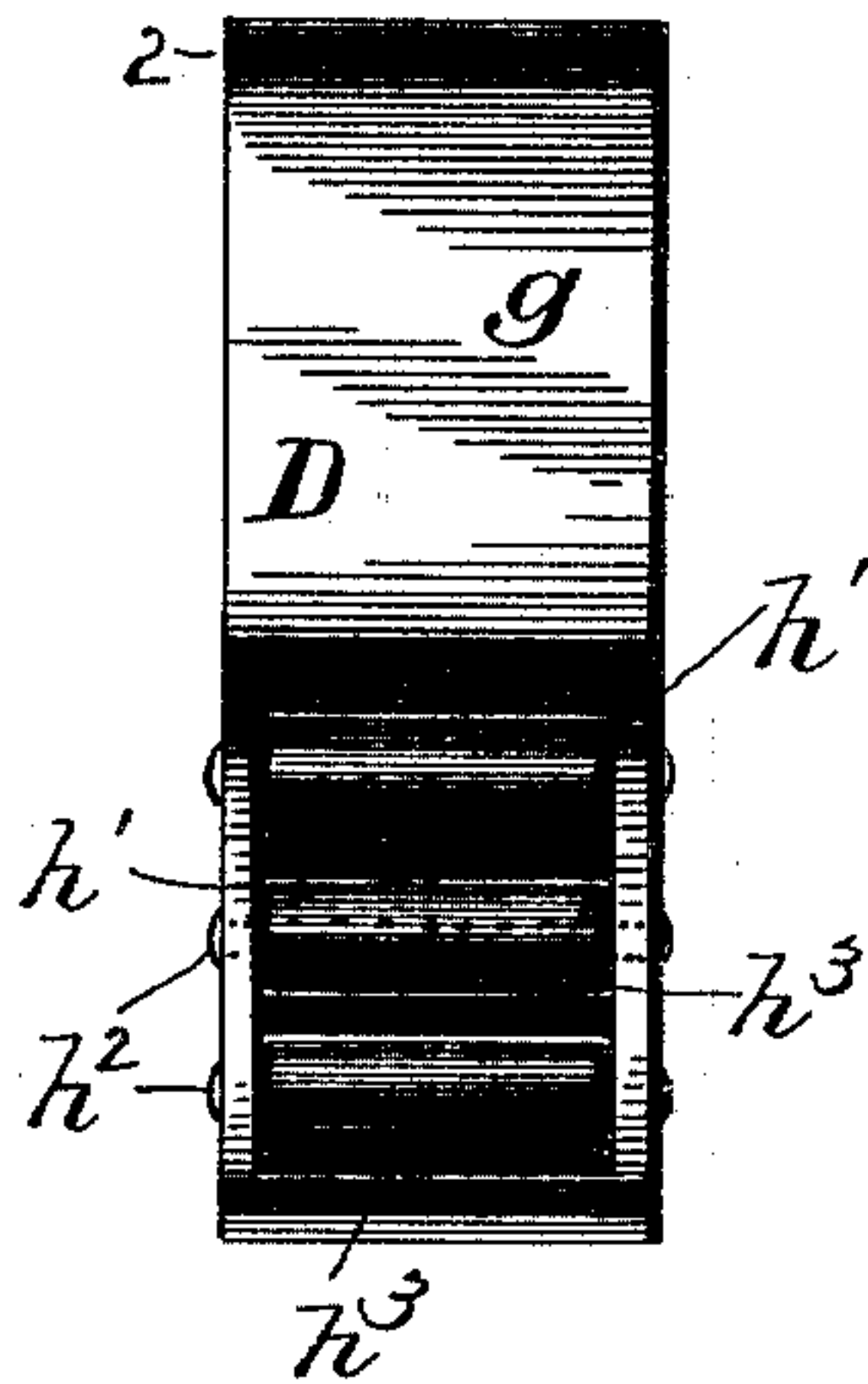
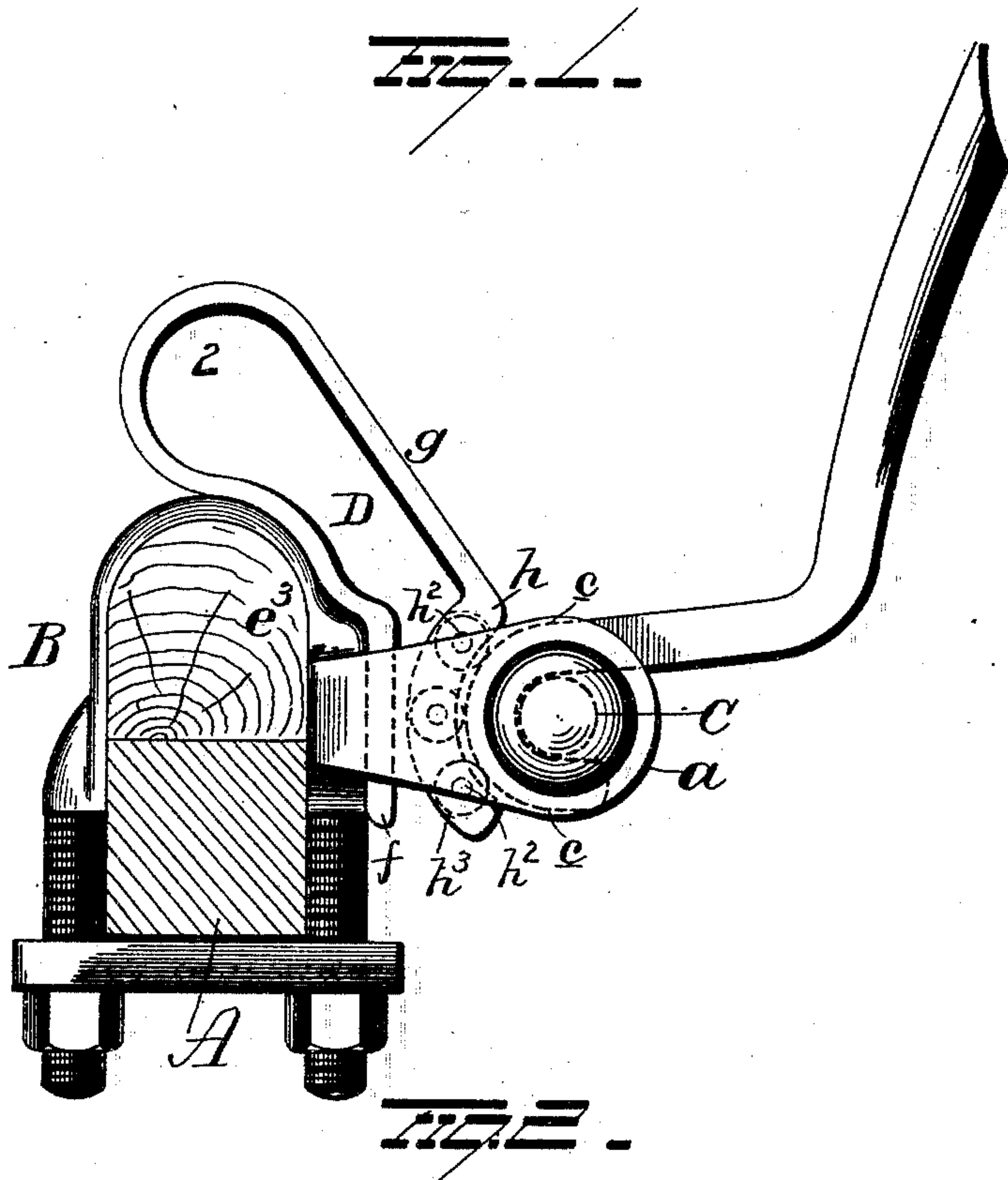


(No Model.)

J. F. MATTHEWS & W. E. DINSMORE.
THILL COUPLING.

No. 497,924.

Patented May 23, 1893.



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UNITED STATES PATENT OFFICE.

JAMES F. MATTHEWS, OF LIDGERWOOD, NORTH DAKOTA, AND WILLARD E. DINSMORE, OF MINNEAPOLIS, MINNESOTA.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 497,924, dated May 23, 1893.

Application filed May 24, 1892. Serial No. 434,195. (No model.)

To all whom it may concern:

Be it known that we, JAMES F. MATTHEWS, of Lidgerwood, county of Richland, and State of North Dakota, and WILLARD E. DINSMORE, of Minneapolis, in the county of Hennepin and State of Minnesota, 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 invention relates to an improvement in thill couplings,—the object being to reduce friction and prevent rattling, and also to provide means for the ready attachment and detachment of the thills or tongue.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view in side elevation illustrating our invention. Fig. 2 is a detail view of the spring.

A represents a portion of an axle, to which clips B are secured. The clip B is provided with two ears *a* which project outwardly from the axle and somewhat longer than said ears are usually made, so that a larger catch or hook may be used, said ears being provided near their free ends with perforations for the reception of a bolt C. One end of said bolt is provided with a head and the other end is screwthreaded for the reception of a nut. If desired this bolt may be made integral with the clip. The rear end of the thill iron is provided with a hook or catch *c* adapted to engage the bolt C as shown in Fig. 1.

The hook or catch *c* is so made that when the forward ends of the shafts or pole are on the ground, said hook or catch will be just long enough to drop in behind the bolt, and that when the catch or hook is in position, the free end will lie parallel with the shaft or pole. The flat surface *e*³ at the forward end of the clip is preferably made thick and preferably built up about one-half inch higher than the ordinary clip. Inserted in the space between the hook or catch *c* and the flat face

*e*³ of the clip is our improved spring D. This spring is made of a piece of flat spring metal having a flat straight portion *f* adapted to bear against the flat face *e*³ of the clip. At the top of the portion *f* the spring is preferably bent in the form of a loop 2, one side of said loop being made straight as at *g*. In forming the loop 2, the metal of the spring is so bent as to cause the said loop to project over the clip and thus be out of the way of the shafts or pole when they are raised. From the straight portion *g* of the loop 2 the spring D is provided with a curved, thickened, portion or arm *h*, in which an opening *h'* is made, said curved arm or portion being adapted to conform to the shape of the curved portion of the catch or hook *c*. Located in the opening *h'* of the arm or portion *h* is a series of pins *h*², which pass through perforations in opposite walls of said opening. Mounted to revolve on these pins is a series of rollers *h*³. The peripheries of the rollers project slightly beyond the inner curved portion of the arm or portion and are adapted to bear against and roll on the end of the catch or hook *c*. From this construction and arrangement of parts it will be seen that the rollers *h*³ are set concentric with the inner end of the hook or catch *c* of the thill iron, so that the bearing is the same on each roller. The tilting or vibration of the shaft or pole causes the rollers to turn, thus preventing all grating and rattling of the shafts or pole. We do not wish to limit ourselves to the particular shape of the spring described, as various shapes may be employed without departing from the spirit of our invention,—nor do we wish to restrict ourselves to rollers, as balls may be employed in their stead.

It will be seen that after the hook or catch of the thill irons is in engagement with the bolt C, the spring may be readily inserted between said hook and the clip. It will also be seen that when the spring is in place it is impossible for the thill iron to escape from its connection with the bolt, and that when it is desired to remove said thill iron, this can be readily and easily accomplished by the removal of the spring.

The device is very simple in construction,

cheap to manufacture, easy of application and effectual in the performance of its functions.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A spring for a thill coupling having antifriction bearings adapted to bear on the thill iron, substantially as set forth.
2. A spring for a thill coupling having a curved arm or portion to conform in shape to the end of the thill iron, and antifriction bearings in said curved portion, substantially as set forth.
3. A spring for a thill coupling having a curved portion made with an opening and adapted to conform in shape to the end of the thill iron, and rollers mounted in said opening and adapted to bear on the end of the thill iron, substantially as set forth.
4. The combination with a spring for thill couplings having a curved arm with an opening therein, of pins extending across said opening and rollers mounted on said pins and having their peripheries projecting beyond said arm, substantially as set forth.

5. The combination with a clip having a thickened side, extended ears projecting from said thickened side of the clip, a bolt between said ears, a hook or catch adapted to engage said bolt, of a spring having a straight portion to bear against the thickened portion of the clip and a curved portion carrying antifriction bearings to bear against the hook or catch, substantially as set forth.

6. In a thill coupling, a spring adapted to be inserted in the space between the vehicle clip and tongue or shafts, said spring having antifriction bearings in position to engage the tongue or shafts, substantially as set forth.

In testimony whereof we have signed this specification in the presence of subscribing witnesses.

JAMES F. MATTHEWS.
WILLARD E. DINSMORE.

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