an admission that any or all of these matters form part of the prior art base or were common general knowledge in the field relevant to the present invention as it existed before the priority date of each claim of this application.

OBJECT OF THE INVENTION

It is an object of the invention to overcome or at least alleviate one or more of the above problems and/or provide the consumer with a useful or commercial choice.

Other preferred objects of the present invention will become apparent from the following description.

SUMMARY OF THE INVENTION

In one embodiment ~~form~~, there is ~~although it need not be the only or indeed the broadest form, the invention resides in~~ a seafloor nodule concentrating system comprising:

a surface vessel;

an undersea steering vehicle secured to the surface vessel, the undersea steering vehicle adapted to be towed by the surface vessel;

a nodule collecting apparatus connected to the undersea steering vehicle, the nodule collecting apparatus located on the seafloor; and

a position determination device adapted to determine the position of the nodule collecting apparatus and communicate position information of the nodule collecting apparatus to the undersea steering vehicle and surface vessel.

Suitably, the undersea steering vehicle is adapted to alter the direction of the nodule mining apparatus. Suitably, the undersea steering vehicle is

adapted to alter the direction of the nodule collecting apparatus in response to receiving position information of the nodule collecting apparatus from the position determination device.

In ~~another form~~one aspect, the invention resides in a nodule collecting apparatus comprising:

a support member;

two or more nodule collection devices, each nodule collection device being secured to the support member and being adapted to collect ore nodules from the seafloor adjacent an underside thereof and communicate those nodules to an outlet pipe; and

a combined outlet pipe adapted to receive the collected ore nodules from the outlet pipe of each nodule collection device and re-deposit the collected nodules on the seafloor in the form of a windrow.

In still a further embodiment ~~form~~, ~~the invention resides in~~ a seafloor mining method including the steps of:

towing a nodule collecting apparatus behind a surface vessel along the seafloor;

determining when the nodule collecting apparatus deviates from a predetermined path;

altering the direction of the nodule collecting apparatus to return the nodule collecting apparatus to the predetermined path.

Preferably, an undersea steering vehicle is disposed between the surface vessel and the nodule collecting apparatus and is adapted to alter the direction of the nodule mining apparatus.

What is claimed: ~~OBJECT OF THE INVENTION~~

~~1. A seafloor nodule concentrating system comprising:~~

~~a surface vessel;~~

~~an undersea steering vehicle secured to the surface vessel, the undersea steering vehicle adapted to be towed by the surface vessel;~~

~~a nodule collecting apparatus connected to the undersea steering vehicle, the nodule collecting apparatus located on the seafloor; and~~

~~a position determination device adapted to determine the position of the nodule collecting apparatus and communicate position information of the nodule collecting apparatus to the undersea steering vehicle and surface vessel.~~

~~2. The seafloor nodule concentrating system of claim 1, wherein the undersea steering vehicle is adapted to alter the direction of the nodule collecting apparatus in response to receiving position information of the nodule collecting apparatus from the position determination device.~~

~~3. The seafloor nodule concentrating system of claim 1, wherein the undersea steering vehicle is located proximal the nodule collecting apparatus.~~

~~4. The seafloor nodule concentrating system of claim 1, wherein the undersea steering vehicle is in the form a remotely operated vehicle.~~

~~5.~~1. A nodule collecting apparatus comprising:

a support member;

two or more nodule collection devices, each nodule collection device being secured to the support member and being adapted to collect ore nodules from the seafloor adjacent an underside thereof and communicate those nodules to an outlet pipe; and

a combined outlet pipe adapted to receive the collected ore nodules from the outlet pipe of each nodule collection device and re-deposit the collected nodules on the seafloor in a windrow.

6~~.~~2. The nodule collecting apparatus of claim 5~~.~~1, wherein the support member has a concave shape on a leading side thereof.

7~~.~~3. The nodule collecting apparatus of claim 6~~.~~2, wherein the support member has a convex shape on a trailing edge thereof.

8~~.~~4. The nodule collecting apparatus of claim 5~~.~~1, wherein the support member is arcuate in shape.

9~~.~~5. The nodule collecting apparatus of claim 5~~.~~1, wherein the support member is in the form of a rigid beam.

10~~.~~6. The nodule collecting apparatus of claim 5~~.~~1, wherein the combined outlet pipe is in the form of a hydraulic conveyor.

~~11.~~7. The nodule collecting apparatus of claim ~~5~~1, wherein the ore nodules are communicated along the outlet pipe of each nodule collection device, to the combined outlet pipe and redeposited in a windrow on the seafloor by the force of water pressure created by forward motion of the nodule collecting apparatus.

~~12. A seafloor mining method including the steps of:~~

~~towing a nodule collecting apparatus behind a surface vessel along the seafloor;~~

~~determining when the nodule collecting apparatus deviates from a predetermined path;~~

~~altering the direction of the nodule collecting apparatus to return the nodule collecting apparatus to the predetermined path.~~

~~13. The seafloor mining method of claim 12, wherein an undersea steering vessel is disposed between the surface vessel and the nodule collecting apparatus and is adapted to alter the direction of the nodule mining apparatus.~~