

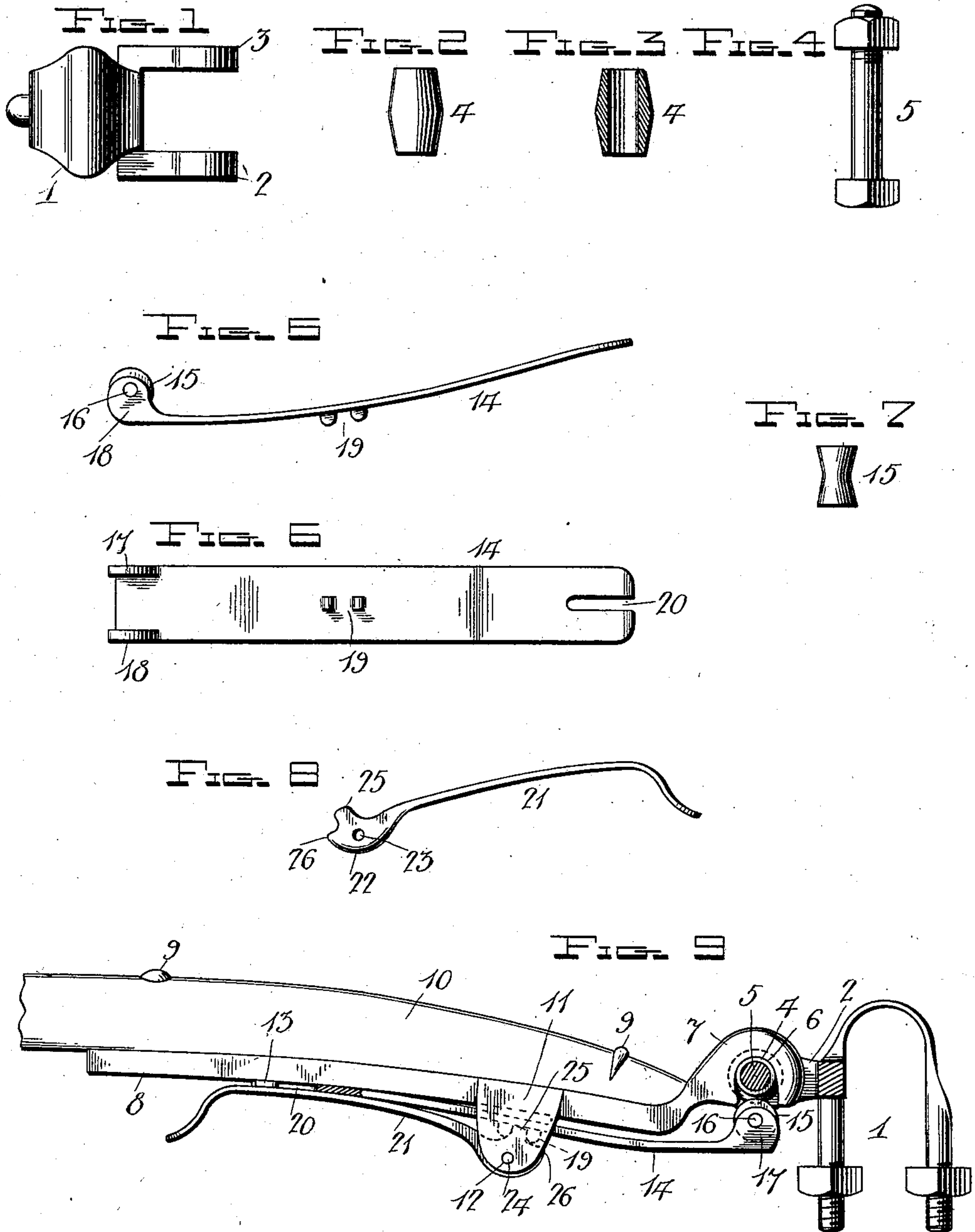
No. 720,280.

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A. PAUL.
THILL COUPLING.

APPLICATION FILED NOV. 4, 1902.

NO MODEL.



Witnesses

J. H. Gorton
Edwin Guthrie

By

Archibald Paul,
Harvey Spalding and Sons.

Attorneys

UNITED STATES PATENT OFFICE.

ARCHIBALD PAUL, OF COHOES, NEW YORK.

THILL-COUPLING.

SPECIFICATION forming part of Letters Patent No. 720,280, dated February 10, 1903.

Application filed November 4, 1902. Serial No. 130,082. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD PAUL, a citizen of the United States, residing at Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Thill-Couplings, of which the following is a specification.

My invention relates to thill-couplings, and has for its object the production of a cheaply manufactured, very strong, durable, and exceptionally simple device for joining the axle clips and shafts of a vehicle wherein the constant pressure of a spring member takes up all wear and prevents rattling, and the introduction of a roller or revoluble member allows free vertical play of the shafts almost without wear.

Another object of my invention is to construct a thill-coupling in which there are no rubber or leather parts and no slight springs and in which all the members are approximately alined with the shaft, resulting in a particularly sightly appearance and in a structure free from projecting or protuberant portions constantly liable to injury from blows received in ordinary use and always creating an impression of ugliness even where the remaining features of the vehicle are of the most tasteful and appropriate character.

I accomplish the objects stated by means of the parts and their association illustrated in the accompanying drawings, of which—

Figure 1 represents an axle-clip of common pattern; Fig. 2, a side view of the barrel-sleeve which normally lies between the ears of the axle-clip; Fig. 3, a sectional view lengthwise of the barrel-sleeve; Fig. 4, a side view of the clamping bolt and nut; Fig. 5, a side view of the flat spring member and roller borne by it; Fig. 6, a top plan view of the spring member; Fig. 7, a side view of the revoluble roller; Fig. 8, a side view of the cam-lever; and Fig. 9, a side view of all parts assembled and showing the only remaining element, the thill-plate, attached to the rear end of one of a pair of shafts.

Throughout all the views like numerals refer to like parts.

Considering the drawings, numeral 1 marks the axle-clip, with ears 2 and 3. Between the ears is placed the barrel-shaped sleeve 4,

largest in its middle diameter and tapering to the ends. A bolt 5 secures the sleeve. Engaging the sleeve 4 is the mouth 6 of a head 7, formed to engage the sleeve and terminating 55 the gooseneck extremity of the thill-plate 8, that fits against and is attached by suitable pins 9 to the shaft 10. Thill-plate 8 has two depending twin wings, one only being shown in Fig. 9 and marked 11. It is pierced by a hole 12. The plate has also a downwardly-projecting lug 13, to be again mentioned.

Figs. 5 and 6 illustrate the flat spring element 14. It bears at one end a roller 15, revoluble upon a pin 16, between the integral side 65 and end pieces 17 and 18. The form of the roller 15 is such as to correspond with or fit the exterior of sleeve 4—that is to say, the roller is less in diameter in the middle than at the ends. Spring 14 possesses also the saddle- 70 lug 19 and an open-ended slot 20 at the extremity farthest from roller 15. The spring is placed against the thill-plate 8 with roller 15 against barrel-sleeve 4 and the slot 20 in engagement with lug 13 of the plate. A 75 slight downward curve at its middle is the normal form of spring 14, and the saddle-lug 19 opens downwardly. Cam-lever 21 (see Figs. 8 and 9) is next placed against the spring and between the wings 11 of the thill- 80 plate, and the head 22 of the lever has a transverse hole 23, permitting a pin 24 to be passed through it, thus pivotally holding the head of the lever between the wings of the thill-plate. Formed on the head of the lever is a cam-nose 85 25, which engages the saddle-lug 19, and there is also provided on the head a ledge or shoulder 26. At its outward extremity the lever is bent upwardly to give purchase to the fingers to turn the lever. In its locking po- 90 sition the lever 21 lies closely against the spring, with its bent end from the axle; but when that end is drawn away from the spring the lever takes a position vertically downward, (see broken lines in Fig. 9,) and dur- 95 ing its movement, by reason of the engagement of the cam-nose 25 and saddle-lug 19, the spring 14 is caused to move to the right, sliding against the thill-plate and withdrawing roller 15 from its contact with the barrel- 100 sleeve, thereby unlocking the coupling. The shafts are now readily removed or replaced.

The office of ledge 26 is to meet one side of the saddle-lug and limit the backward or unlocking movement of the lever.

When the coupling is locked and roller 15 is moved into contact with the barrel-sleeve, the middle of the spring is forced toward the thill-plate 8 and the roller pressed yieldingly up against the sleeve, completely preventing rattling and taking up wear. When unlocked, the tension of the spring is relieved. All parts may be suitably hardened; but the movement of the roller on the sleeve due to vertical play of the shafts is a rolling motion, and wear is thus reduced to a minimum. The regular place of each part is close to and in line with the shaft, as stated.

Having thus described my invention and explained its use, what I claim is—

1. In a thill-coupling, the combination of an axle-clip, a cylindrical body secured between the ears of the clip, a thill-plate having a head formed to engage the said cylindrical body, a curved spring resting against the thill-plate and sliding thereon, a roller held revoluble at one end of the spring and adapted to be brought into yielding contact with said cylindrical body by sliding the spring on the thill-plate, and devices constructed and arranged to compress and slide the said spring thereby locking and unlocking the coupling by advancing and withdrawing the roller to and from said cylindrical body.

2. In a thill-coupling, the combination of

an axle-clip and a cylindrical sleeve secured between the ears of the clip, a thill-plate having a head formed to engage said sleeve, a curved spring sliding against the thill-plate, a roller held revoluble at one end of the spring and adapted to be brought into yielding contact with said sleeve by the sliding spring, a lever pivoted to the thill-plate, and devices borne by the spring and engaging the lever whereby the spring is compressed and caused to slide locking and unlocking the coupling by advancing and withdrawing the said roller.

3. In a thill-coupling, the combination of an axle-clip and a barrel-sleeve 4 secured between the ears of the clip, a thill-plate having a head formed to engage the said sleeve, a curved spring sliding against the thill-plate, a roller 15 corresponding in form to said sleeve and held revoluble at one end of the spring and adapted to be brought into yielding contact with said sleeve by the sliding spring, means for guiding the spring, a lever pivoted to the thill-plate, devices borne by the spring and engaging the lever whereby the spring is compressed and caused to slide locking and unlocking the coupling, and means for limiting the unlocking movement of the lever, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ARCHIBALD PAUL.

Witnesses:

ALEXANDER K. DIXON, Jr.,
ANNA F. HILDENBRANDT.