, perfect, and complete, that will allow of the thill being coupled
25 or uncoupled without use of wrench, hammer, or screw-driver. In all other thill-couplings the anti-rattlers are constantly under pressure, whether the vehicle is in use or not, and the pressure is not automatically regulated as
30 needed. In order to operate all other thill-couplings, it is necessary to have a wrench and hammer and to remove from two to four bolts or to release a set of springs before removing the coupling-bolts. It invariably requires
35 from twenty minutes to half an hour to couple and uncouple any of the patented thill-couplings.

The object of my invention is, first, to do away with all necessity for a coupling-bolt to
40 be removed; second, to avoid having to force the anti-rattler into its place, and third, to dispense with all need for wrench, hammer, springs, or screw-driver, and thus make a coupling that can be manipulated without any
45 tools and at a moment's notice; fourth, to dispense with all springs, set-screws, or detachable parts which are subject to loss and wear; fifth, to provide for an automatic coupling and an automatic regulation of the tension on the
50 anti-rattlers, and, in general, to make a perfect and automatic thill-coupling that shall be durable, instantaneous in operation, and that

will automatically regulate the tension on the anti-rattling springs or cushion.

My invention consists of a clip, yoke, and
55 housing for the reception of the anti-rattling cushion, connected by a bolt with a lever which serves to force the thill-iron into the housing and against the cushion and also to keep the thill coupled. This coupling-lever is either
60 provided with a curved lug on or projecting from its upper face to engage and fit in a recess in the butt of the thill-iron, or else it is provided with one or more hooked projections to engage with and fit over pins or collars
65 fastened to the thill-iron.

My invention further consists of a thill-iron with a boxed recess to engage the lug of the coupling-lever, or else with projecting collars or pins to engage the hooked projections of
70 the coupling-lever. This thill-iron is securely fastened to and is a fixed part of the thill. It is also provided with a thumb-screw bolt with an elongated head, which bolt passes through the thill-iron and the coupling-lever and holds
75 them together.

In the accompanying drawings, Figure 1 is a side view, partly in section, of my improved thill-coupling. Fig. 2 is a perspective view of the cushion-housing attached, and Figs. 3
80 and 4 are perspective views of the thill-irons. Fig. 5 is a detail showing how the bolt engages on one of the thill-irons.

In the accompanying drawings, A represents a section of the axle, having thereon the clip
85 B and yoke C. Attached to the yoke C by means of the bolt D, I provide a short forwardly-projecting iron coupling-lever, E, bent upwardly at an angle or curve to correspond with and fit under the thill-iron H. A lug or curved
90 projection, G, is attached to the upper face, and is a part of the coupling-lever E.

H is the thill-iron, which is securely bolted to and is a part of the thill proper. Its lower end is provided with a recess, M, as shown in
95 Fig. 5, similar in shape as and to receive the lug or curved projection of the coupling-lever. This recess is of such curved shape as to make it impossible to detach the lug of the coupling-lever by a straight pull of the thill. The only
100 way to detach the coupling-lever is by revolving it downward, with the bolt D as the center or hinge.

The coupling-lever can be revolved down-

ward about seventy degrees and until the lug G stands out nearly horizontally.

I is a screw-bolt having an elongated head, i, and J the thumb-piece fitting at its upper end, which pass through the holes h and S, respectively, in the thill-iron and the lever. The hole S, Fig. 4, is somewhat elongated, so that the bolt may not be held vertically rigid when the "shackle-lever" is swung downward, drawing the bolt out, as the arc described by the shackle would cause the bolt to bind in drawing it out of the thill-aperture. The elongated hole permits the bolt to incline itself as required, and avoids binding when being drawn out. Upon being turned one quarter way around and the thumb-nut J being screwed up, the coupling-lever E is locked to the thill proper and the coupling is completed.

O is a housing for the reception and protection of the spring or rubber cushion.

P shows the cushion, a side of the housing being broken away for the purpose.

The coupling is made as follows: The coupling-lever being thrown down, takes the position shown in dotted lines in Fig. 1. The butt-ends of the thill-irons are placed on and supported by the horizontally-projecting lugs or hooked projections of the coupling-lever. The forward ends of the thill resting on the ground six or seven feet in front of the axle, will allow the thill ends to move and be carried upward and backward into the housing. The coupling-lever is then drawn up, carrying with it the thill-irons upward and backward, and forcing them into the housing and against the anti-rattling cushions and springs. The coupling-lever (of which D is the fulcrum, the lug G the short arm, and the length of the lever the long arm) in being raised exerts considerable leverage to force the thill-butts against the cushion. In addition to this, when the coupling is made and the forward end of the thill is raised in the act of hitching in the horse, the leverage is at least fifteen times greater, and thus the compression on the anti-rattlers when the horse is hitched is immense and will effectually prevent any rattling. Upon the coupling-lever being brought up under the thill-iron, forcing the thill-butts into the housing and against the cushion, the slot S in the lever passes over the elongated head of the thumb-screw bolt I, the bolt is turned one-quarter around, and the thumb-screw is turned up, thus completing the coupling.

In order to uncouple the device, the thumb-screw is loosened and the bolt turned one-quarter way around, so that the elongated head will pass through the slots in the lever. The lever is revolved downward, when the thill becomes immediately unclaspd from the vehicle-axle.

It will be seen that the box D of the coupling-lever is in nearly a straight line with the nutted ends of the clip and with the bottom side of the axle. Thus the resulting line of resistance of the coupling is in nearly a straight line with the force applied in drawing the ve-

hicle. This fact does away with the twisting strain or leverage on all clip-bolts of couplings where the coupling-bolt D is not in a straight line with the bottom of the axle and the clip-bolts themselves. A lighter tie-bar and clip may therefore be used with this coupling than with others; also, it will be seen that when the front ends of the thills rest on the ground there is little or no tension on the cushions or springs; but as soon as the thills are raised in hitching in the horse the long arm of the coupling-lever, acting over the fulcrum-bolt D, forces the butts of the thill-irons still farther backward into the housings and against the cushions. On the horse being unhitched and the thills dropped to the ground this compression is instantly and automatically removed from the cushions and springs, which cushions and springs will therefore last quite as long as the vehicle itself; also, the rubber cushions or springs being in the housings, they are protected from all access of water, dirt, and grease, and from the weather.

My device forms a perfect anti-rattling thill-coupling, which will allow of the thills being changed almost instantly without the use of wrench, screw-driver, hammer, or any other tool which automatically removes the compression on the cushion or springs when the vehicle is not in use. This device has no detachable parts or springs, and is on the whole simple, durable, automatic, instantaneous, and perfect in its operation.

I do not limit myself to any particular construction of housing, tie-bar, coupling-lever, or thill-iron. Neither do I restrict myself to the particular construction and arrangement of these parts herein described and shown; but I desire it understood that I claim any equivalent construction which shall or may embody and contain the spirit and substance of my invention.

My improvement involves a radical departure in the construction and principle of operation in thill-couplings. The invention consists, broadly, in a clip-housing and a tie-bar, with a coupling-lever hinged thereto by a bolt, and which bolt takes the place of the coupling-bolt in ordinary thill-couplings. This coupling-lever is so arranged as to revolve on the coupling-bolt, and with an extending curved lug, or with hooked projections or other equivalent devices, which engage a recess, collars, or projecting pins, as the case may be, in or on the butt-end of the thill-iron, and upon the coupling-lever being drawn up under the thill-iron the butt of the thill-iron is forced up into the housing, against the cushion, and held securely there by the coupling-lever being fastened by a thumb-screw bolt or otherwise to the thill-iron proper, when the coupling is completed.

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

1. In a thill-coupling, a coupling-lever attached by a bolt to a tie-bar and revolving on said bolt, and having a lug, hooked projec-

tions, or other equivalent devices to engage with a recess, collars, or projecting pins of the butt-end of the thill-iron proper, and also being provided with a slot through which the thumb-screw-bolt head may pass in order to secure the coupling-lever to the thill-iron proper, the whole revolving on a coupling-bolt and readily detachable, as shown, and substantially as set forth.

10 2. In a thill-coupling, the combination of a clip, housing, tie-bar, coupling-bolt, coupling-lever provided with a lug, hooked projections, or other equivalent device to engage with a re-

cess, collars, or projecting pins of the butt-end of the thill-iron proper, and fastened thereto 15 by a thumb-screw bolt with elongated head, the whole arranged as and for the purpose substantially as herein set forth and described.

In testimony that I claim the foregoing I have hereunto set my hand, this 14th day of July, 20 1886, in the presence of witnesses.

MURRAY H. DURST.

Witnesses:

J. M. C. JASPER,
DANIEL FRASER.