

W. S. LAYARD.
Thill-Coupling.

No. 221,175.

Patented Nov. 4, 1879.

Fig. 1.

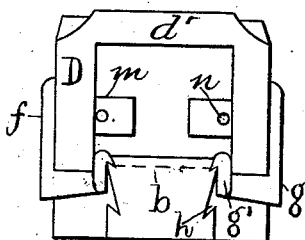


Fig. 2.

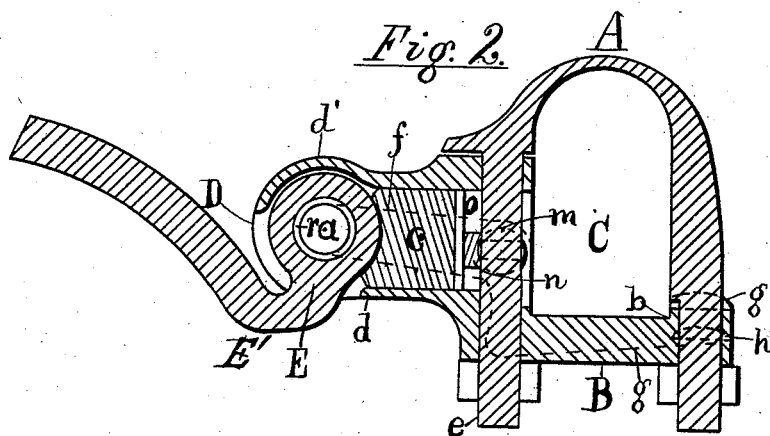
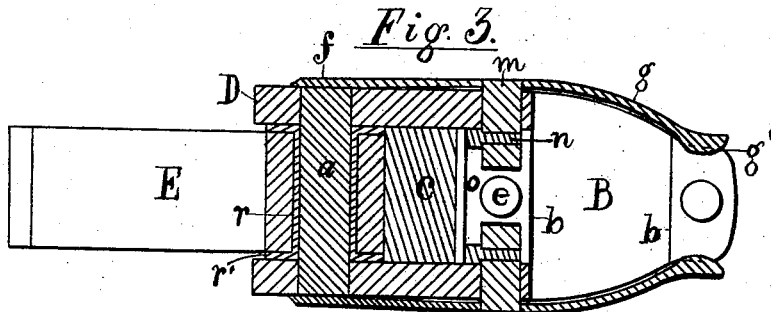


Fig. 3.



Attest:

Wm L. Fish.

Wm L. Breach.

Inventor

William S. Layard,

per Thos. S. Cram, Atty.

UNITED STATES PATENT OFFICE.

WILLIAM S. LAYARD, OF SUMMIT TOWNSHIP, UNION COUNTY, NEW JERSEY.

IMPROVEMENT IN THILL-COUPPLINGS.

Specification forming part of Letters Patent No. **221,175**, dated November 4, 1879; application filed August 11, 1879.

To all whom it may concern:

Be it known that I, WILLIAM S. LAYARD, of Summit township, in the county of Union, State of New Jersey, have invented certain new and useful Improvements in Thill-Couplings, of which the following is a specification.

My invention relates to an improvement in thill-couplings; and it consists in an improved mode of constructing the socket for the reception of the thill, so as to effectually exclude dirt from the coupling-joint; in an improved mode of constructing the cams used to compress the rubber packing in the socket; in an improved mode of securing the socket to the axle, and in the combination, with the guards previously employed to retain the coupling-pin in the ears, of two cams operated separately within the thill-socket.

Figure 1 of the drawings is a rear view of the thill-socket with the clip removed. Fig. 2 is a longitudinal vertical section taken at the center of the clip, and Fig. 3 is a horizontal section at the center of the coupling-pin.

A is the clip. B is the base of the socket, formed with a channel, *b*, in its upper surface, which fits against the lower side of the axle C. D D are the ears of the socket, in which the thill-head E is secured by a plain transverse pin, *a*.

The ears D are formed in one piece with a plate, *d*, at the bottom and a cover, *d'*, at the top, the former a little beyond the rear end of the thill, and the latter arching over the head of the thill and extending downward nearly to the center of the coupling-pin.

To afford the necessary freedom of movement upward to the thill, its connection with the head E is made by a bent piece, *E'*, curved downward from the lower side of the head, and thence extended upward for attachment to the shafts of wood in the usual manner. This curve of the thill-irons at *E'* permits the shaft to be elevated to any extent without obstruction from the arched top *d'*.

The ears and plates *d d'* form a socket for the reception of a rubber packing, *c*, and the clip-bolt *e* passes through the plates at the rear, while the ears D are perforated behind the holes formed for the pin *a* to receive the pivots of the guards *f*, which are merely flat arms extending outside the ears D to cover

the ends of the pin *a*. The pivots *m* are secured to the arms *f* and extend through the ears D into the socket containing the packing *c*, being kept in place by cam-pins *n* inserted in holes formed in the pivots parallel with the arms *f*. These pins I make of common horse-shoe-nails, so that they can be replaced with little expense, and because the shape of the head forms a lock to retain the arms *f* in the desired position.

The rubber packing is backed up in the usual manner by a plate of sheet metal, *o*, against which the head of the nail, which is of the usual flattened shape, bears squarely when the arms *f* are in their proper position over the ends of the pin *a*.

To move the arm away from the pin to remove it, the pivot *m* is necessarily turned in its socket, and the corner of the nail-head is pressed against the plate *o*, compressing the packing somewhat before the pivot can be turned around in its socket. A continued movement of the arm *f* will turn the nail-head entirely away from the plate, and release the rubber from compression, so that the thill can be removed from the socket, while any accidental blow upon the arm only presses the nail-head against the plate *o*, and develops a force to restore the arm to its proper position. Each of the nail-heads acting upon the plate independently to compress the rubber, a double security is obtained as to the holding of the packing and the thill firmly in the socket.

The pin *a* and the hole in the thill-head being liable to rust and consequent wear, I form the same with a bushing, *r*, of any tough material, regardless of elasticity, as tough wood or rawhide, and expand the same into a flange at each end to cover the sides of the thill-head, when they are usually in contact with the ears of the socket. Anti-friction metal, as brass or Babbitt metal, or other inelastic substances not liable to rust, form a suitable bush for this purpose, and to introduce the same into the thill-head readily I form the bush in two similar parts, each of which extends to the middle of the hole, and its flange *r'* covers the side of the thill within the socket.

If desired, the arms *f* may be formed with extensions *g* toward the rear of the base B, and

the same be provided with hooked or bent ends *g'* to engage with the top of the plate B. Their contact with the under side of the axle prevents their moving upward, and their position beneath it protects them effectually from liability to accident.

In case one of the arms *g* is pushed off of the base its hooked end *g'* will engage with a notch formed in the side of the plate B at *h*, and the arm *f* will thus be prevented from uncovering the end of the pin *a*. When these arms *g* are employed I form the same of spring metal, as sheet steel, in one piece with the arms *f*, and the pivots *m* are made of cast metal, formed with the hole for the nail therein, thus securing the utmost cheapness of construction.

The arms *f* have heretofore been made broad enough at the end to cover the whole sides of the ears D, thus preventing any observation of the pin *a* when in use. The holes in the ears are thus sometimes worn entirely out to the front end, so as to break when in use without the progress of such wear being detected. The ends of the arms covering the pin ends are shown in the drawings about the same size as the pin, thus avoiding the danger referred to.

By the construction described above it will

be seen that I secure, by means of the channel *b*, a strong hold upon the bottom of the axle, which relieves the clip-bolt of all transverse strain; a socket for the packing entirely protected from the entrance of dirt, thus greatly increasing the durability of the rubber; a form of cam very easily made and repaired, and a general construction of the working parts that conceals them as much as possible from liability to accident.

I therefore claim the same as my invention in the following manner:

1. In a thill-coupling provided with a socket containing elastic packing, the combination of the arched top *d'* with the thill-iron curved downward at *E'*, substantially as and for the purpose set forth.

2. The combination, with a socket containing elastic packing, of the two pivots *m*, provided with transverse pins having flat heads, as herein described, and operated by the arms *f*, in the manner herein set forth.

In testimony that I claim the foregoing I have hereto set my hand this 28th day of July, 1879, in the presence of two witnesses.

WILLIAM S. LAYARD.

Witnesses:

CHARLES W. FARROW,

WILLIAM S. GREEN.