W. S. GEER.

Thill Coupling

No. 106,687. Patented Aug. 23, 1870.

Fig 1.

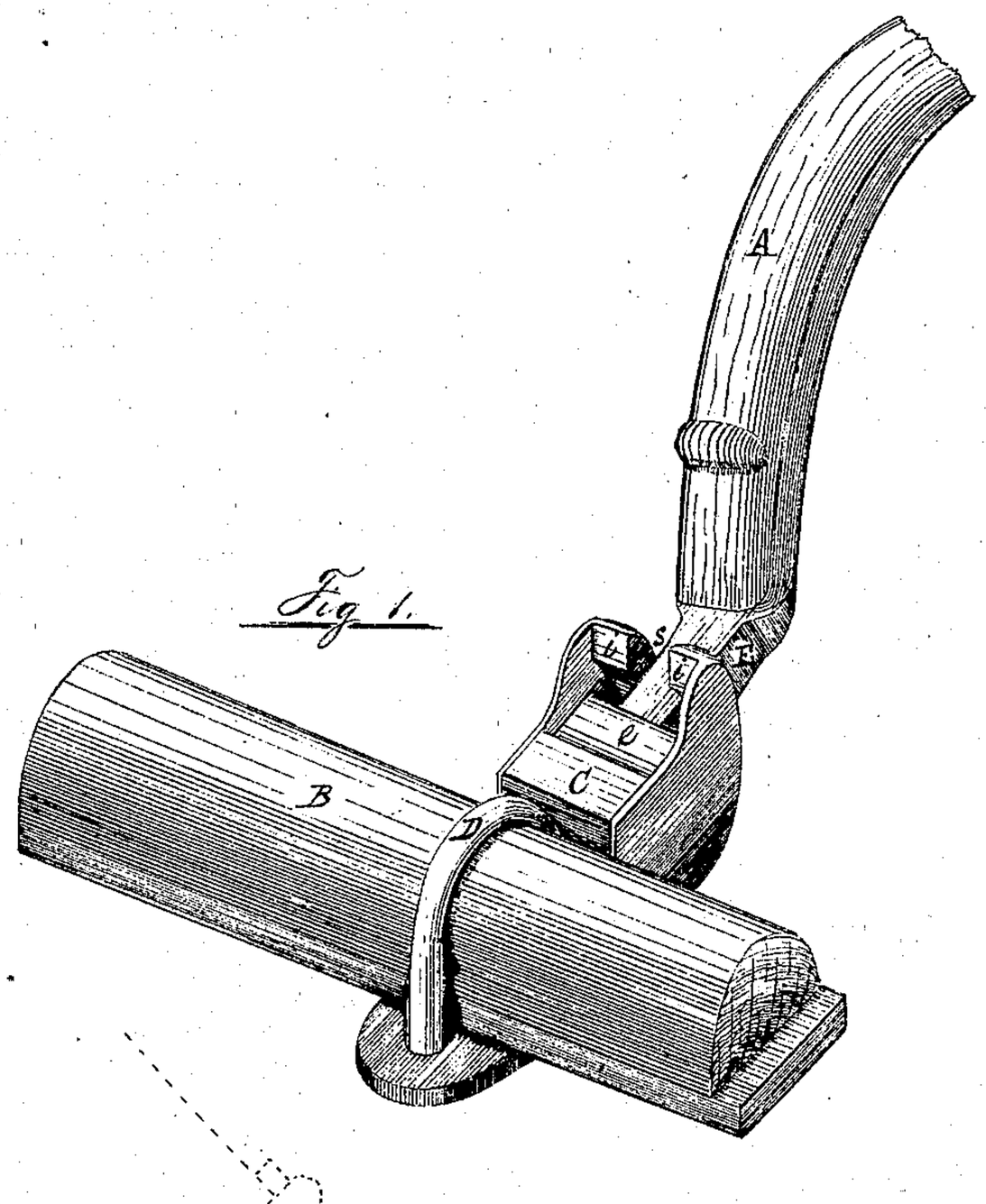
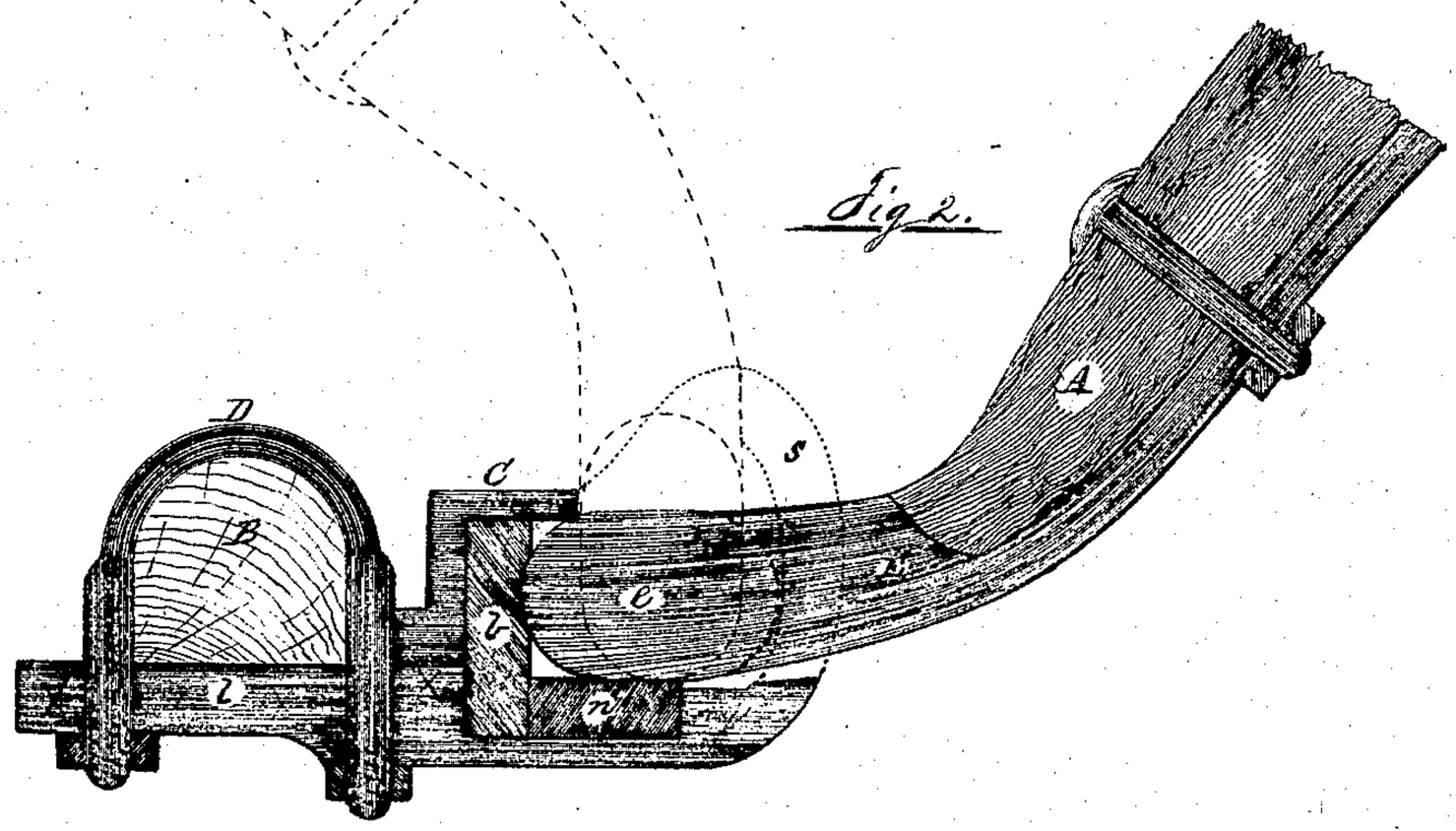


Fig 2.



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WILLIS S. GEER, OF MARSHALL, MICHIGAN.

Letters Patent No. 106,687, *dated August* 23, 1870.

IMPROVEMENT IN THILL-COUPLING.

The Schedule referred to in these Letters Patent and making part of the same

I, WILLIS S. GEER, of the city of Marshall, in the county of Calhoun and State of Michigan, have invented certain Improvements in Thill-Couplings for Vehicles, of which the following is a specification.

My invention consists in a coupling-box of peculiar construction, and provided with a stationary partial lining of rubber blocks, in combination with a thill-iron having an elliptical head, all as hereinafter more fully described.

The object of my invention, besides forming a reliable coupling which shall be boltless, as in some other devices for this purpose, is to diminish wear, and to constitute a self-tightening and self-loosening coupling, in the engagement or disengagement of the thill or pole draw-heads, so that a durable, firm, and elastic bearing, which shall be noiseless under the draft motion, may be maintained, and, at the same time, allow free vibration in the vertical plane.

Description of the Drawing.

Figure 1 is a view in perspective, embodying my invention, with broken-off section of thill and axle.

Figure 2 is a longitudinal vertical section.

Similar letters of reference indicate like parts in both figures.

A is a broken section of the vehicle-thill, and

B is a similar section of the axle.

C is a chambered and slotted coupling-box, usually and mainly rectangular in form, to receive the head of the thill-iron, said box being provided with a flange extension, *f*, through which the bolts of the clip D pass to secure said box firmly by its flange against the lower side of the axle.

E is the thill-iron, widening out on each side at the coupling end, so as to form an oblong shouldered head, as shown at *e*, the draw-shoulder being defined by dotted lines in fig. 2, as shown at *x*.

The walls of the coupling-box are so arranged as to leave an opening on top, just sufficient to allow a free passage (into and from the box-chamber) for the thill-iron draw-head *e*, when held longitudinally in or about a vertical line, and said box is further shaped so as to form an interior recess behind the line of said opening, to receive a backing, *b*, of rubber or other elastic material, and also to admit the extreme point of the draw-head aforesaid, so that said draw-head cannot be lifted out vertically when the thills are in position for draft, and will also form a fulcrum to retain said draw-head point in the chamber during the act of coupling, to be hereinafter described.

A slot, *s*, narrower than the box-chamber to receive the draw-head, and opening into said chamber, is formed in front, by means of a circle arc flange, *i*, projecting from each side wall. The inner edges of these flanges form the draw-shoulders, against which the shoulders of the draw-head *e* abut, when the shank or neck of the thill-iron E is inserted in the said slot to couple the two together.

These internal circular edges or shoulders in the coupling-box are so shaped that, when the thills are coupled and in position to draw, they will form a portion of a circle within the limits of the natural vibration, concentric with the extreme point of the draw-head, which abuts against the elastic backing *b*, but, above such limits, will be eccentric with such point, so as to form a wedging space to press (in the act of coupling) the rounded end or apex of the draw-head against the elastic backing aforesaid, and so form a durable, elastic resistance, to keep the drawing shoulders in close contact, to prevent rattle and destructive wear, and to facilitate the coupling and uncoupling when the one-horse thills are changed for the pole, and *vice versa*.

To couple the one-horse thills or pole, they are held nearly vertical, and the draw-heads *e* are lowered through the top opening into the interior of the coupling-boxes C on the axle, where they may rest for a moment on the box bottoms, as shown by the broken lines in fig. 2.

The thills or pole are now lowered into position, when the shank-necks of the thill-irons will enter and slide down within the front slots, and the shoulders of the draw-heads will slide down against the shoulders of the circle arc flanges *i*.

The several parts should be so proportioned, however, that the distance diagonally from the lower internal angle in the hind recess of the coupling-box to the top end of the flange shoulder should be greater than the distance horizontally between the face of the elastic backing *b* and the concentric portion of the sai l flange; consequently, when the draw-heads, which should just fill that diagonal space, are brought toward a horizontal position by the lowering of the thills, (acting as levers,) the ends of the draw-heads will be pressed into the elastic body of the backing *b*, the springing reaction of which, while it keeps the draw-shoulders in close contact with each other, will yet allow all necessary freedom of vibration required by the motion of the team and inequalities of the road.

The uncoupling process is effected by reversed motions, in reversed order.

It is designed that the end of the draw-head *e* shall just fill the space within the back recess; but to meet all contingencies, I usually cast a seat in the bottom of the coupling-box to receive a strip, *n*, of rubber or other elastic substance, to save vertical jar in case of slack fitting, and, at the same time, allow free oscillation of the draw-heads.

To prevent the admission of mud splashings, a cap (not shown) may be sprung on or otherwise secured

over the openings in the coupling-boxes, in any suitable and well-known way.

My invention is cheap in construction, reliable and durable in operation, and differs from and is an improvement on all other boltless couplings, inasmuch as the elastic pressure is effected and removed automatically toward the close of the coupling and uncoupling acts, and in a manner extremely favorable to the operator, and conducive to long wear and effective action.

I do not claim the construction of the thill-iron head with rounded ends or contact surfaces, as this is not new; but, having fully described my invention,

What I do claim as new, and desire to secure by Letters Patent, is—

The chambered and slotted box C, constructed with an extension, *l*, and circle arc flanges *i*, and provided with the elastic lining *n b*, inserted as shown, in combination with the headed thill-iron E *e*, all made, applied, and operating substantially as described.

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Witnesses:

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