(No Model.)

G. B. HOWLAND & F. W. ALLEN.

THILL COUPLING.

No. 383,953. Patented June 5, 1888.

Fig. 1.

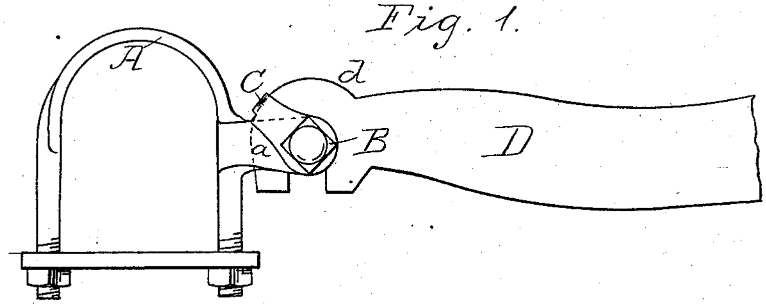


Fig. 2.

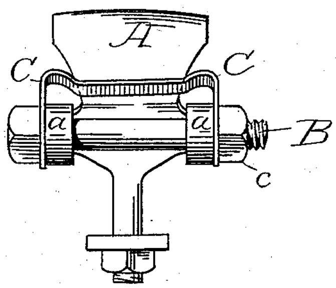


Fig. 4.

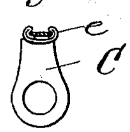
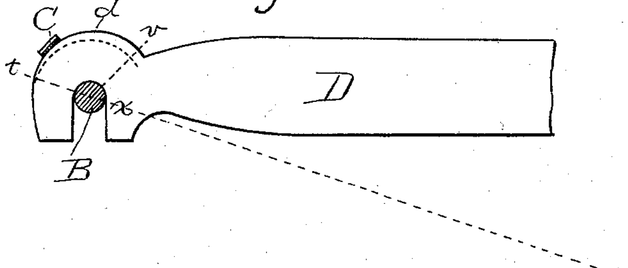


Fig 3



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UNITED STATES PATENT OFFICE.

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THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 383,953, dated June 5, 1888.

Application filed April 22, 1887. Serial No. 235,748. (No model.)

To all whom it may concern:

Be it known that we, GEORGE B. HOWLAND, of Chicago, Cook county, Illinois, and FRANK. W. ALLEN, of Chanute, Neosho county, Kansas, have invented certain new and useful Improvements in Thill-Couplings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention relates to anti-rattling and adjustable thill-couplings, which enable the shafts to be expeditiously removed when desired without likelihood of the person uncoupling them skinning his knuckles, and without involving the necessity of using a wrench to remove the thill-bolt or for other purposes within a comparatively short time, substantially as hereinafter described, and as illustrated in the drawings, in which—

Figure 1 is a side elevation of our invention. Fig. 2 is a front view of the same, showing the shafts removed. Fig. 3 is a separate view of the coupling-hook of the shafts, and Fig. 4 is a detail view.

Reference being had to the drawings, A represents the usual-shaped clip secured to the front axle having the lugs *a* projecting to the front from the forwardmost arm thereof, about where the strap surrounding the upper part of the axle merges into the bolt-shaped end.

B represents the thill-bolt which passes laterally through suitable eyes in the ends of lugs *a*, and likewise through the eyes *b* in the ends of the ⌐¬-shaped spring C, and securely holds the same between the outer side surfaces of lugs *a* and the head of the bolt and the nut *c* thereof, as shown.

D represents the ends of the shaft, having a coupling-hook, *d*, secured to their extremities, the attaching or articulating surface of which is of a width corresponding to the diameter of the thill-bolt, and has its terminus curved the obverse of the circumference of said bolt B.

The horizontal stretch of spring C passes from lug *a* to lug *a*, above the same, and is secured in position about forty degrees to thirty-five degrees left declension, as shown in Fig. 3. When, therefore, it is desired to couple the shafts, they are lowered to the angle indicated by the dotted line *x x*, Fig. 3, or so that the articulating opening of hook *d* will be at a radius to the center of the thill-bolt from thirty-five degrees to forty degrees removed from the position occupied by the horizontal stretch of spring C. When in this position, the hook *d* can be dropped over the thill-bolt without being obstructed by spring C; but as said shafts are raised to or above the horizontal position the back of the hook, which gradually increases in eccentricity to the center of the bolt B, from a point, *t*, to about a point, *v*, (more or less,) pushes out against spring C, and is thereby locked in position, so that it is impossible to uncouple the shafts. Spring C, when the back of the hook *d* is eccentric to the center of the thill-bolt, may be made so as to travel straight across from lug to lug *a*. When, however, the back of the coupling-hook *d* is concentric to the center of said bolt, (as we wish to be understood can consistently be done,) it is considered advisable to curve it inward toward said bolt, as shown in Fig. 2. Instead of thus curving spring C inward, a spring-cushion, *e*, may be placed upon the horizontal stretch of said spring. The elasticity of such a cushion we consider neutralizes the jar of the coupling-hook on the bolt B even better than the spring C, constructed as shown in Fig. 2.

We do not wish to be confined to the use of any of the constructions of spring C, either with a coupling-hook, *d*, having a concentric or eccentric back, as described. Any spring which will perform the office of spring C—namely, prevent the uncoupling of the shafts, and by holding the articulating surface of the hook *d* in constant contact with bolt B—will answer as well.

What we claim as new is—

1. In a thill-coupling, the combination, with clip A, having lugs *a* projecting therefrom, thill-bolt B, and ⌐¬-shaped spring C, of shaft D, and coupling-hook *d*, having its articulat-

ing surface correspond in width to the diameter of the bolt B, and having its back eccentric to the terminus of said articulating opening, as hereinbefore described.

2. In a thill-coupling, the combination, with clip A, having lugs *a* projecting therefrom, thill-bolt B, spring C, and cushion *e*, of shaft D and coupling-hook *d*, substantially as set forth.

GEORGE B. HOWLAND.
FRANK. W. ALLEN.

In presence of—
FRANK D. THOMASON,
ROBERT J. COYNE.