W. W. ANDERSON.

Thill Coupling.

No. 109,484. Patented Nov. 22, 1870.

Fig. 1.

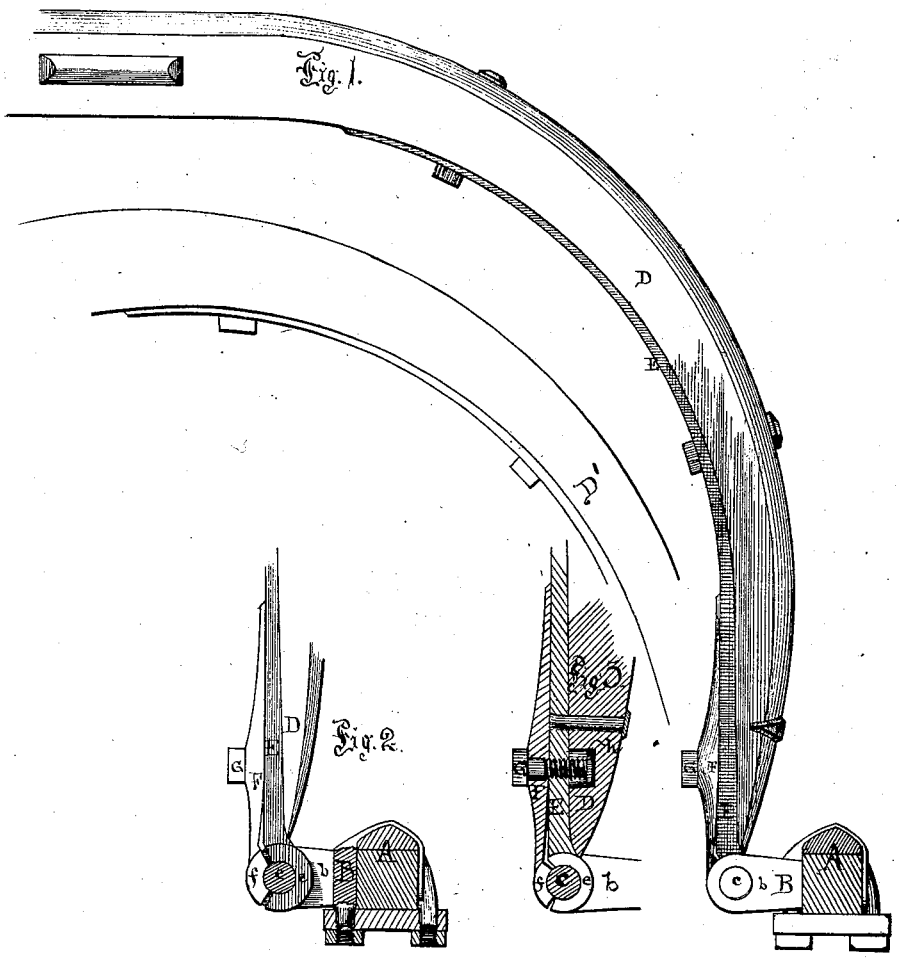

Fig. 2.

Fig. 3.

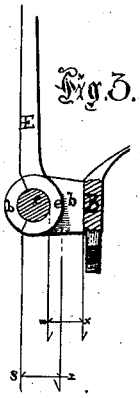

Fig. 4.

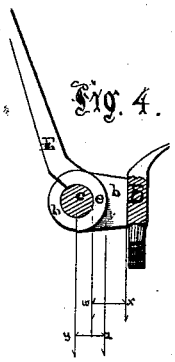

Fig. 5.

Witnesses.

H. J. Brown

Jas. W. Bowen

Inventor

Wm W. Anderson

By his Atty R. D. Smith

613 7th St.

United States Patent Office.

WILLIAM W. ANDERSON, OF CAMDEN, NEW JERSEY.

Letters Patent No. 109,484, dated November 22, 1870.

IMPROVEMENT IN THILL-COUPLINGS.

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

To all whom it may concern:

Be it known that I, WILLIAM W. ANDERSON, of Camden, in the county of Camden and State of New Jersey, have invented a new and useful Improvement in Thill-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation, showing my invention.

Figure 2 is a vertical section through the clip.

Figures 3 and 4 are sectional elevations, showing the position in which the thill may be detached.

Figure 5 represents the mode of constructing the bolt which holds the clamping-jaw so that the same cannot be entirely detached.

My invention relates to an improvement in thill or carriage-shaft couplings, to prevent rattling without the use of India rubber, &c., and more particularly to an improvement in the invention patented to me November 17, 1868, and numbered 84,077; and

It consists—

First, in a short elastic clamping-jaw, rigidly secured to the shaft-iron with a single screw, and always automatic in its operation, without requiring adjustment.

Second, in constructing the coupling so that the draft is entirely against the shaft-iron.

Third, in the proportion and arrangement of the parts so that the shaft-iron cannot be detached from the coupling-pin except when the points of the thills touch the ground.

The object of the first part of my improvement is to simplify and cheapen the construction, to render it less liable to accidental derangement and damage, and to dispense with the projecting adjusting-screw.

The object of the second part of my invention is to remove the principal friction from the vicinity of the openings between the coupler-jaws, because severe friction against the edges of said openings would cause the parts to wear away faster than necessary or desirable.

The object of the third part of my invention is to render any accidental disengagement of the thills from the carriage impossible while said thills are attached to the harness of the horse, even though the clamping-jaw should be entirely removed.

That others may fully understand the construction and operation of my invention, I will particularly describe it.

A represents the axle of a wheeled vehicle, and

B, the clip which forms one part of the coupling.

The clip B is provided, as usual, with two ears, *b b*, and a pin, *c*, the latter of which forms the pivot or axis for the thill D.

These parts do not differ materially from similar parts in common use, and, therefore, will not require any further description.

The thill D is similar to those in ordinary use.

The shaft-iron E is formed to fit the curve of the thill D, and said curve should be so adjusted that, when the shafts are attached to the horse, the portion of said iron nearest the coupler-joint shall be perpendicular to the line of draft. This form is not absolutely necessary, but is preferable, because the joint may then be formed of parts relatively almost or quite straight, and capable of adjustment with greater ease and facility.

At the lower or rear end of the shaft-iron E there is a cylindrical segment, *e*, within which an arch or seat is formed for the pin *c*, as shown in figs. 2, 3, and 4, and said seat embraces full one-half of the surface of said pin.

Opposite to the segment *e* is a smaller segment, *f*, of a similar cylinder, having a corresponding arch or seat, only of less arc.

The segment *f* is attached to the lower end of a spring clamping-plate, F, which is secured, by means of the screw G, to the shaft-iron E.

The screw G forces the plate F down hard against the shaft-iron E, so that the tension of the spring cannot be increased after attachment. This is important, because it secures the spring against over-straining and breakage by excessive flexure; and, besides, it then presents a solid, substantial, and workmanlike appearance.

The bolt G is preferably made with a small head, *h*, on its inner end, and has its female screw in the shaft-iron.

The small head *h* is formed by riveting up the end of the bolt after it has been inserted through the spring and shaft-iron, and is designed to prevent the removal of the bolt, and entire detachment of the spring F after attachment, so that the latter cannot be lost.

The plate F is made straight, so that, when unflexed, it will touch its supports only at its two ends.

The screw G is inserted through the spring-plate F at or near its central point, and, when said screw is forced down, the spring is flexed and brought down solid against the shaft-iron. If the pin *c* is then in place, the whole power of the spring F is exerted in pressure upon said pin, to force it into its seat in segment *e*, and said pressure will continue until, by reason of the wearing away of said pin and its seat, the two segments *e* and *f* come in contact, and the pin *c* is thus relieved from pressure, said pin will then have been so worn as to require renewal.

It is possible that the spring F may be disabled by a sudden blow or otherwise, and in such an event it

would be disastrous if the thill should become detached. I therefore construct the segment *e* and its seat with reference to the space behind the pin *c* in the clip B, and said parts are proportioned so that there is not sufficient room to permit the escape of the coupler while the thills are elevated from the ground, as they must be when attached to the horse. This will be readily understood by reference to figs. 3 and 4, wherein the joint is shown in two positions: first, with the thills elevated, as they are when attached to the horse in fig. 3; and, secondly, with the points of the thills resting upon the ground, as in fig. 4.

It will be perceived that the segment *e* cannot escape when in the position shown in fig. 3, because the distance, *w x*, from the pin to the clip is less than the distance, *y z*, or horizontal dimension of the segment when in that position.

In fig. 4 it is shown that the distance *y z* is reduced below the distance *w x*, when the points of the thills rest upon the ground, and the coupling may then be detached.

In fig. 1 the lines D' indicate the position of the thills when their points rest upon the ground.

Having described my invention,

What I claim as new is—

1. The spring-plate F, constructed with the small segment *f*, to press against the pin *c*, and secured in rigid contact with the shaft-iron E by the bolt G, as and for the purpose set forth.

2. The thill-coupling iron E, constructed as described, and attached to the thill D, so that the draft-strain shall be against the central part of the greater arch or segment *e*, as and for the purpose set forth.

3. The construction and arrangement of the clip B with the pin C and the segment *e*, as described, so that the same cannot be detached when the points of the thills are elevated from the ground.

WM. W. ANDERSON.

Witnesses:
R. D. O. SMITH,
E. R. MCKEAN.