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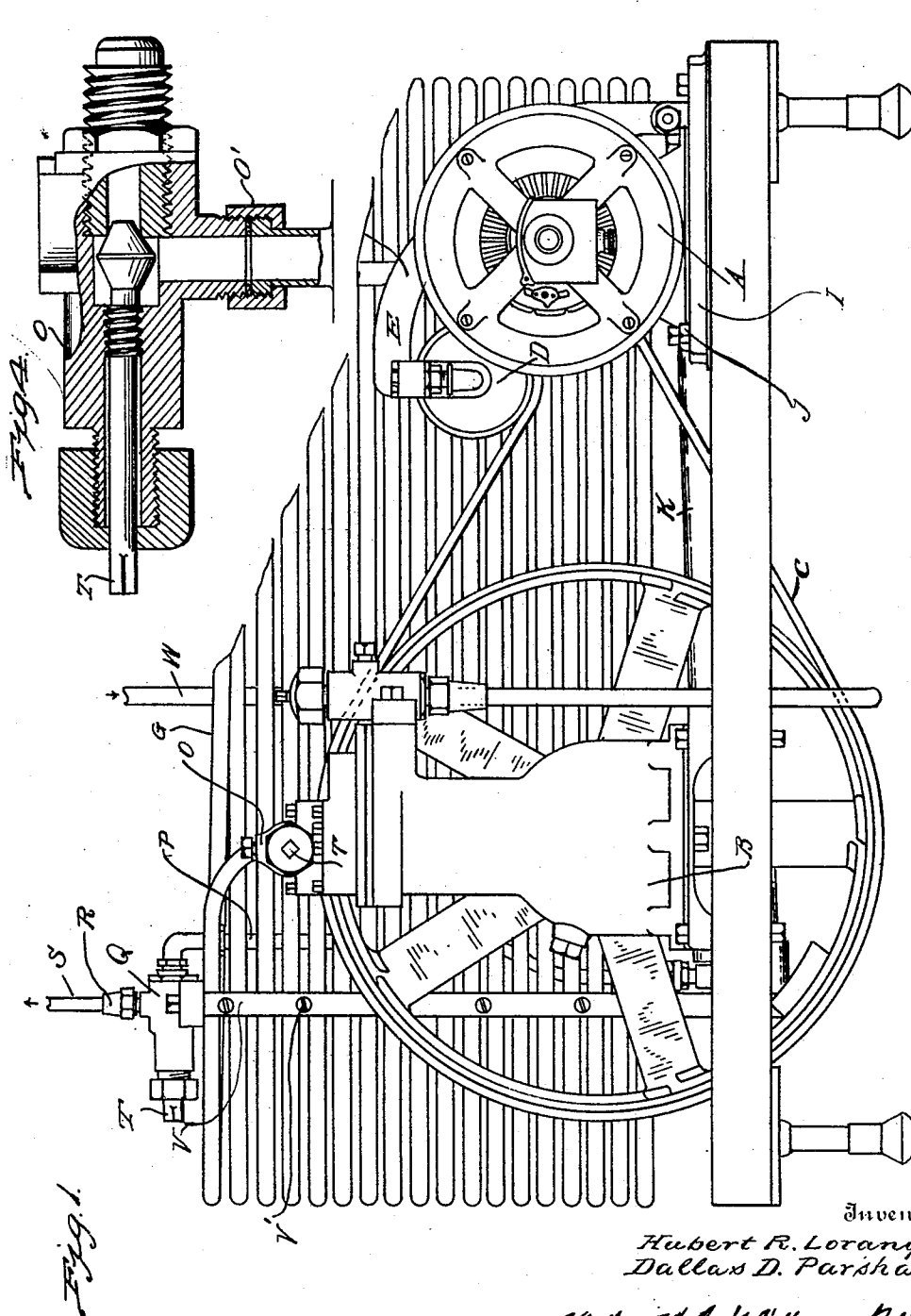
H. R. LORANGER ET AL

1,802,659

CONDENSER UNIT FOR REFRIGERATING APPARATUS

Filed June 30, 1924

2 Sheets-Sheet 1



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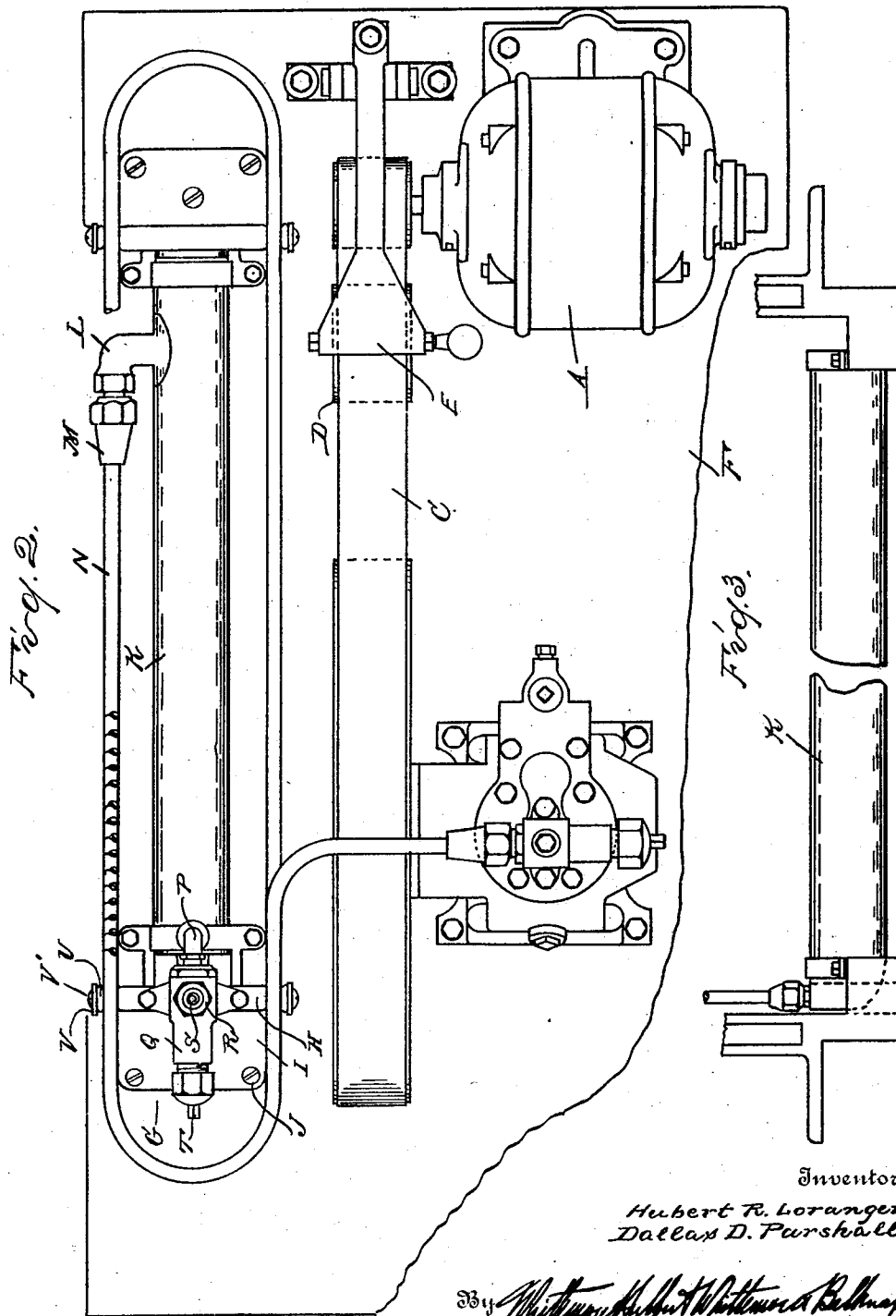
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UNITED STATES PATENT OFFICE

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CONDENSER UNIT FOR REFRIGERATING APPARATUS

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The invention relates to refrigerating apparatus of that type designed for family use, and the invention has more particular reference to the construction of a replaceable condenser unit. In the present state of the art, units of this type include expansion coils which are located within a brine tank in a refrigerator or other chamber to be cooled, also a motor driven pump for compressing the expanded vapor and a cooling and condensing coil in which the compressed vapor is condensed. With certain refrigerating agents, such for instance as sulphur dioxide, it is necessary to treat the condensed liquid to purify the same before recirculating to the expansion coils. For instance, if any moisture or water vapor finds access to the system, this will convert the sulphurous anhydride into sulphurous acid, which will exert a corrosive action and should, therefore, be eliminated. This purification is accomplished by percolating the condensed liquid through a porous reagent for neutralizing the corrosive ingredients, as for instance zinc chips or filings. The purified liquid may then be passed to the expansion coils without injury thereto.

It is one of the objects of the present invention to provide a unit including the condensing or cooling coils and the purifier, which unit may be readily detached from the rest of the apparatus and while detached will maintain the refrigerating liquid therein under pressure. This permits of replacing a unit which has become inoperative through leakage or otherwise, said unit containing the proper quantity of the refrigerating agent so that the system will be immediately operative. It is another object of the invention to so construct the purifier that it will constitute a reservoir for holding all of the liquid refrigerating agent, which will leave all of the coils free to act in cooling and condensing the vapor. With these objects in view my invention consists in the construction as hereinafter set forth.

In the drawings:

Figure 1 is an elevation showing the mo-

tor, pump and condensing coil of a refrigerating apparatus;

Figure 2 is a plan view thereof;

Figure 3 is an elevation of the detached unit;

Figure 4 is a sectional elevation of the valve connection between the condenser coils and compressor.

A is the motor, preferably electric, B is the compressor pump driven from the motor by the belt C maintained at proper tension by the idler pulley D supported from the bracket arm E. F is a base upon which the various elements are mounted and G is the cooling or condensing unit.

The unit G comprises a pair of stanchions H having foot flanges I which are screwed or otherwise secured at J to the base. Extending between the stanchions H and supported therefrom at the base thereof is the combined purifier and container K. This is preferably a cylinder of sufficient capacity to hold the required quantity of liquid refrigerating agent and also having the purifying means (not shown). L is an inlet fitting for the purifier K which is connected by the coupling M with a coil N, which is wound in a spiral about the stanchions and is connected at its upper end with a fitting O detachably secured to the head of the compressor B. From the opposite end of the purifier K there is a vertical riser P, which at its upper end is connected to the fitting Q detachably connected by the coupling R with the conduit S leading to the expansion coil. The fittings Q and O are provided with shut-off valves operated through the stems T so that prior to detachment of the unit these valves may be tightly closed to prevent escape of the liquid and to maintain the vapor pressure thereon.

To hold the spiral coil N in place, the stanchions H are provided with plane sides and have notched strips U, preferably formed of molded rubber. These strips support and space the individual coils and are secured to the stanchions by a clamping strip V and screws V'.

With the construction as described the vapor from the expansion coil is returned

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through a conduit W to the pump B in which it is compressed and passed outward through the fitting O into the coil N. Here it will be exposed to the cooling effect of the air circulating between the coils, so that by the time the bottom of the coil is reached, all vapor will be condensed into liquid. This liquid then passes into the purifier and reservoir K, from which it passes to the expansion coils through the riser P, fitting Q and conduit S.

Whenever it is necessary to renew or repair the unit, the shut-off valves are closed by turning their stems T, the coupling R is unfastened and the fitting O is detached from the head of the compressor by unscrewing the coupling O'. The foot flanges I of the stanchions are then released by removing the screws J, whereupon the whole unit may be lifted from the base and carried away for repairs. In the same manner a new unit can be placed in position and after being coupled, the shut-off valves are opened permitting immediate operation. It is evident, therefore, that there need be no interruption in the operation of the refrigerating apparatus as the exchange of units can be almost instantaneously effected.

What we claim as our invention is:

1. In a refrigerating apparatus, the combination with a motor driven compressor, of a condenser unit detachably connected therewith comprising spaced stanchions, a cooling coil extending spirally about said stanchions, and a combined reservoir and purifier extending between said stanchions and connected with said coil.

2. In a refrigerating apparatus, the combination with a motor driven compressor and a base on which it is mounted, of a condenser unit detachably mounted upon said base and comprising a pair of spaced stanchions, means for preventing the escape of the refrigerant and to maintain the vapor pressure therein while the unit is detached, a cooler coil extending spirally about said stanchions, notched bars for spacing the coils and securing the same to said stanchions, and a combined purifier and container at the base of said stanchions extending therebetween and connected with said coil.

In testimony whereof we affix our signatures.

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