

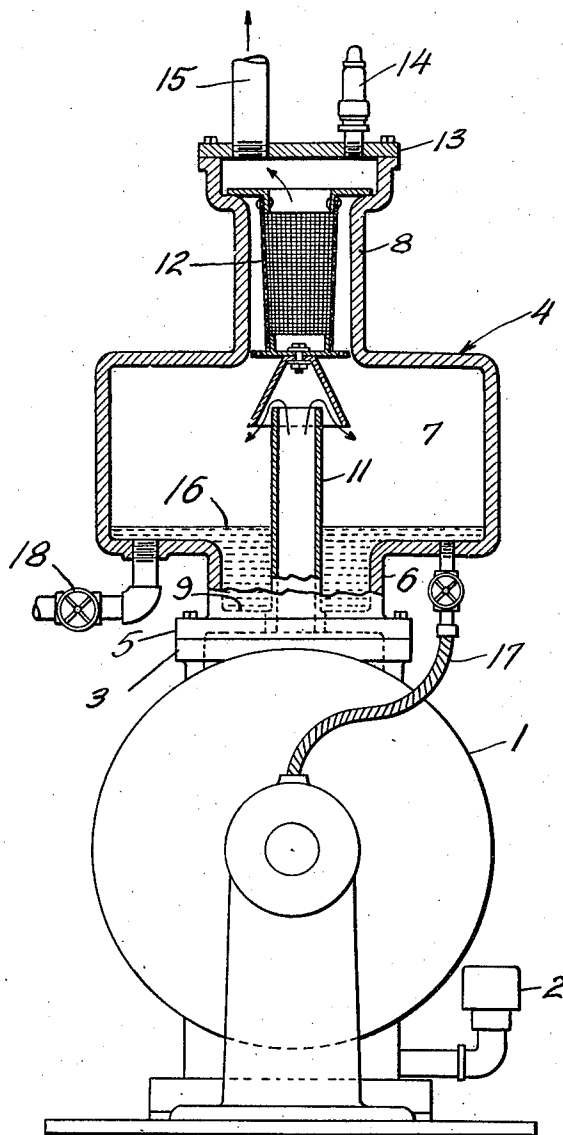
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AIR COMPRESSOR

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AIR COMPRESSOR

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This invention relates to an air compressing system or unit and more particularly to a type for use where compactness is an important factor and is highly desirable because of the limited space available for the use thereof.

Compressing systems have been designed heretofore but the difficulty with such prior known devices has been that more space is required for the use thereof than can be provided in some instances. In prior known devices it has been the custom to use a compressor as one unit, an oil separator as another, and a compression tank or chamber as a third unit. This requires a large space and a number of connections, such as those between units, all of which are undesirable and uneconomical. Furthermore, a large number of connections means a great chance for leakage and results in lowered efficiency.

Our unitary compressing system includes two main elements, viz, the air compressor (preferably of the rotary type) upon which is mounted an air receiver. Within the air receiver is located an oil separating unit, thus effecting a considerable saving of materials and doing away with connections that would be required were the oil separator a separate unit. Compactness is also thereby effected. In the accompanying drawing in which like reference characters refer to like parts, the single figure is an elevation, partly in section, of our air compressing unit.

In the drawing, 1 indicates an air compressor, preferably of the rotary type, which draws the air to be compressed thru an inlet member 2 and discharges the same thru the flanged outlet portion 3 at the top of the compressor and integral therewith. Upon the flange 3 of the compressor is mounted an air receiver 4, which is secured to the flange 3 of the air compressor by means of an inlet flange 5, the two flanges having machined faces and being secured together by means of bolts or machine screws of any desired type. The air receiver 4 comprises a reduced base portion 6 (integral with, and from the lower portion of which extends, the flange 5), a compression chamber 7 and a shouldered outlet neck 8; the chamber 7 constituting a wide-

bodied portion having several times the capacity of the relatively narrow-necked portion 8. The lower reduced portion 6 is provided with a wall 9 having an opening in which is inserted the air compression chamber inlet pipe 11. Within the shouldered neck 8 is mounted an oil separating unit 12, upon the lower portion of which impinges the air that is forced from the inlet pipe 11. The neck 8 is closed by means of a machined plate 13, in which is inserted a safety valve 14 and an air outlet pipe 15. Altho we have shown the air receiver of one size, it is obvious that we may increase its diameter or height according to requirements as to volume, etc.

Since most air compressors, especially those of the rotary type, must operate with a large supply of oil, the chamber 7 is partially filled with oil as shown at 16, a valved return line 17 being provided to conduct the oil back to the compressor as may be required for its operation. A cleanout or discharge pipe 18 may also be provided for the compression chamber either in the position shown or at the base of the compression chamber.

The operation is as follows:

The oil is supplied to the compression chamber 7 to a height approximately as indicated and the air compressor 1 is started. Air is drawn into the compressor thru the inlet member 2 and discharged thru the pipe 11, thereby impinging upon the inverted bell portion of the oil separating unit 12. The majority of oil taken up by the air in passing thru the air compressor is thus separated from the air, altho the air must yet pass thru the screened portion of the oil separating unit 12 where the remainder of the oil is removed and the air passes out thru the pipe 15 directly to the point of utilization as may be desired. Thus it will be observed that no separate air receiver or tank is required to be interposed between our compressing system and the point of air utilization. The receiver 4 is large enough to maintain a clean, non-pulsating supply of air and yet the entire unit is quite compact and free from the usually large number of connections and piping required. The safety

valve 14 prevents an unsafe pressure from accumulating in the system.

By the use of our invention, large and cumbersome air receivers or tanks may be eliminated and one unit occupying a very much reduced space is provided in which the numerous connections required for prior known devices are dispensed with.

We claim:

1. In combination a rotary air compressor, a narrow-necked wide-bodied chamber seated on said air compressor and communicating therewith by an airtight joint and an oil separator, thru which air passes from the compressor, residing substantially within said narrow-necked portion, said wide-bodied portion providing a chamber having several times the capacity of the necked portion.

2. An air compressor comprising in combination an outlet portion, an air receiver mounted thereon and comprising a compression chamber having a lower reduced portion secured to said outlet portion, said lower reduced portion being provided with a separating wall having integral therewith a pipe leading into said air receiver, an oil separating unit mounted above said pipe, said reduced portion being arranged to contain the oil received from the separating unit.

3. In combination a rotary air compressor, a narrow-necked wide-bodied chamber having a lower reduced portion seated on said air compressor and having an integral pipe connection communicating with said air compressor and the interior of said chamber by an air tight joint, an oil separator through which air passes from the compressor residing substantially within said narrow-necked portion, said lower reduced portion being arranged to contain oil received from said separator.

In testimony whereof we affix our signatures.

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