R. COATES.

THILL COUPLING.

APPLICATION FILED OCT. 11, 1909.

969,937.

Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

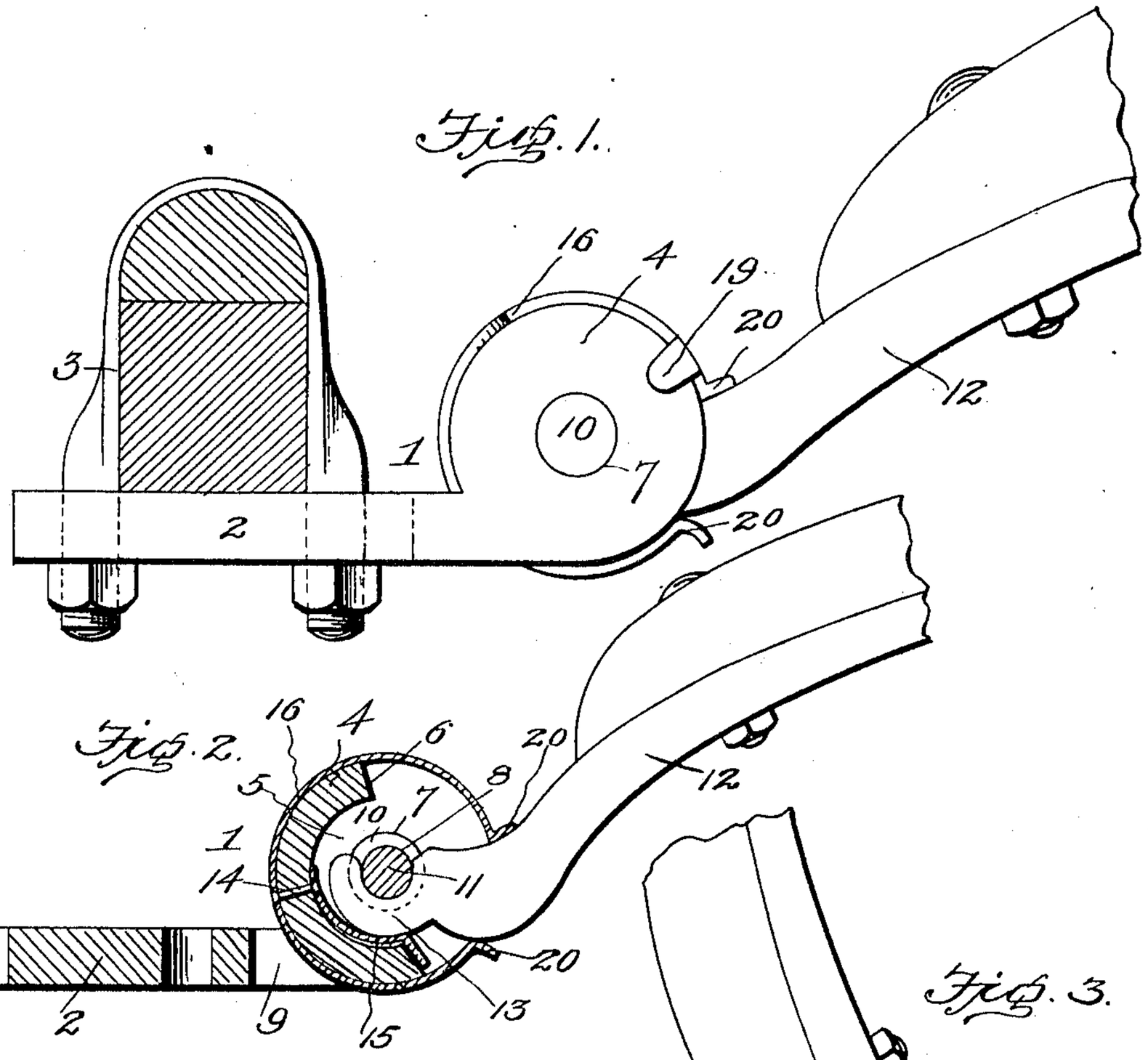


Fig. 2.

Fig. 3.

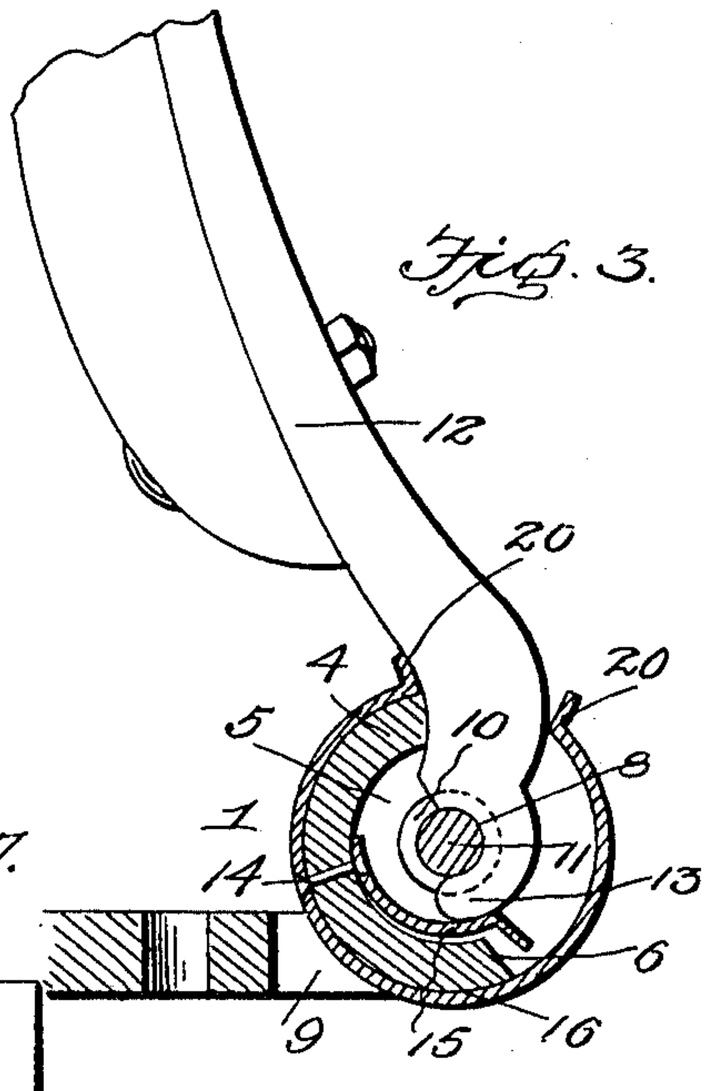


Fig. 5.

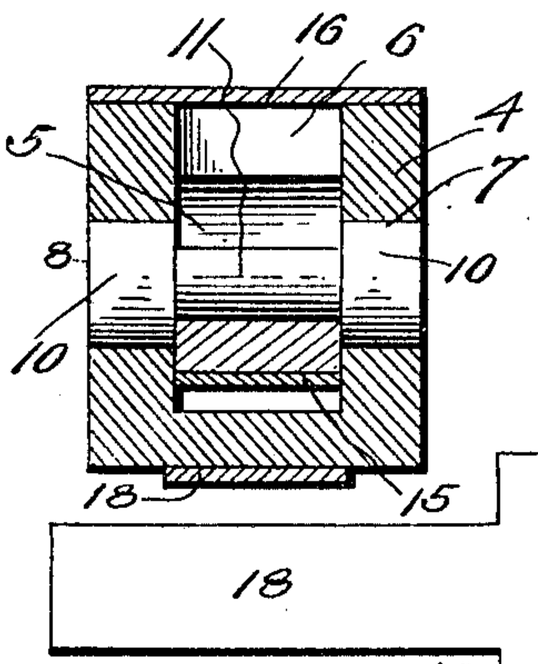
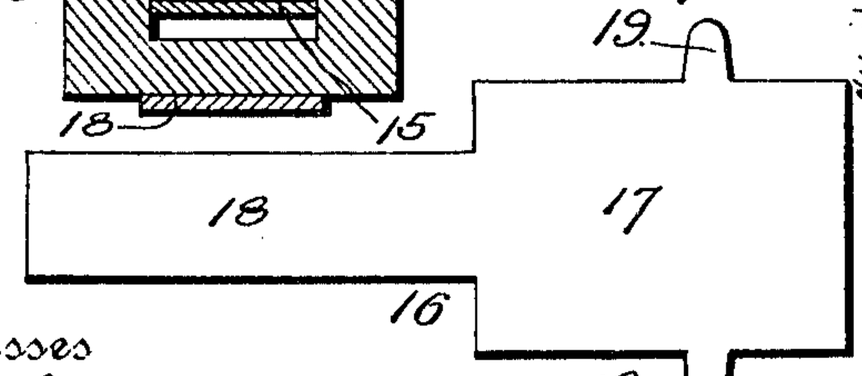


Fig. 7.



Witnesses

C. E. Hunt.

C. H. Griesbauer.

Inventor

Raymond Coates.

by A. B. Williamson & Co

Attorneys

R. COATES.

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2 SHEETS—SHEET 2.

Fig. 4.

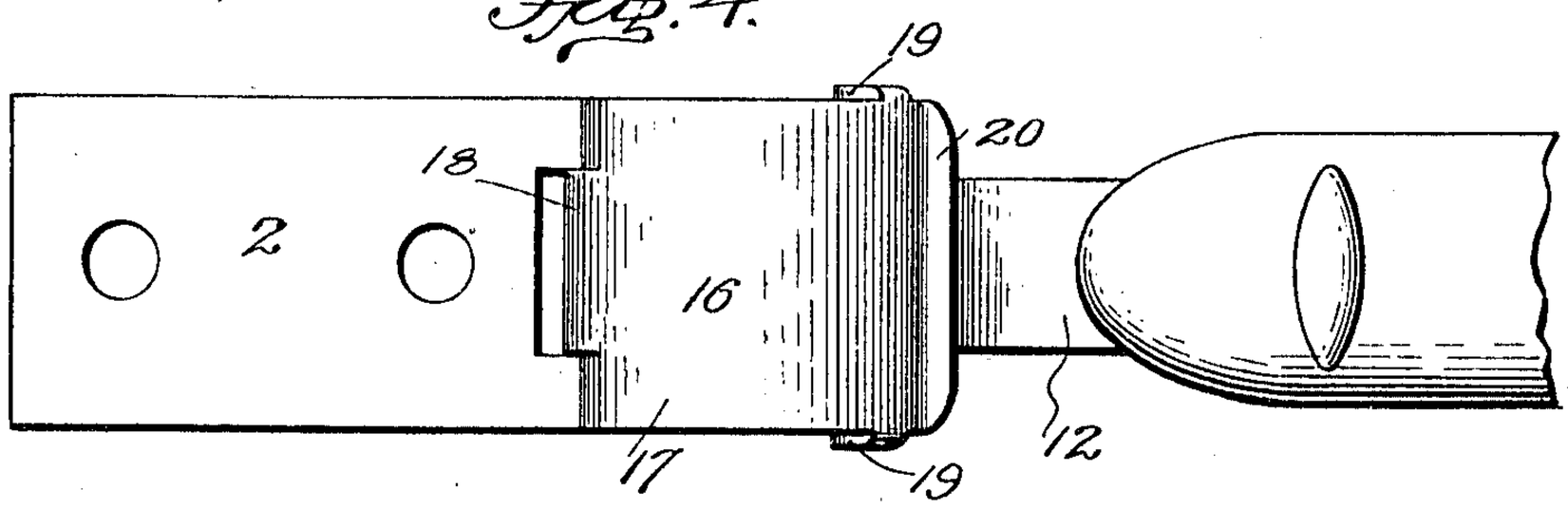

Fig. 6.

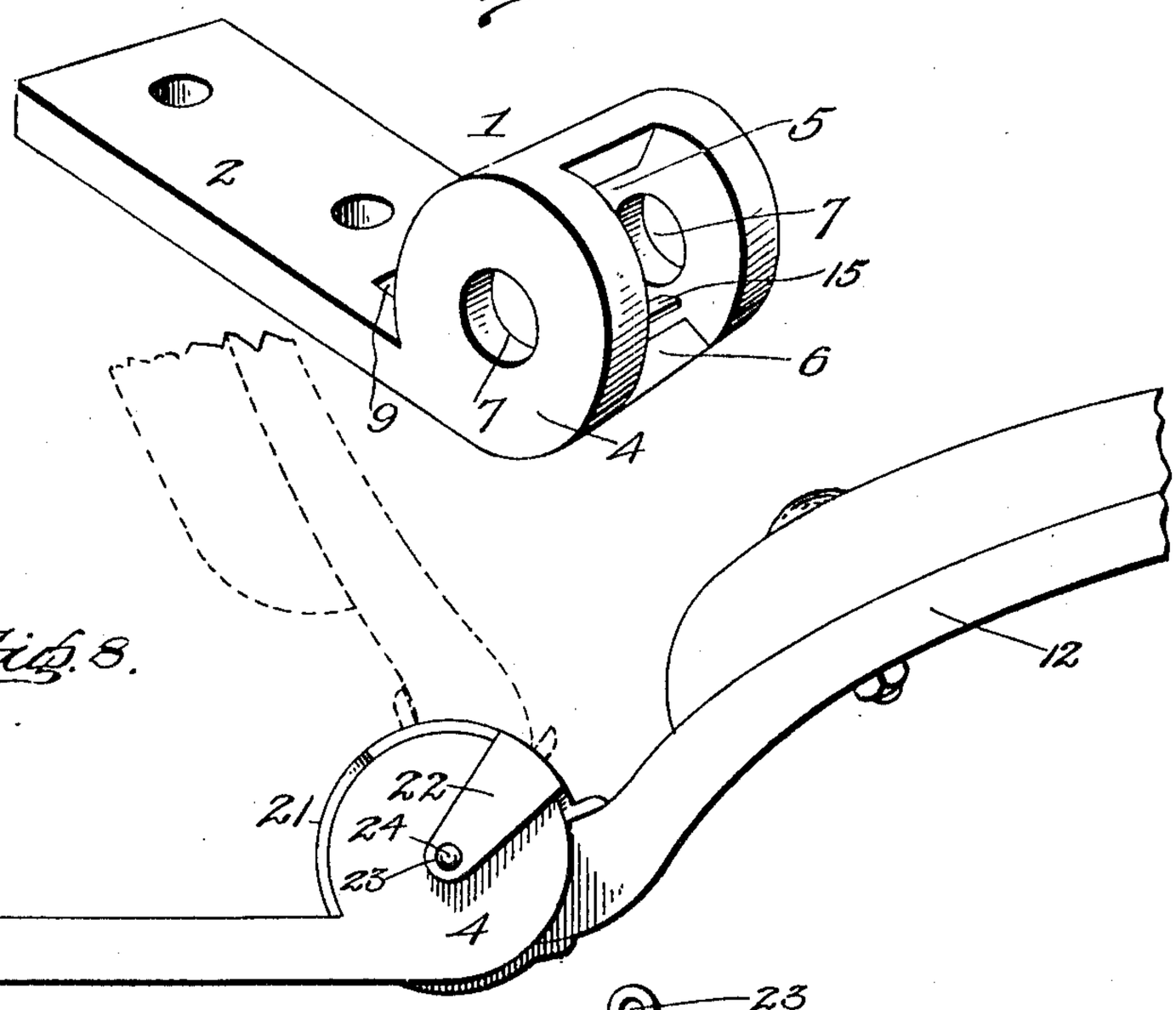

Fig. 8.

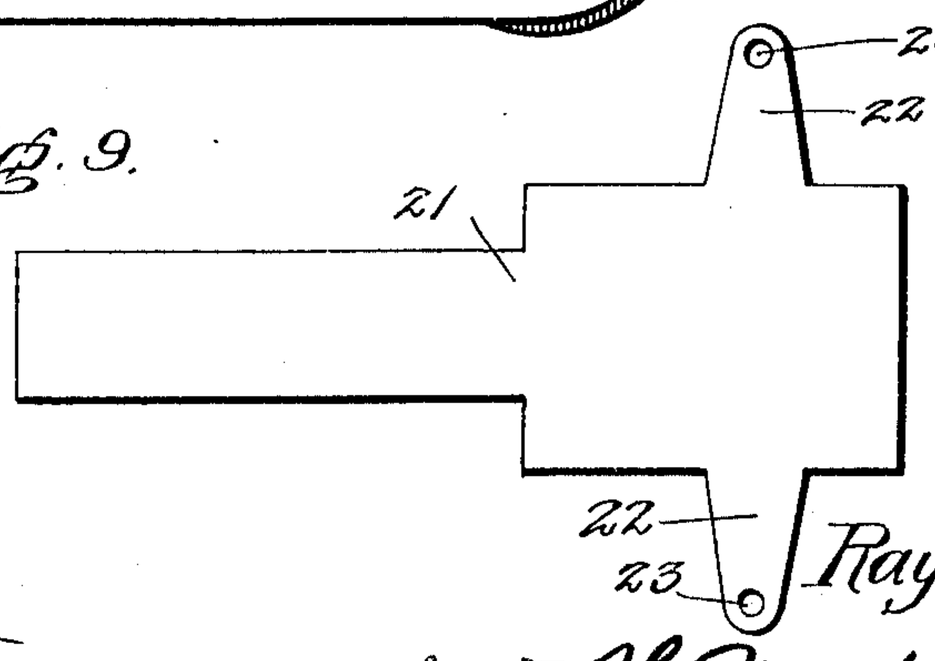

Fig. 9.

Witnesses

C. E. Hunt.

C. H. Griesbauer.

Inventor

Raymond Coates.

by A. R. Wilkinson & Co

Attorneys

UNITED STATES PATENT OFFICE.

RAYMOND COATES, OF JACKSON, MICHIGAN, ASSIGNOR OF ONE-HALF TO JOHN H. ANTIS, OF JACKSON, MICHIGAN.

THILL-COUPLING.

969,937. Specification of Letters Patent. **Patented Sept. 13, 1910.**

Application filed October 11, 1909. Serial No. 522,021.

To all whom it may concern:

Be it known that I, RAYMOND COATES, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Thill-Couplings; and I do 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.

This invention relates to improvements in thill couplings.

One object of the invention is to provide a thill coupling the construction of which provides for the quick and easy connection and disconnection of the parts whereby the thills are readily attached to or removed from the vehicle.

Another object of the invention is to provide an improved construction and arrangement of dust guard whereby dust and other foreign matter will be prevented from entering the coupling.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a vertical cross section through the axle of a vehicle showing the coupling applied thereto, the coupling being shown in side elevation. Fig. 2 is a vertical longitudinal section of the coupling showing the end of a thill engaged therewith and in operative position. Fig. 3 is a similar view showing the thill in position to be removed from the coupling. Fig. 4 is a top plan view of the coupling with the parts as shown in Figs. 1 and 2. Fig. 5 is a vertical cross section taken on a line with the coupling pin or bolt. Fig. 6 is a detail perspective view of the coupling head. Fig. 7 is a plan view of the blank from which the spring dust guard is formed. Fig. 8 is a side view of the coupling illustrating a modified form of the dust guard and showing in full lines the position of the parts when the thill is in operative position and in dotted lines the position of the parts when the thill is raised to permit the removal or disengagement thereof from the coupling. Fig. 9 is a plan view of the blank from which the guard shown in Fig. 8 is formed.

Referring more particularly to the drawings 1 denotes the axle member of the coupling, said member comprising a base plate 2 which is adapted to be secured to the front axle of a vehicle by means of a clip 3 in the usual or any suitable manner. On the outer end of the base plate 2 is formed a substantially cylindrical head 4 in which is formed a centrally disposed recess or socket 5. In the forward side of the head 4 is formed a slot 6 which communicates with the socket 5 in the center of the head as shown. In the opposite ends of the head are formed apertures 7 to receive the ends of the coupling bolt or shaft 8. In the base plate 2 immediately in rear of the head 4 is formed a slot 9, the purpose of which will be hereinafter described.

The coupling bolt or shaft 8 may be in the form of a straight cylindrical bolt having its opposite ends fitted into the apertures 7 in the ends of the heads sufficiently tight to prevent the casual removal of the bolt or said bolt may be constructed as herein shown, having enlarged cylindrical ends 10 and a reduced central portion 11. When constructed in this manner the bolt is held in place in the head 4 by means of the connecting portion of the thill coupling member which is engaged with the reduced central portion of the bolt and thus prevents a lateral movement of the latter in the head.

The thill member of the coupling comprises a bar 12 the outer portion of which is curved or shaped to fit the inner ends of the thill to which the same is bolted or secured in any suitable manner. On the free end of the member 12 is formed a hook-shaped head 13, which is adapted to be inserted through the slot 6 and into the socket 5 and engaged with the bolt 8 as clearly shown in the drawing. Secured in the socket 5 by a rivet 14 or other suitable fastening device is a flat metal spring 15, the free end

of which bears against the outer face of the hook-shaped inner end of the thill iron 12 and holds said end in firm engagement with the bolt 8 (see Fig. 2) and takes up all lost motion occasioned by the wearing of the parts and thus prevents the rattling and the consequent noise of the parts of the coupling and when the thills are drawn up into raised inoperative position said spring bears against the outer face of the free end of the hook 13, and holds the thills up.

Adapted to be engaged with the head 4 of the coupling and to pass through the slot 9 therein is a dust guard 16 which is here shown and is preferably in the form of a spring metal band which when engaged with the head snugly fits the same but turns thereon with the movement of the thill member of the coupling. The upper portion 17 of the band is of greater width than the under portion 18, thus effectively covering the slotted portion of the head. On the opposite edges of the part 17 of the band are formed ears 19 which engage the opposite sides of the head and hold the band in place. The dust guard band does not extend entirely around the head 4, thus leaving a space between the ends of the band to permit the insertion and removal of the thill member of the coupling. The ends of the band are preferably bent outwardly and form guide flanges 20 to facilitate the engagement of the thill member of the coupling.

In Figs. 8 and 9 of the drawing is shown a modified form of dust guard band 21. The band 21 is provided on the opposite edges of its enlarged portion with laterally projecting inwardly bent lugs or ears 22 which are of considerably greater length than the ears 19 shown in the other figures of the drawing. The ears or lugs 22 are of sufficient length to reach the center of the head 4 and in the end of said ears are formed bearing apertures 23 which are engaged with studs 24 formed on the ends of the coupling bolt. By constructing the bearing lugs or ears 22 as shown in Figs. 8 and 9 of the drawing the guard band is securely held in position and in close engagement with the head and is readily turned thereon by the movement of the thill member of the coupling when the latter is brought to operative and inoperative positions.

By means of a thill coupling constructed as herein shown and described the thill members thereof may be readily engaged with or disengaged from the axle members without the use of any tools or the removal of any bolts. The engagement of the spring 15 with the thill member of the coupling takes up all wear and lost motion and prevents noise from the movement of the parts and the dust guard band effectually prevents the entrance of dust or foreign matter into the bearing portion of the coupling thereby greatly prolonging the wearing qualities of the same.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

I claim as my invention:

1. In a thill coupling an axle member comprising a base plate having a hollow head at one end provided with a rounded outer face, a bolt extending longitudinally through said head, said head having a recess in one face thereof, and said base plate having a transversely arranged slot adjacent said head, a curved plate spring arranged within said head below said bolt and having its inner end fixed to said head and its free end terminating adjacent the lower wall of said recess, a substantially cylindrical dust guard encircling said head with its ends spaced apart, said guard being mounted for longitudinal movement within said slot and a thill member having a hook shaped head for insertion through the recess in said head and adapted to engage the bolt thereof, the spring on said axle member head bearing on said hook shaped head to hold it yieldably in position.

2. In a thill coupling, an axle member comprising a base plate having a hollow head at one end provided with a rounded outer face, a bolt extending longitudinally through said head, said head having a recess in one face and said base plate having a transversely arranged slot adjacent said head, a curved plate spring secured at one end to the inner face of said head and having its free end arranged below said bolt, a split ring-shaped dust guard extending through the slot in said base plate and encircling said head, said guard being provided with a stop for limiting its longitudinal movement and a thill member having a hook shaped head for insertion through the recess in said axle member and adapted to engage the bolt thereof.

3. In a thill coupling, an axle member comprising a base plate having a hollow head at one end provided with a rounded outer face, a bolt extending longitudinally through said head, said head having a recess in one face and said base plate having a transversely arranged slot adjacent said head, a curved plate spring secured at one end to the inner face of said head having its free end arranged below said bolt, a split

ring-shaped dust guard extending through the slot in said base plate and encircling said head, said guard having lateral extensions for engaging the base plate to limit its longitudinal movement and a thill member having means for engaging the bolt within the head of the axle member.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RAYMOND COATES.

Witnesses:
H. N. THOMPSON,
W. E. HOLLINRAKE.