

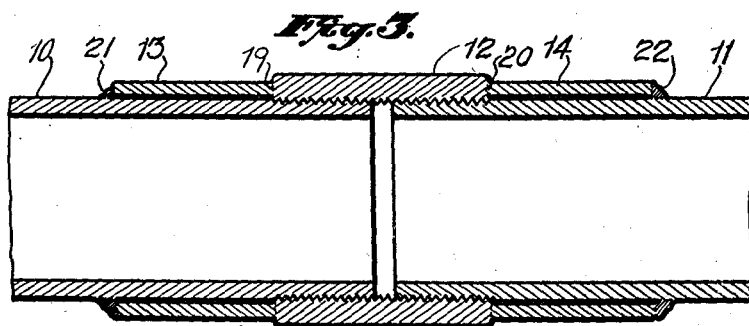
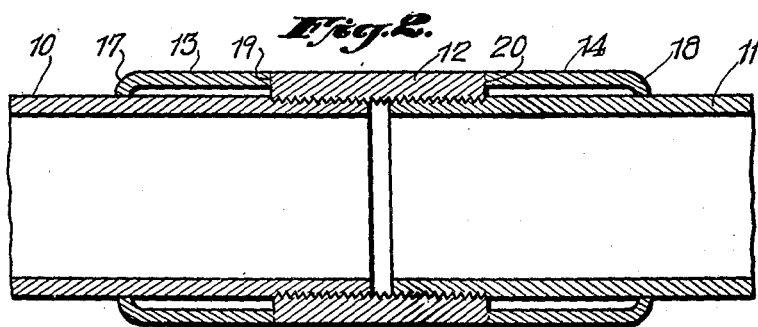
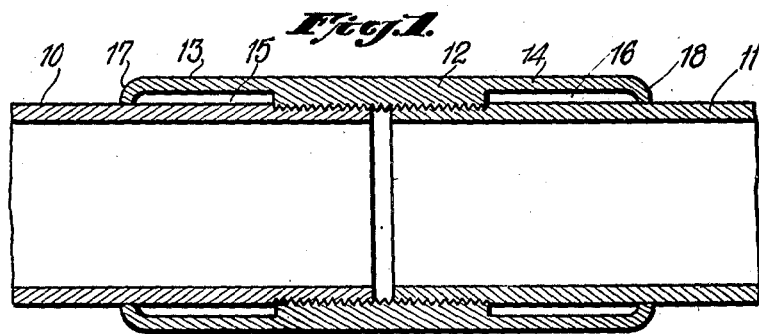
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T. E. MURRAY

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TUBULAR STRUCTURE AND METHOD OF MAKING SAME

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Inventor
THOMAS E. MURRAY.
By His Attorneys
Heina & Rauber

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TUBULAR STRUCTURE AND METHOD OF
MAKING SAME

Thomas E. Murray, Brooklyn, N. Y.; Joseph
Bradley Murray, Thomas E. Murray, Jr., and
John F. Murray, executors of said Thomas E.
Murray, deceased, assignors to Metropolitan
Engineering Company, a corporation of New
York

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4 Claims. (Cl. 29—148.2)

This invention relates to a tubular structure
and a method of making the same and to a union
or fitting for joining and autogenously or her-
metically sealing successive pipe or tubular
lengths.

An object of the invention is to provide a tub-
ular structure or piping in which successive pipe
lengths are joined both mechanically and her-
metically.

Another object of the invention is to provide a
pipe union or fitting having extensions adapted
to fit a pipe or tubular member that may be
threaded into said union and capable of being
welded or otherwise autogenously or hermetically
joined to said pipe or tubular member.

If such a system were formed by an autogenous
welding of the pipe directly to the threaded por-
tion of a union, the heating and cooling incident
to the welding operation would distort and im-
pair the threads of the union and pipe.

The present invention, therefore, provides a
method by which an autogenous joint or weld
may be made between the union or fitting and
the pipe blank fitted thereto without distorting
or impairing the threads of the union.

With these and other objects in view which will
appear from the following description, the inven-
tion comprises the tubular structure and fitting
described in the following specification and
claims.

Various features of the invention are shown in
the accompanying drawing in which

Fig. 1 is a longitudinal sectional view of a
portion of the tubular structure and of the union
or coupling joining the two sections of pipe;

Fig. 2 is a similar longitudinal view of a tub-
ular structure embodying a modified form of cou-
pling or union, and

Fig. 3 is a similar longitudinal sectional view
of another modification of the union or fitting.

Referring more particularly to Fig. 1, the tub-
ular structure of the present invention comprises
a pair of pipe lengths 10 and 11 having screw
threaded ends threaded into a collar portion 12
of the union or fitting joining the adjacent ends
of the pipe sections 10 and 11. The collar por-
tion 12 is preferably made of a relatively thick
heavy cast or forged metal. Extending from each
end of the collar portion 12 are relatively thin
tubular extensions 13 and 14, the outer surfaces
of which form continuations of the surface of the
collar 12. The extensions 13 and 14, are, how-
ever, thinner than the collar portion 12 thereby
forming thin annular spaces 15 and 16 at each
end of the collar 12.

The free ends of the extensions 13 and 14 are
turned inwardly at 17 and 18 to closely fit the
outer surfaces of the pipe lengths 10 and 11.
The inturned portions 17 and 18 serve to guide
the pipe lengths 10 and 11 as they are brought
into position to be threaded into the collar 12
and ensure against any crossing of the threads
due to imperfect alignment. The extensions 13
and 14 also serve to stiffen the joint against
transverse stresses and thus remove considerable
of these stresses from the central collar portion
12 and from the threaded ends of the pipe lengths
10 and 11.

When a weld or hermetic seal is to be made be-
tween the pipe lengths 10 and 11 and the exten-
sions 13 and 14, the inturned parts 17 and 18
also provide a close contact suitable for receiving
the weld.

In forming the fitting 12—14, the central col-
lar portion and the two extensions may be formed
or forged in a single piece and then turned to
the proper dimensions and threaded.

In the form of the invention shown in Fig. 2,
the central collar portion 12 and the extensions
13 and 14 are formed separately and then joined
to an integral unit by butt-welding the ends of
the extensions 13 and 14 to opposite ends of the
collar 12 as at 19 and 20. This welding may be
done in any suitable way as, for example, by
electric butt-welding by the application of a cur-
rent of extremely high amperage for a very brief
duration of time, as described in Murray Reis-
sue Patent 15,466 of 1922. In order to avoid any
distortion of the threads of the central collar
portion 12, the welding is done before this por-
tion is threaded.

In the form shown in Fig. 3, the extensions 13
and 14 are butt-welded to the central collar por-
tion 12 in a manner similar to that in Fig. 2.
The extensions 13 and 14 in this form of the
invention are, however, not provided with the
inturned end portions 17 and 18 but are of smaller
diameter than the central collar portion 12 and
thus lie closely adjacent the pipe sections 10 and
11. In forming this fitting, as in the fitting of
Fig. 2, the extension members 13 and 14 are first
butt-welded to the central collar portion and
the latter is then internally threaded to receive
the threaded ends of the pipes 10 and 11. After
the pipe sections 10 and 11 have been threaded
into the central collar member 12, the outer or
free ends of the extensions are welded to the out-
er surfaces of the pipe lengths 10 and 11 at 21
and 22 by arc or acetylene welds.

Through the above invention, the pipes 10 and 110

11 may be more easily and readily connected by a threaded fitting or coupling and the union thus formed greatly strengthened against lateral or bending stresses. The invention moreover provides means for additionally strengthening this union by autogenous welding without distorting or impairing the effectiveness of the threaded union.

What I claim is:

- 10 1. A coupling comprising a threaded collar and tubular extensions welded to the end faces of said collar, said extensions having a diameter adapted to position the peripheral face of at least the end section thereof in relatively close
15 spaced relationship to the outer peripheral face of tubular sections adapted to be threaded into said collar and having a length adapted to bring the ends of said extensions to a point substantially remote from the threaded section of the collar to
20 a distance at least sufficient to prevent deleterious heat conduction to the threads of said collar and tubular sections when the said ends are welded to the outer peripheral face of a section threaded into the collar.
- 25 2. A continuous tubular structure comprising tubular sections threaded at each end, the abutting threaded ends of said sections being engaged in couplings of the type described and claimed in claim 1, the peripheral edges of the ends of

the extensions of said coupling being autogenously welded to the outer peripheral surfaces of the tubular sections.

3. The method of forming couplings of the type described and claimed in claim 1 which comprises welding relatively thin tubular extensions to the opposite ends of a relatively thick collar member and thereafter forming screw threads on the internal face of said collar.

4. The method of forming a continuous tubular structure which comprises threading the abutting ends of threaded tubular sections into a coupling comprising a threaded collar section having relatively thin tubular extensions welded on opposite ends thereof, said extensions having a diameter adapted to position the inner face thereof in relatively close spaced relationship to the outer peripheral face of said tubular section and a length adapted to position the peripheral edge of the ends of said extensions at a point substantially remote from the threaded section of the said collar to a distance at least sufficient to prevent deleterious heat conduction to the said threads when the extension ends are welded to the peripheral face of said section and thereafter welding the peripheral edges only of said extensions to the peripheral outer face of said tubular section.

THOMAS E. MURRAY.

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