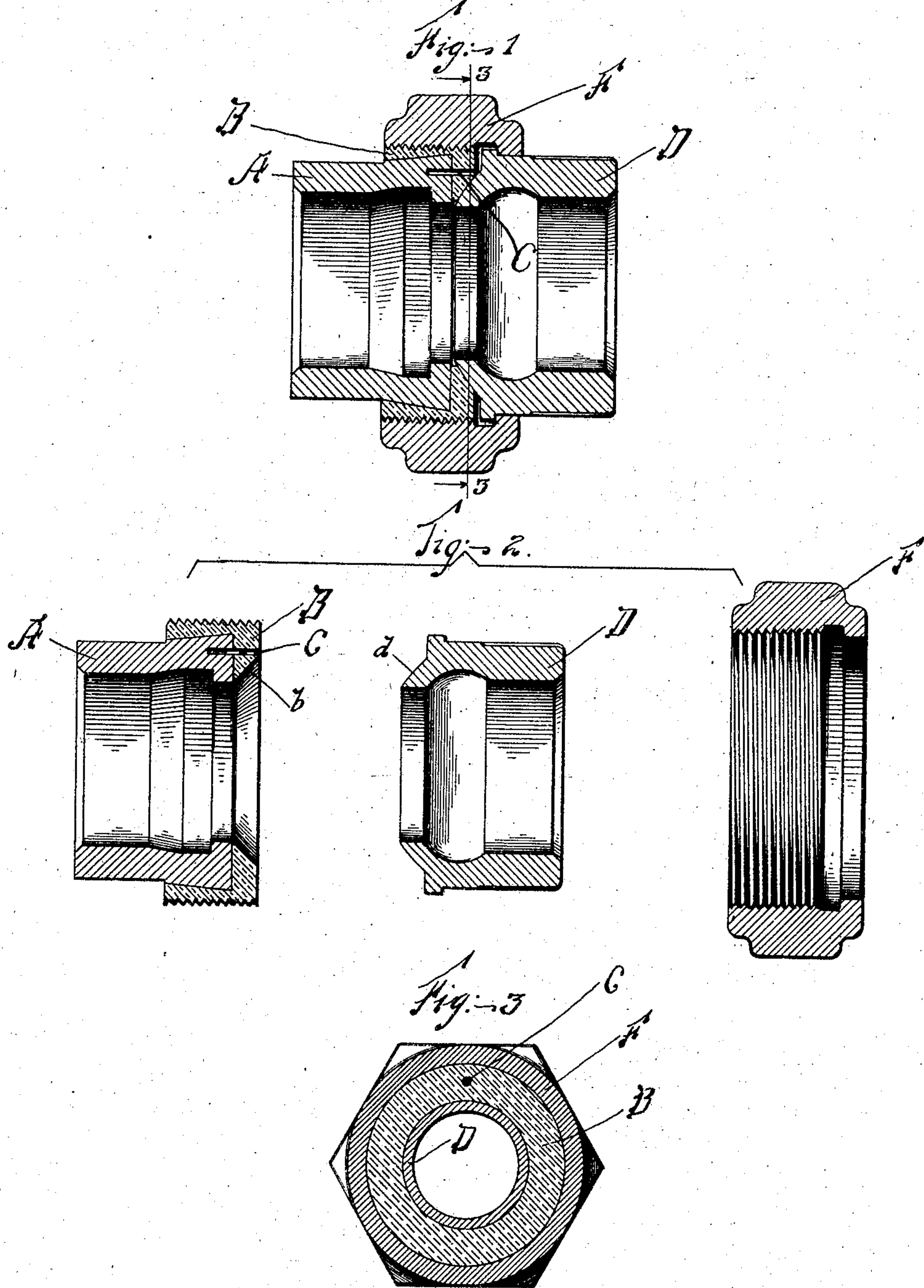


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J. T. & G. W. HAYDEN.  
UNION.

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# UNITED STATES PATENT OFFICE.

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## UNION.

SPECIFICATION forming part of Letters Patent No. 781,422, dated January 31, 1905.

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*To all whom it may concern:*

Be it known that we, JAMES T. HAYDEN and GEORGE W. HAYDEN, citizens of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Unions, of which the following is a specification.

Our invention relates to improvements in metallic unions or couplings of that familiar type in which the end of one section of the union is seated upon the abutting end of the other section of the union and is locked in position by a clamping-ring which is screwed upon one section of the union and engages a shoulder or collar upon the other section of the union. There is a great demand for unions of this type made of iron, and obviously reliability, operativeness, and cheapness are greatly desirable. In this connection it is to be noted that the union should be so constructed as to afford such a seat or contact between the abutting ends of the opposite sections of the union as will make a tight joint. At the same time the union should be so constructed that it may be readily separated at any time. It has been found, however, that where a union is made entirely of iron the co-engaging screw-threads upon the locking-collar and upon one section of the union become so corroded together that it is often impossible to unscrew the collar, so as to separate the union, and even when it is not so corroded as to prevent this separation the corrosion may be sufficient to so destroy the tightness of the joint when the collar is unscrewed as to materially affect the usefulness of the union. So, too, the corrosion between the abutting ends of the union produces obviously objectionable results. These objections have been remedied in some degree by forming one section of the union of brass or similar material which will not so corrode, the result of this construction being that the coengaging iron and brass threads do not become so corroded as to create the objectionable conditions above noted. The same is true of a joint formed by the abutting ends of the brass or composition end of the union with the iron end of the union. The objection to this arrangement, however, is due to

the expense of making an entire section of the union of brass, in view of the comparatively high price of brass or alloy compositions.

The object of our invention, therefore, is to provide such a composite union in which the desirable results noted shall be attained, while using a minimum amount of brass, the union still being largely constructed of iron or like metal. This and such other objects as may hereinafter appear are conveniently attained by the embodiments of our invention shown in the drawings, in which—

Figure 1 is a longitudinal sectional view of one embodiment of our invention. Fig. 2 is a like view of the separate parts of our improved coupling separated from each other. Fig. 3 is a sectional view on the line 3 3 of Fig. 1 looking in the direction indicated by the arrows.

Like letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the head of a union, which may be made of some inexpensive material, such as malleable cast-iron, which freely oxidizes. Shrunk upon the head-piece A is a ring B, formed of brass or other metal or alloy which is not so freely oxidizable. This ring surrounds the end of the head-piece A and also projects over the end of the head-piece A to provide a seat *b*. (*Vide* Fig. 2.) The ring B having been shrunk to position may be further locked in position by means of a pin C, which extends therethrough, as shown. D is the tailpiece of the union and may be likewise made of some such material as malleable cast-iron, which, while inexpensive, is readily oxidizable. This tailpiece D is so formed at its forward end *d* as to be adapted to the seat *b* upon the ring B and is provided with an annular shoulder E in the usual manner.

F is the locking-ring, which is provided at one end with an inwardly-projecting annular flange *f*, arranged to engage the shoulder E upon the tailpiece D and inwardly screw-threaded at its opposite end to engage the external screw-threads upon the brass ring B.



It will thus be seen that while in the main our improved union may be made of the cheapest material all the screw-threaded connections are arranged so that they may be made  
 5 between an inexpensive material, like iron, and non-oxidizable or but slightly oxidizable material, such as brass, and at the same time the ends of the head-piece A and tailpiece D are tightly seated against a non-corroding metallic section or seat. We thus obtain a coupling costing much less than one in which either  
 10 the head-piece or the tailpiece is made of brass and which at the same time has all the advantages which result from making the head-piece or tailpiece of brass—to wit, a non-corroding joint between the abutting sections of the coupling and a non-corroding screw-threaded joint between one section of the coupling and the locking-ring, which screw-threaded joint will never become so corroded that it  
 20 may not be opened by unscrewing the ring, and when so separated it may be at once re-assembled and locked without its efficiency having been impaired.

25 The ring B is shrunk upon the head-piece A, and this is preferably attained by casting it upon the head-piece A in such a manner that upon the cooling and shrinking of the ring B it will be securely clamped upon the flaring end *a* of the head-piece A, this shrinking of the ring B upon the outwardly-flaring end of the head-piece A thus producing a  
 30 more secure and reliable connection.

The foregoing drawings and description  
 35 will serve to fully disclose our invention to those skilled in this art. Of course any inexpensive and sufficiently strong material may be used for the head and tail pieces and for the locking-ring, and any suitable composition which will not become objectionably corroded to either the head-piece or the tailpiece  
 40

or the locking-ring may be used to constitute the interposed ring or seat, and obviously many of the advantages of our invention will be attained if it be merely utilized to prevent  
 45 a corroded joint between the head-piece and the locking-ring and without reference to its use as a seat for either or both of the abutting ends of the head and tail pieces. So, also, while we have for convenience referred to the  
 50 sections A and D as the "head" and "tail" pieces, respectively, such use of these terms has no arbitrary significance within the meaning of our invention. Therefore such modifications and changes as have been suggested,  
 55 as well as other similar changes of detail which do not affect the substance of our invention, are contemplated by us and come within the purview of our invention.

We claim—

1. A union, comprising a head-piece and a tailpiece, said head-piece flaring outwardly toward its inner end, a metallic ring shrunk upon the flaring portion of said head-piece, and a clamping-ring secured upon said first-named  
 60 ring and arranged to lock the members of the union together.

2. A union, comprising a head-piece and a tailpiece of iron, said head-piece flaring toward its inner end, a brass ring shrunk upon  
 70 the inner end of said head-piece and provided with an inwardly-projecting annular flange arranged to provide a seat against which the end of the tailpiece is seated, and a clamping-ring screwed upon the exterior of said brass  
 75 ring and arranged to clamp the members of said union together.

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