E. P. KINNE.

COUPLING.

APPLICATION FILED NOV. 1, 1906.

899,413.

Patented Sept. 22, 1908

2 SHEETS—SHEET 1

Fig. 1.

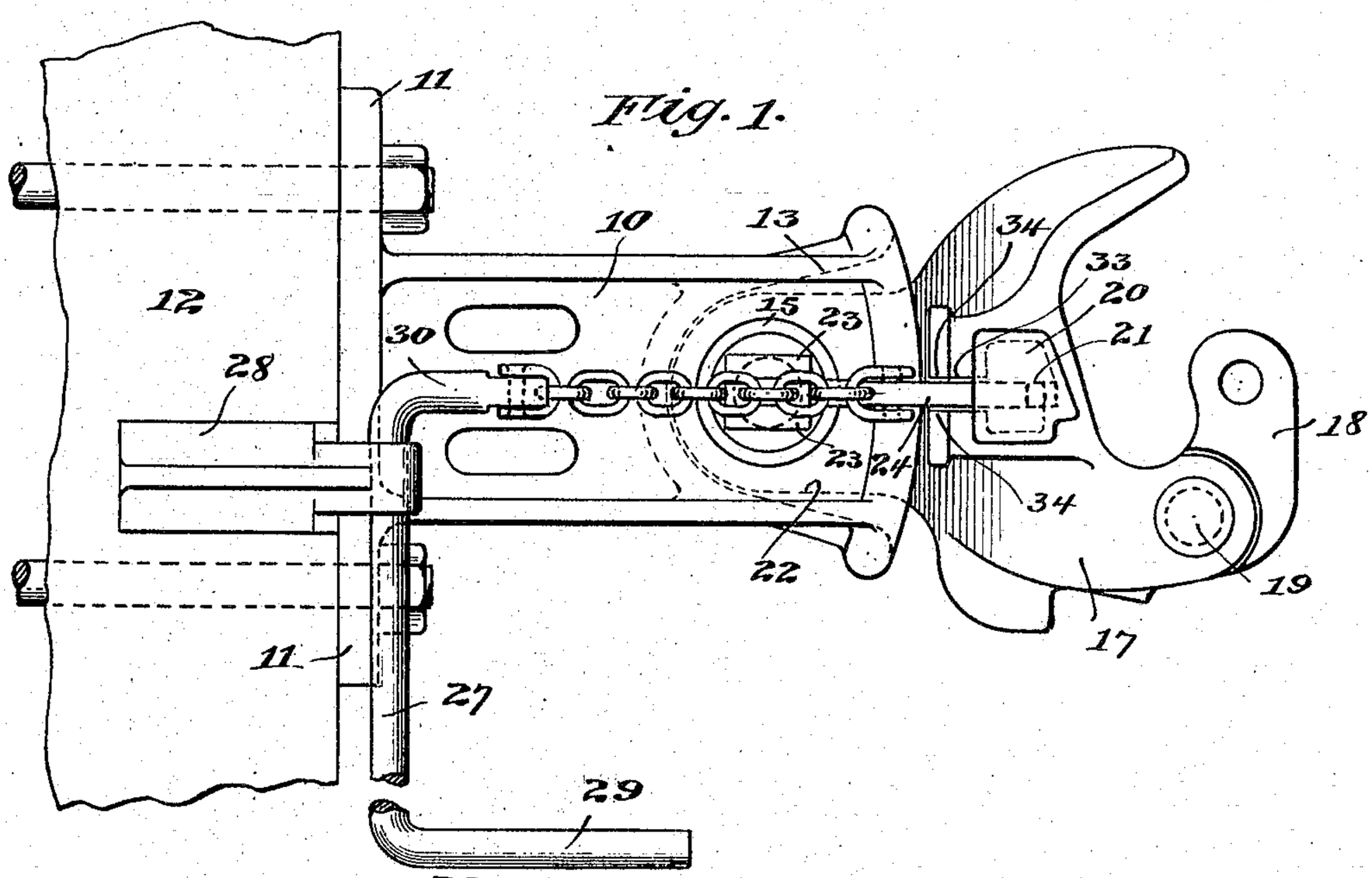
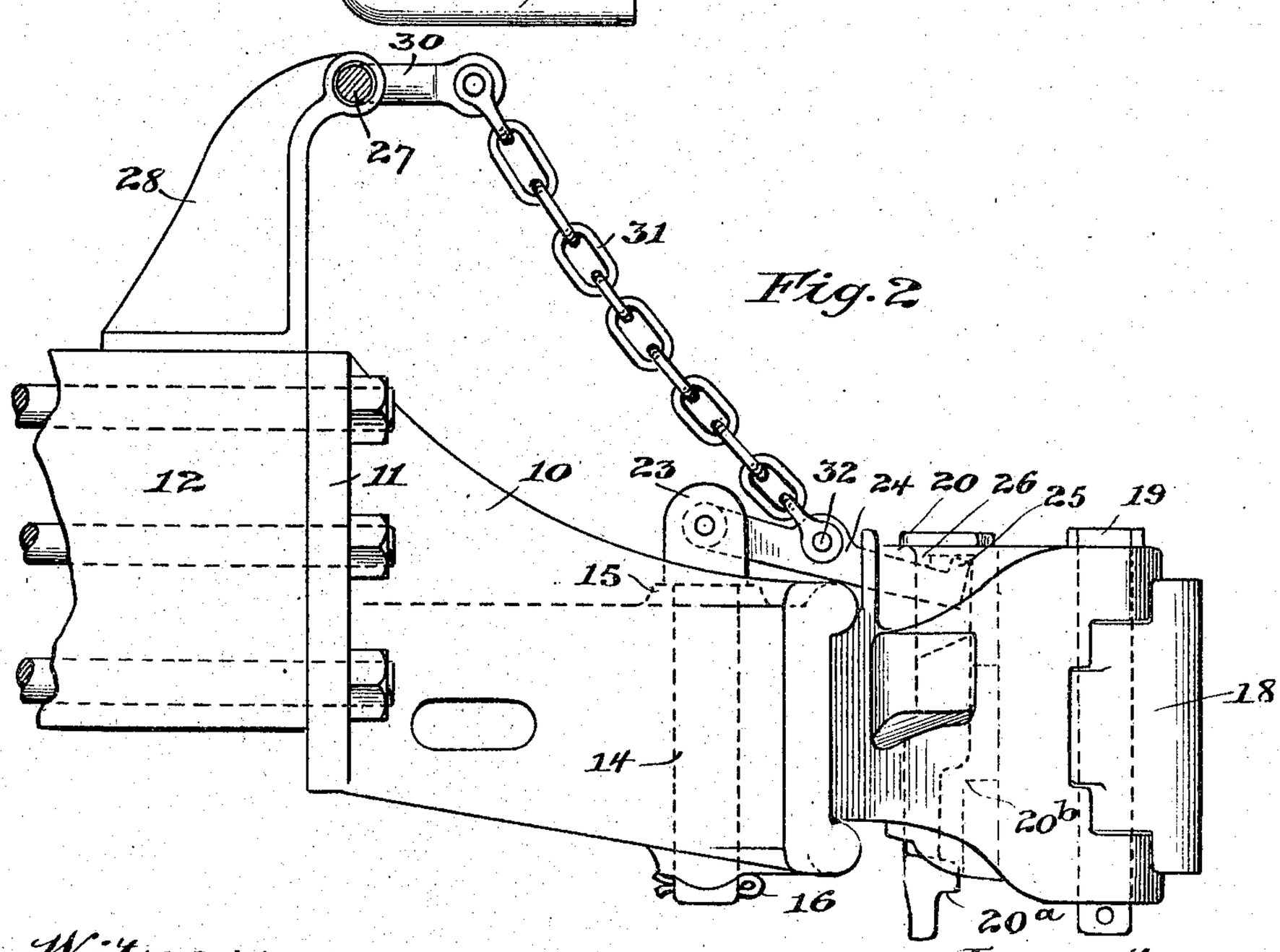


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 3.

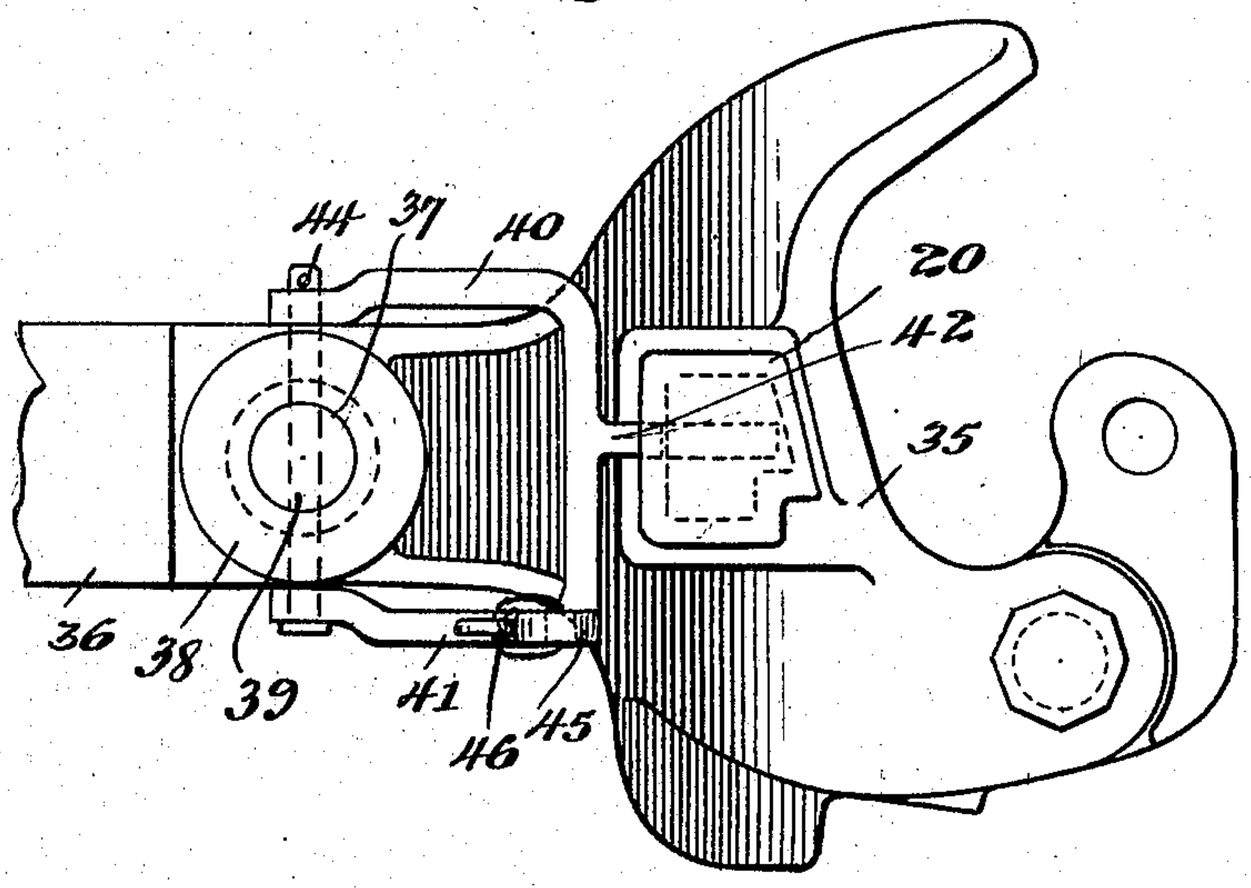
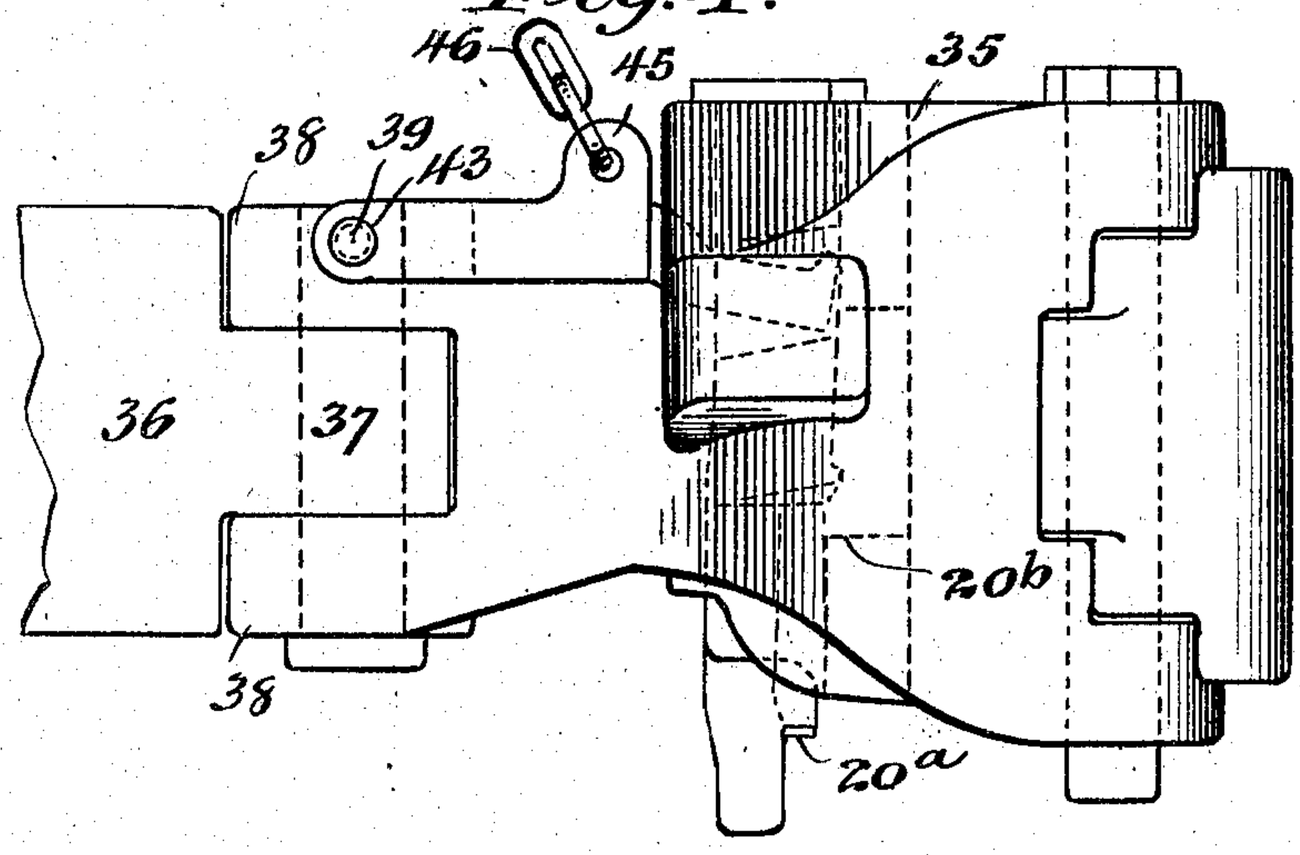


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDMUND P. KINNE, OF ALLIANCE, OHIO, ASSIGNOR TO AMERICAN STEEL FOUNDRIES, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

COUPLING.

No. 899,413. Specification of Letters Patent. Patented Sept. 22, 1908.

Application filed November 1, 1906. Serial No. 341,616.

To all whom it may concern:

Be it known that I, EDMUND P. KINNE, a citizen of the United States, residing at Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Couplers, of which the following is a specification.

My invention relates to railway car couplers, and more especially to uncoupling mechanism used in connection with a car coupler associated with the pilot end of a locomotive or similar railway vehicle.

Where a coupler is used on the end of a locomotive equipped with a pilot it is necessary to support the coupler some distance away from the pilot block, and under such circumstances it becomes infeasible to employ the ordinary uncoupling means. I have, therefore, invented an improved and simple uncoupling mechanism for use in connection with the locking pin of a coupler of the knuckle type to raise the same. Preferably the coupler proper is pivoted to a forwardly projecting support or draft member mounted on the pilot block. As the raising means for the locking pin of the coupler I employ a lifting lever actuated by suitable manually operated means and since the coupler may shift laterally, being pivoted, it is necessary to so mount this lifting lever that it will also turn with the coupler. The lifting lever may be pivoted directly to the coupler head in which case it also turns with the coupler, or the lifting lever may be pivoted on the pivot pin of the coupler and associated with means which compel the lever and pivot pin to turn simultaneously with the shifting of the coupler. Under these conditions this lifting lever is always in operative connection with the locking pin whereby the latter may be raised by lifting the lever.

On the accompanying drawings, I have illustrated desirable embodiments of my invention, and on all the views of the drawings like reference characters refer to the same parts throughout.

Figure 1 is a plan view of one form of my coupling device showing the pilot block and manually-actuated operating shaft broken away; Fig. 2 is a side elevation of the structure illustrated in Fig. 1; Fig. 3 is a plan view of a modified form of uncoupling mechanism; and Fig. 4 is a side elevation of the device shown in Fig. 3.

The device includes a coupler support or draft member 10 bolted at its rear end through its lateral flanges 11 to the pilot block or other support 12. The outer or unsupported end of the draft member 10 is provided with a curved recess 13 adapted to receive the shank of the coupler, and to permit the same to turn on its pivot. A vertical pivot pin 14 passes downwardly through the outer end of member 10 and through recess 13, and is maintained in place by the collar 15 which rests on the upper surface of the member 10 and the transverse cotter 16 which prevents the pivot pin 14 from rising. The coupler 17 has the ordinary knuckle 18, knuckle pin 19 and a locking pin 20 provided with a longitudinal slot 21. The shank 22 of the coupler fits in recess 13, and pin 14 passes through a round aperture through the shank whereby a lateral shifting or turning of the coupler is permitted. On its top end pin 14 has two upstanding spaced apertured lugs or ears 23 between which is placed and to which is pivoted a lifting lever 24, having at its free end, which projects within slot 21, an upstanding projection 25 which in the elevated conditions of both the locking pin and lifting lever strikes a stop 26 within slot 21 thereby limiting the upward movement of the lifting lever. On the end of the locomotive or other vehicle and transversely thereto I mount a shaft 27 rotatable in one or more bearings 28 rising from the top surface of the pilot block 12. At its outer end this shaft has a handle 29 whereby it may be turned, and at its inner end it is bent laterally to provide an arm 30 which is connected by means of a chain 31 with the lever 24 at the point 32. In order to compel the lifting lever and pivot pin 14 to turn with the coupler as the latter is moved laterally the top surface of the coupler head is longitudinally slotted at 33 so as to provide a pair of cheeks 34 between which lever 24 fits. As the coupler turns on its pivot pin one or the other of these cheeks engages one of the sides of the lever and compels the same and the pivot pin to turn in unison with the coupler whereby the lifting lever is always in operative connection with the locking pin. If desired the space between cheeks or jaws 34 may be such that the locking pin itself compels the rotation of the pivot 14 and lifting lever 24.

From the illustration of this invention and the foregoing description it will be apparent that to lift the locking lever so as to permit

the knuckle 18 to turn on its pin 19 and become uncoupled from the coöperating coupler head, it is merely necessary to actuate or lift the handle 29 thereby turning the shaft 27, lifting arm 30, chain 31, lifting lever 24, and locking pin 20. The weights of the parts are such that when handle 29 is released, arm 30, chain 31, and the lever 24 drop permitting the locking pin also to descend to operative position. It may be remarked that lever 24 by means of its toe 25 lifts locking pin 20 by contacting therewith and forming the point of support in front of the center of gravity of the pin whereby when the pin is raised its lower end swings forwardly, being somewhat loose in the coupler head, so that its rest or shoulder 20^a may readily seat itself on the lock set ledge 20^b as is usual.

It may be noted that the lifting lever 24 is a lever of the third order in which the power is applied thereto between the fulcrum and the load, and that more power is required to raise the lock with this form of lever than would be necessary to directly lift the lock. The pull on the chain 31 must also be greater than would be required provided the chain was pulled directly upwardly above the lifting lever. These disadvantages of this construction are overcome, however, by the construction of the operating shaft 27 and its arms 29 and 30. In order to lift the locking lever 20 sufficiently to perform the uncoupling operation only a comparatively slight elevation of the point 32 of the lever is required and for this reason the arm 30 may be made short. Since the arm 29 on the other hand is longer than the arm 30 the mechanical advantage secured by the long arm 29 overcomes the disadvantage of the form of lever 24.

In the modification shown in Figs. 3 and 4 the coupler 35 is pivotally mounted on the support or draft bar 36 by means of a pivot pin or shaft 37 which passes through a portion of the draft bar 36 and through the parallel ears 38 of the coupler, these ears being suitably apertured to receive pin 37. Passing transversely through the upper ear 38 of the coupler and the upper end of the pivot pin 37 is a horizontal stud shaft 39 upon which is adapted to turn the spaced legs 40 and 41 of a bifurcated lifting lever 42 which projects into a slot of locking pin 20 in front of the center of gravity thereof as in the previous instance. In order to prevent this pivot pin or rod 29 from becoming displaced it is provided at one end with a head 43 while through its other end passes a cotter pin 44. Leg 41 of the bifurcated inner end of lifting lever 42 has an upstanding apertured lug 45 which is connected to a chain 46 the latter being adapted to be operated, that is lifted and lowered, by any suitable mechanism such, for example, as the shaft 27 with its arms 29 and 30 of Figs. 1 and 2.

It will be understood that the lever 42 is pivoted not only to the inner end of the coupler but also to the pivot pin 37 upon which the coupler is mounted. Owing to the rod 39 passing through the pivot pin the latter turns as the coupler is shifted laterally. It is thus apparent that the outer end of lever 42 always projects into the slot of the locking pin and has, therefore, a constant operative connection with the pin.

Although I have described fully the details of the various forms of my construction, to those skilled in the art it will be apparent that the structures may be considerably modified in details without departure from my invention, and without sacrifice of any of its benefits or advantages.

I claim:

1. In a device of the character described, the combination of a support or draft member, a rotatable pivot pin on said support or draft member, a coupler mounted on said pivot pin and free to be shifted laterally, a locking pin for said coupler, a lifting lever pivotally mounted on said pivot pin and coöperating with said locking pin to raise the same, means to compel said pivot pin and lifting lever to turn with said coupler, and means to operate said lifting lever, substantially as described.

2. In a device of the character described, the combination of a support or draft member, a pivot pin on said support or draft member, a coupler mounted on said pivot pin and adapted to be shifted laterally, a locking pin for said coupler, a lifting lever pivotally mounted on said pivot pin and coöperating with said locking pin to raise the same, and means to actuate said lifting lever to raise said locking pin, substantially as described.

3. In a device of the character described, the combination of a support or draft member, a pivot pin on said support or draft member, a coupler mounted on said pivot pin and adapted to be shifted laterally, a locking pin for said coupler, a lifting lever pivotally mounted on said pivot pin and coöperating with said locking pin to raise the same, means to actuate said lifting lever to raise said locking pin, and means to compel said lifting lever to turn with said coupler, substantially as described.

4. In a device of the character described, the combination of a support or draft member, a pivot pin on said support or draft member, a coupler mounted on said pivot pin and adapted to be shifted laterally, a locking pin for said coupler, a lifting lever pivotally mounted on said pivot pin and coupler and coöperating with said locking pin to raise the same, and means to actuate said lifting lever to raise said locking pin, substantially as described.

5. In a device of the character described,

the combination of a support or draft member recessed at one end, a pivot pin mounted on said support or draft member and passing through said recess, a coupler rotatably mounted on said pivot pin permitting the coupler to be shifted laterally, a slotted locking pin for said coupler, a lifting lever pivotally mounted on said pivot pin and extending into the slot of said locking pin whereby elevation of said lifting lever raises said locking pin, and means to actuate said lifting lever, substantially as described.

6. In a device of the character described, the combination of a support or draft member having a recess at one end, a pivot pin mounted on said support or draft member and passing through said recess, a coupler whose shank projects into said recess and is rotatable on said pivot pin permitting the coupler to be shifted laterally, a slotted locking pin for said coupler, a lifting lever pivoted on said pivot pin and extending into the slot of said locking pin whereby the lifting of said lever raises said locking pin, means on said coupler compelling said lifting lever to turn simultaneously with said coupler as the latter is shifted laterally, a rotatable shaft, a handle to turn said shaft, an arm on said shaft, and a chain connecting said arm and lifting lever, substantially as described.

7. In a device of the character described, the combination of a support or draft member, a coupler mounted thereon, a slotted sliding locking pin for said coupler, said pin having a stop within said slot, a lifting lever projecting into the slot of said locking pin and having a projection adapted to engage said stop when said lifting lever has been raised a predetermined amount to limit the movement of the locking pin, and means to actuate said lifting lever, substantially as described.

As evidence that I claim the foregoing as my invention I have signed the same this 27th day of October, 1906, in the presence of two witnesses.

EDMUND P. KINNE.

Witnesses:

JOHN B. FREER,

WILLIAM E. TRUMP.