WHAT IS CLAIMED IS:

1. A drilling agitation system comprising:

a drilling agitation machine configured to drill and excavate the composite ground with deep soil-cement mixing (DCM) while rotating, the drilling agitation machine comprises:

a plurality of auger shafts and a support shaft installed between the plurality of auger shafts;

a triple-pipe swivel installed between an auger machine and the plurality of auger shafts, the triple-pipe swivel adapted to allow inputs to be selectively supplied, according to the excavation situation on the excavation site, in an inward direction of the auger shaft, which is vertically and rotatably arranged from the auger machine and is rotated to induce the excavation of the excavation site;

a plurality of high-speed couplers installed at predetermined points in a longitudinal direction of the auger shafts such that the high-speed couplers reduce wear of a bushing while reducing a rotational load of the auger shafts and strengthening a shear force thereof by reducing friction shock generated during the rotation of the auger shafts; and

a drilling agitator connected to a lower end of a lowermost one of the auger shafts connected through a lowermost high-speed coupler to drill the excavation site by agitating and rotating the inputs on the excavation site;

a frame structure connected to an adjacent one side of the drilling agitation machine to support the drilling agitation machine; and

a transport operation machine axially coupled to a lower end of the frame structure to easily move the drilling agitation machine, together with the frame structure, to an excavation site on the composite ground with deep soil-cement mixing (DCM) and to induce an operation required for adjustment of the drilling agitation machine during the excavation by means of the drilling agitation machine.

2. The drilling agitation system according to claim 1, wherein:

the triple-pipe swivel comprises an inner ring connected to the auger shafts of the drilling agitation machine, used to excavate the seabed ground, to rotate together with the auger shafts, and an outer ring

surrounding the inner ring and fixedly coupled to upper and lower covers;

the inner ring has a main through-hole formed vertically from the top to the bottom at the center thereof; and

the outer ring has a first horizontal through-hole, formed horizontally from an upper portion on one side of an outer peripheral surface toward an inner peripheral surface thereof, and a second horizontal through-hole formed horizontally from a lower portion on one side of the outer peripheral surface toward the inner peripheral surface thereof or from a lower portion on the other side of the outer peripheral surface toward the inner peripheral surface thereof.

3. The drilling agitation system according to claim 2, wherein each of the main through-hole, the first horizontal through-hole, and the second horizontal through-hole is selectively supplied with slurry, high-pressure water, and high-pressure air as the inputs.

4. The drilling agitation system according to claim 1, wherein the high-speed coupler comprises:

a housing integrated with a coupling member coupled to

the support shaft;

covers coupled to or decoupled from both ends of the housing; and

a rotor rotatably inserted into the housing and used to connect the auger shafts therebetween while rotating together with the auger shafts.

5. The drilling agitation system according to claim 4, wherein the high-speed coupler further comprises a bushing integrated on an outer peripheral surface of the rotor with a predetermined gap therebetween, or a dual bushing interposed between the rotor and the housing.

6. The drilling agitation system according to claim 1, wherein:

the transport operation machine is a crane;

the transport operation machine comprises an adjustment connecting rod hinged, at one end thereof, to an upper portion of the frame structure and hinged, at the other end thereof, to the rear of the crane, to operate forward and backward by power provided thereto, thereby adjusting the operation required for the excavation adjustment of the drilling agitation machine; and

the transport operation machine further comprises a

cylinder connected to the adjustment connecting rod to provide the power to the adjustment connecting rod for the forward and backward operation thereof.

7. The drilling agitation system according to claim 6, wherein the transport operation machine further comprises:

a tension cable hinged, at one end thereof, to the upper portion of the frame structure, and connected, at the other end thereof, to first and second rollers for adjusting tension of the tension cable by unwinding or winding a wire;

a first auxiliary adjustment connecting rod connected, at one end thereof, to one of the first and second rollers and hinged, at the other end thereof, to the cylinder providing the power for forward and backward movement in front of the transport operation machine so as to tilt, thereby adjusting and inducing the tension of the tension cable; and

a second auxiliary adjustment connecting rod hinged, at one end thereof, to the first auxiliary adjustment connecting rod and hinged, at the other end thereof, to the transport operation machine, thereby complementing the tilting of the first auxiliary adjustment connecting rod

and inducing auxiliary tilting.

8. The drilling agitation system according to claim 1, wherein the drilling agitator comprises:

rhombic blades horizontally coupled to a rotary shaft and spaced apart from each other by a predetermined distance along the length of the rotary shaft to evenly agitate the inputs and to reduce a torque loss of the auger shafts;

an agitating blade horizontally coupled to a lower portion of the rotary shaft to simultaneously perform excavation and agitation; and

a spiral screw formed at a lower end of the rotary shaft to supply the inputs introduced thereinto along with the excavation to the excavation site.