

(No Model.)

A. A. FROEHLICH.
THILL COUPLING.

No. 478,957.

Patented July 12, 1892.

Fig. 1

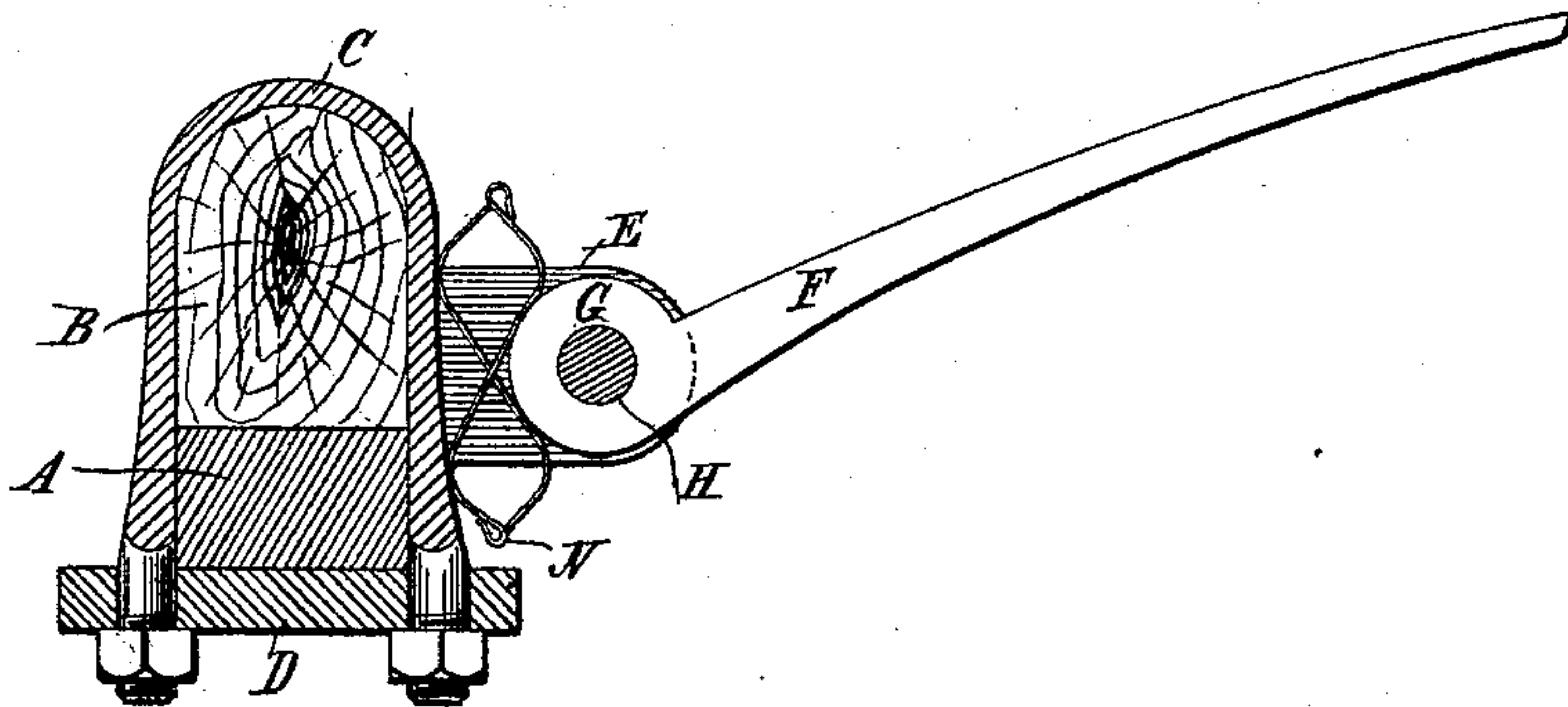


Fig. 2

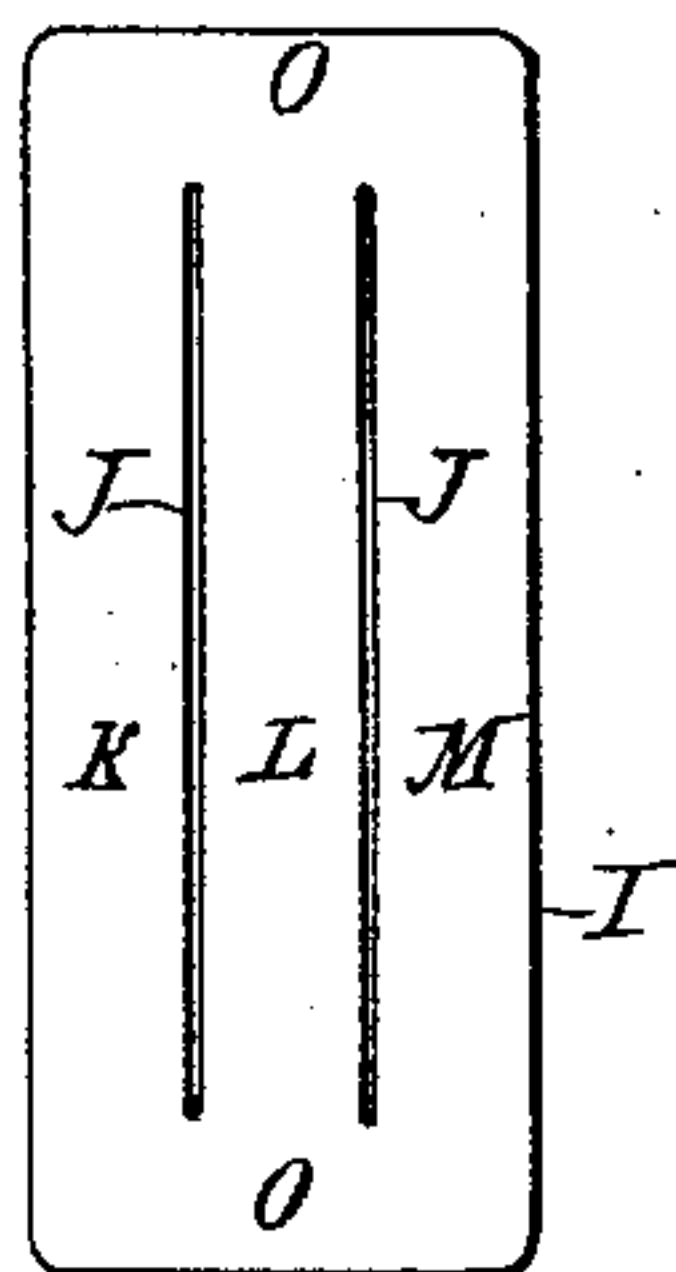


Fig. 3

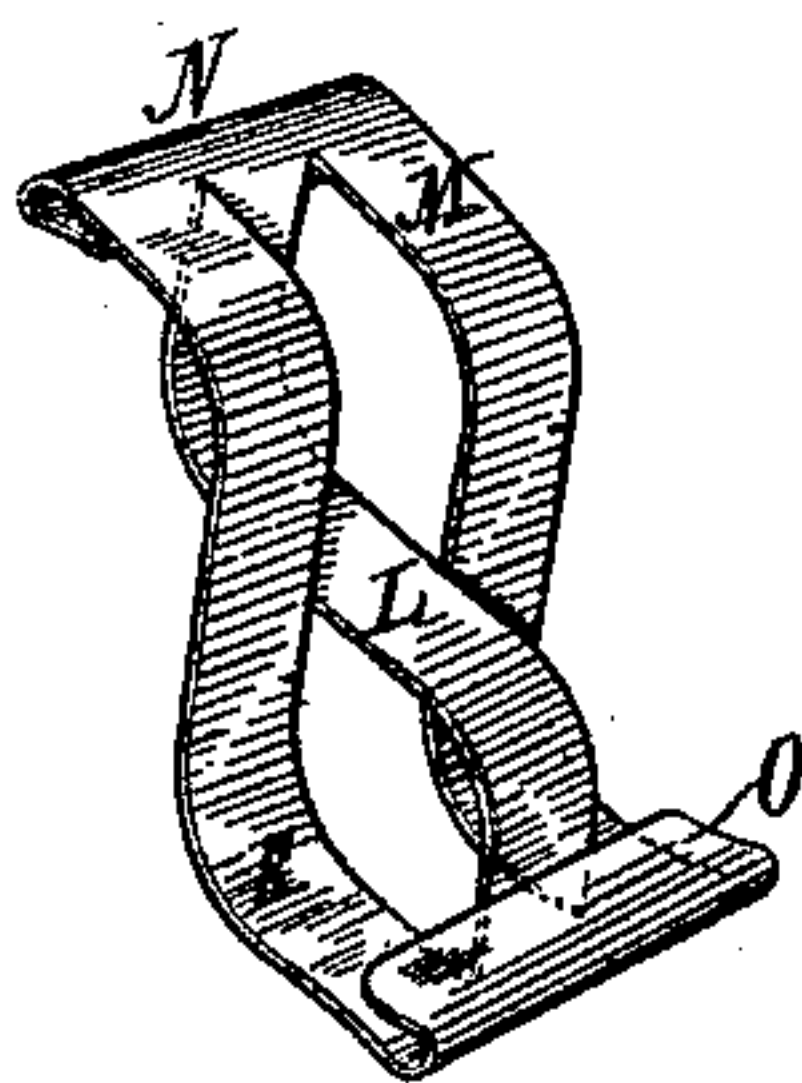
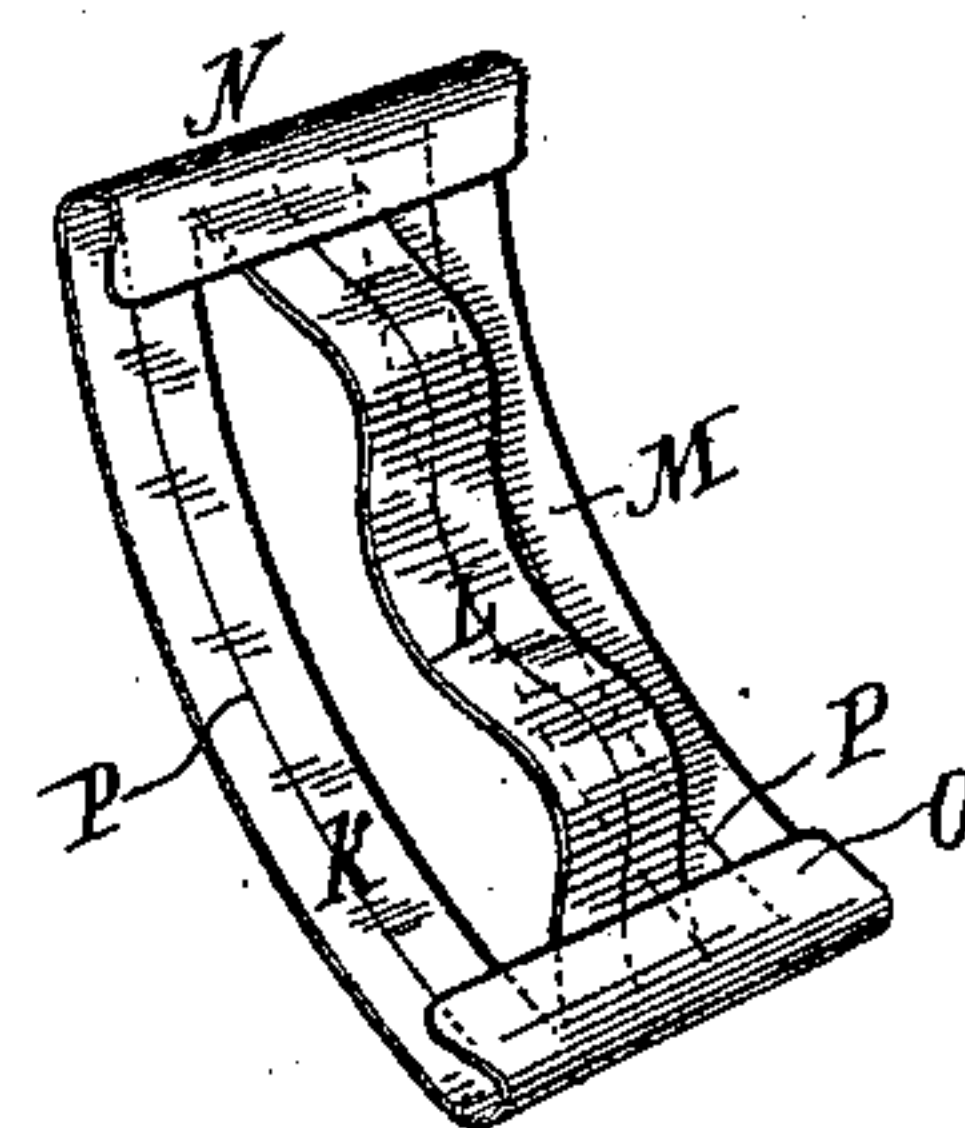


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

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THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 478,957, dated July 12, 1892.

Application filed January 26, 1892. Serial No. 419,358. (No model.)

To all whom it may concern:

Be it known that I, AMADEUS A. FROEHLICH, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Improvement in Thill-Coupling Springs, of which the following is a specification, reference being had to the drawings accompanying the same.

The present invention relates to a new form of spring for preventing rattling of vehicle-thills in the couplings that attach them to the axle.

As is well understood, the heads of the thill-irons of a vehicle often become quickly worn or for this or for other reasons may not fit between the lugs of the axle-clips, so as to afford the desired freedom of the thill-iron heads turning on their pins or bolts without such looseness as results by wear or otherwise in undesirable rattling of the parts.

I am aware that various metallic spring devices have been proposed that are to be inserted in the coupling, usually between the thill-head and the axle or axle-clip; and it is to this kind of springs that my invention particularly relates, my object being to produce a cheap and easily-made spring, as well as one that shall be readily applied and not be bungling or unsightly.

To this end my invention consists of a thill-coupling or anti-rattle spring composed of a strip or leaf of sheet metal cut into strips which are integral with one another at their ends or extend between the end or side edges of the leaf, but not to or out at such edges, these strips being bent flatwise away from each other and being formed so that one or more of them is adapted to engage the thill-iron when the spring is inserted between such a head and the axle or clip.

Referring to the drawings, Figure 1 is a section across a vehicle-axle and its clip, the plane of section also cutting away one of the lugs of the axle-clip and coinciding with one end face of the thill-iron head. Fig. 2 shows a blank of sheet metal cut away and trimmed, but not bent, from which any form of spring is produced. Fig. 3 shows one form of the completed spring. Fig. 4 shows another form of the finished spring.

In the views, A represents the axle. B is the wooden top bar on the same, and C is the

axle-clip that binds the axle and bar together, D being the tie-plate that connects the lower bolt ends of the clip, all as in the usual manner. 55

E represents one of the lugs on the clip to which the thill-iron is pivoted.

F is one of the thill-irons, and G is its head.

H is the pin or bolt that passes through the lugs E and the head G, and thus pivotally attaches the thill to the axle. 60

I is a plate or leaf of sheet-steel or other suitably-elastic metal, which may be struck up or otherwise produced. In the process of shaping this plate or subsequent thereto two or more slits J are struck in the plate to form the strips K L M, these slits extending nearly across the plate, but not out at its end or side edges, and the strips being connected together or integral with one another at their ends, as shown in Fig. 2. After this plate has been thus cut out or struck up its strips are bent out of the plane of their ends and into any one of various suitable forms adapting it to serve as an anti-rattle spring for thill-couplings. Thus in Fig. 3 the strips are each bent into an S-like form, the inner strip L bending oppositely to the outer strips K and M and crossing them at their middle points, thus producing a spring which in outline is of a figure-8 form, as seen in Fig. 1, the letter N being designed to represent the completed spring ready for use. Fig. 1 also shows how the spring is applied to a thill-coupling, it being inserted either end down, and at the same time being compressed between the head of the thill-iron and the axle until its thinnest or central portion is directly behind the head G, which it engages by reason of its enlarged or expanded ends and the elasticity of the metal of which it is composed. On the opposite side or face the spring bears against the axle or axle-clip. 65 70 75 80 85 90

In Fig. 4 I show the middle strip L as bent up from the other strips K and M and having a central backward curve, which is to be of a form suitable to engage a thill-iron when the spring is sprung into place behind the same. 95

Preferably when I shape the spring I also bend the unslitted ends O of the plate I back upon the strips cut therein, as seen in Figs. 3 and 4, as this gives rounded edges to the ends of the spring and also makes the spring as short and compact as practicable; also, in some cases the strips cut in the plate may be 100

of varying width or may be split, as by cuts P, shown in Fig. 4, this obviously being in effect the same as bending two adjacent strips together rather than one away from the other.

- 5 A spring of this or a like form can be readily produced and at small cost. It is peculiarly strong and durable, and at the same time can be made to have all the elasticity requisite. It can be readily applied, as special tools for
10 that purpose are not required.

Other forms of springs than those shown are possible, and I do not, therefore, confine myself to any particular form, as my invention comprises any form of the strips of the
15 spring that will give them spring action relatively and that will adapt any one or more of them to engage a part of a thill-coupling when in operable position in the coupling.

What is claimed as new is—

- 20 1. A thill-couplingspring consisting of strips of leaf or plate metal arranged edge to edge and joined together at their ends, the strips

being bent flatwise apart and one of them being shaped to adapt it to engage one of the parts of a thill-coupling when inserted in the
25 same, substantially as described.

2. A thill-coupling spring consisting of a metal plate or leaf cut into strips which are integral with one another at their adjacent ends and bent apart, one or more of the strips
30 being shaped to engage a part of a thill-coupling when inserted in the same, substantially as described.

3. A thill-coupling spring composed of a plate of metal I, cut into strips K L M, which
35 strips are integral with the plate at their ends and one of which is bent away from the others and formed to engage a thill-iron head, substantially as described.

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Witnesses:

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