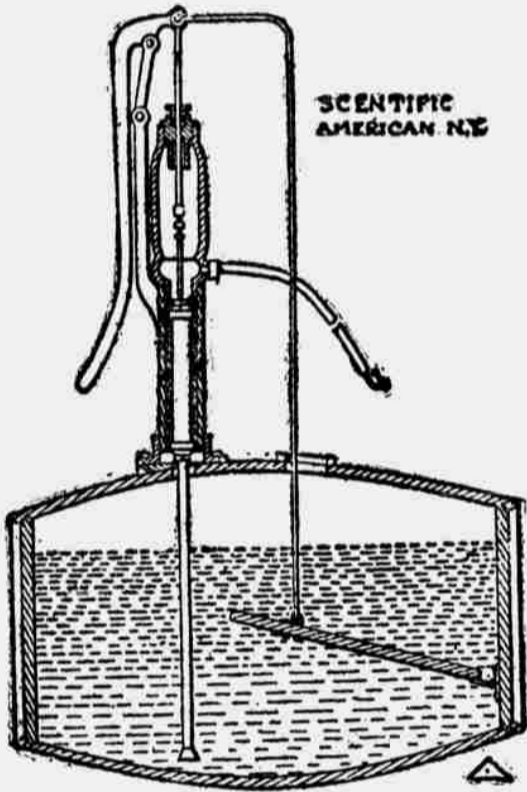


# POPULAR MECHANICS

## HOMEMADE SPRAYER.

**Serviceable Outfit That Can Be Easily and Cheaply Made.**

The spray pump herewith described cost \$11, writes a correspondent of the Scientific American. Any ordinary workman who is handy with tools could put the sprayer together in a day. It was assembled from the following: A riding cultivator frame, pole and wheels (old scrap iron), a good coal oil barrel (price \$1), a three



ARRANGEMENT OF AGITATOR.

inch cylinder cast iron force pump (\$6), a plain brass two inch cylinder and valve (\$2), a piece of good three-quarter inch hose and a spraying nozzle (\$2); total cost, \$11. After putting the above material together I was able to get easily a pressure of 150 pounds per square inch, a very necessary prerequisite to apply the bordeaux mixture with the right force.

Directions for assembling are as follows: Take the valves out of the cylinder of any cast iron force pump. Replace these valves with the plain brass two inch cylinder and valves. Cut off with a hack saw the two inch cylinder to the right length to just fill the cast cylinder. Fill in the space between cast cylinder and brass cylinder with plaster or cement, being sure that the brass cylinder is in the exact center of the cast cylinder. Attach the plunger valve of brass cylinder to the plunger piston of the force pump and couple up the piston to the handle of the pump so as to get a full stroke. As only a small amount of liquid is needed in spraying, the object of this reduction of cylinder is to lessen the flow and increase the pressure. The reduction of three to two halves the flow and doubles the pressure. Mount the pump on the barrel and the barrel on the riding cultivator frame. Make an agitator as follows: In the barrel, near the bottom, on the end or head of the same, hang with a T hinge a board made of oak 1 by 6 by 2 feet to swing up and down. Connect the board with the pump plunger by a steel rod so that it will swing up and down with the stroke. The steel rod should enter the barrel through an opening made to pour in the liquid.

### Curious Defect of Vision.

A curious defect in color sense is recorded by Mr. C. R. Gibson in the "Transactions of the Royal Philosophical Society of Glasgow." The case in question is that of Mr. Gibson himself. His color vision is perfectly normal, with the exception that at times his

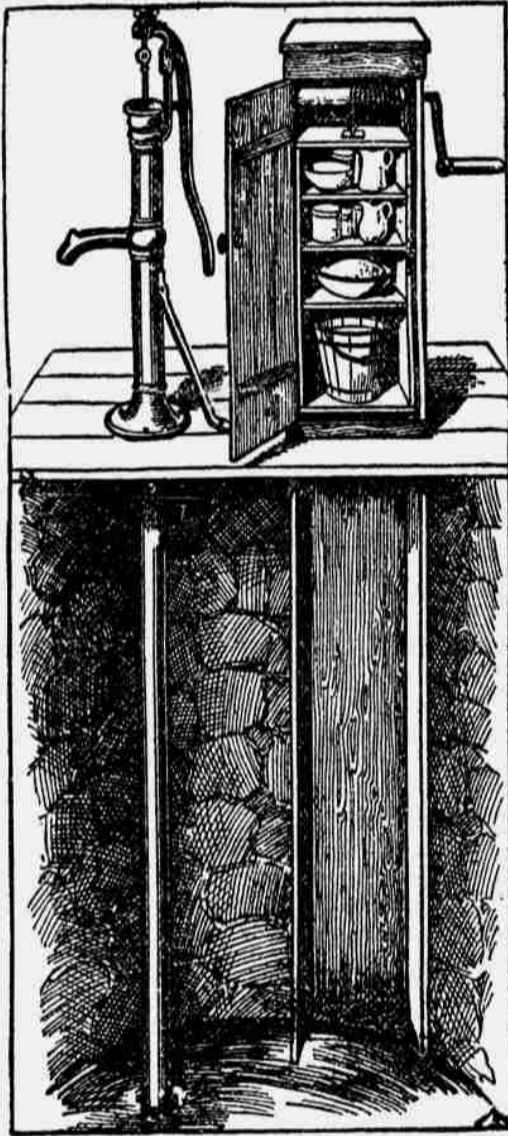
sensitivity to red is suppressed. As soon as his attention is called to a red object his eye immediately responds, and he sees the object as it really is. In other words, the temporary "red blindness" disappears immediately when he is informed that red rays are present in the light which strikes his eye.—Scientific American.

## REFRIGERATOR IN WELL.

**Efficient Cooling Apparatus Where Ice Is Lacking.**

A country place is not always situated where ice can be procured during the summer months, and a substitute refrigerator must be provided. A resident of a country place devised a cooling apparatus which he placed in his well.

The device consisted of a box about one foot square made of boards having a length to reach almost to the water level and to extend about four feet above the platform of the well. A short box containing several shelves is made to slip easily into the long one, similar to a dumb waiter. This smaller box is lowered and raised



THE WELL REFRIGERATOR.

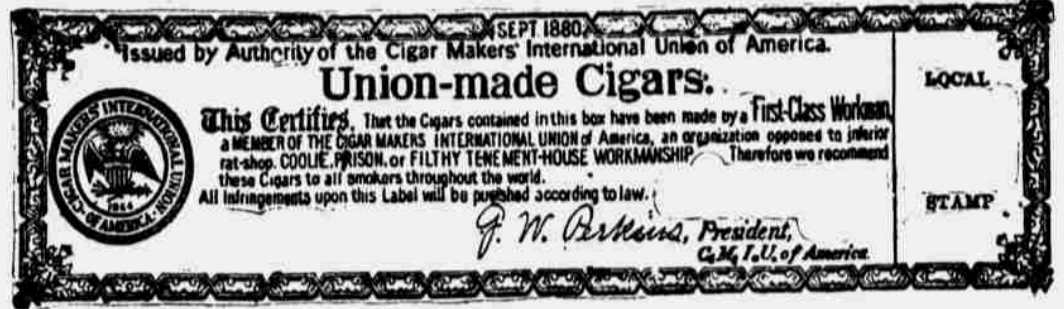
with an old fashioned windlass. The smaller box containing the shelves is filled with things to be kept cool and the box then lowered to the bottom of the long box, or near the water in the well. The rope holds the box in this position until the food is wanted, when a few turns of the crank will bring the box and its contents to the top within easy reach from the outside.—Popular Mechanics.

### A Waterproof Cement.

Experiments made by the officers of an English railroad seem to demonstrate that a waterproof cement may be made from a mixture of cement and clay. The best results were obtained with cement mixed with clay in proportions of one of clay to seven of cement and the mixture then used as the cement in a 1:3 sand mortar. Blocks of this mortar over eight inches thick were impermeable. Specimens six inches thick containing the same materials, but mixed with 5 per cent alum solution, were also impermeable when subjected to a forty pound water pressure.

## PATRONIZE HOME INDUSTRY

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