No. 683,342. Patented Sept. 24, 1901.

H. B. SHERMAN.

HOSE COUPLING.

(Application filed Mar. 27, 1901.)

(No Model.)

Fig. 1.

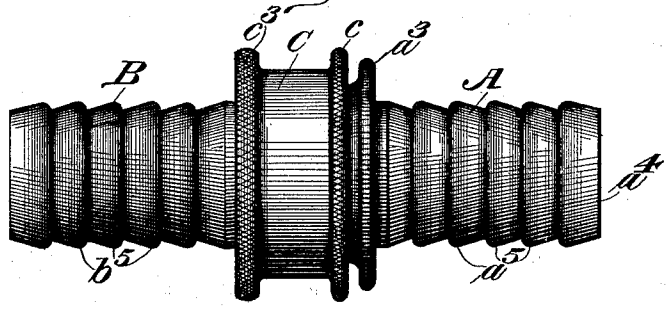
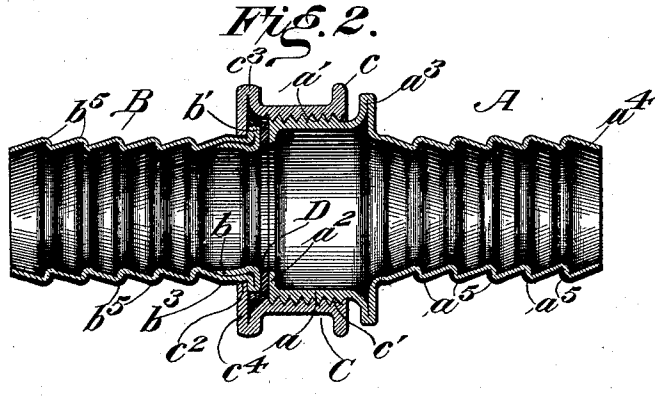


Fig. 2.



WITNESSES

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HOSE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 683,342, dated September 24, 1901.

Application filed March 27, 1901. Serial No. 53,102. (No model.)

To all whom it may concern:

Be it known that I, HOWARD B. SHERMAN, of Battlecreek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Hose-Couplings; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in wrought or spun metal hose-couplings, and has particular reference to the formation of the female hose-engaging member of the coupling and to the construction of the coupling as an entirety.

The principal objects of the invention are to produce a wrought or spun metal coupling more cheaply than has hitherto been done and which coupling shall be simpler and stronger than those hitherto made; and the invention consists in the novel construction and combination of parts illustrated in the drawings and hereinafter described and claimed with reference thereto.

In said drawings, Figure 1 is a side view of the complete coupling, and Fig. 2 a longitudinal section therethrough.

The coupling essentially comprises three pieces, a male hose-engaging member A, a female hose-engaging member B, and a connecting-sleeve or union member C, all made of spun or wrought metal. Member A has an enlarged portion a, which is made of metal of sufficient thickness to enable threads a' to be cut therein to engage the union C, and the inner end of the member A may be internally flanged, as at a^2, to give a wider bearing-surface against the washer D, which is placed within union C, as is common in cast couplings. Member A also has an outwardly-projecting flange a^3 in rear of its part a, formed by the common method of lineally compressing a tube upon itself, and beyond this flange a^3 is contracted into the hose-engaging portion a^4, which is adapted to be slipped into the end of a hose and secured thereto by exterior clamps of ordinary construction. This portion a^4 is provided with a series of annular corrugations a^5, which are produced by spinning or expanding the metal, the walls of part a^4 being substantially of uniform thickness, and the corrugations can be spun out by introducing a tool within the part a^4 and expanding it at the points to be corrugated, both the interior and exterior of part a^4 being corrugated by such process. This manner of forming the member A is simple and effective. By spinning or expanding the corrugations a^5 less metal is required and the part a^4 can be made much thinner than part a without injuriously affecting the strength of the member A as a whole. The female member B is also formed from a tube of metal drawn to suitable size and thickness and then is annularly corrugated, as at b^5, by expanding or spinning similarly to the corrugations a^5 of member A. The inner union-engaging end of member B is strengthened by turning the end of the tube upon itself and preferably inside itself, as at b, thus making that end of the member B which engages the union member C of practically double thickness. This double-thick end b of the tube is then upset or turned outwardly to form a union-engaging flange b', which flange also engages the washer D at the side opposite flange a^2 of member A to form a water-tight joint between the members. This reinforcing of the inner end of member B is of great practical value. It is this point of the coupling which is ordinarily the weakest, and if but of single thickness the inner end of member B is liable to bend or yield and split and the flange break off; but the double reinforce thickness of metal at this point stiffens the end of the member B and enables it to withstand hard usage and strains without injuring the joint between members B and union C. After union C is strung on member B and while it is held close to flange b' a tool is inserted in member B, and a slightly-enlarged annular shoulder b^3 is spun out or expanded on the member B just behind union C, so as to permanently retain the union C on member B without interfering with the free independent rotations of the parts. The threaded part a of member A is so long that the flanges a^2 and b' can be jammed together and a close joint made between these flanges without the use of washer D, although the latter may be employed, as it is commonly done.

The union C may be of cast or wrought metal. I preferably make it of wrought metal by taking a metal disk or cup and drawing it to a tube of proper diameter and thickness to engage part a of member A and threading the tube, as at c', to engage threads a' of member A. The bottom c^4 of the cup may be punched out centrally, as at c^2, and fitted on the flanged end b of member B, and, if desired, the union may have an outturned flange c on its front end and an outwardly-projecting return-flange c^3 at its rear end to enhance its appearance, and said flanges may be milled, if desired, to facilitate manipulation of the sleeve.

The form of the parts being shown, it is unnecessary to enter into a detailed explanation of the mode of drawing or rolling same, as any expert worker in wrought metal could readily produce the same in various ways common in this art. It will be observed, however, that the threaded portions are thicker than the hose-engaging portions, and this is a particularly useful feature in the manufacture of the male members A. For this purpose the tubes are drawn first to the thickness of the threaded portion a, (before threading,) then the hose portion of the tube is drawn out very much thinner, afterward the thin portion of the tube is upset to form flange a^3, then the thick portion is threaded by cutting, and, finally, the thin portion is corrugated by rolling. By thus drawing the male member of coupling thick at threaded portion and thin in the corrugated portion two advantages are obtained—first, a saving of metal by using thick metal only where threads are to be cut, and, second, ease of corrugating the thin part by rolling, as it would be practically or commercially impossible to corrugate the hose-engaging portion if it was as thick as the threaded part. The doubling back of the inner end of the member B also gives a better and firmer bearing for the washer, which it would be difficult to obtain if the metal were simply flanged outwardly.

The principal features of the invention are forming the hose-engaging portions of the coupling with annular expanded or spun corrugations, strengthening the end of member B by inturning it, spinning out the annular union-retaining shoulder on member B, and making the parts of such relative size that the flanges a^2 b' will fit closely together or jam if it is not desired to employ a washer between them.

Having thus described my invention, what I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. A spun or wrought metal member for hose-couplings having its end turned upon itself to form a double thickness of metal, such double thick end being then flanged, for the purpose and substantially as described.

2. The combination of the union; with a spun or wrought metal coupling member having its union-engaging end turned upon itself to form a double thickness or reinforce of metal, such double thickness of metal being outturned to form a flange to hold the member to the union, for the purpose and substantially as described.

3. The combination of the union; with a spun or wrought metal coupling member having its union-engaging end turned upon itself to form a double thickness or reinforce of metal, such double thickness of metal being outturned to form a flange to hold the member to the union, and after the union is in place said member being expanded behind the union to form an annular retaining-shoulder to hold the union in place, for the purpose and substantially as described.

4. The herein-described wrought-metal coupling comprising the male member having an enlarged threaded part and a reduced hose-engaging part provided with annular corrugations; a union having internal threads to engage the threads of the male member, and a female member having its inner end inturned upon itself to form a double thickness, and such double thickness outturned to form a union-engaging flange, and also having annular hose-engaging corrugations, all substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HOWARD B. SHERMAN.

In presence of—
WINFORD C. ROBINSON,
MINNIE J. E. FRETTS.