This invention relates to refrigerating systems. An object of this invention is to provide a device adapted for insertion in a refrigeration system at the intake side of the expansion valve whereby the condition of the refrigerant liquid may be viewed and the movement of the liquid to the expansion valve can be checked without disconnecting any portion of the system.

Another object of this invention is to provide an attachment for a refrigerating system which is of simple construction and can be interposed in the system without changing any of the elements in the system.

An important object of this invention is to provide a device of the kind herein disclosed to connect in the inlet of an expansion valve on a refrigerating system, with a strainer in the glass of the liquid indicator, the strainer being clearly visible in order that dirt or foreign material which would cause the refrigerant to cease flowing can be readily detected and thus obviate the need of taking the system apart to determine, for example, why the machine is being starved of refrigerant or in the case of a window installation having more than one coil or evaporator, as to why one of the latter is being starved. Experience has shown that the fault is likely to be a stoppage at the inlet of the expansion valve.

With the above and other objects in view, my invention consists in the arrangement, combination and details of construction disclosed in the drawings and specification, and then more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a diagrammatic view of a refrigerating system of conventional construction having an attachment constructed according to an embodiment of this invention interposed therein.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a front elevation view of the attachment. Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Referring to the drawings, and, first, to Figure 1 wherein there is disclosed a conventional refrigerating system, a compressor 10 is connected by means of a pipe 11 to a condenser 12, and the outlet side of the condenser 12 is connected by means of a pipe 13 to a liquid receiver 14. The outlet side of the receiver 14 is connected by means of a pipe 15 to a strainer 16, and the strainer 16 is connected by a pipe 17 to an expansion valve 18.

The outlet side of the expansion valve 18 is connected by a pipe 19 to an evaporator 20, and the evaporator 20 is connected by a pipe 21 to the suction or intake side of the compressor 10. A control member 22 is connected with the pipe 19 for regulating the cycles of the refrigerating system. The system hereinafter described is conventional and is illustrative of a system within which an attachment constructed according to this invention is adapted to be connected. The intake side of the expansion valve 18 which is normally connected with the pipe 17 has interposed between the pipe 17 and the valve 18 a combined sight member and strainer generally designated as 23. The combined sight member and strainer 23 is formed of a substantially cylindrical member 24 which is formed with one or more oval windows 25 substantially midway between the ends thereof. A cap 26 which is formed with a threaded stud 27 is threaded onto the upper end of the cylindrical member 24 with the stud 27 threaded into the boss 28 at the intake end of the expansion valve 18.

The lower end of the cylindrical member 24 has threaded thereon a cap 29 which includes a threaded stud 30 engageable by a threaded coupling 31 connecting the upper end of the pipe 17 with the sight and strainer member 23. A glass tube 32 is disposed within the cylindrical member 24 between the ends of the latter, and upper and lower sealing gaskets 33 and 34 bear against the opposite ends of the transparent tube 32. An upper spring 35 is disposed within the upper end of the cylindrical member 24 and bears at its upper end against the cap 26.

The opposite end of spring 35 bears against a metal washer 36 which in turn bears against the upper sealing gasket 33. A lower spring 37 is disposed in the lower portion of the cylindrical member 24 bearing at its lower end against lower cap 29 and bearing at its upper end against a metal washer 38 which engages against the sealing gasket 34.

A cylindrical screen 39 is disposed in the lower portion of the cylindrical member 24 terminating at its upper end between the opposite ends of the window opening 25 so that a portion of the screen 39 may be viewed through the opening 25.

The screen 39 includes an upper wall 40 which provides a means whereby the liquid or refrigerant will be required to pass through the wall 40 of the screen, and this wall can readily be viewed through the glass tube 32 and the window opening 25.

The cylindrical screen member 39 projects downwardly through the spring 37 and the cap 29.
being disposed within the stud 30 and formed with an annular lower flange 41 which bears against the lower end of the stud or nipple 30. The upper end of the pipe 17 is formed with a flange 42 bearing against the screen flange 41 so that when the cap or coupling member 31 is tightened on the nipple 30, the pipe 17 will tightly hold the flange 41 of the screen against the lower end of the nipple 30.

Tightening of the caps 26 and 28 will also tension the springs 35 and 37 against compressing washers 36 and 38, respectively, so that the sight tube 32 will be tightly sealed within the cylindrical member or housing 24.

The combined sight member and screen strainer structure should be a part of the expansion valve or attached at the inlet of the expansion valve. When the compressor 10 is operating, the liquid refrigerant 10 is forced through the combined sight and strainer member 23, and the condition of the liquid refrigerant can be easily and quickly determined by viewing the same through the sight opening 25.

The opening 25 will also permit viewing the condition of the strainer so that if there is any accumulation of clogging material in the strainer, the attachment can be readily removed and the strainer cleaned so that the refrigerant may freely flow through the strainer. With an attachment as hereinbefore described, it is possible to use one or more cooling coils in the refrigerating system, and such cooling coils or evaporators will receive equal refrigerant so that such coils will be maintained at the desired heat exchanging condition. This attachment can be connected with the refrigerating system without affecting the cyclic operation of the system and without changing the various parts and elements making up the refrigerating system.

What is claimed is:

1. A liquid indicator providing means for viewing a strainer adapted to be interposed in a refrigerating system comprising a tubular member having a sight opening between the ends thereof, a screw cap on each end of said member, threaded nipples carried by said caps, a trans-