

No. 737,360.

PATENTED AUG. 25, 1903.

F. M. DALY.
KNUCKLE JOINT.

APPLICATION FILED JULY 1, 1903.

NO MODEL.

Fig. 1.

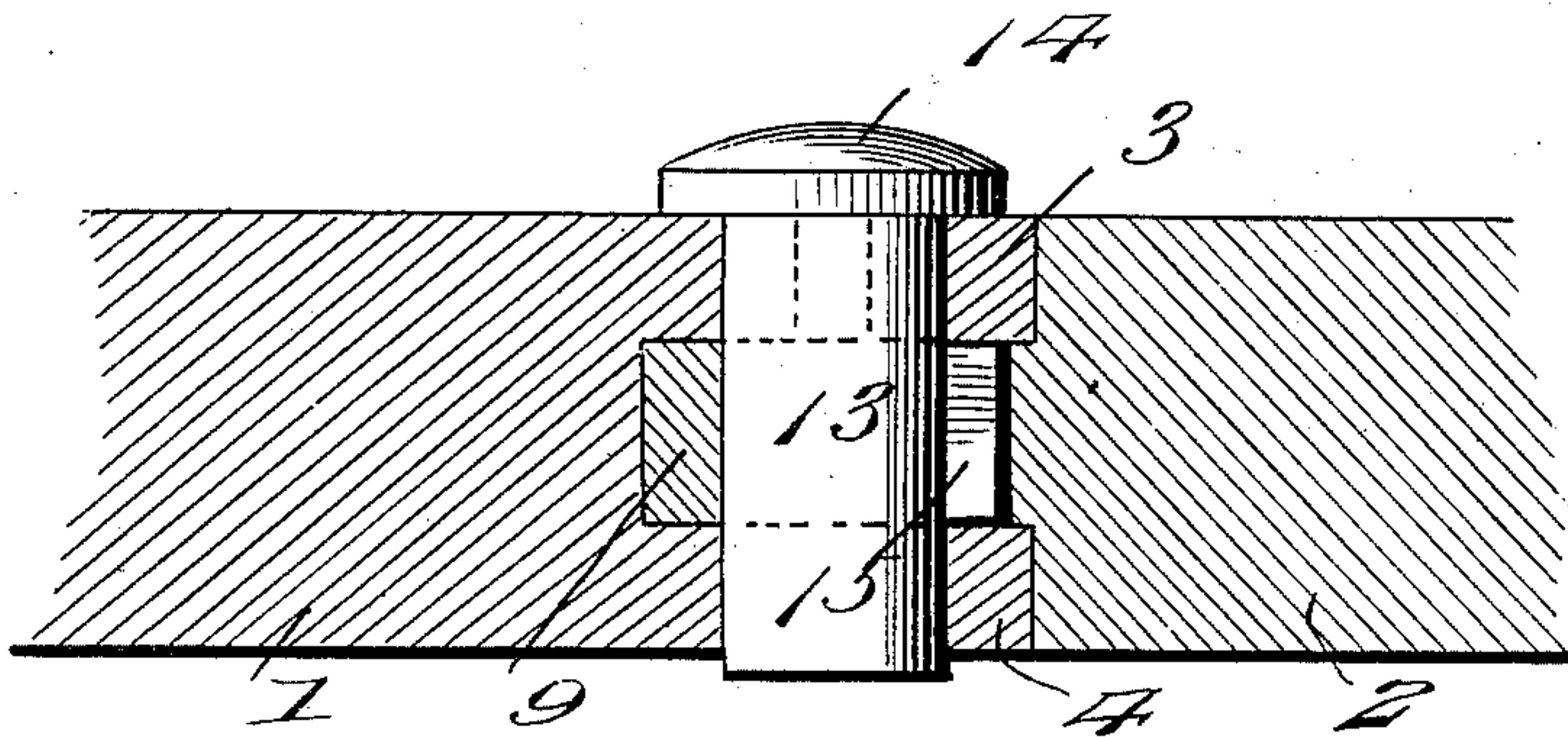
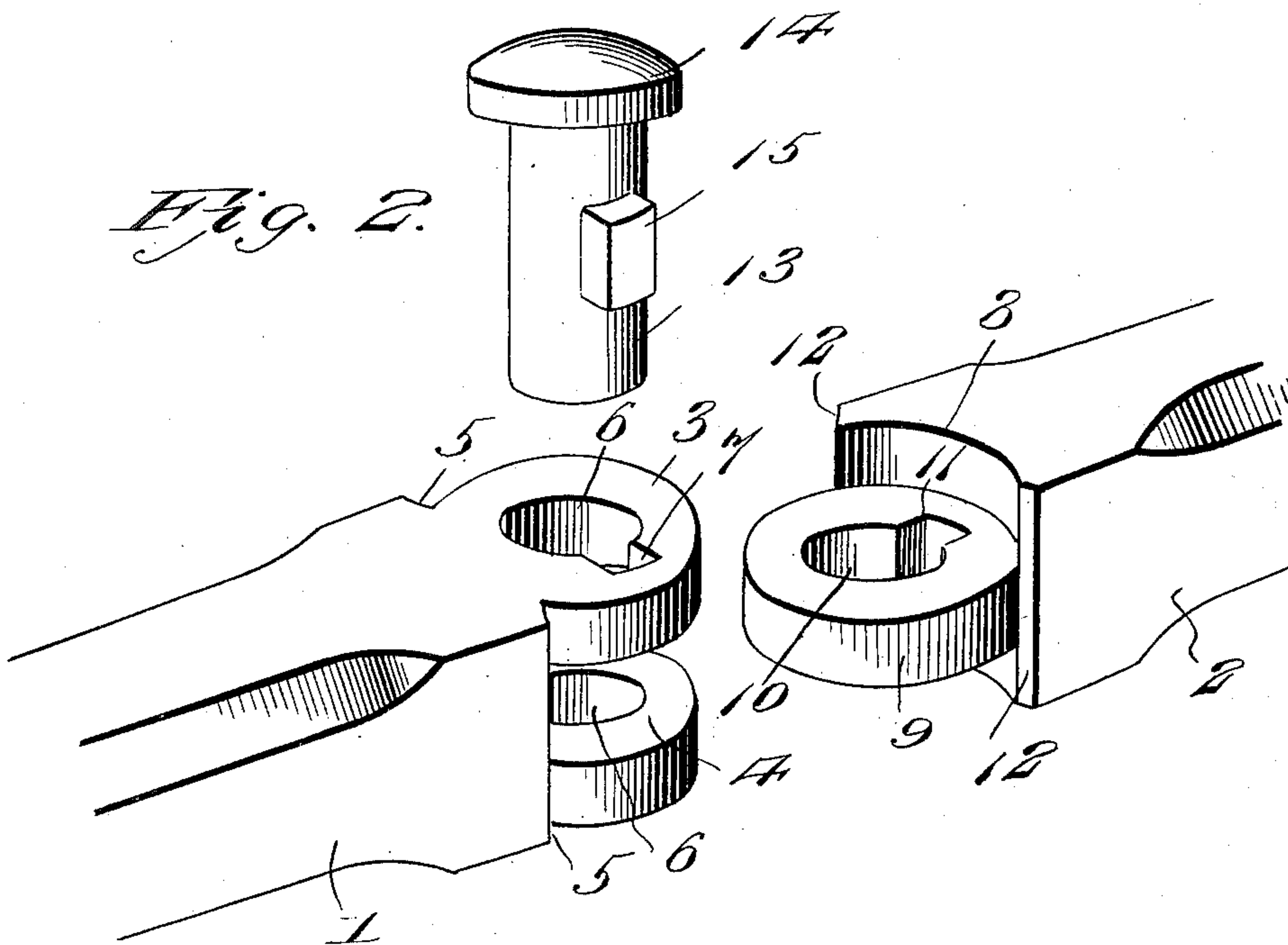


Fig. 2.



Witnesses

Wm. K. Berth.
Chas. S. Hoyer.

Inventor

F. M. Daly,

By

Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

FRANK M. DALY, OF NEVADA, MISSOURI.

KNUCKLE-JOINT.

SPECIFICATION forming part of Letters Patent No. 737,360, dated August 25, 1903.

Application filed July 1, 1903. Serial No. 163,960. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. DALY, a citizen of the United States, residing at Nevada, in the county of Vernon and State of Missouri, have invented new and useful Improvements in Knuckle-Joints, of which the following is a specification.

This invention relates to a lock-key knuckle-joint; and the object of the same is to provide a device of this class adapted for general use, but particularly in connection with railroad-switches wherein the joined parts will have a positive pivotal action and adapted to be readily assembled and disassociated.

The invention consists in the construction and arrangement of the several parts, which will be hereinafter more fully described and claimed.

In the drawings, Figure 1 is a horizontal section through two members forming the knuckle-joint and showing the locking-key in such position as to prevent accidental separation of the said members. Fig. 2 is a perspective view representing the parts of the improved device disassociated.

Similar numerals of reference are employed to indicate corresponding parts in the views.

The numerals 1 and 2 designate two knuckle members, which may be the terminals of connecting or shifting rods or other devices, said members being enlarged to provide for the formation of the structural features, which will be hereinafter specified. The member 1 has two knuckles 3 and 4 in parallel relation and separated by an intermediate space, the terminal of the member adjacent to the points where the knuckles continue into the terminals being formed with opposite shoulders 5, which extend the full width of the members. Both knuckles 3 and 4 have a circular opening 6 extending therethrough, both openings being of equal diameter, and communicating with the opening 6 of the knuckle 3 is an approximately rectangular key slot or seat 7, which is disposed in a plane at right angles to the length of the member 1. The knuckles 3 have circular peripheries to snugly engage a concave socket 8, formed in the terminal of the member 2, the latter having a central knuckle 9 to snugly fit between the knuckles 3 and 4. The knuckle 9 is formed with a circular opening 10, through which a rectangu-

lar key slot or seat 11 communicates, said slot or seat being longitudinally disposed in relation to the member 2. In other words, when the knuckle 9 is fitted in between the knuckles 3 and 4 when both members 1 and 2 are in longitudinal alinement the key slot or seat 11 will be in a plane at right angles to the key slot or seat 7 of the knuckle 3, and in order to cause an alinement of the two seats or slots the members 1 and 2 have to be turned in planes at right angles to each other. The concave socket 8 has shoulders 12 at opposite sides thereof, which extend the full thickness of the member 2 and are adapted to abut against the shoulders 5 of the member 1 and limit the movement of the members in relation to each other in opposite directions. When the one shoulder 12 engages the shoulder 5 nearest the slot or seat 7 in knuckle 3, the slots or seats in both knuckles 3 and 9 will be in direct alinement, and hence in addition to the limitation of movement of the two members produced by the shoulders as set forth one set of shoulders, as just explained, operates when in contact to accurately register the seat-slots with material advantage.

The key-lock consists of a coupling or pivot bolt 13, having a head 14 at one end, the said coupling or pivot bolt being of equal diameter throughout its length and formed at an intermediate point with a rectangular key 15, which has dimensions similar to the key seats or slots 7 and 11. This pivot or coupling bolt is inserted through the knuckles 3, 4, and 9 when the key seats or slots 7 and 11 are in registration, and when the said pivot or coupling bolt is fully inserted the head 14 bears against the knuckle 3 and the opposite terminal of said bolt is flush with the outer side of the knuckle 4, the key 15 being held in the seat 11 of the knuckle 9, and hence when the members are straightened or turned so as to throw the key seats or slots out of registration the two members 1 and 2 will be firmly united for pivotal operation. When it is desired to disassociate or disconnect the members 1 and 2, they are arranged at right angles to each other to cause the key seats or slots 7 and 11 to register and permit the pivot or coupling bolt to be pushed outwardly therefrom.

From the foregoing it will be seen that a very simple and effective knuckle-joint is provided,

and, as before indicated, it has a general application, but particularly is intended for use in connection with the connecting-rods or shifting bars of railroad-switches.

5 To accommodate different applications, changes in the proportions and dimensions may be resorted to without departing from the spirit of the invention.

Having thus fully described the invention,
10 what is claimed as new is—

A knuckle-joint consisting of two members, one of which has a terminal carrying two knuckles with an intervening space between them, the one knuckle being formed
15 with a key-seat, the other member having a terminal concave socket and a central knuckle with a key-seat opening thereinto and which is disposed in a plane at right angles

to the key-seat in the one knuckle of the other member, the terminals of both members on opposite sides of the knuckles having shoulders adapted to contact with each other and one set of shoulders serving as means for causing the key-seats to accurately register, and a pivot-bolt removably mounted in the knuc- 25
kles and having a head at one end and a central key projecting outwardly therefrom and of dimensions equal to those of the key-seats, the said key engaging the single knuckle of the one member when the parts are assembled. 30

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

FRANK M. DALY.

Witnesses:

H. L. ROHRBOUGH,
CHAS. SHAW.