container **30** is coupled with pump assembly **14**, a magnetic reed switch **78** contacts magnet **48** and, after being converted to a digital signal, sends an identifying signal to controller **18** identifying the contents. Controller **18** operates pump assembly **14** according to the identifying signal as discussed hereinafter. In further embodiments, magnets can be attached to housing **44** and mounted in any convenient location which can mate with a sensor or reed switch on pump assembly **14**. Although an annular ring-shaped magnet **48** is preferred, the magnet can be any suitable shape and size. Preferably magnet **48** is a rubberized magnet material as known in the art.

Pumping apparatus **10** further includes a housing **50** enclosing pump assembly **14** and controller **18** as shown in FIG. **2**. The upper end **52** of housing **50** includes an opening **54** for coupling with supply container **12** and delivering the material to pump assembly **14**. A lower end also includes an opening **54** receiving a discharge conduit **56** for carrying the material from pump assembly **14** to dispensing head **16**.

As shown in FIG. **2**, pumping apparatus **10** contains an inlet conduit **60** extending through opening **54** of housing **50** to an inlet **62** of pump assembly **14**. As shown in FIG. **4** inlet conduit **60** includes a material inlet cone **64** having an open upper end **66** positioned at the upper face of housing **50** within opening **54**. Inlet cone **64** further includes a curvilinear side wall **68** defining a concave inner surface **70** and a convex outer surface **72**. Side wall **68** converges to an outlet **74** and is coupled to a cylindrical throat tube **76**. The conical shape of inlet cone **64** serves to receive the material from container **12** and feed the material to pump assembly **14** in a substantially linear flow without inducing turbulence to the material.

Upper end **66** of inlet cone is preferably attached to the upper surface of housing **50** adjacent opening **54**. Alternatively, upper end **66** of inlet cone **64** extends above the upper surface **52** of housing **50**. In preferred embodiments, upper end **66** of inlet cone **64** is equipped with an annular reed switch **78** for sensing magnet **48** of supply container **12**. Reed switch **78** and upper end **66** of inlet cone **64** are dimensioned to mate with annular magnet **48**. An optional seal **80** is provided on housing **50** surrounding inlet opening **52** and inlet cone **64** to form a fluid tight seal between housing **50** and inlet cone **64** and the opposing face of supply container **12**. Reed switch **78** as shown in FIG. **4** which is activated when magnet **48** makes contact and sends a signal to controller **18** indicating the type of material in container **12**.

In preferred embodiments, inlet cone **64** and throat tube **76** are positioned vertically to define a gravity feed from supply container **12** to pump assembly **14**. Throat tube **76** includes a cylindrical body portion **82** terminating at a lower end **84**. As shown in FIG. **4**, lower end **84** includes a seal **86** to form a fluid tight connection with pump assembly **14**.

A vacuum generation assembly **90** is coupled to throat tube **76** to communicate to the interior thereof through and opening **92** in tube **76**. During initial start up of pumping apparatus **10**, as discussed hereinafter, vacuum generation assembly **90** draws air and vapors within throat tube **76** and inlet cone **64** by creating a negative pressure therein. The negative pressure draws the material from supply container **12** into inlet cone **64** and throat tube **76** and removes any air pockets from the apparatus to reduce the incidence of surging or sputtering in pump assembly **14** during startup. As discussed hereinafter in greater detail, vacuum generation assembly **90** is connected to and operated by controller **18** during initial start up of the apparatus.

Referring to FIG. **4**, vacuum generation assembly **90** includes a conduit **94** connected to opening **92** of throat tube **76** and connected to a cylinder **96**. A piston **98** is mounted within cylinder **96** for reciprocating movement. Piston **98** has a circular disk-like shape having an outer edge **100** with an outwardly facing annular recess **102**. A piston ring or packing seal **104** is provided in annular recess **102** to engage the inner wall **101** of cylinder **96** in fluid-tight engagement. Piston ring **104** can be made of metal, graphite composite or plastic material as known in the art.

A piston connecting rod **106** extends from a rear face **108** of piston **98** and terminates at a distal end **110**. Distal end **110** of piston rod **106** extends axially through a central opening **112** in an electromagnetic coil **114**. Piston rod **106** can be magnetized or contain a magnetized portion **107**. Electromagnetic coil **114** is energized by a power source **400** which is connected to and actuated by controller **18** and described in more detail below. Power source **400** is able to supply current selectively in opposite directions through electromagnetic coil **114**. Current supplied to electromagnetic coil **114** in one direction energizes coil **114** to draw piston rod **106** and piston **98** toward coil **114** as shown in phantom lines in FIG. **4** thereby drawing a vacuum in cylinder **96**, conduit **94** and throat tube **76**. The vacuum draws the air and vapors present in throat tube **76** and assists in drawing the material from supply container **12** into inlet cone **64**.

A check valve **118** is positioned in conduit **94** to permit air and vapors to be drawn from inlet conduit **60** into cylinder **96** by reciprocating movement of piston **98**. Check valve **118** includes an axial passage **120** having a valve seat **122** on the high pressure side of check valve **118**. A spring biased needle valve **124** has a valve face **126** engaging valve seat **122**. A coil spring **128** has one end engaging a stop member **130** and the opposite end engaging and biasing needle valve **124** in the closed position. Other check valve assemblies as known in the art can be used in alternative embodiments.

Cylinder **96** of vacuum apparatus **90** also includes an outlet **132** having a check valve **134**. Check valve **134** includes a cylindrical body **136** having a valve seat **138** and a valve **140** biased toward valve seat **138** by a coil spring **142**. As shown in FIG. **4**, check valve **134** is normally biased in the closed position and is opened by high pressure in cylinder **96**. Valve body **136** includes an outlet **144** on the low pressure side of valve **134**. Outlet **144** can be coupled by a quick release coupling (not shown) to a vapor recovery unit containing a suitable adsorbent or other reclamation material. Alternatively, outlet **144** can be used to vent the air and vapors to the atmosphere. Vacuum apparatus **90** is particularly suitable when the material being pumped contains toxic or flammable vapors. These toxic and flammable vapors can be recovered for safe disposal.

In use, controller **18** sends a signal to a relay connected to power source **400** to energize electromagnetic coil **114** to draw piston rod **106** and piston **98** toward the coil **114** thereby creating a negative pressure within cylinder **96**. This negative pressure closes check valve **134** and opens check valve **118** to draw air and vapors from inlet conduit **60** and draw material from supply container **12** into cone **60**. At the end of a cycle, controller **18** sends a second signal to reverse the flow of current to electromagnetic coil **114** thereby causing piston **98** to move away from the coil **114**. As piston **98** moves away from coil **114**, valve **118** closes and piston **98** begins to compress the air and vapors within cylinder **96**. When the pressure in cylinder **96** exceeds the tension of spring **142**, valve **134** opens to allow the air and vapors to vent through outlet **144**.