

IMPROVED ICE CREAM FREEZER.

In making ice cream without machinery, it is always found necessary, after the freezing begins, to beat the cream with a paddle by hand. This facilitates freezing, and at the same time secures a smooth and uniform congelation. In machinery for freezing cream on a large scale, it is desirable that this beating be done automatically, and the closer the action of the paddle imitates the movement imparted by the hand, the better. In the apparatus illustrated herewith, the above is accomplished by simple mechanism; at the same time, there is improved machinery for rotating, and scraping the interior of the freezing can, the whole being so constructed that a large quantity of ice cream of excellent quality may be quickly produced by a small expenditure of power.

The machine consists of ice tub, can, scrapers to remove the cream from the sides as it freezes, the paddle, and the lid. The tin scrapers, attached at A, are bent to conform to the shape of the can, so as not to bear hard on the metal and thus scrape off the tin. The paddle, B, is a bar of galvanized iron, having a tin blade protected by a wooden point. The lid is of iron or tin, with apertures at the flange, so that it may be placed over the scraper supports. The cream, being suitably prepared, is placed in the can, and the tub is filled with ice and salt. The scrapers are inserted in place and the lid is attached. In the side of the tub is cut a recess, through which a pinion on the vertical shaft, C, enters, and engages a circular rack on the can. When these parts are brought into gear, the tub is held in place by the pin, D. The vertical shaft, C, is now rotated by bevel gear connected with the main horizontal shaft, which last is turned by the crank shown. The can is thus revolved until the cream becomes quite thick. The paddle, which is secured to the disk on the left, is now thrown into operation by the lever, E, on moving which gearing connected with said disk is engaged with gearing on the main shaft. The oscillations of the paddle are continued until the cream becomes stiff and hard. The can is open during the entire operation, and hence its contents are always under the eye of the operator. The inventor states that a boy of 14 years alone can easily make 30 quarts of ice cream at a time without assistance. The cans may hold from 12 to 40 quarts, and there is no churning of the cream into butter by this apparatus, which may be operated by steam, if desired.

Patented through the Scientific American Patent Agency, August 15, 1876. For further information relative to building machines on royalty, etc., address the inventor, Mr. C. L. Dexter, 245 South 15th Street, Philadelphia, Pa.

IMPROVED PORTABLE GANG SAWMILL.

In the machine herewith illustrated, a series of vertically reciprocating saws cut, simultaneously, a number of boards from a log. It will be remembered that the old form of gang saw embodies but a single gate, the saws in which, of course, act upon the log only in one direction. In the present apparatus, two gates are employed, each carrying a number of pairs of saws, the pairs in one gate being arranged in alternation with those in the other. The teeth in the alternate saws in each gate are oppositely directed, so that one set of saws is always acting during each part of the stroke. The gates counterbalance each other, and in this way, it is claimed, the troublesome springing and trembling of the log (which often occurs when a single gate is used), are entirely avoided. Another new feature is found in the reversed blocks, which are fitted to notches at the ends of the saws, and by means of which the distance between the saws is regulated. Screws passing through said blocks are provided for tightening the blades. The log carriage is constructed in the usual way, and is provided with head blocks and dogs for engaging the log between each pair of saws, so that the latter may run completely through the log and leave no stub. The feed motion is adjustable as to rate of feed, and the usual friction apparatus is provided for carrying the carriage quickly back.

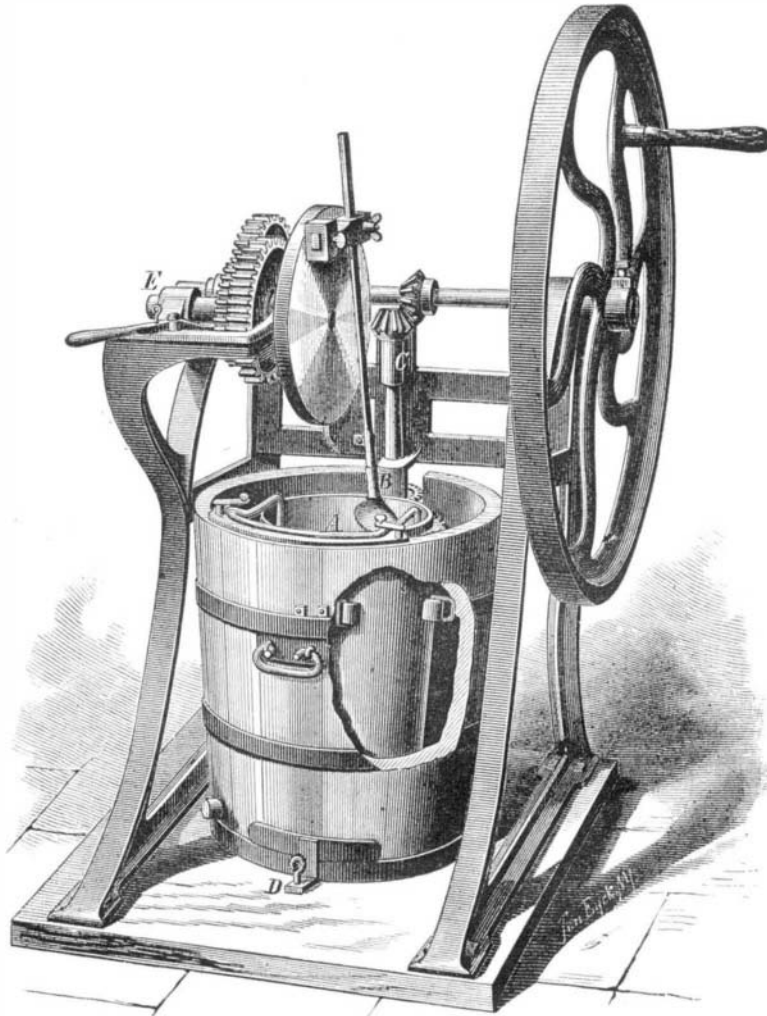
The important feature of the machine lies in the arrangement of saws. The two gates, A and B, are similar, and both slide upon ways in the main frame. On the cross-bars of the frames are projecting studs, which support the saws; each pair of blades is connected at the bottom by means of a pin, which is drawn against the under side of the stud by the straining device. The latter consists of a reversed block, the lugs formed on which are fitted to notches cut in the edges of the saw. A screw passes through the block and bears

on the projecting lug on the cross-bar beneath, so that, by turning said screw, the pair of blades is quickly stretched out. The reverse direction of the teeth of alternate saws is plainly shown in the engraving, all the teeth being of course turned toward the front of the machine.

A shaft, journaled in the bed-piece, carries, at each end, similarly arranged double cranks, C, the wrist pins of which are placed diametrically opposite each other. D are rods

Among the advantages claimed is, that long and slender logs may be sawn without difficulty, as the force is equally exerted from above and below. Owing to the absence of jarring, the speed may be increased; and the strain on the frames being lessened, the latter may be much lighter in construction. The inventor informs us that, by this machine, he can saw 2,000 feet in 10 hours with the same power that is required to drive a 52-inch circular saw, and that a saving of 20 per cent. is effected over the latter in saw kerf and slabs. The width of the kerf of each saw is only one-third that of a circular saw. He further states that a machine heavy enough to saw a 3-foot log, will saw equally well three 1-foot logs simultaneously.

Patent pending through the Scientific American Patent Agency. For further information relative to sale of rights, etc., address its inventor, Mr. D. J. Marston, Amesbury Mills, Amesbury, Mass.

**DEXTER'S ICE CREAM FREEZER.**

which connect the pins with studs that project from the gates. By this ingenious mechanical device, the cranks impart, as they rotate, a reciprocating motion to the gates.

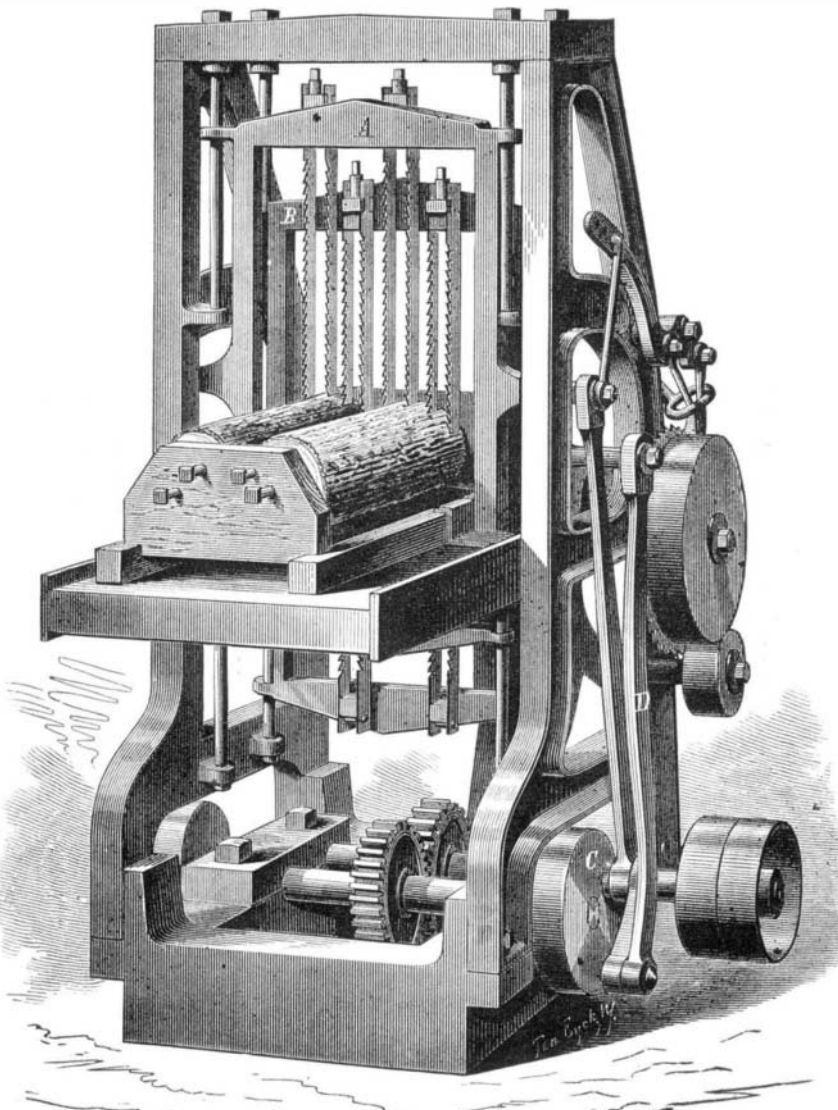
The saws that cut down are overhung at the top, while those that cut up are overhung at the bottom, so that there is always a clearance for either set. They are also so adjusted that the front part of the cuts comes even in line.

all inventors may be fully understood. These offers are embodied in a recently published programme of prizes and medals to be competed for and to be awarded during the years 1877 to 1882 inclusive. The programme was prepared by committees of scientists of the highest ability, and it embodies suggestions for forty-two inventions and discoveries which are needed, with some few exceptions, as much as

over the world as in France in particular. The sum of \$21,000 is offered in prizes. It will be perceived, however, that the intrinsic value of the awards is the least incentive, and that a much greater inducement is offered by the fact that the successful inventor in any one case will receive the indorsement of the society, and will have his production placed before the French people, indeed before the whole world, in a way that is likely to secure its substantial success and create a ready market for it everywhere.

The list of inventions required is much too long for publication here; and in this connection we can only state that it calls for a new domestic motor, a light weight steam engine, new alloys, new utilizations of minerals, and waste substances, new modes of preserving meat, and so on through the several departments of science. Prizes range from \$1,200 to \$100 for each invention, and in some cases, inventors will be assisted during the progress of their investigations. We shall publish the whole programme in the SCIENTIFIC AMERICAN SUPPLEMENT, giving the names of the inventions desired, the prize to be awarded to each, and the period by which each must be ready for entry for competition. To each requirement is also added a brief review of the conditions which render the invention necessary, and a host of valuable suggestions, pointing out what means are now available for the work, and in brief, giving just such hints, from those familiar with the particular industry referred to, as will enable the inventor to set about his investigation in an intelligent manner. The programme will extend through three numbers of our SUPPLEMENT, beginning with the issue of the present week, No. 53.

THE CENTRAL spire of Rouen Cathedral, France, has just been completed. It is 492 feet high, and is of cast iron.

**MARSTON'S PORTABLE GANG SAWMILL.**