SUMMARY

[0010] In one aspect of the current application, there is provided a fluid end of a pump and the fluid end comprises ~~a piston bore, an inlet bore, an outlet bore; where at least a portion of a pump body is made of a first material and the other parts of the pump body are made of a second material.~~ a pump body having a piston bore, an inlet bore, and an outlet bore; wherein at least a portion of the pump body is made of a first material and the other parts of the pump body are made of a second material comprising an alloy steel; wherein the first material has better resistance to fatigue than the second material, and wherein the second material is located on parts of the pump body that are in contact with fluids during operation of the pump. In some cases, the first material is a material having better resistance to fatigue, such as stainless steel. In some cases, the first material is a layer of coating selected from the group consisting of plasma coating, chemical vapor deposition, physical vapor deposition, sputtering, and diamond-like coating. In some cases, the second material used is a material of less quality and cheaper than the first material such as an alloy steel.

[0011] In one embodiment, the portion of the pump body that is made of a first material is areas of the pump body adjacent the intersection of the piston pore, inlet bore, and the outlet bore. In one case, the portion of the pump body that is made of a first material is a recess near the piston bore. In another case, the portion of the pump body that is made of a first material is a recess near the inlet bore. In a further case, the portion of the pump body that is made of a first material is a recess near the outlet bore.

[0012] According to another aspect of the application, there is provided a method of reducing fatigues of a fluid end of a pump. The method comprises ~~providing a fluid end comprising a piston bore, an inlet bore, and an outlet bore; and constructing a portion of a pump body in a first material and the other parts of the pump body in a second material.~~ utilizing a fluid end comprising a pump body having a piston bore, an inlet bore, and an outlet bore; and constructing a portion of the pump body in a first material and the other parts of the pump body in a second material comprising an alloy steel; and wherein the first material has better resistance to fatigue than the second material, wherein the second material is located on parts of the pump body that are in contact with fluids during operation of the pump. In some cases, the first material is a

material having better resistance to fatigue such as stainless steel. In some cases, the first material is a layer of coating selected from the group consisting of plasma coating, chemical vapor deposition, physical vapor deposition, sputtering,

and diamond-like coating. In some cases, the second material used is a material of less quality and cheaper than the first material, such as an alloy steel.

[0013] According to a further aspect of the application, there is provided ~~an~~ a pump assembly comprising a plurality of pump bodies each defining a piston bore, an inlet bore, and an outlet bore, and a plurality of fasteners connecting the pump bodies and end plates to form the pump assembly, where at least a portion of ~~a~~ each of pump ~~body~~ bodies is made of a first material and the other parts of each of the pump ~~body~~ bodies are made of a second material comprising an alloy steel, and the first material ~~is a material having~~ has a better resistance to fatigue than the second material, and wherein the second material is located on parts of the pump body that are in contact with fluids during operation of the pump. In one embodiment, the portion of the pump body that is made of a first material is selected from the group consisting of (a) areas of the pump body adjacent the intersection of the piston pore, inlet bore, and the outlet bore; (b) a recess near the piston bore; (c) a recess near the inlet bore.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0014] FIG. **1** is a perspective view of the fluid end of a triplex pump assembly according to an embodiment of the application.

[0015] FIG. **2** is an exploded view of the triplex pump assembly of FIG. 1 according to an embodiment of the application.

[0016] FIG. **3** is a perspective view of one of the pump body of the triplex pump assembly of FIGS. **1-2** according to an embodiment of the application.

[0017] FIG. **4** is a side sectional view of the pump body of FIG. **3** as seen along the lines **4-4** according to an embodiment of the application.

We claim:

1. A fluid end of a pump, said fluid end comprising:

a piston bore, an inlet bore, an outlet bore;

wherein at least a portion of a pump body is made of a first material and the other parts of the pump body are made of a second material.

2. The fluid end of claim 1, wherein the first material is a material having better resistance to fatigue.

3. The fluid end of any one of the preceding claims, wherein the first material is stainless steel.

4. The fluid end of any one of the preceding claims, wherein the first material is a layer of coating selected from the group consisting of plasma coating, chemical vapor deposition, physical vapor deposition, sputtering, and diamond-like coating.

5. The fluid end of any one of the preceding claims, wherein the second material used is a material of less quality and cheaper than the first material.

6. The fluid end of claim 5, wherein the second material is an alloy steel.

7. The fluid end of any one of the preceding claims, wherein the portion of the pump body that is made of a first material is areas of the pump body adjacent the intersection of the piston pore, inlet bore, and the outlet bore.

8. The fluid end of any one of the preceding claims, wherein the portion of the pump body that is made of a first material is a recess near the piston bore.

9. The fluid end of any one of the preceding claims, wherein the portion of the pump body that is made of a first material is a recess near the inlet bore.

10. A method of reducing fatigues of a fluid end of a pump, said method comprising:

providing a fluid end comprising a piston bore, an inlet bore, and an outlet bore;

constructing a portion of a pump body in a first material and the other parts of the pump body in a second material.

11. The method of claim 10, wherein the first material is a material having better resistance to fatigue.

12. The method of any one of claims 10 or 11, wherein the first material is stainless steel.

13. The method of any one of claims 10 to 12, wherein the first material is a layer of coating selected from the group consisting of plasma coating, chemical vapor deposition, physical vapor deposition, sputtering, and diamond-like coating.

14. The method of any one of claims 10 to 13, wherein the second material used is a material of less quality and cheaper than the first material.

15. The method of any one of claims 10 to 14, wherein the second material is an alloy steel.

16. The method of any one of claims 10 to 15, wherein the portion of the pump body that is made of a first material is areas of the pump body adjacent the intersection of the piston pore, inlet bore, and the outlet bore.

17. The method of any one of claims 10 to 16, wherein the portion of the pump body that is made of a first material is a recess near the piston bore.

18. The method of any one of claims 10 to 17, wherein the portion of the pump body that is made of a first material is a recess near the inlet bore.

19. An assembly comprising:

a plurality of pump bodies each defining a piston bore, an inlet bore, and an outlet bore;

a plurality of fasteners connecting the pump bodies and end plates to form the pump assembly;

wherein at least a portion of a pump body is made of a first material and the other parts of the pump body are made of a second material, and the first material is a material having better resistance to fatigue.

20. The assembly of claim 19, where the portion of the pump body that is made of a first material is selected from the group consisting of (a) areas of the pump body adjacent the intersection of the piston pore, inlet bore, and the outlet bore; (b) a recess near the piston bore; (c) a recess near the inlet bore.

We claim:

1. A fluid end of a pump, said fluid end comprising:

a pump body having a piston bore, an inlet bore, and an outlet bore;

wherein at least a portion of the pump body is made of a first material and the other parts of the pump body are made of a second material comprising an alloy steel;

wherein the first material has better resistance to fatigue than the second material, and wherein the second material is located on parts of the pump body that are in contact with fluids during operation of the pump.

2. The fluid end of claim 1, wherein the first material is stainless steel.

3. The fluid end of claim 1, wherein the first material is a layer of coating selected from the group consisting of plasma coating, chemical vapor deposition, physical vapor deposition, sputtering, and diamond-like coating.

4. The fluid end of claim 1, wherein the portion of the pump body that is made of the first material is in areas of the pump body adjacent the intersection of the piston bore, the inlet bore, and the outlet bore, and wherein the second material is located in areas of the pump body which are not adjacent the intersection of the piston bore, the inlet bore, and the outlet bore.

5. The fluid end of claim 1, wherein the portion of the pump body that is made of the first material is in a recess near the piston bore, and wherein the second material is located in areas of the pump body which are not in the recess near the piston bore.

6. The fluid end of claim 1, wherein the portion of the pump body that is made of the first material is in a recess near the inlet bore, and wherein the second material is located in areas of the pump body which are not in the recess near the inlet bore.

7. A method of reducing fatigues of a fluid end of a pump, said method comprising:

utilizing a fluid end comprising a pump body having a piston bore, an inlet bore, and an outlet bore; and

constructing a portion of the pump body in a first material and the other parts of the pump body in a second material comprising an alloy steel; and wherein the first material has better resistance to fatigue than the second material, wherein the second material is located on parts of the pump body that are in contact with fluids during operation of the pump.

8. The method of claim 7, wherein the first material is stainless steel.

9. The method of claim 7, wherein the first material is a layer of coating selected from the group consisting of plasma coating, chemical vapor deposition, physical vapor deposition, sputtering, and diamond-like coating.

10. The method of claim 7, wherein the portion of the pump body that is made of the first material is in areas of the pump body adjacent the intersection of the piston bore, the inlet bore, and the outlet bore, and wherein the second material is located in areas of the pump body which are not adjacent the intersection of the piston bore, the inlet bore, and the outlet bore.

11. The method of claim 7, wherein the portion of the pump body that is made of the first material is in a recess near the piston bore, and wherein the second material is located in areas of the pump body which are not in the recess near the piston bore.

12. The method of claim 7, wherein the portion of the pump body that is made of the first material is in a recess near the inlet bore, and wherein the second material is located in areas of the pump body which are not in the recess near the inlet bore.

13. A pump assembly comprising:

a plurality of pump bodies each defining a piston bore, an inlet bore, and an outlet bore;

a plurality of fasteners connecting the pump bodies and end plates to form the pump assembly;

wherein at least a portion of each of the pump bodies is made of a first material and the other parts of each of the pump bodies are made of a second material comprising an alloy steel, and wherein the first material has a better resistance to fatigue than the second material, and wherein the second material is located on parts of the pump body that are in contact with fluids during operation of the pump.

14. The pump assembly of claim 13, where the portion of the pump body that is made of the first material is in areas selected from the group consisting of (a) the pump body adjacent the intersection of the piston bore, the inlet bore, and the outlet bore; (b) a recess near the piston bore; (c) a recess near the inlet bore; and (d) combinations thereof.