(No Model.)

C. C. BRADLEY.

THILL COUPLING.

No. 485,856. Patented Nov. 8, 1892.

Fig. 1.

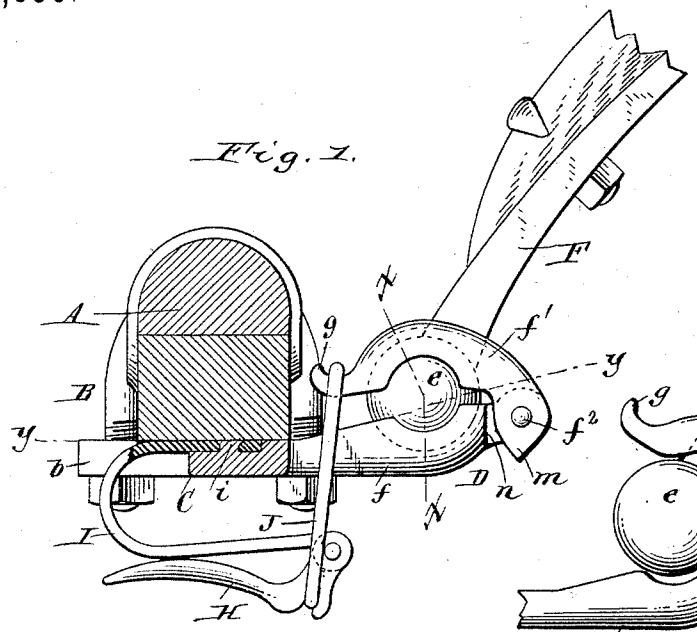


Fig. 6.

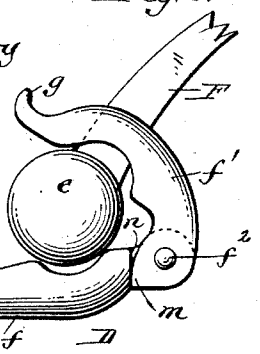


Fig. 2.

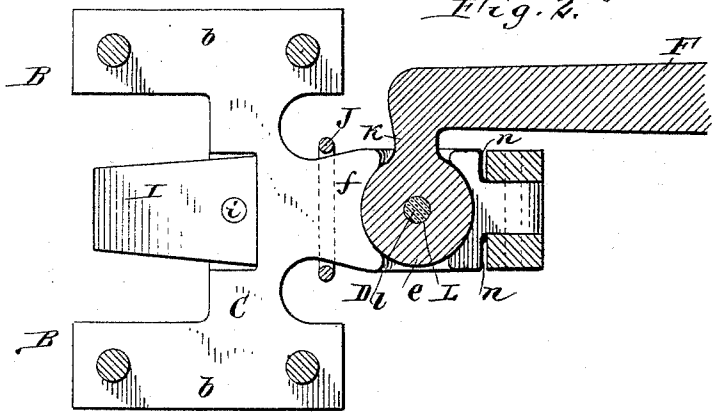


Fig. 3.

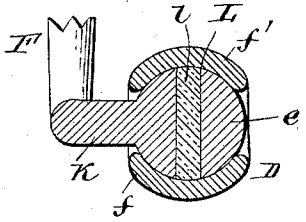


Fig. 4.

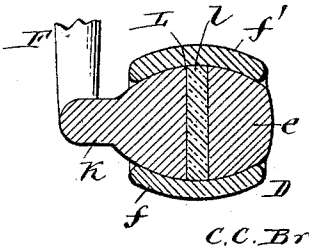
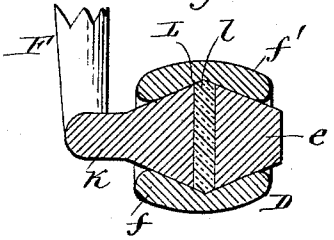


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHRISTOPHER C. BRADLEY, OF SYRACUSE, NEW YORK.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 485,856, dated November 8, 1892.

Application filed August 10, 1891. Serial No. 402,203. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER C. BRADLEY, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Thill-Couplings, of which the following is a specification.

This invention relates to that class of thill-couplings which are provided with a divided draft-eye, a coupling pin or wrist, and a clamping device connected with the draft-eye, whereby the latter is tightened and the thills are enabled to be attached to or detached from the vehicle in an expeditious manner. Heretofore the coupling wrist or pin was of cylindrical form and provided with collars, whereby lengthwise movement of the wrist in the draft-eye was prevented. The wear upon the cylindrical surface of the wrist was automatically taken up by the clamping device; but any wear on the collars permitted the wrist to move lengthwise in the draft-eye and caused rattling.

The objects of my invention are to produce a thill-coupling of this character in which the shoulders for preventing lengthwise movement of the wrist in the draft-eye are dispensed with, so as to avoid rattling; also, to provide a lubricating device whereby the bearing-surfaces of the wrist and draft-eye are lubricated in a simple and convenient manner; also, to provide means whereby the thill-iron is prevented from becoming detached from the draft-eye when the clamping device of the latter becomes broken.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of my improved thill-coupling, showing the same in a coupled position. Fig. 2 is a horizontal section thereof in line *y y*, Fig. 1. Fig. 3 is a vertical cross-section in line *x x*, Fig. 1. Figs. 4 and 5 are vertical sections representing modified forms of the coupling-wrist and its seat in the draft-eye. Fig. 6 is a fragmentary side elevation of the thill-coupling, showing the position of the draft-eye sections preparatory to attaching the thill-iron thereto or detaching the same therefrom.

Like letters of reference refer to like parts in the several figures.

A represents the front axle, and B the thill-clips whereby the thill-coupling is secured to the axle. The cross-bars *b* of the clips are connected by a plate C, formed integral with said bars and arranged lengthwise underneath the axle. The connecting-plate is provided on its front side with a divided draft-eye D, which embraces a wrist *e*, formed on the rear end of the thill-iron F. This divided draft-eye consists of a lower rigid section *f*, which is formed integral with the connecting-plate, and an upper movable section *f'*, which is hinged with its front end to the front end of the rigid section by a transverse pin f^2. The rear portion of the upper eye-section is provided with a lip *g*, projecting rearwardly over the rigid eye-section.

H represents a clamping-lever whereby both eye-sections are drawn against the wrist of the thill-iron. This clamping-lever is arranged underneath the connecting-plate and draft-eye and is pivoted with its front end to the front end of a flat tension-spring I. The latter is curved upwardly and forwardly with its rear end and secured to the upper side of the connecting-plate by a rivet *i*.

J represents a loop whereby the upper eye-section is detachably connected with the clamping-lever. The lower portion of this loop is pivoted on the clamping-lever eccentric to the fulcrum of the latter, while the upper portion of the loop rests loosely upon the lip of the movable eye-section, so that the loop can be detached therefrom.

The wrist of the thill-iron consists, preferably, of a spherical knuckle connected with the thill-iron by a narrow neck *k* and seated in correspondingly-shaped sockets or bearing-surfaces formed in the draft-eye sections. This form of wrist permits the thill to rock freely in any direction in the draft-eye and wear the parts uniformly without causing any rattling, owing to the tension of the spring I, which exerts a constant pressure upon the sections of the draft-eye, thereby centering the wrist and preventing the same from moving laterally in the draft-eye.

Heretofore the wrist of the thill-iron was cylindrical in form and provided with collars bearing against opposite sides of the draft-eye sections, between which the cylindrical wrist was clamped. These shoulders wore

rapidly, owing to the lateral strain applied to the wrist by the great leverage of the thills, so that the parts soon became loose.

In constructing the thills with cylindrical wrists it is extremely difficult to secure the thill thereto so that the wrists are axially in line. When the wrists are not in line, it becomes necessary to spring them into place in the draft-eyes. This causes a constant strain and wear upon the wrist and its collars, which eventually permits the wrist to move lengthwise in the draft-eye and causes rattling.

The spherical form of the thill-iron wrist and of the sockets in the draft-eye sections permits the wrists to adjust themselves freely within certain limits without binding or cramping and compensates for any inaccuracies in the relative position of the draft-eyes and the wrists of a pair of thills. The spherical form of the wrist and the draft-eye section embracing the same also increases the bearing-surfaces between these parts and causes them to wear longer. A similar result is produced by forming the wrist in the shape of an oval, as represented in Fig. 4, or with a conical taper toward opposite ends, as represented in Fig. 5, in both of which modifications the draft-eye sections are provided with correspondingly-shaped cavities and the wrist is centered upon drawing the eye-sections together.

The wrist is provided with an opening or recess L, extending diametrically through the same. This opening is filled with an absorbent plug *l*, of felt or similar material, saturated with oil. The oil held by the felt issues slowly from opposite ends of the opening L and is fed between the wrist and the draft-eye sections, whereby these parts are lubricated in a simple, effective, and convenient manner.

m represents a depending stop formed on the front end of the upper section of the draft-eye. This stop is adapted to strike against a shoulder *n*, formed on the adjacent portion of the lower section of the draft-eye, and limit the opening movement of the draft-eye. As represented in Fig. 6 the draft-eye is opened as wide as the stop will permit. In this position of the parts the upper section stands nearly upright and its stop strikes the shoulder on the lower draft-eye section. When the upper section has been so swung forwardly, the wrist of the thill-iron can be freely introduced into the draft-eye or removed therefrom. When the clamping device of the draft-eye becomes broken or the upper eye-section becomes released from any cause, the upper section is drawn forwardly by the thill-iron until the stop of the upper section strikes the shoulder on the lower section of the draft-eye, whereby the opening movement of the upper section is arrested and the thill-iron prevented from becoming entirely detached from the draft-eye.

I claim as my invention—

1. The combination, with the thill-iron provided with a wrist or knuckle having its face rising from its ends toward its middle, of a clip provided with a rigid eye-section and a movable eye-section hinged to the front end of the rigid section, both sections embracing said wrist and provided with corresponding bearing-surfaces, a tension-spring secured with one end to said clip, a clamping-lever pivoted to the opposite end of said spring, and a loop connecting the movable eye-section with said clamping-lever, substantially as set forth.

2. The combination, with the thill-iron provided with a wrist or knuckle having a convex spherical surface, of a clip provided with a forwardly-projecting rigid eye-section, a movable eye-section hinged with its front end to the front end of the rigid eye-section, both eye-sections embracing said wrist and provided with corresponding concave spherical bearing-surfaces, a tension-spring secured with one end to said clip, a clamping-lever pivoted to the opposite end of said spring, and a loop detachably connecting the rear end of said movable eye-section with the clamping-lever, substantially as set forth.

3. The combination, with the wrist having a recess in its bearing-surface, of an absorbent plug arranged in said recess and a draft-eye embracing said wrist, substantially as set forth.

Witness my hand this 8th day of August, 1891.

CHRISTOPHER C. BRADLEY.

Witnesses:
THEO. L. POPP,
J. T. CLOUGH.