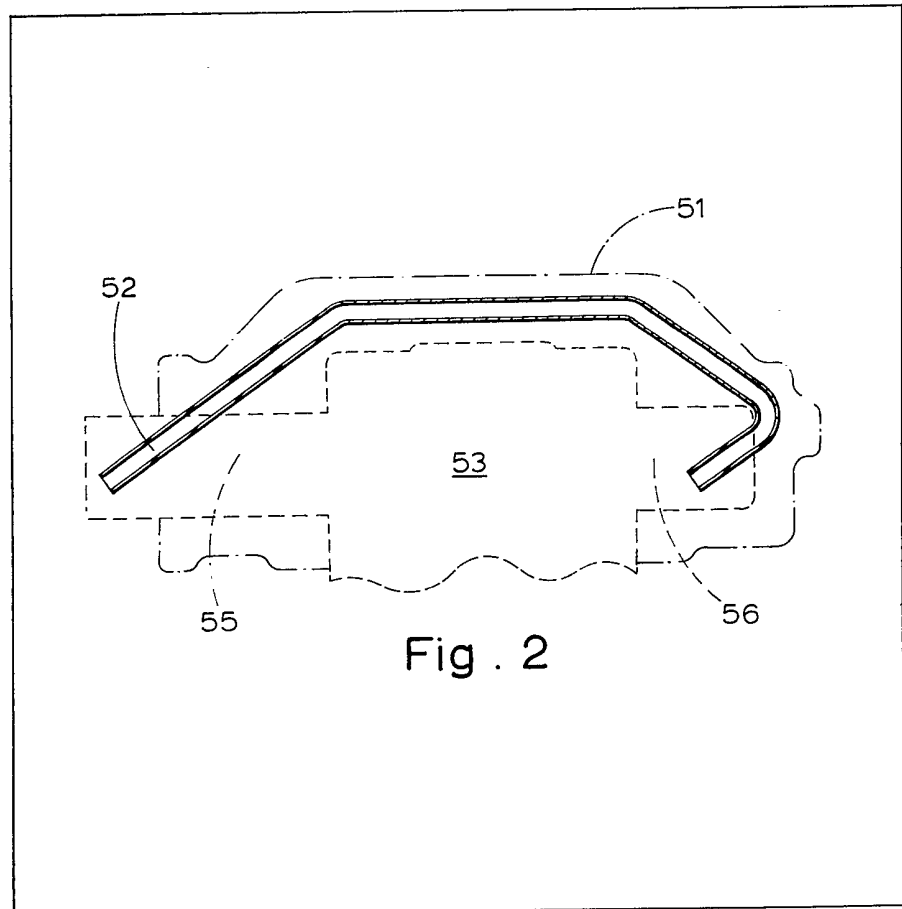


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(54) **A cast disc brake caliper body and a method of forming a fluid duct therein**

(57) **A disc brake caliper body (51) of cast metal e.g. aluminium alloy with an internal fluid duct (52) having a non-rectilinear path and defined by a pipe (52) bent to the required configuration of the duct path and set into the body (51) as an insert in the casting thereof. For casting, the steel pipe (52) is secured to a core (53).**



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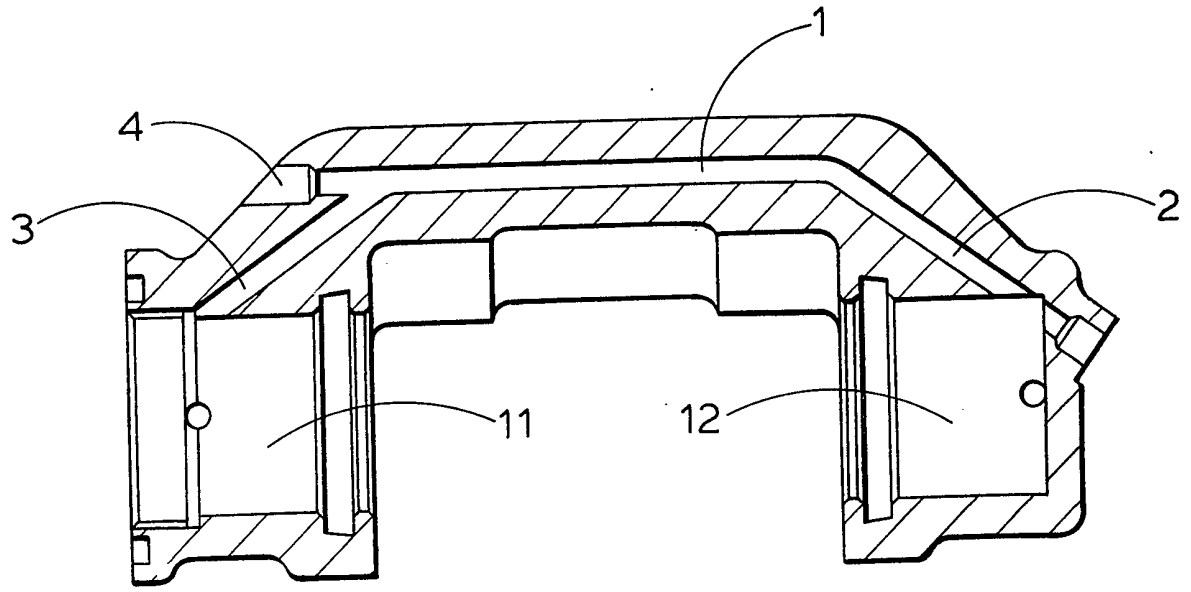


Fig . 1

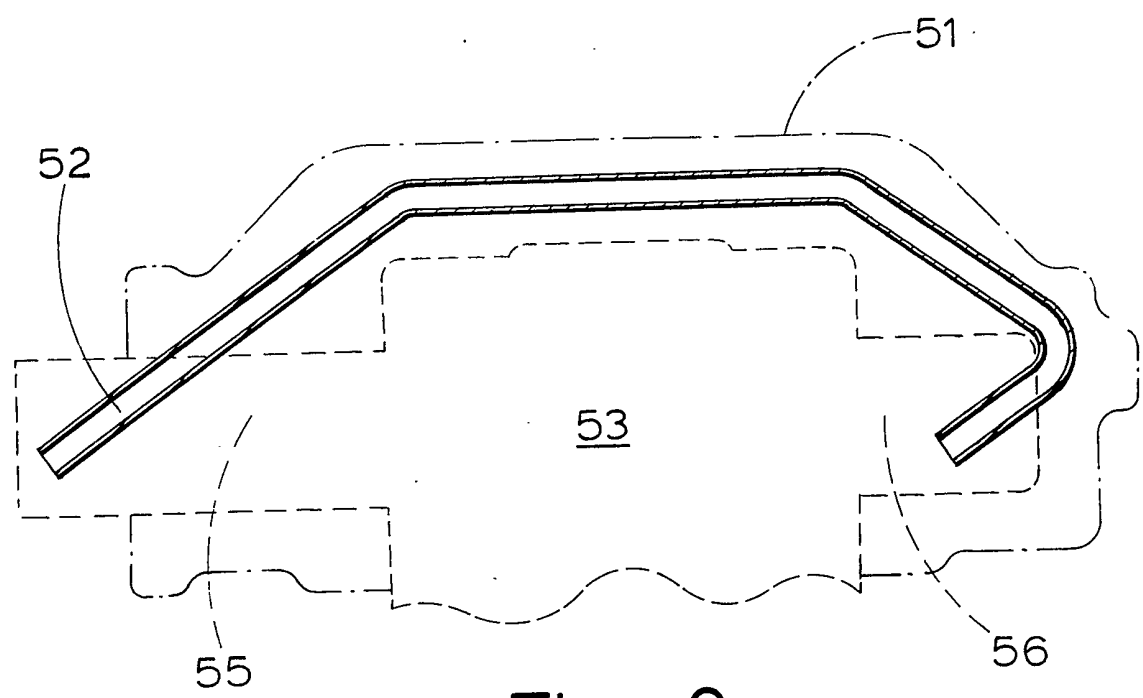


Fig . 2

SPECIFICATION

A cast disc brake caliper body and a method of forming a fluid duct therein

5 This invention relates to a cast disc brake caliper bodies and a method of producing a fluid duct therein.

10 Metallic castings used in various hydraulic apparatus may be required to have hydraulic ducts or passageways therein. These passageways are typically bore holes drilled into the casting during the machining process that produces the casting in its finished form. With a particularly complicated passageway several interconnecting cross feed holes may have to be drilled from various points on the casting so as to form the complete passageway. Some of these cross feed holes will then have to be subsequently plugged. For example, Figure 1 of the accompanying drawings shows a prior art machined casting utilised as a disc brake caliper body. In the casting there is a fluid passageway lining the two hydraulic cylinders 11 and 12. The passageway comprises three interconnecting cross feed holes 1, 2 and 3 drilled into the casting from various points on the outer surface of the casting. The hole 1 is plugged at 4, thus forming a fluid passageway having two changes of direction, and one end in each hydraulic cylinder 11 and 12. Drilling and plugging is a relatively expensive operation particularly in apparatus having passageways with very complicated shapes therein.

The present invention seeks to obviate the need for drilling and plugging.

35 Accordingly, there is provided a disc brake caliper body of cast metal with an internal fluid duct having a non-rectilinear path and defined by a pipe bent to the required configuration of the duct path and set into the body as an insert in the casting thereof.

40 Also according to this invention there is provided a method of making a disc brake caliper body with a fluid duct therein and comprising, forming a pipe to define the locus of the duct, setting the pipe into a core for casting, and casting the caliper body around the pipe.

The invention will be explained by way of example and with reference to *Figure 2* of the accompanying drawings.

50 Figure 2 shows, in chain dotted lines, a caliper body 51 with a fluid duct or passageway 52 running through the body 51. The hydraulic cylinders 11 and 12 shown in Figure 1 corresponds with hollows 55 and 56 formed in the cast body 51 by use of a core 53, and the passageway 52 interconnects the two hydraulic cylinders.

The passageway 52 is formed from a drawn seamless steel tube having a wall thickness of approximately 1 mm. The tube 52 is shaped to the required profile, in this case non-linear, prior to casting and is then secured into its correct position on the core 53. The tube 52 as is shown in Figure 2 can be of excessive length so that the end portions provide for a firm location in the core. The excess tube is removed after the casting has been formed.

65 The core 53 with the tube 52 secured therein is

then positioned into the already formed mould (not shown) so that the tube 52 will take the required path through the casting.

70 The molten aluminium alloy is then cast into the mould and envelopes the tube 52 which becomes cast into the caliper casting 51.

Another advantage obtained from this construction of disc brake caliper body is that in use when a heat build-up occurs in the body there will be a break in heat transference across the steel aluminium interface, thereby reducing the rate of heat transfer to the hydraulic fluid in the tube 52, and thereby reducing the possibility of the fluid boiling and causing "vapour lock" in the brake system.

80 CLAIMS

1. A disc brake caliper body of cast metal with an internal fluid duct having a non-rectilinear path and defined by a pipe bent to the required configuration of the duct path and set into the body as an insert in the casting thereof.

2. A disc brake caliper, wherein the caliper body has two hydraulic cylinders which are interconnected by said duct.

3. A disc brake caliper as claimed in Claim 1 or Claim 2, wherein the duct has an end portion or portions opening to a surface and one or more portions extending in the body as a non-rectilinear continuation of the end portion or portions.

4. A disc brake caliper body having a fluid duct formed therein by a method substantially as described herein.

5. A method of making a disc brake caliper body with a fluid duct therein and comprising, forming a pipe to define the locus of the duct, setting the pipe into a core for casting, and casting the caliper body around the pipe.