No. 774,362 PATENTED NOV. 8, 1904.

F. McCARTHY.

UNIVERSAL UNION OR COUPLING.

APPLICATION FILED MAY 20, 1904.

NO MODEL.

Fig. 1.

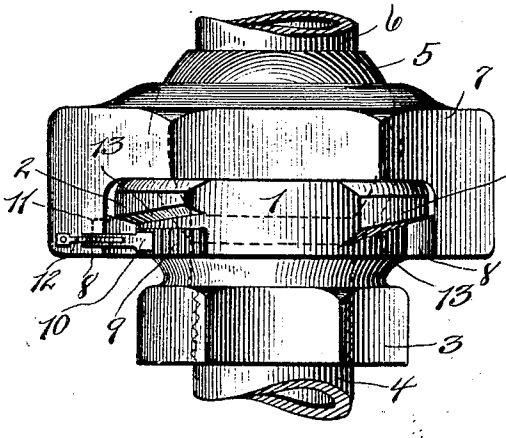


Fig. 2.

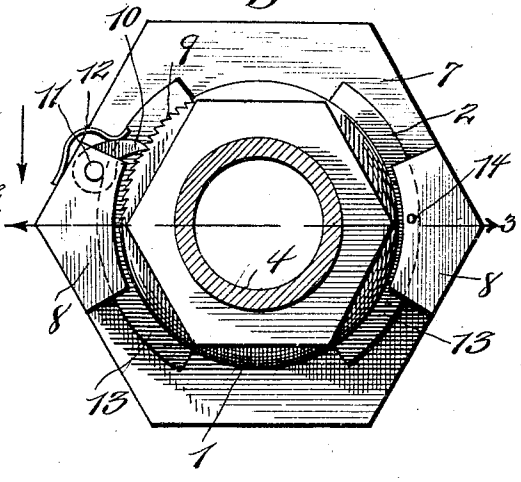


Fig. 3.

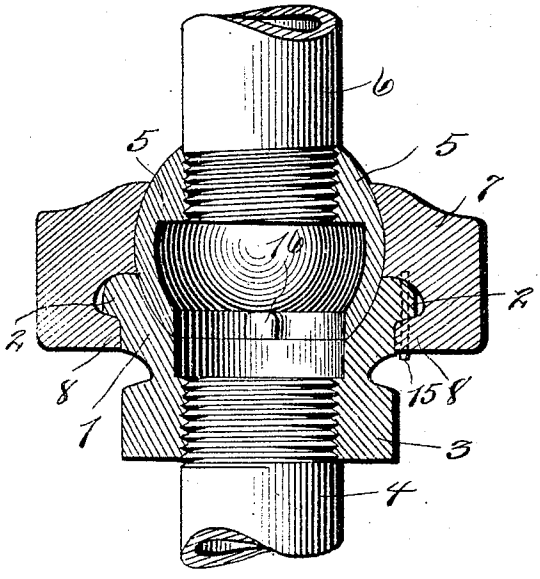


Fig. 4.

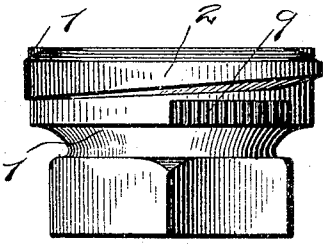
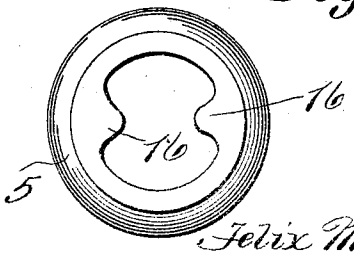


Fig. 5.



Witnesses

R. A. Boswell.

Percy H. Pattison

Inventor

Felix McCarthy

By W. T. Fitzgerald & Co.

Attorneys.

No. 774,362. Patented November 8, 1904.

UNITED STATES PATENT OFFICE.

FELIX McCARTHY, OF POTTSTOWN, PENNSYLVANIA.

UNIVERSAL UNION OR COUPLING.

SPECIFICATION forming part of Letters Patent No. 774,362, dated November 8, 1904.

Application filed May 20, 1904. Serial No. 208,873. (No model.)

To all whom it may concern:

Be it known that I, FELIX MCCARTHY, a citizen of the United States, residing at Pottstown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Universal Unions or Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to what is commonly designated a "universal" union or coupling, which is found desirable and useful for a great variety of purposes; and my invention consists of certain novel features of construction and combination of parts, as will be hereinafter clearly set forth, and pointed out in the claims.

The main purpose of my invention, among others, is to provide a union or pipe coupling of the character specified which will form a reliable connection between the piping-sections disposed at any desired angle relative to each other, and while my invention is designed primarily for use upon machinery where more or less vibration or shaking of the parts exists it will, as above stated, be found useful for a vast number of situations and purposes, as pipe-unions of all kinds and for suspending chandeliers or the like, whereby the same will be disposed in a true vertical position.

Other objects and advantages will be hereinafter made clearly apparent, considered in connection with the accompanying drawings, which are made a part of this application, and in which—

Figure 1 shows a side elevation of my coupling complete. Fig. 2 shows a plan view thereof. Fig. 3 is a central section of my coupling complete. Fig. 4 is a detail view showing one member of my coupling separated from the other parts and more clearly illustrating the preferred means for locking said part against relative movement. Fig. 5 is a detail view showing the inner end of the ball or spherical member designed to coöperate with the part illustrated in Fig. 4.

For convenience of reference to the various details of my invention and coöperating accessories numerals will be employed, the same numeral applying to a similar part throughout the several views, and referring to the numerals on the drawings—

1 designates the female portion or cup member, which is provided, preferably near its inner edge, with the threads or cam-lips 2, there being one of said threads for each side thereof, the outer end of the cup being fashioned into a wrench-terminal 3, whereby said terminal may be placed in coöperation with the threaded end of the pipe 4, as clearly shown in Fig. 3.

The cup-shaped member 1 is designed to receive the spherical member or ball 5, which is threaded at its outer end to receive the threaded end of the pipe 6, also clearly shown in Fig. 3, and designed to force the spherical member 5 tightly down in the seat provided in the cup member 1. I provide the clamping-nut 7, which is so fashioned as to fit snugly around or receive the peripheral face of said spherical member and has upon its under side a pair of inwardly-directed lugs or brackets 8, designed to coöperate with and engage the under side of the threads 2, and it is therefore obvious that by a proper rotation of the clamping-nut 7 said spherical member will be tightly engaged or released, as desired. It will be understood that an open space is left between the ends of the threads 2, whereby sufficient room is left for the free passage of the lugs 8 when the nut 7 is being seated around the spherical member 5, and it is further obvious that by a partial rotation the clamping-nut 7 may be very tightly secured in place, whereby the spherical member 5 will be positively locked against movement, and thereby provide a perfect non-leaking joint. It is further obvious that before the clamping-nut 7 is tightly secured in place the pipe 6 or 4, as the case may be, may be adjusted into a proper position, and after such adjustment has been effected said clamping-nut is turned home, thereby completing the union between said pipes and providing an absolutely perfect joint. It becomes desirable, however, to provide suitable means for locking the clamping-nut and holding the same against movement relative to the cup member 1, and ob-

viously this may be accomplished in a variety of ways, and while I shall describe two separate and distinct methods of holding said parts against relative movement I wish to comprehend in this application all substantial equivalents and substitutes therefor.

The preferred means which I have employed for holding the clamping-nut and the cup member 1 against relative movement consists in forming upon some convenient part of the outer surface of said cup member a plurality of ratchet-teeth, as designated by the number 9, said teeth being designed to coöperate with the detent 10, which latter is suitably mounted in position, preferably to one end of the lug 8, as by the rivet 11, the said detent being held normally in engagement with the teeth 9 by a suitable spring 12 or the equivalent thereof.

Another means of holding the clamping-nut 7 against rotation may consist in providing a plurality of apertures 13 in one or both of the thread members 2 and an aperture 14, designed to register therewith, formed in the inwardly-directed lug or bracket 8 and entering a suitable rivet or rod section 15 therein when said apertures are brought into registration with each other, thereby insuring that said clamping-nut will be locked in position until said rod is removed.

I have simply referred to the rod 15 as a possible means for securing the parts together; but it is thought that the form of detent and coöperating ratchet-teeth illustrated will prove all that could be desired in practice, though I wish to employ either of said forms or the equivalent thereof, as I may find most satisfactory.

In Fig. 5 I have illustrated the appearance of the inner end of the spherical member 5, wherein it will be observed that I have provided a pair of lugs 16, whereby said spherical member may be readily turned home upon the threaded end of the pipe 6 without marring the surface thereof by employing a wrench or other holding device for said purpose.

As is well known, the ground meeting faces of the spherical member 5 and the walls of the seats designed to coöperate therewith and provided in the members 1 and 7 will provide a perfect non-leaking joint, especially if some such substance as tallow be added to the cooperating surfaces of said parts.

It will thus be seen that I have provided a reliably efficient form of union which when once locked in its operative or adjusted position will not casually become unlocked or loose, inasmuch as the form of locking means which I have provided—as, for instance, the detent 10 and the coöperating ratchet-teeth 9—will insure against such casual displacement of the parts, and believing that the construction and manner of using my invention have thus been made clearly apparent further reference to the details is deemed unnecessary.

What I claim as new, and desire to secure by Letters Patent, is—

1. The herein-described union, comprising the cup member 1 adapted to be secured to the end of a pipe and having a seat, a spherical member fitting said seat and having a threaded opening to receive the threaded end of the pipe 6, said cup member having cam-lips or threads 2 upon opposite sides, a clamping-nut having a seat to fit the outer face of said spherical member and a pair of depending lugs 8 to engage with said threads whereby, when the clamping-nut is rotated to bring said lugs into engagement with said threads, said spherical member will be tightly clamped in its seat, a detent 10 pivotally mounted in one of said lugs 8 and adapted to engage with ratchet-teeth 9 formed in the outer surface of the cup member 1, all combined substantially as set forth.

2. The herein-described union, comprising members 1 and 7, each of said members having concave seats therein, a spherical member adapted to fit said seat, the member 7 having depending lugs 8 adapted to engage the screw-threads upon the member 1 and tightly clamp said spherical member in position, a pawl pivotally mounted in one of said depending lugs and adapted to engage ratchet-teeth formed upon the outer surface of said member 1, and a spring carried by said depending lug 8 adapted to keep said pawl in engagement with said ratchet-teeth, all combined substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FELIX McCARTHY.

Witnesses:
A. J. BERNHART,
L. B. KEIM.