with water-white kerosene showed a 60 to 70 per cent. control of the old dandelion plants, and as far as could be observed no seedlings were able to maintain themselves in the only temporarily injured bluegrass sod. The ability of established sod to prevent the invasion of dandelion seedlings has been demonstrated by plots sprayed in May of 1933. Although completely surrounded by a very heavy stand of seeding dandelion plants, these plots at the present time show a dandelion infestation less than 2 per cent. of that present on the adjoining control plots. Fertilization, including the use of ammonium sulfate at the rate of one half pound per 100 square feet once or twice a year, is an important factor in maintaining a sod sufficiently close and heavy to prevent the invasion of dandelion seedlings.

We are continuing our work on the effect of biologic and weather factors and a more careful determination of the active constituents of the sprays. At present we are inclined to the view that saturated hydrocarbons of the medium boiling point series are the effective ingredients. More complete data will be published at a later date.

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AN APPARATUS FOR AUTOMATICALLY MAINTAINING REDUCED PRESSURE

A DESCRIPTION is given here of a simple device for maintaining reduced pressure automatically. The apparatus consists mostly of ordinary laboratory glassware, and can be built at very little expense.

A filter pump P (see sketch) is connected to a spring faucet F of the type which supplies water when the handle is depressed. The air tube of the filter pump is connected by means of glass tubing to a valve V, made of a 250 cc filter flask with a glass tube inserted through a rubber stopper and dipping into mercury in the bottom of the flask. The valve is connected, as is shown in the sketch, to a five-gallon bottle C_1, which is connected by means of glass, and rubber, tubing to a similar bottle C_2, several feet below. In each case glass tubing extends nearly to the bottom of the bottle.

Bottle C_2 is suspended from one end of a steel bar A, which is about 65 centimeters long, and which is in turn supported by a bolt through a hole about 16 centimeters from the point from which the bottle is suspended. A piece of steel wire is attached between a point on the bar above the center of the bottle and the end of the faucet handle. Near the other end of the bar are hung a three kilogram weight and a mercury leveling bulb B_1. A second mercury bulb B_2 is placed

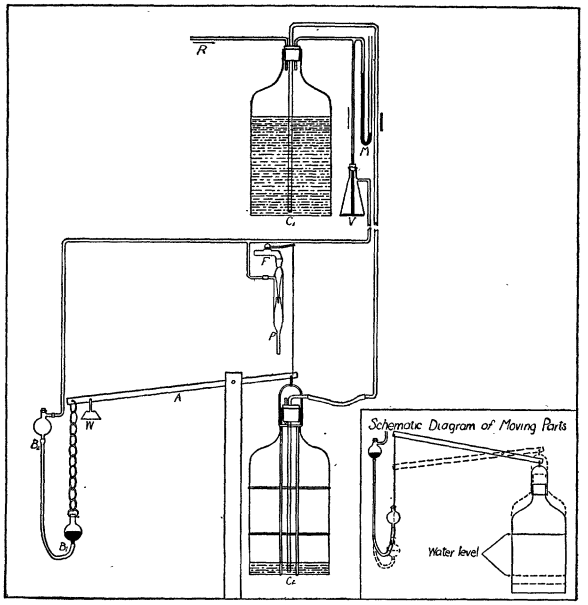

FIG. 1. Reduced pressure apparatus: A, arm, supported by bolt; B_1 and B_2, leveling bulbs; C_1 and C_2, five-gallon water bottles; F, water faucet; M, manometer; P, filter pump; R, laboratory reduced pressure line; V, air valve; W, weight.

in a stationary position and is connected so that mercury is free to flow from one bulb to the other, depending on differences in pressure. The air space of the bulb is connected to the air line leading to the pump by means of glass, and rubber, tubing.

A manometer, M, indicates the pressure in the reduced pressure line. Maximum variations of pressure were found to amount to seven cm of mercury while the apparatus was in use.

The functions of the various parts of the system may be seen by an examination of the sketch. The mercury and water assume the levels shown, when no air is being admitted, and after the system has come to rest. When the flow of water through the filter pump decreases to such an extent that the pump no longer draws air from C_1 the weight of the mercury, which then flows from B_2 to B_1, depresses the longer arm of bar A and allows the spring faucet to close completely.

The effective height of the water column between the two bottles is a function of the difference between the pressure in the reduced pressure line and atmospheric pressure. The difference between the elevations of the two bottles must be such as to give the desired reduction in pressure.

The original apparatus has been in constant service for two years without necessitating repairs or changes in adjustment.

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