

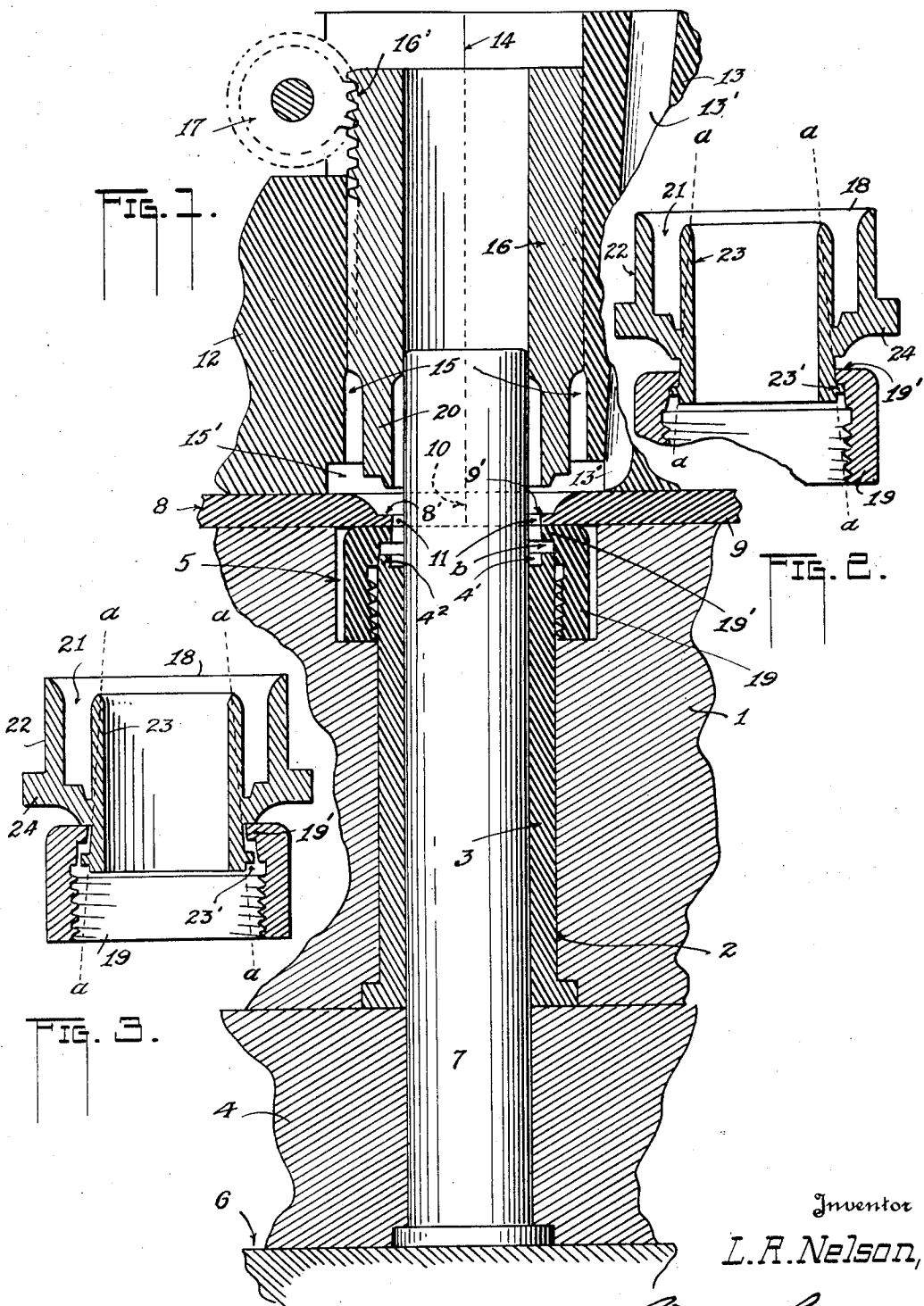
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L. R. NELSON

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APPARATUS FOR USE IN MAKING CASTINGS

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Inventor
L. R. Nelson,

By *L. M. Hurlow*
Attorney

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APPARATUS FOR USE IN MAKING
CASTINGS

Lewen R. Nelson, Peoria, Ill.

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8 Claims. (Cl. 22—116)

This invention relates to apparatus for use in making castings, pertaining more particularly to apparatus for casting a hose fitting upon or in connection with an existent fitting in a swiveled inseparable relation.

An object is that while permanently joining two swivel members by pouring one of them as molten metal into engagement with and having swiveled connection with a companion member already existent, to so create the mold for that purpose that when the casting operation is complete the swivel parts can be readily loosened and made free to rotate with respect to each other.

A further object is to so construct the mold that the resultant cast member will have a taper at the point of swivel connection with the other or existent member so that said members can be shifted relatively in a direction at right angles to the direction of their relative rotative action in use, and thereby overcome adhesion arising from the casting operation.

A still further object is to provide a fitting of swiveled parts permanently connected as the result of the method used and as a result of the type of mold employed.

That the invention may be fully understood, the accompanying drawing is provided wherein:

Figure 1 is a sectional elevation of the mold by which the method to be described may be practiced.

Figure 2 is a longitudinal section of the connected members forming a complete article as produced by my method, and

Figure 3 is likewise a longitudinal section of the connected parts of Figure 2 shown in slightly different positions relatively.

In my said pending application is shown a method of connecting two members of a fitting by casting one of such members upon another already existent, together with provision for readily loosening them by providing spacing parts of paper or the equivalent. In the present application, however, tapering surfaces are provided about which to pour the molten metal whereby to provide for permitting the parts to be shifted endwise relatively as will appear.

In the drawing 1 denotes a mold section having a bore 2 extending up through it to receive a sleeve 3, there being a counter-bore or recess 5 opening upon the upper surface of said section, the axes of the said bore and counter-bore being coincident, and said section 1 may rest upon a part 4 for carrying said sleeve 3, which section 4, in turn, may be supported by a base member 6 as a rest for a centering-pin or core 7 to extend

through said sleeve 3. Resting upon the section 1 are plates 8 and 9 adapted for movement in their own planes to and from each other and adapted to abut at 10, each being provided with a recess 11, the recesses together forming a bore through which the pin or core 7 extends, said bore being greater in diameter than that of said pin and centered therewith. Above the plates and resting thereon are two separate sections 12, 13, in this instance, which abut at 14, and each has a groove 15 which in the abutting relation of the sections form a bore coincident with the bore 2 of the section 1 and adapted to receive a sleeve 16 whose bore is adapted to receive into it the upper end of the pin 7 in a snug sliding fit. The sleeve 16 is slidable within the bore created by the grooves 15 and it may have a series of teeth 16' with which may mesh the teeth of a pinion 17 suitably mounted in the section 12, for example, and operated by suitable means not shown.

It is observed that the sleeve 16 is reduced in diameter at its lower end while the diameter of its bore is increased creating a shell portion 20 to correspond with and to provide a cavity 21 in the casting to be made, the latter being shown completed at 18 in Figures 2 and 3, tubular portions 22 and 23 of the casting thereby resulting. It is noted, also, that the bore of the sections 12 and 13 has an enlarged cavity 15' conforming to the flange 24 of the member 18, which, as is customary in such devices is shaped (not shown) to receive a wrench, not shown. Again, the two plates 8, 9 at their upper sides adjacent their recesses 11 are relieved to create narrow flanges at 8', 9' at such recesses, the upper and lower surfaces of the flanges being parallel to the plane of such plates and lie at right angle to the axis of the bore of the sleeve 3. Said sleeve 3 terminates at its upper end within the counter-bore or recess 5 of the section 1 and lies in spaced relation to the plates 8, 9 about as shown, and said upper end of the sleeve is counter-bored to create a recess 4', and the resulting flange 4² may be beveled on its outer surface, said upper end of the sleeve forming a seat for metal to be poured.

The purpose herein is to place in the mold described herein an existent or previously fabricated member and pour molten metal in connection with it, and to create the finished permanently connected parts of the swivel fitting, and in addition, so form part of the mold and part of the said existent member that upon completing the casting operation the parts can be readily separated to the extent that they can be made to

freely swivel on each other. To this end the bore of the flange 19' of the existent member designated in all of the figures at 19, is conical, the smallest diameter thereof being at the outer or upper surface of said flange, the dotted lines as in Figures 2 and 3 at *a-a* best indicating the angle, which angle, of course, may be varied as desired. The said member or "nut" 19 is adapted to lie within the recess 5, the depth of which recess may be equal to the height of said nut, or substantially so, so that the outer or upper surface of the flange 19' will lie flush with the upper surface of the section 1. It is observed that the bore created by the recesses 11 of the plates 8, 9 is greater than the diameter of the pin 7 extending therethrough, as previously intimated, and that said bore conforms to that of the said flange 19' of the nut both in size and form in that the walls of the notches 11 forming the bore are beveled or coned and lie flush with the walls of the bore of said flange as clearly shown in Figure 1, it being seen that the plates 8, 9 snugly abut upon the flange of said nut.

With the pin or core 7 and the sleeve 3 in place in the section 1, and the plates 8, 9 and the sections 12 and 13 separated, and with the sleeve 16 withdrawn from the bore of said sections, the recess 5 lies exposed. Into said recess may now be placed the nut 19 previously threaded and ready for use, and with the bore of its flange made conical as explained, or about as shown. Said nut is centered by the sleeve 3, it being observed that the latter extends up into said nut covering the threaded portion and terminating in spaced relation to the inner side of the flange 19' leaving a recess *b*, the wall of which, where it abuts the said beveled flange 4² of the sleeve 3 may be conical to fit said flange.

The plates 8, 9 are now brought into abutment, as are also the sections 12, 13, following which action the sleeve 16 is lowered into proper position over the pin or core 7, any suitable stop or indication, not shown, being employed to limit that movement. The molten metal to create the member 18 is now poured through any suitably located passage 13', for example, to fill the space provided for it, said metal finding its way into the whole cavity and entering the recess *b* to form a flange 23' of the completed casting 18 as in Figures 2 and 3, which flange is adapted to abut the inner side of the flange 19' of the nut 19 when in use.

It is now to be particularly noted that the plates 8, 9, which have served to separate the cast metal of the member 18 above the flanges 8', 9' from the flange 19', by their presence in the casting operation have created a space between both these members. In making the casting the metal will fill in around the pin or core 7 and will enclose the shell 20 of the sleeve 16. After the casting is made the said sleeve is raised by means of the pinion 17 while the pin 7 may be driven down after removing the base 6 beneath it, the plates 8, 9 and the sections 12, 13 then being separated to release the casting.

Since the metal of the tapered neck of the completed casting 18 lies within the flange 19', it will upon cooling naturally shrink inwardly away from the latter to some extent and yet may, perhaps, slightly stick or adhere to said flange as a natural consequence. But due to the conical bore of the flange 19' and that formed by the plates 8, 9 in abutment, and the resultant conical form of the casting the parts may be readily separated in an endwise direction by striking upon

the end of one of them, which parts change their positions relatively appearing as in Figure 3, the flanges 19' and 23' moving toward each other for their abutting relation in use.

I claim:

1. Apparatus for casting a fitting in connection with an existent fitting including a mold section provided with a cavity, a sleeve seated at one end in the cavity, its other end having a surface constituting a seat for the reception of molten metal, a core adapted to slidably fit the sleeve at that end having the seat and extending from the latter, a tubular existent fitting supported in the mold snugly encircling the sleeve and having a flange extending toward and encircling the core in spaced relation thereto and having spaced relation to and substantially paralleling the face of the seat providing a metal receptive space, a pair of separable plates abutting at their ends, overlying the fitting and its flange and notched to form an opening, the walls of the opening enclosing the core in spaced relation thereto, and a mold section lying upon the plates and having a cavity greater in diameter than the core and receiving the said core into it.

2. Apparatus for casting a fitting in connection with an existent fitting including a mold section provided with a cavity, a sleeve seated at one end in the cavity, its other end having a surface constituting a seat for the reception of molten metal, a core adapted to slidably fit the sleeve at that end having the seat and extending from the latter, a tubular existent fitting supported in the mold snugly encircling the sleeve and having a flange extending toward and encircling the core in spaced relation thereto and having spaced relation to and substantially paralleling the face of the seat providing a metal receptive space, a pair of separable plates abutting at their ends, overlying the fitting and its flange and notched to form an opening, the walls of the opening enclosing the core in spaced relation thereto, the cavity between the plates and core and the cavity between the flange and core being conical, the largest diameter of the same facing the seat, and a mold section lying upon the plates and having a cavity greater in diameter than the core and receiving the said core into it.

3. Apparatus for casting a fitting in connection with an existent fitting including a part having a cavity, a tubular member in the cavity having an end surface constituting a seat for the reception of molten metal, a core slidably fitting the member projecting from the same, a tubular fitting snugly encircling the member and having a flange extending toward and encircling the core in spaced relation thereto and in spaced relation to the seat providing a metal receptive space, a pair of plates abutting at their ends overlying the fitting and its flange and enclosing the core in spaced relation thereto, the cavity between the plates and core and the cavity between the flange and core being tapering with its largest diameter facing the seat, a mold section lying upon the plates and having a cavity to receive the core, and a sleeve fitting between the core and the last named mold section in the cavity of the latter and spaced at one end from the plates.

4. Apparatus for casting a fitting in connection with an existent fitting including a part having a cavity, a tubular member in the cavity having an end surface constituting a seat for the reception of molten metal, a core slidably fitting

the member projecting from the same, a tubular fitting snugly encircling the member and having a flange extending toward and encircling the core in spaced relation thereto and in spaced relation to the seat providing a metal receptive space, a pair of plates abutting at their ends overlying the fitting and its flange and enclosing the core in spaced relation thereto, the cavity between the plates and core and the cavity between the flange and core being tapering with its largest diameter facing the seat, a mold section lying upon the plates and having a cavity to receive the core, and a sleeve fitting in the cavity of the last named mold section around the core, part of said sleeve having a cavity adjacent said core, that portion of the sleeve having the cavity lying nearest the plates.

5. An apparatus for casting a fitting in connection with an existent fitting comprising a pair of mold sections, a pair of abutting plates separating said mold sections, a common core member extending through both of said mold sections and through an opening between said abutting plates, the walls of said opening being in spaced relation to said core, said lower mold section having a cavity, a sleeve, forming a part of said lower mold section, surrounding said core and extending upwardly into said cavity, said sleeve having an annular seat formed on the upper surface thereof surrounding said core and spaced therefrom, an existent fitting seated in said cavity snugly fitting around said sleeve and having a flange extending toward the core and overhanging the seat and being in spaced relation to both the seat and the core and an opening in one of the mold sections for filling the cavity with molten metal.

6. An apparatus for casting a fitting in connection with an existent fitting comprising a pair of mold sections, a pair of abutting plates separating said mold sections, a common core extending through both said mold sections and through an opening between said abutting plates, the walls of said opening being in spaced relation to said core, said lower mold section having a cavity, a sleeve forming a part of said lower mold section extending upwardly into said cavity snugly fitting around said core, said sleeve having an annular seat formed on the upper surface thereof spaced from said core, an existent fitting seated in said cavity snugly fitting around said sleeve

and having the upper surface thereof abutting snugly against the under surfaces of said abutting plates, and having at its upper end an inwardly extending flange overlying said seat and spaced from said seat and said core and an opening in one of the mold sections for filling the cavity with molten metal.

7. An apparatus for casting a fitting in connection with an existent fitting comprising a pair of mold sections, a pair of abutting plates separating said mold sections, a common core member extending through both of said mold sections and through an opening between said abutting plates, the walls of said opening being in spaced relation to said core, said lower mold section having a cavity, a sleeve forming a part of said lower mold section surrounding said core and extending upwardly into said cavity, said sleeve having an annular seat formed on the upper surface thereof surrounding said core and spaced therefrom, an existent fitting seated in said cavity snugly fitting around said sleeve and having an annular flange at the upper end thereof extending inwardly toward the core and overhanging the seat and being in spaced relation thereto, said overhanging flange surface contiguous to and flush with the inner surface of the opening between said abutting plates and an opening for introducing molten metal into said cavity.

8. An apparatus for casting a fitting in connection with an existent fitting comprising a pair of mold sections, a pair of abutting plates separating said mold sections, a common core member extending through both of said mold sections and through an opening between said abutting plates, the walls of said opening being in spaced relation to said core, said lower mold section having a cavity, a sleeve forming a part of said lower mold section surrounding said core and extending upwardly into said cavity, said sleeve having an annular seat formed on the upper surface thereof surrounding said core and spaced therefrom, an existent fitting seated in said cavity snugly fitting around said sleeve and having a flange extending toward the core and overhanging the seat and being in spaced relation to the seat and core the inner surface of said flange being conical in form and having its larger diameter at its lower end.

LEWEN R. NELSON.

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