Oct. 10, 1950 A. P. BALZER 2,525,471

COUPLER

Filed June 25, 1947

Fig. 1

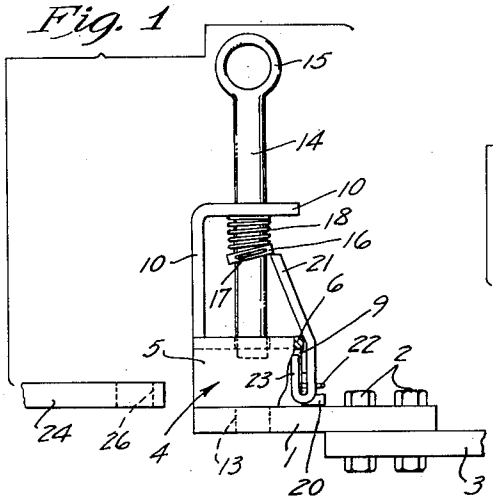


Fig. 2

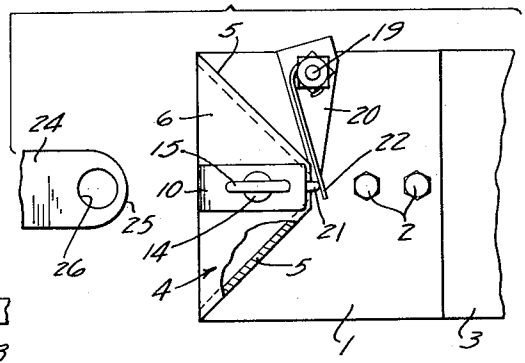


Fig. 3

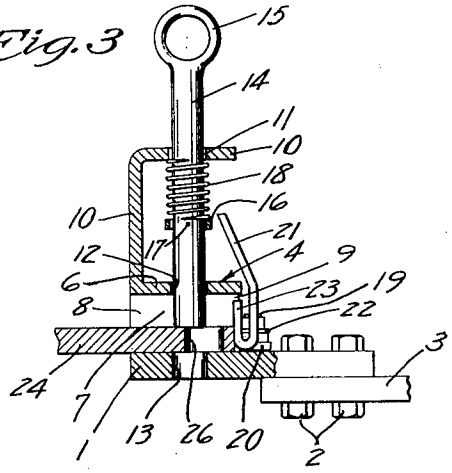


Fig. 4

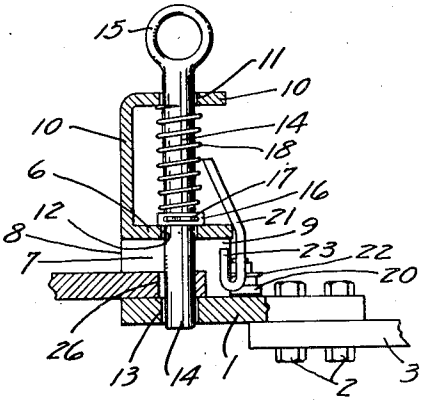
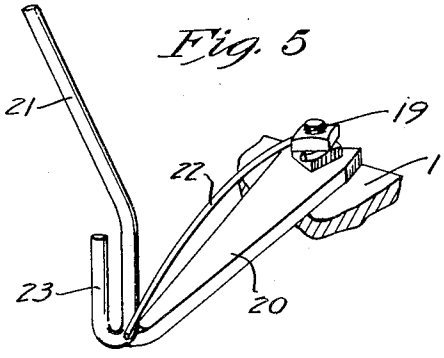


Fig. 5



Inventor
Abram P. Balzer
By his Attorneys
Merchant & Merchant

Patented Oct. 10, 1950 2,525,471

UNITED STATES PATENT OFFICE

2,525,471

COUPLER

Abram P. Balzer, Mountain Lake, Minn.

Application June 25, 1947, Serial No. 756,938

2 Claims. (Cl. 280—33.15)

My invention relates to new and useful improvements in couplers and, more particularly, to that class of couplers which are automatically locked upon insertion of the free end of a drawbar into a coupling head.

The important object of my invention is the provision of a novel head which will automatically and positively center a drawbar when inserted to its limit therein.

Another object of my invention is the provision of novel means located outside of the coupling head for releasing the retracted coupling pin only after the drawbar has been definitely centered within the coupling head.

Another object of my invention is the provision of a coupling device which is simple and inexpensive to build and rugged in construction.

The above and still further objects of my invention will become apparent from the following detailed specification, appended claims, and attached drawings.

Referring to the drawings, wherein like characters indicate like parts throughout the several views:

Fig. 1 is a view in side elevation; some parts being broken away;

Fig. 2 is a plan view of the parts shown in Fig. 1, some parts being broken away and some shown in section;

Fig. 3 is a view taken on the line 3—3 of Fig. 2 and showing a different position of some of the parts;

Fig. 4 is a view corresponding to Fig. 3, but showing a still different position of some of the parts; and

Fig. 5 is a fragmentary perspective view of the latch mechanism of my improved coupler.

Referring with greater particularity to the drawings, the numeral 1 indicates a base plate adapted to be secured by means of nut-equipped bolts or the like 2, to any portion of the frame work 3 of a traction vehicle. A head 4, having forwardly converging side walls 5 and an upper wall 6, is formed integrally with and projects upwardly from the base plate 1. The base plate 1, the side walls 5, and the top upper wall 6 define a cavity 7, having a relatively wide mouth 8 at its rear end and a relatively restricted passage 9 at its forward end.

An inverted L-shaped guide bracket 10 is secured, preferably by welding or the like, to the upper wall 6 of the head 4 and overlies the upper wall 6 at its intermediate portion. Aligned apertures 11, 12, and 13 are provided in the bracket 10, the upper wall 6, and the base plate 1 respectively to slidably, axially receive a coupling pin 14, which is preferably provided at its upper end with an eye or ring 15 to facilitate manual setting thereof, as will hereinafter become apparent. A stop collar 16 is secured to the coupling pin 14, intermediate the guide bracket 10 and the upper wall 6 of the head 4, by any suitable means such as a cotter pin 17. The coupling pin 14 is biased toward the extended position indicated in Fig. 4, by means of a coil compression spring 18 interposed between guide bracket 10 and the collar 16.

Pivotally secured to the plate 1, as indicated at 19, is a latch lever 20, to the free end of which is secured an upwardly-extending stop finger 21. A torsion spring 22 exerts yielding bias upon the lever 20 and the stop finger 21 toward the restricted passage in the head 4, so as to cause the intermediate portion of stop finger 21 to press against the exterior of the head with its forwardly inclined upper end in the path of travel of the collar 16 on the coupling pin 14. The stop finger 21 preferably and as shown is formed from a length of wire and is upturned at its base to provide a forwardly-projecting foot 23, which extends into the restricted passage 9, a sufficient distance to be engaged by the drawbar 24 when the stop finger 21 is in engagement with the head 4, as shown particularly in Fig. 1.

A drawbar 24, preferably provided with a rounded end 25, is provided with a coupling aperture 26 immediately adjacent the rounded end 25 thereof.

It will be observed that, as the drawbar 24 is inserted into the mouth 8 of the head 4, it will be centered by engagement of the rounded end 25 with the converging walls 5. During the final inserting and centering movements of the drawbar 24 into the head 4, the rounded end 25 thereof will engage the foot 23, as indicated in Fig. 3, pushing the same sufficiently rearwardly to release stop finger 21 from engagement with the collar 16 (into which position it has been manually pre-set). The pressure of the coil compression spring 18 upon the collar 16 will, of course, force the coupling pin 14 in a direction to engage the drawbar 24. At this time, as will be observed by reference to Fig. 3, the coupling aperture 26 of the drawbar 24 is of the same vertical plane but slightly ahead of the coupling pin 14, and but a slight forward motion of the traction vehicle is sufficient to axially align the aperture 26 of the drawbar 24 with the coupling pin 14, whereupon the spring 18 will force the coupling pin 14 therethrough to the position indicated in Fig. 4. This arrangement will pro-

vide sufficient room between the end of the drawbar **24** and the walls **5** of the head **4** so as to allow swinging movements of the drawbar **24** with respect to the coupling pin **14** without binding against the converging walls **5**.

My invention has been thoroughly tested and found to be entirely satisfactory for the accomplishment of the above objects; and while I have shown a preferred embodiment thereof, as provided by Section 4888 of the United States Statutes, it will be understood that the same is capable of modification without departure from the spirit of the invention as expressed in the appended claims.

What I claim is:

1. A drawbar hitch comprising a hollow coupling head adapted for attachment to a traction vehicle, said hollow coupling head having a relatively wide mouth at one end for reception of the apertured end of a drawbar and having a relatively restricted passage at its other end, said head having spaced internal guide surfaces that converge from said mouth toward said restricted passage and which serve to center and stop the apertured end of a drawbar inserted into the head through said mouth, a vertically disposed coupling pin axially slidably mounted in said head for extending and retracting movements with respect to the cavity of the head, said coupling pin being provided at its upper end with a loop to facilitate manual setting, a guide bracket for said coupling pin projecting upwardly from said head, a stop collar on said coupling pin, spring means interposed between said stop collar and said guide bracket and biasing said coupling pin toward its extended coupling position, a pivoted latch lever the free end of which is resiliently urged to a position immediately behind the restricted passage in said coupling head, an upstanding stop finger carried by the outer end of said latch lever, the intermediate portion of said stop finger engaging the head in one extreme position and having a forwardly-inclined upper end adapted to engage the stop collar on the coupling pin and retain the same in a retracted position, and a foot formed integrally with said stop finger and projecting forwardly into the restricted passage of the head to an extent to be engaged by said drawbar when said stop finger is in engagement with said head.

2. The structure defined in claim 1 in which said stop finger and foot are formed from a single length of wire, the latter being formed from the upturned lower end portion of the former.

ABRAM P. BALZER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,649,980	Schlagenhauf	Nov. 22, 1927
1,837,940	Ade	Dec. 22, 1931
1,887,054	Wood	Nov. 8, 1932
1,939,463	Rockinger	Dec. 12, 1933