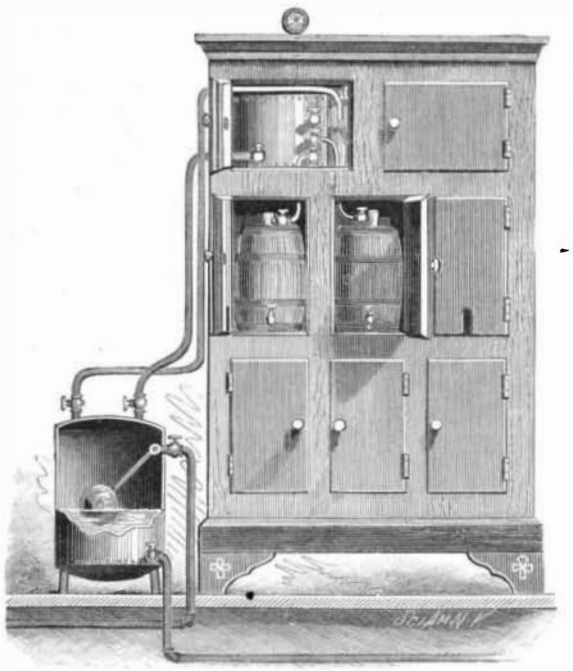
A REFRIGERATOR AND AIR PRESSURE APPARATUS.

The illustration herewith shows a refrigerator in which two different currents of air are set up, as desired, one for the purpose of cooling the inside of the refrigerator, by passing over ice therein, and the other for cooling the contents of the beer kegs, etc., placed in the refrigerator. In our engraving the tank at the left is for water, a pipe connecting with a water head; this



HEINTZ'S AIR-PRESSURE REFRIGERATOR.

tank is filled under such pressure until the automatic cock shown shuts off the supply, and then, by a waste pipe, the water is let out until the tank is nearly emptied, the air again filling the space. The air forced out by the water rising in the tank passes through one or other of the two pipes out of the top, one of these pipes leading into a closed air chamber, and the other into the refrigerator where the air chamber is situated. From this air chamber pipes lead to the beer kegs in the refrigerator, so the cooled air is supplied under pressure to the beer in the kegs. The air delivered into the refrigerator is passed over ice, salt, ammonia, etc., making a continuous current of cold air, not only around the compressed air chamber, but all the other contents of the refrigerator. The patent for this improvement is supplementary to one issued to the same inventors about a year ago, this invention especially covering the placing of the air tank inside the refrigerator, so the air in the tank may be lowered in temperature before it is admitted to the beer kegs.

Those desiring further information in regard to this refrigerator and air pressure apparatus should address the patentees, Messrs. Christian and George M. Heintz, of 263 Michigan street, Buffalo, N. Y.

THE PNEUMATIC PULVERIZER.

The accompanying engraving represents a machine which has been designated by its inventor as the "Pneumatic Pulverizer," and the object of which is to reduce the broken pieces of any solid body, such as stone, ore, etc., to an impalpable powder.

The principle of the apparatus, which is essentially a new one, is based upon the use of two jets of superheated steam, so adjusted as to carry along continuously the fragments to be pulverized. These fragments moving with great velocity, clash against each other with enormous force, become divided by the shock, and very quickly reach the desired degree of tenuity.

The stone, ore, or other product that is to be reduced to powder must be previously broken into pieces of about a quarter inch in diameter, and this is done by means of a stamping and crushing mill that is likewise of recent construction.

The material thus reduced is put into a large hopper, E (Fig. 2), which is bifurcated at its base. The steam required for the work is generated in a large tubular boiler capable of maintaining a pressure of from 15 to 20 atmospheres. The steam is superheated to about 600° C. by passing through a worm over the fire place, between the latter and the boiler. The jet of steam enters through pipes, G and H, that lead to nozzles that are so adjusted as to mathematically face each other, and which are three and a half inches apart. In passing through these nozzles the current carries along the particles with great velocity.

It is easy to imagine the violence of the shock that the material experiences, when we reflect that the pressure used for producing the two opposite currents is from 15 to 20 atmospheres, according to the degree of fineness to be obtained and the product to be pulverized. The powder produced by this collision is carried along and passes through a conduit to the collecting chamber, which is itself heated by a worm, so as to prevent any condensation of steam. A chimney provided with wire cloth prevents the powder in suspension from escaping to the exterior, and causes it to fall back, while the current of air finds an exit.

After the shock, nothing but the dust is carried along, and this traverses a sieve before reaching the collecting room. The particles that are less divided drop to the bottom of the apparatus and are carried by a chain and buckets up to the hoppers.

The entire plant consists of the following apparatus: 1, a generator, with superheater; 2, two pulverizing apparatus; 3, a stamping and crushing mill; 4, a steam engine and boiler for actuating the stamping and crushing mill; 5, an apparatus for feeding the hoppers; and 6, a room for collecting the powder obtained.

The boilers are of 20 horse power for a double apparatus, and weigh 11,000 pounds. As for the pulverizers, the heaviest piece weighs 220 pounds, and all their parts are made so as to be interchangeable.

This is an American invention, and is in extensive use in the United States, especially at gold and silver mines.—*La Nature.*

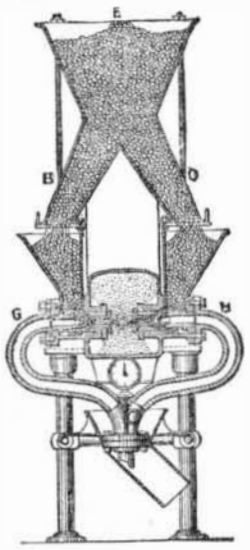


Fig. 2.—SECTION.

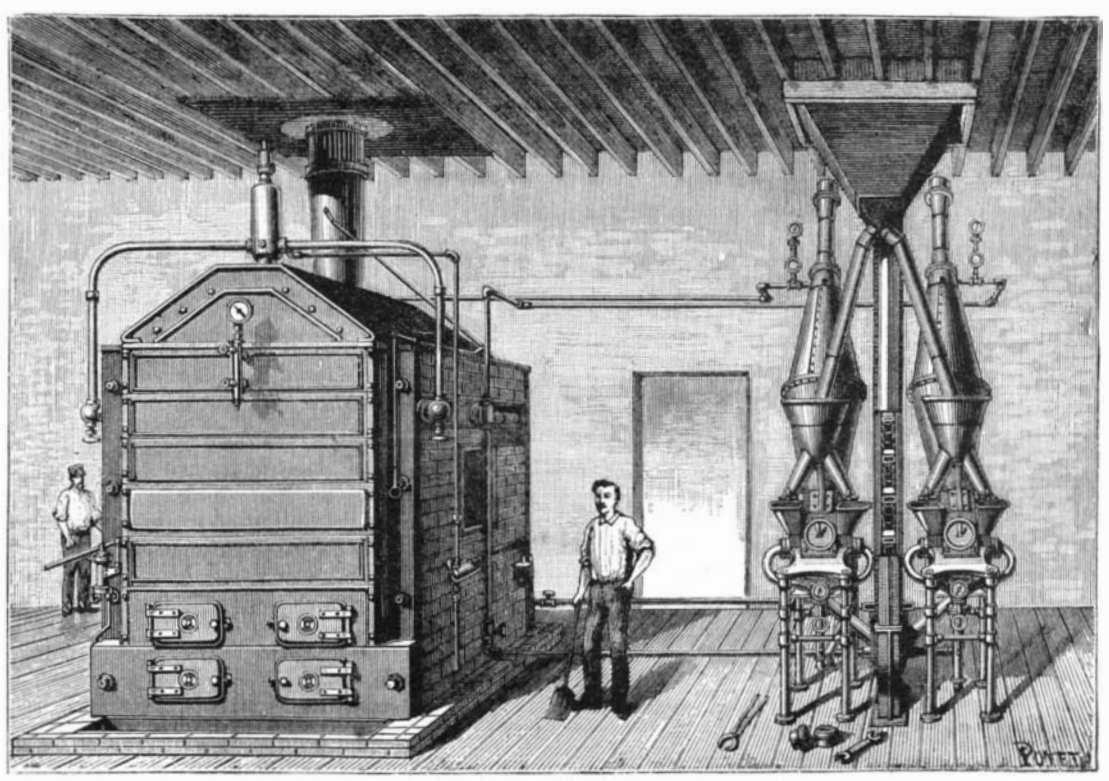
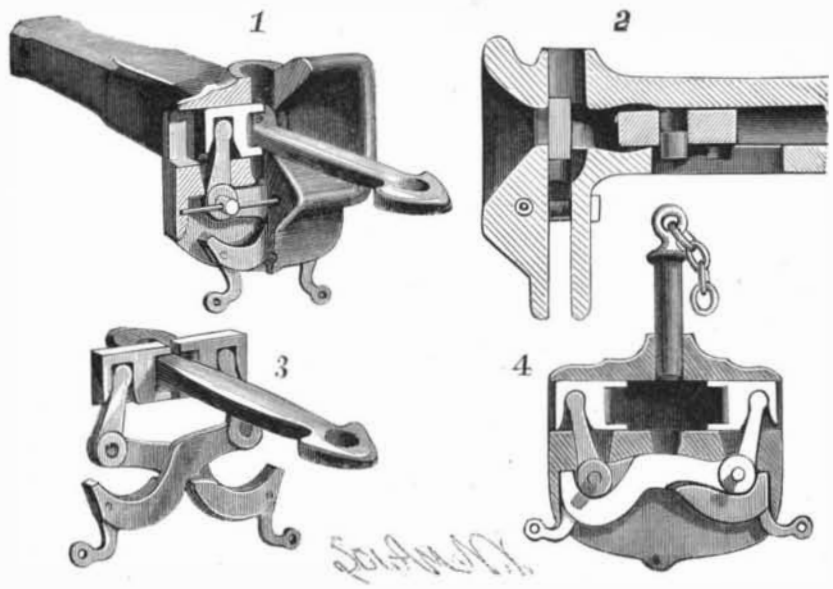


Fig. 1.—PNEUMATIC PULVERIZER.

A DOUBLE AUTOMATIC CAR COUPLER.

The car coupler shown in the accompanying cuts presents many admirable features which commend it to the attention of those who have use for or are interested in such appliances. It serves a double purpose, being automatic with the pin and link commonly in use, thereby saving the expense of new devices, and also dispensing with the pin and link as they give out. The connecting bar used with this coupler may be made much stronger and more durable than the ordinary link, and it can be used in the old style drawhead, as it is formed with holes in the ends for the reception of pins. The jaws moving in the drawhead are actuated by the weight of self-adjusting levers that operate between the walls of the head on the under side. The weighted levers can be raised, for uncoupling, from either the top or sides of the car. When necessary to use a link, the jaws may be thrown away from each other, as shown in Fig. 4, to permit the entrance of the link. Fig. 2 is a longitudinal section through Fig. 1, in which parts are cut away to show the inside of the drawhead; Fig. 3 is a perspective view of the jaws and levers by which they are operated; and Fig. 4 is a face view having the jaws spread.



VAN DORSTON'S DOUBLE AUTOMATIC CAR COUPLER.

Further particulars regarding this coupler may be obtained from the inventor, Mr. A. W. Van Dorston, of Portland, Oregon.

Black Birch for Inside Finish.

Black birch for doors, wainscoting, and other interior work is being introduced to a considerable extent in new buildings, and it is certainly one of the handsomest of the many variety of woods that are being introduced into new houses, while the cost is much less.

Black birch is a close grained wood, and is as easy to work as walnut, and is much cheaper than either walnut or cherry. There is great difference in the quality and color of birch, that growing upon high and dry land being hard and susceptible of good polish, while the growth on swampy land is soft, and therefore not well suited for the purposes the upland product so admirably fills. The writer in constructing a new house last year had birch folding doors introduced against the protest of his architect, who had never heard of birch wood being used for that or any analogous purpose. The result is most satisfactory to all parties, and to none of us more than the architect, who preferred the use of walnut or cherry. Possibly the builder took especial care in the selection of his material, so as to convince the architect of his error and his (the builder's) superior knowledge; but, however that may be, the black birch doors, which in texture resemble satin wood, and in color dark cherry, are the admiration of every one who has seen them.

Birch grows in our northern latitude, and the trees attain considerable height and size in localities, and there is a species of bird's eye birch which is well calculated for furniture. It resembles bird's eye maple, and when polished it possesses that sheen which renders satin wood so pleasing to the eye. We predict for black birch an important place among the fancy woods for house finishing and furniture.

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