No. 696,897. Patented Apr. 1, 1902.

McKENDREE F. BISHOP & M. A. TOLINE.

THILL COUPLING.

(Application filed Dec. 27, 1898.)

(No Model.)

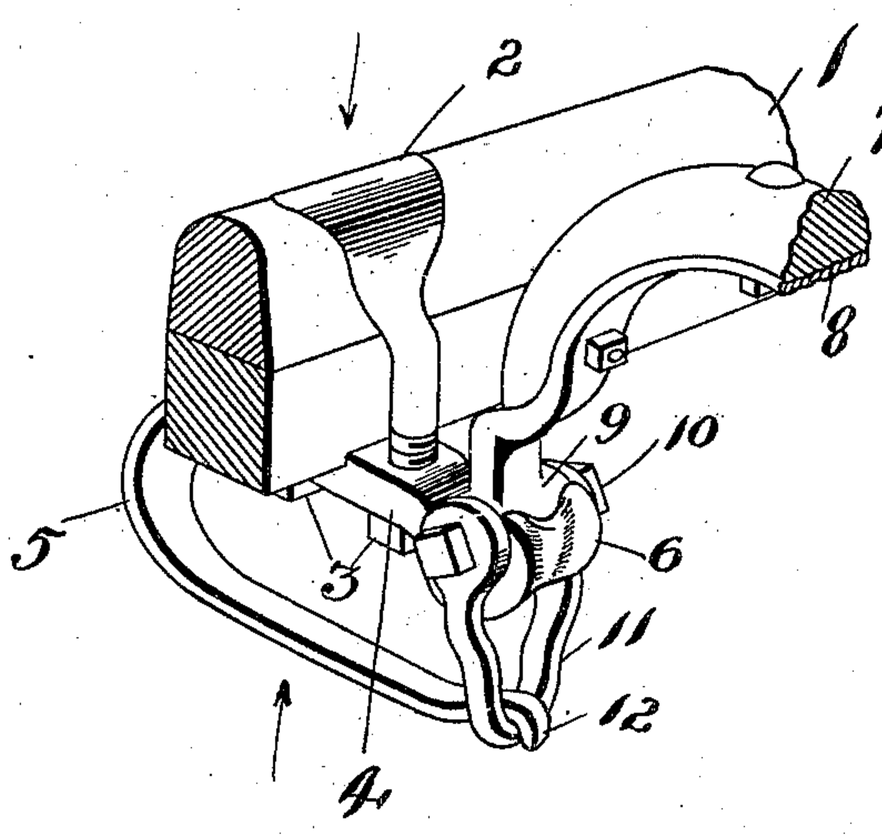


Fig. 1

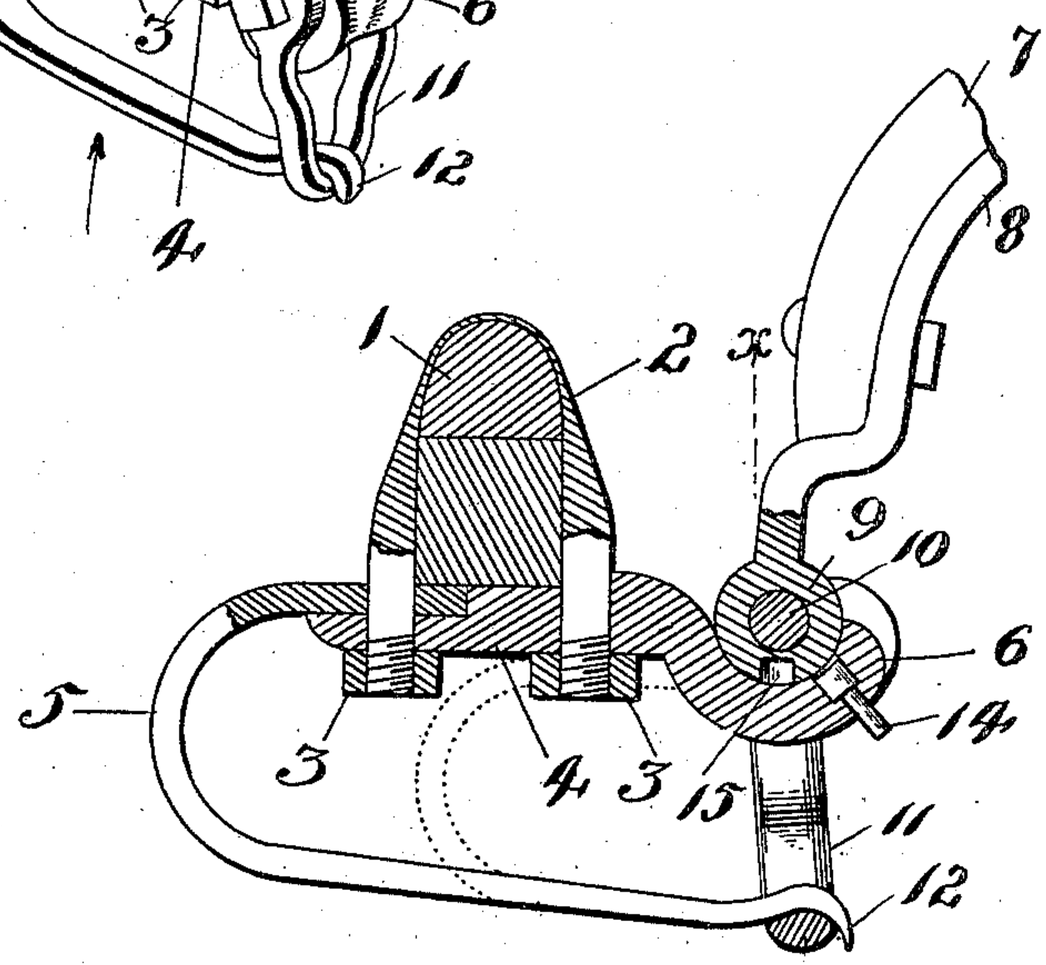


Fig. 2

Fig. 4

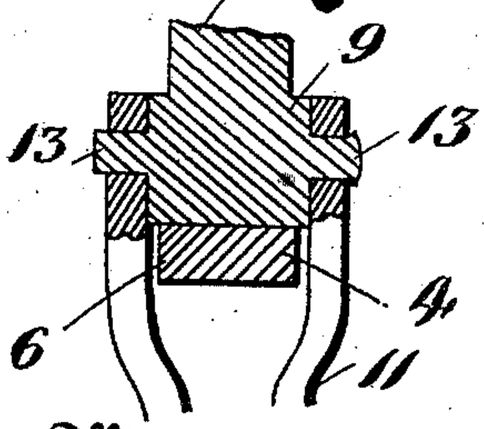


Fig. 3

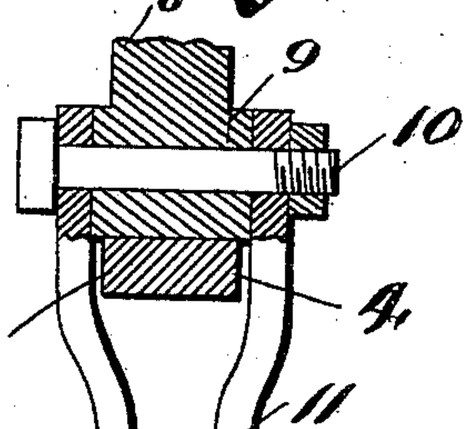
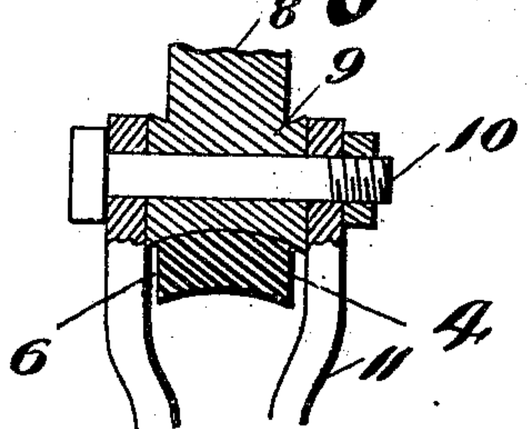


Fig. 5



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UNITED STATES PATENT OFFICE.

McKENDREE F. BISHOP AND MARTIN A. TOLINE, OF SAN JOSE, CALIFORNIA; SAID TOLINE ASSIGNOR TO SAID BISHOP, AND I. W. WINANS, OF PLYMOUTH, CALIFORNIA.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 696,897, dated April 1, 1902.

Application filed December 27, 1898. Serial No. 700,445. (No model.)

To all whom it may concern:

Be it known that we, McKENDREE F. BISHOP and MARTIN A. TOLINE, citizens of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Thill-Couplings; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our present invention relates to that class of devices known in the art as "thill-couplings," but more particularly to the subclass termed "antirattling thill-couplings."

The prime objects of our invention are to produce a device of this class which possesses the requisites of strength and durability and which will be especially simple in construction and efficient in operation.

In carrying out the above prime objects we have not overlooked the matter of economy in the cost of manufacture and in addition have aimed to improve a device of this character generally by insuring absolute security of connection.

Other incidental objects and advantages of our invention will hereinafter appear, and the novel features thereof will be particularly set forth in the appended claims.

The objects of our invention we are enabled to accomplish by the means illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of our invention. Fig. 2 is a vertical section taken in the direction of the arrows in Fig. 1. Fig. 3 is a section on the line $x\,x$, Fig. 2. Figs. 4 and 5 are similar views of modifications.

Referring now to the above views, in which similar numerals of reference designate corresponding parts, 1 represents a broken-off portion of an ordinary vehicle-axle, over which straddles the clip 2. Connecting the opposite legs of the clip 2 and securely bound thereto and against the lower face of the axle by means of the nuts 3 is the plate 4. The rear extremity of this plate is thinned or rabbeted out, as shown in Fig. 2, thereby forming a cavity for the interposition of a spring 5 between plate 4 and axle 1. The forward end of the plate 4 terminates in a hook 6, whose open mouth is upturned, as shown.

Secured to the thill 7 by means of bolts or other secure means is the thill-iron 8, whose rear projecting extremity 9 is formed with a suitable bearing-face adapted to rest or rock in the cavity or seat formed by the hook 6. Secured to the extremity 9 by means of the bolt 10 or any other suitable means, one of which we have shown in Fig. 4 and will explain hereinafter, is the clevis 11, the lower turning portion of which is engaged by the outer free hooked end 12 of the spring 5.

The invention so far set forth makes it manifest that the resilient quality of spring 5 exerts a constant tensile force to clevis 11, thereby drawing the extremity 9 snugly into its seat and in so doing prevents any relative movement of parts other than the rocking due to the gait of the animal. This function accomplished, the disagreeable condition of the rattling of parts is thereby prevented.

When it is desired to remove the shafts or pole from which the thill-iron leads, the spring 5 is removed from the clevis 11 and the latter swung forward sufficiently to permit the thill-iron being lifted out of its seat.

In the event that the spring became broken or disengaged from the clevis the thill-iron could not accidentally leave its seat, as the construction shown of the lower portion of the clevis, being contracted, would prevent this. The operation of first swinging the clevis forward into a horizontal position is imperative before the thill-irons can be removed. We are fully aware that by simply reducing the length of the clevis sufficiently the function of the contraction above referred to is accomplished.

In the modification shown in Fig. 4 we have replaced the bolt 10 by projections 13, formed integral on the extremity 9. It is manifest that by slightly spreading the legs of the clevis 11 the perforations can be made to engage these projections, after which the simple operation of restoring the clevis to its normal shape connects the parts in the manner shown. The heads of these projections may be beaten down and slightly spread, which is an additional security against displacement

of the clevis. We have shown the projection on the right of Fig. 4 spread in this manner.

In the modification shown in Fig. 5 we have dished the surface of the extremity 9 and formed the bearing-surface of the hook 6 to correspond therewith. The object of this construction is to prevent water lying between the bearing-surfaces and causing them to rust.

After the animal has been detached from the vehicle it is often desirable to raise the shafts and secure them in a vertical position. This is usually accomplished by a suitable wooden prop or cross-brace. Now to obviate the necessity of this prop we have provided the headed pin 14 and reception-cavity 15. By reference to Fig. 2 it will be seen that as the thills are raised sufficiently to engage the pin 14 with cavity 15 the shafts are securely held in a vertical position until the pin is allowed to fall into the position shown.

The construction and arrangement of the several parts of our thill-coupling being thus made known, the operation and the advantages of the same will, it is thought, be readily understood.

We are aware that changes in the form and proportion of parts of the devices herein shown and described as an embodiment of our invention can be made without departing from the spirit or sacrificing the advantages thereof, and we therefore reserve the right to make such changes and alterations as fairly fall within the scope of our invention. In the matter of modifications we might mention that the spring 5 could be made considerably shorter and rest between the forward nut 3 and the lower face of the axle 1, in the position shown by dotted lines in Fig. 2.

What we claim, and desire to secure by Letters Patent, is—

1. A thill-coupling having a rocking and a stationary member, a loose pin passing through said stationary member and adapted to enter a cavity in said rocking member, said pin being formed with an enlarged head for the purpose of limiting its play, all substantially as shown and for the purpose set forth.

2. In the thill-coupling described, the combination of the clip, the plate receiving the arms of the clip and having its upper side rabbeted at its rear end and also having the concavo-convex portion at its forward end forming a seat, the spring having its upper rear end seated in the rabbet of the clip-plate and receiving one arm of the clip and also having a forwardly-extending arm terminating in a hook, the thill-iron having the rounded end resting in the seat of the clip-plate, and the clevis pivotally connected to said end of the thill-iron and having a contracted lower portion, substantially as described.

3. In a thill-coupling, the combination of a body or plate, a thill-iron bearing therein, a clevis pivotally connected to and depending from the thill-iron and having a lower contracted portion and a spring connected with the body or plate and having an arm engaging the bight of the clevis, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

McKENDREE F. BISHOP.
MARTIN A. TOLINE.

Witnesses:
W. A. COOPER,
E. M. RODGERS.