CLAIMS:

1. A heat exchanger with an inner fluid to actuate an external fluid pumping blade device, so as to drive an external fluid to pass through the heat exchanger for increasing heat exchange efficiency of the heat exchanger, the ~~system~~heat exchanger comprising:

a heat exchanger having thermal-energy fluid pipe (100) allowing ~~cold/heat~~ a thermal energy fluid to pass through~~, so cold/heat energy is discharged to an external fluid when the cold/heat thermal-energy fluid passes through the fluid pipe;~~ and to exchange thermal energy between an external fluid surrounding the heat exchanger and the thermal energy fluid, with fluid input and output~~/input~~ pipelines (101), (104) ~~constituted with good heat conductivity, and serving as the fluid output/input pipelines~~ for inputting the thermal energy fluid to the heat exchanger and for outputting~~/inputting cold/heat~~the thermal-energy fluid ~~to~~from the heat exchanger;

a non-contact transmission fluid actuation device ~~assembly~~ (2000), ~~which is~~ driven by the ~~internal~~thermal energy fluid passing through the heat exchanger to drive ~~an internal fluid powering blade device to generate rotational kinetic energy, for driving~~ an external fluid pumping blade device (202) ~~with a non-contact transmission means~~; ~~and~~

wherein the non-contact transmission fluid actuation device (2000) is situated outside and on one side of the heat exchanger, the non-contact transmission fluid actuation device (2000) being connected to the heat exchanger by at least two fluid output/input pipelines (102), (103) ~~provided for inputting or outputting the internal fluid passing through the heat exchanger, and~~ for inputting ~~or~~and outputting the thermal energy fluid to pass~~ing~~ through an interior of a housing of the non-contact transmission fluid actuation device ~~assembly~~ (2000) for driving the non-contact transmission fluid actuation device (2000) and causing the fluid ~~powering~~pumping blade device (202) to rotate and for returning the thermal energy fluid from the

non-contact transmission fluid actuation device (2000) to the thermal energy pipe (100), ~~the output/input pipelines of fluid actuation device (102), (103) are in series or parallel shunt connected with the fluid output/input pipelines (101), (104),~~

wherein the external fluid pumping blade device (202) ~~constituted by a blade set, combined on a rotating shaft, for pumping~~pumps the external fluid ~~to pass~~ through the heat exchanger to enhance heat exchange between the thermal energy fluid and surrounds of~~for exchanging thermal energy with~~ the heat exchanger;

the non-contact transmission fluid actuation device (2000) comprises a fluid powering blade device (221) enclosed in a housing (208) and coupled to a rotating shaft (206), with the rotating shaft being supported on a bearing and rotatable with an active side of a magnetic coupling member (212) that is also located in the housing to form an active side of the non-contact transmission fluid actuation device (2000); and

a passive side of the non-contact transmission fluid actuation device (2000) is formed by a passive side magnetic coupling member (211) located adjacent and outside the housing (208), the passive side magnetic coupling member (211) being connected to and rotatable with the external fluid pumping blade device (202) such that rotation of the fluid powering blade device (221) causes rotation of the rotating shaft (206) and active side magnetic coupling member (212), which causes rotation of the passive side magnetic coupling member (211) and rotation of the external fluid pumping blade device (202).

2. The heat exchanger as claimed in claim 1, wherein

~~the non-contact transmission type fluid actuation device (2000) comprises a rotating shaft (206) installed with the fluid powering blade device (221), a bearing, an active rotating part of magnetic coupling member~~

~~(212) and the fluid powering blade device (221) combined with the rotating shaft (206), and a housing (208), so as to structure an active side of the non-contact transmission type fluid actuation device (220), wherein the non-contact transmission type fluid actuation device (2000) is structured by one or more than one of following means which include~~the active and passive magnetic coupling members are arranged in at least one of the following ways:

1) both~~between~~ the active ~~rotating part of the~~ magnetic coupling member (212) and ~~a~~the passive ~~rotating part of the~~ magnetic coupling member (211)~~, the transmission coupling is performed through a permanent magnetic pole attracting another permanent magnetic pole~~ are permanent magnets;

2) one of~~between~~ the active ~~rotating part of the~~ magnetic coupling member (212) and ~~a~~the passive ~~rotating part of the~~ magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is~~, the transmission coupling is performed through a permanent magnetic pole attracting~~ a ~~coupled~~ magnetically conductive member;

3) one of~~between~~ the active ~~rotating part of the~~ magnetic coupling member (212) and ~~a~~the passive ~~rotating part of the~~ magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is~~, the transmission coupling is performed through a permanent magnetic pole generating turbine effect to an electric conductive member~~ an electrically conductive member that exhibits eddy current effects;

4) one of~~between~~ the active ~~rotating part of the~~ magnetic coupling member (212) and ~~a~~the passive ~~rotating part of the~~ magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is~~,~~

~~the transmission coupling is performed through a permanent magnetic pole generating electromagnetic effect to~~ a squirrel-cage electromagnetic member;

5) one of~~between~~ the active ~~rotating part of the~~ magnetic coupling member (212) and ~~a~~the passive ~~rotating part of the~~ magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is, the transmission coupling is performed through a permanent magnetic pole generating magnetic coupling effect to a structure having a property of magnetic reluctance ~~structural member;~~

~~wherein, the fluid powering blade device (221) installed inside the active side of the non-contact transmission type fluid actuation device (220) and the passive rotating part of magnetic coupling member (211) installed inside an output side of the non-contact transmission type fluid actuation device (210) perform synchronous or non-synchronous rotational transmission coupling through the active rotating part of the magnetic coupling member (212) combined with the fluid powering blade device (221), for driving the passive rotating part of the magnetic coupling member (211) and the rotating shaft (201), thereby driving the external fluid pumping blade device (202) installed at a side of the heat exchanger~~.

~~3. The heat exchanger according to claim 2, wherein the housing (208), for the non-contact transmission type fluid actuation device (2000) is constituted by a non-magnetic conductive and non-electric conductive material, or constituted by a material with both or one of the properties of electric conductivity and magnetic conductivity, wherein the electric conductivity and magnetic conductivity do not affect the transmission of the rotational kinetic energy between the active rotating part of the magnetic coupling member (212) and the passive rotating part of the magnetic coupling member (211) installed at two sides of the housing (208).~~

3~~4~~. The heat exchanger as claimed in ~~any one of~~ claim~~s~~ 1~~-3~~, wherein the external fluid pumping blade device (202) is installed between the non-contact transmission ~~type~~ fluid actuation device (2000) and the heat exchanger ~~having thermal-energy fluid pipe (100), and~~

~~wherein the non-contact transmission type fluid actuation device (2000) is installed at one side of the heat exchanger, including one or more than one of a top, a bottom, a left, aright, a front and a rear side of the heat exchanger~~.

~~5. The heat exchanger as claimed in claim 4, wherein the non-contact transmission type fluid actuation devices (2000) is installed at any two of the top, the bottom, the right, the left, the front and the rear sides of the heat exchanger, and two of the external fluid pumping blade devices (202) are respectively installed between the heat exchanger; and~~

~~wherein flowing directions of the fluids driven by the two external fluid pumping blade devices (202) can be the same or different.~~

~~6. The heat exchanger as claimed in claim 4, wherein the non-contact transmission type fluid actuation devices (2000) are installed at any two of the top, the bottom, the right, the left, the front and the rear sides of the heat exchanger, and one of the two external fluid pumping blade devices (202) is installed between the heat exchanger and the combined non-contact transmission type fluid actuation device (2000) and the other thereof is installed at the outer side of the other non-contact transmission type fluid actuation device (2000) combined with the heat exchanger; and~~

~~wherein flowing directions of the fluids driven by the two external fluid pumping blade devices (202) can be the same or different.~~

~~7. The heat exchanger as claimed in any one of claims 2-6, wherein the~~

~~non-contact transmission type fluid actuation device (3000) comprises a dual output shaft and the connected external fluid pumping blade devices (202) are respectively driven by separate rotating shafts (201); and~~

~~wherein the dual-output non-contact transmission type fluid actuation device (3000) comprises two passive rotating parts of magnetic coupling member (211), one on each of two output sides of the two non-contact transmission type fluid actuation devices (210).~~

~~8. The heat exchanger as claimed in claim 7, wherein two or more than two of the dual-output non-contact transmission type fluid actuation devices (3000) are installed inside the heat exchanger; and~~

~~wherein the dual-output non-contact transmission type fluid actuation device (3000) comprises two rotating shafts (201) driven by the two passive rotating parts of the magnetic coupling member (211), each respectively driving the external fluid pumping blade device (202for pumping the external fluids in the same or different direction.~~

~~9. The heat exchanger as claimed in any one of claims 1-8, wherein an outer periphery of the external fluid pumping blade device (202) is further installed with a blade protection device (203), including a mesh-shaped device or mask-shaped device for providing safety protection.~~

4. The heat exchanger as claimed in claim 1, further comprising a second non-contact transmission fluid actuation device (2000), wherein the second non-contact transmission fluid actuation device (2000) drives a second external fluid pumping blade device (202).

5. The heat exchanger as claimed in claim 4, wherein each of the non-contact fluid actuation devices (2000) is situated between the heat exchanger and a respective first and second external fluid pumping blade device (202).

6. The heat exchanger as claimed in claim 4, wherein each of the first and second external fluid pumping blade devices (202) is situated between the heat exchanger and a respective non-contact transmission fluid actuation device (2000).

7. The heat exchanger as claimed in claim 4, wherein one of the first and second non-contact transmission fluid actuation devices (2000) is situated between the heat exchanger and one of the first and second external fluid pumping blade devices (202), and the other of the first and second external fluid pumping blade devices (202) is situated between the heat exchanger and the other of the non-contact transmission fluid actuation devices (2000).

8. A heat exchanger utilizing a thermal energy fluid passing through the heat exchanger to actuate an external fluid pump, comprising:

the heat exchanger having a thermal energy fluid pipe (100) carrying the thermal energy fluid, the heat exchanger exchanging thermal energy between an external fluid surrounding the heat exchanger and the thermal energy fluid;

at least two external fluid input and output pipelines (101,104) connected to the thermal energy fluid pipe (100) at opposite ends of the heat exchanger for inputting the thermal energy fluid to the heat exchanger device and for outputting the thermal energy fluid from the heat exchanger device; and

a non-contact transmission fluid actuation device (2000) driven by the thermal energy fluid passing through the heat exchanger to actuate an external fluid pumping blade device (202);

wherein the thermal energy fluid is supplied to the non-contact transmission fluid actuation device (2000) from the at least one of the thermal energy fluid pipe (100) and external input/output pipelines (101,104) to thereby drive the non-contact transmission fluid actuation device (2000) and cause the external fluid pumping blade device (202) to rotate,

wherein the external fluid pumping blade device (202) pumps the external fluid through the heat exchanger to enhance heat exchange between the thermal energy fluid and surroundings of the heat exchanger, and

wherein the non-contact transmission fluid actuation device (2000) is a dual-output non-contact transmission fluid actuation device (3000).

9. The heat exchanger as claimed in claim 8, wherein two or more of the non-contact transmission fluid actuation devices (2000) are installed inside the heat exchanger for driving a corresponding two or more of the external fluid pumping blade devices (202).

10. The heat exchanger as claimed in claim 8, further comprising a blade protection device (203) installed at an outer periphery of the external fluid pumping blade device (202).

CLAIMS:

1. A heat exchanger with an inner fluid to actuate an external fluid pumping blade device, so as to drive an external fluid to pass through the heat exchanger for increasing heat exchange efficiency of the heat exchanger, the heat exchanger comprising:

a heat exchanger having thermal-energy fluid pipe (100) allowing a thermal energy fluid to pass through and to exchange thermal energy between an external fluid surrounding the heat exchanger and the thermal energy fluid, with fluid input and output pipelines (101), (104) for inputting the thermal energy fluid to the heat exchanger and for outputting the thermal-energy fluid from the heat exchanger;

a non-contact transmission fluid actuation device (2000), driven by the thermal energy fluid passing through the heat exchanger to drive an external fluid pumping blade device (202);

wherein the non-contact transmission fluid actuation device (2000) is situated outside and on one side of the heat exchanger, the non-contact transmission fluid actuation device (2000) being connected to the heat exchanger by at least two fluid output/input pipelines (102), (103) for inputting and outputting the thermal energy fluid to pass through an interior of a housing of the non-contact transmission fluid actuation device (2000) for driving the non-contact transmission fluid actuation device (2000) and causing the fluid pumping blade device (202) to rotate and for returning the thermal energy fluid from the non-contact transmission fluid actuation device (2000) to the thermal energy pipe (100),

wherein the external fluid pumping blade device (202) pumps the external fluid through the heat exchanger to enhance heat exchange between the thermal energy fluid and surrounds of the heat exchanger;

the non-contact transmission fluid actuation device (2000) comprises a fluid powering blade device (221) enclosed in a housing (208) and coupled to

a rotating shaft (206), with the rotating shaft being supported on a bearing and rotatable with an active side of a magnetic coupling member (212) that is also located in the housing to form an active side of the non-contact transmission fluid actuation device (2000); and

a passive side of the non-contact transmission fluid actuation device (2000) is formed by a passive side magnetic coupling member (211) located adjacent and outside the housing (208), the passive side magnetic coupling member (211) being connected to and rotatable with the external fluid pumping blade device (202) such that rotation of the fluid powering blade device (221) causes rotation of the rotating shaft (206) and active side magnetic coupling member (212), which causes rotation of the passive side magnetic coupling member (211) and rotation of the external fluid pumping blade device (202).

2. The heat exchanger as claimed in claim 1, wherein the active and passive magnetic coupling members are arranged in at least one of the following ways:

1) both the active magnetic coupling member (212) and the passive magnetic coupling member (211) are permanent magnets;

2) one of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is a magnetically conductive member;

3) one of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is an electrically conductive member that exhibits eddy current effects;

4) one of the active magnetic coupling member (212) and the passive

magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is a squirrel-cage electromagnetic member;

5) one of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is a permanent magnet, and the other of the active magnetic coupling member (212) and the passive magnetic coupling member (211) is, the transmission coupling is performed through a permanent magnetic pole generating magnetic coupling effect to a structure having a property of magnetic reluctance.

3. The heat exchanger as claimed in claim 1, wherein the external fluid pumping blade device (202) is installed between the non-contact transmission fluid actuation device (2000) and the heat exchanger.

4. The heat exchanger as claimed in claim 1, further comprising a second non-contact transmission fluid actuation device (2000), wherein the second non-contact transmission fluid actuation device (2000) drives a second external fluid pumping blade device (202).

5. The heat exchanger as claimed in claim 4, wherein each of the non-contact fluid actuation devices (2000) is situated between the heat exchanger and a respective first and second external fluid pumping blade device (202).

6. The heat exchanger as claimed in claim 4, wherein each of the first and second external fluid pumping blade devices (202) is situated between the heat exchanger and a respective non-contact transmission fluid actuation device (2000).

7. The heat exchanger as claimed in claim 4, wherein one of the first and second non-contact transmission fluid actuation devices (2000) is situated between the heat exchanger and one of the first and second external fluid pumping blade devices (202), and the other of the first and second external fluid pumping blade devices (202) is situated between the heat exchanger and the other of the non-contact transmission fluid actuation devices (2000).

8. A heat exchanger utilizing a thermal energy fluid passing through the heat exchanger to actuate an external fluid pump, comprising:

the heat exchanger having a thermal energy fluid pipe (100) carrying the thermal energy fluid, the heat exchanger exchanging thermal energy between an external fluid surrounding the heat exchanger and the thermal energy fluid;

at least two external fluid input and output pipelines (101,104) connected to the thermal energy fluid pipe (100) at opposite ends of the heat exchanger for inputting the thermal energy fluid to the heat exchanger device and for outputting the thermal energy fluid from the heat exchanger device; and

a non-contact transmission fluid actuation device (2000) driven by the thermal energy fluid passing through the heat exchanger to actuate an external fluid pumping blade device (202);

wherein the thermal energy fluid is supplied to the non-contact transmission fluid actuation device (2000) from the at least one of the thermal energy fluid pipe (100) and external input/output pipelines (101,104) to thereby drive the non-contact transmission fluid actuation device (2000) and cause the external fluid pumping blade device (202) to rotate,

wherein the external fluid pumping blade device (202) pumps the external fluid through the heat exchanger to enhance heat exchange between the thermal energy fluid and surroundings of the heat exchanger, and

wherein the non-contact transmission fluid actuation device (2000) is a dual-output non-contact transmission fluid actuation device (3000).

9. The heat exchanger as claimed in claim 8, wherein two or more of the non-contact transmission fluid actuation devices (2000) are installed inside the heat exchanger for driving a corresponding two or more of the external fluid pumping blade devices (202).

10. The heat exchanger as claimed in claim 8, further comprising a blade protection device (203) installed at an outer periphery of the external fluid pumping blade device (202).