

Some Common Mistakes about Canned Goods.

A United States Army surgeon writes us from Indian Territory, asking as to the reason for two punctures sometimes seen in the caps of cans containing fruits and other goods, and whether this indicates that the goods have been "reprocessed." The facts touching this point, as communicated to us by one who is an expert in the business, are as follows:

The presence of two or more punctures or solder holes in a tin of canned goods is not evidence of reprocessing. In capping the can after filling with fish, fowl, meat, vegetables, fruit, or whatever it may be, a cap is used which has a small hole in the center. A soldering iron, made of copper, heated to a red heat, is used, the heat from which produces expansion of the air within the can, and so that the air escapes through the hole or vent in the center of the cap. If it could not do so, it would be a difficult operation to cap the can successfully.

After the can is capped the vent is closed with a drop of solder, and thus one vent, or puncture, is shown on the top of the can. The can is then placed in a bath or process kettle, after which the operation varies. If the goods are what is known as "double bathed goods," they are taken from the kettle after a certain time, which varies according to the article packed or the formula of the processor, and then vented or exhausted. The ends of the can being bulged out from the pressure exerted by the expansion of the contents under heat, the first vent hole in the top is either unsoldered with a hot soldering iron, or a puncture is made with an awl or sharp instrument, within half an inch from the first vent. The air and steam having been allowed to escape, the tops resume their natural condition, or are pressed in, when the second vent is closed with another drop of solder, and the goods are returned to the process kettle and bathed, according to the kind of goods being packed.

If a hot soldering iron is used to open the first vent hole referred to, after the can comes from the bath, as is sometimes done, only one vent hole will be observed on the top of the can.

If another puncture is made in the cap, and that closed with a drop of solder, it will show two punctures or vent holes in the top of the can; and as some manufacturers double process their goods, some cans will show three solder spots, but this is not evidence that the goods have been what is known as "swells," which have been reprocessed; for what would be easier for a packer who desired to reprocess goods than to open the original vent hole in the top of the can, provided there was only one there, let out the gas which had generated from fermentation, solder it up again, and give it a few minutes' bathing, which would serve to keep it? This is sometimes done in the case of seed fruits, which generate a gas from their pits or seeds, the germination element of which is not entirely killed by the original processing.

Trying a New Compressed Air Car.

In Astoria, one of the suburbs of New York city, a trial was made a few days since of driving a street car by compressed air, according to the system of Robert Hardie. The car was built by the John Stephenson Company, and fitted up with compressed air chambers to run a small motor or engine on the front platform, the air chambers being under the car and the car seats, and wherever there was spare room. This capacity was said to be sufficient to run the car ten miles, the rate of motion being very efficiently controlled by an air brake.

THE GREAT BLOWERS OF THE DENAIN AND ANZIN FORGES.

The progress of metallurgy is necessitating the construction of more and more powerful accessory apparatus. The Societe des Anciens Etablissements Cail, which has signalized itself in recent times by the construction of the new French artillery and by that of the great Bange gun, has delivered to the Denain and Anzin Forges and Steelworks two colossal machines, which are designed for forcing air into the Bessemer blast furnaces installed at those great works. Our engraving (from a photograph) represents one of the two blowers of the Denain Forges. These apparatus, which are each composed of two vertical engines coupled to the same shaft, have the following dimensions:



ONE OF THE BLOWERS OF THE DENAIN AND ANZIN FORGES.

Diameter of steam cylinder.....	3 feet.
Diameter of air cylinder.....	7 "
Common stroke of pistons.....	5 "
Number of revolutions per minute.....	22
Effective pressure of steam.....	11 lb.
Pressure of air in cm. of mercury.....	20
Diameter of single-acting air pumps.....	1 3/4 ft.
Stroke of pistons.....	2 1/4 "
Volume of air sucked in per minute.....	15,894 cub. ft.

These machines have been running regularly, day and night, ever since they were set up, which dates, for the first ones, back to January, 1884.

The coupling of the two engines upon the same shaft permits of running at very variable velocities—from 5 to 6 up to 22 revolutions per minute, according to the needs of the moment, while blowing at a given pressure.

The distribution of steam is perfect, and the vacuum is constant at 65. The wind cylinders are well constructed. The force and suction valves are rectangular bands of rubber, resting upon gratings. They offer a

wide section to the passage of the blast, and operate almost noiselessly. These magnificent apparatus have met all the requirements that were expected of them, and do honor to the industry of our country.—*La Nature*.

The Strength of Clinker Concrete.

The utilization of clinkers as building material is the subject of a long memoir by M. Louvier, an architect of Lyons. It is stated in the *Journal of Gas Lighting* (London) that the extensive use of clinkers for foundation work was begun in the neighborhood of Lyons by small contractors, who leased from the municipality frontages on new roads where the subsoil was bad. Originally these clinkers accumulated in the vicinity

of works, where they formed an eyesore, and were given freely to any one who would remove them; the cost of the material delivered on building sites being not more than 1 s. per cubic yard. The contractors found them so useful, however, that clinkers are now marketable in Lyons, and cost, delivered, as much as 10 s. 6 d. per cubic yard. A small quantity of common, or hydraulic, lime is mixed with the clinkers before use, and the mixture is then wetted and rammed in layers.

When arches or vaults are formed of this kind of clinker concrete, care is taken not to place the layers of material parallel to the surface of the ground or the curve of the centering, but to ram the layers in such a way as to consolidate them vertically to the curve of the intrados. In this way all risk of shaking out any of the material is avoided. Originally used by cheap constructors, this method of construction has been adopted by architects for important works; and M. Louvier has recently depended upon it for the basement of the new hotel of the Lyons prefecture. He had previously constructed an experimental vault of the required dimensions, 6.30 meters span, 1.24 meters rise, the concrete being 0.45 meter thick at the crown, and the abutment 0.80 meter wide and 0.90 meter deep.

Three weeks after it was built, this arch was loaded with a weight of 2,500 kilos. per superficial meter; and the load was kept on it for 15 days without causing the slightest settlement or fissure. The load being then removed, a block of stone weighing 600 kilos. was allowed to drop on the crown of the vault from a height of 1 meter, without injuring the structure. Fears having been expressed lest this mixture of clinker and ashes and lime would burn, a portable forge was placed under it, and a fierce fire kept up for half an hour without affecting its substance or strength. It is further stated that at a nitro-benzine factory

near Lyons, the walls of which were constructed of this material, a fire occurred of such a destructive character that the machinery was partly melted. The only effect of this intense heat on the clinker concrete was to vitrify its inner surface, but not to destroy the stability of the walls.

Dangerous Business.

N. D. Jones, who transports the nitro-glycerine for the Warren factories, makes a trip down the river in a little boat about every two months. He takes about two tons of explosives, and on his last trip, according to his statement in the *Bradford Era*, he narrowly escaped being run down by the steamer Emma Graham. He stated that the pilots seem to delight in running little boats down, and some day this will be done to the sorrow of some of them, since the amount of glycerine on board would be sufficient to tear a boat up so fine that it would require a search warrant to find the splinters.