No. 671,962. Patented Apr. 16, 1901.

# R. W. HOWELL.

## THILL COUPLING.

(Application filed Sept. 18, 1900.)

(No Model.)

Fig. 1

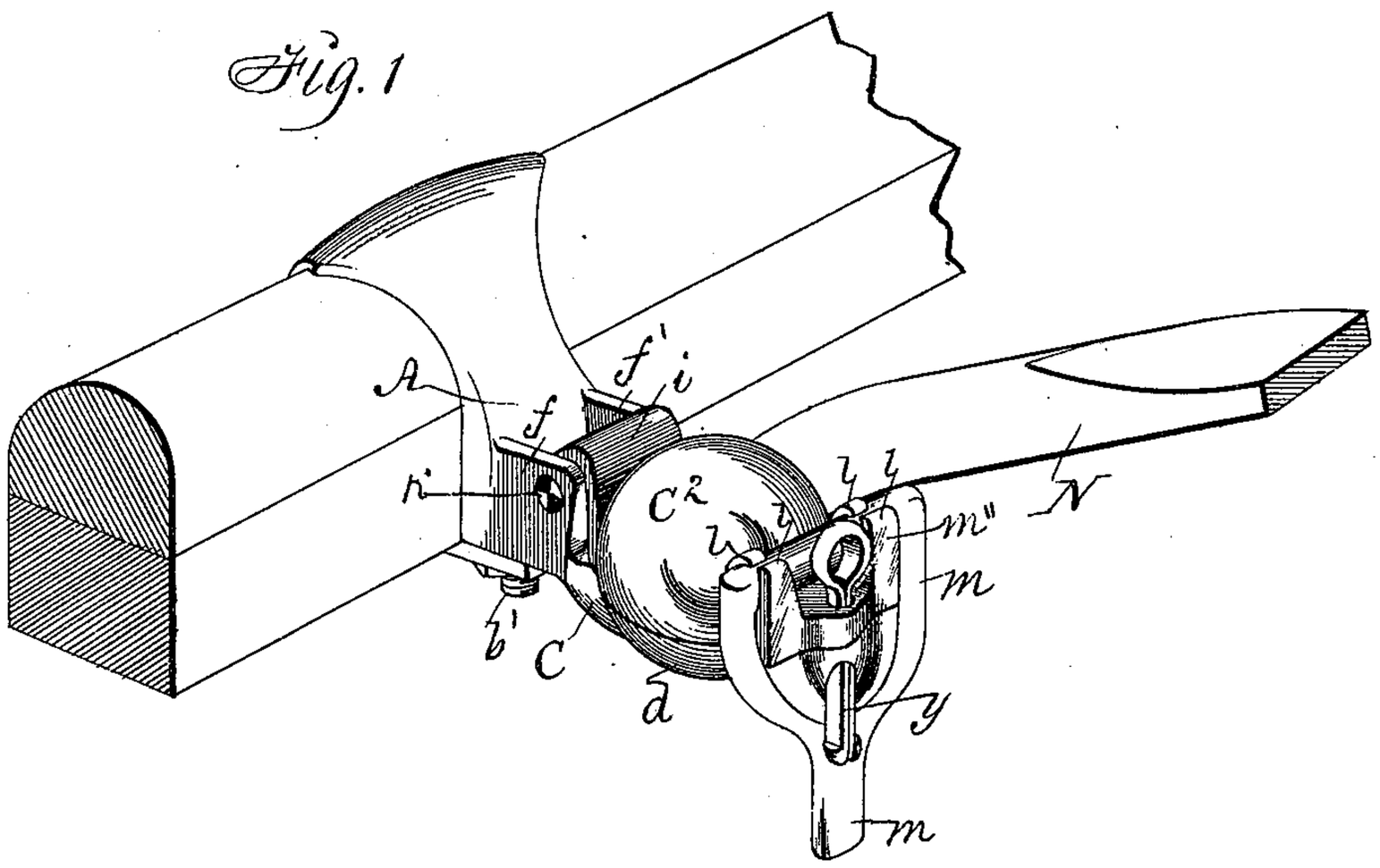



Fig. 2

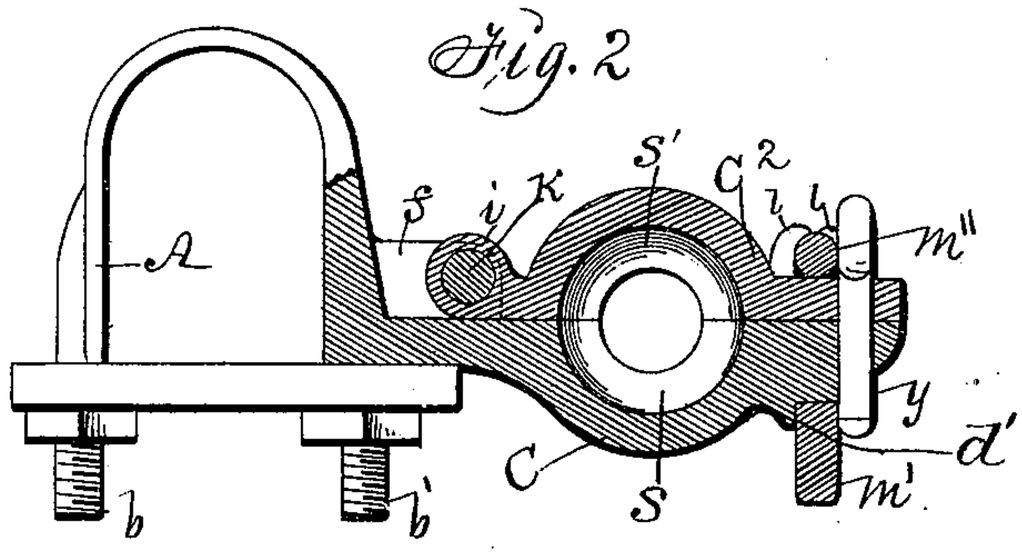
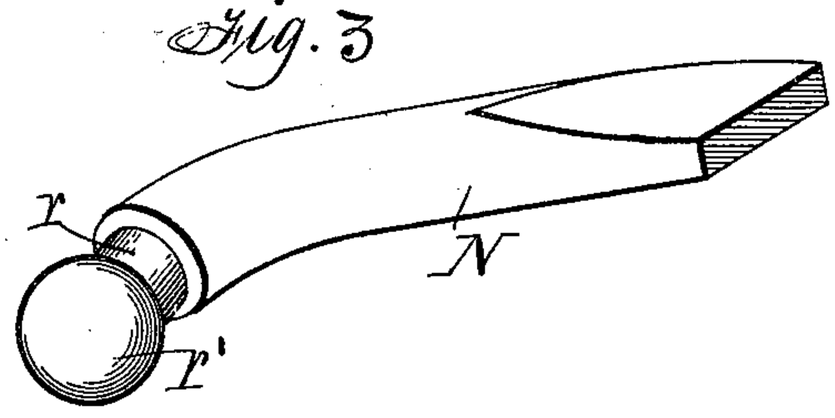



Fig. 3

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# UNITED STATES PATENT OFFICE.

ROBERT W. HOWELL, OF PALMYRA, MISSOURI, ASSIGNOR OF ONE-HALF TO HIRAM M. HOWARD, OF SAME PLACE.

## THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 671,962, dated April 16, 1901.

Application filed September 18, 1900. Serial No. 30,413. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. HOWELL, a citizen of the United States, residing at Palmyra, in the county of Marion and State of Missouri, have invented a new and useful Thill-Coupling, of which the following is a specification.

My object is to provide a neat, strong, and durable thill-coupling adapted to facilitate attaching and detaching thills from a vehicle and securely connecting the adjustable and detachable parts of the coupling.

My invention consists in the forms, arrangements, and combinations of parts, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view showing my invention applied to an axle, as required for practical use. Fig. 2 is a sectional view through a central line of the two parts that produce a globular cavity and bearing for a spherical head on the end of the thill-iron. Fig. 3 is a perspective view of the end portion of the thill-iron, that has an integral neck and head adapted to serve as a member of a ball-and-socket joint.

The letter A designates a clip of common form adapted to stride the axle of a vehicle, and preferably malleable iron and formed in a mold. It has integral screws *b* and *b'* at its bottom. At the front and base of the clip is an integral forward projection or bearer C, flat on its top and provided with an enlargement *d* at its central and bottom portion and a semispherical cavity in the enlargement.

*d'* is a shoulder at the front and bottom of the bearer, adapted to aid in supporting a locking device.

At the free end of the bearer C is a key-seat, and at the parallel sides and top of its rear end portion are integral vertical projections *f* and *f'*, provided with coinciding bolt-holes for hinging a cover to the bearer and fixed member of the ball-and-socket joint.

$C^2$ is a cover and mating member of the bearer C. It has a central enlargement *d* and a semispherical cavity corresponding with the cavity in the part C of the fixed bearer and a rear extension *i*, provided with a transverse bore to adapt it to be hinged to the projections *f* and *f* by means of a rivet or bolt *k*. At its front end it has a key-seat and pairs of vertical projections *l*, adapted also to serve as bearings for hinging a locking device to the hinged cover.

*m* is a device in the form of a loop provided with a handle *m'* and adapted to be hinged to the cover by placing the straight cross-bar *m''* at its large end between the bearings *l* and bending the tops of the bearings toward each other.

N represents a thill-iron having an integral neck *r* projecting at right angles and a ball or head *r'* on the end of the neck.

The mating members C and $C^2$ of the socket, adapted to receive the ball *r'*, have concaves *s* and *s'* in their inner edges and overlying parts, as shown in Fig. 2, to admit the neck *r*, as required to produce a hinged connection between the thill-iron N and the parts C and $C^2$, as shown in Fig. 1.

To detachably connect thills with a vehicle by means of my invention when the clips A are fixed to the axle by means of a bar or washer-plate and nuts placed in the screws *b* and *b'*, as shown, I simply place the balls or heads *r* in the cavities of the enlargements *d* of the bearers C and then close the cover upon them and secure the cover by means of a key *y*, extended through the key-seats in the free ends of the overlying parts C and $C^2$, as shown in Fig. 1.

Having described the forms and functions of the different parts, the operation and utility of my invention will be obvious, and what I claim as new, and desire to secure by Letters Patent therefor, is—

1. A thill-coupling comprising a clip adapted to be fixed astride of an axle and having an integral forwardly-projecting bearer provided with a central enlargement having a semispherical cavity and a semicircular bearing on the edge of the wall of the cavity, a shoulder on the under side of its free end and a key-seat in the end portion and mating bearings on its top and rear end for hinging a cover thereto, a hinged cover having a central enlargement and semispherical cavity, a key-seat at its front end and pairs of vertical projections on its front end portion, a yoke or locking device hinged to the front end of

said cover, and a key fitted in the said key-seats, all arranged and combined as shown and described for the purposes stated.

2. The axle-clip A having screws *b* and *b'*, an integral bearing C provided with an enlargement *d* and semispherical cavity and bearing *s* at one side of the cavity, a shoulder *d'*, a key-seat at its free end portion, a hinged cover $C^2$ having a central enlargement and semispherical cavity and pairs of projections *l* and a key-seat at its free end, a yoke *m* having a handle *m'* and key fitted in the key-seats, all arranged and combined as shown and described for the purposes stated.

ROBERT W. HOWELL.

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