

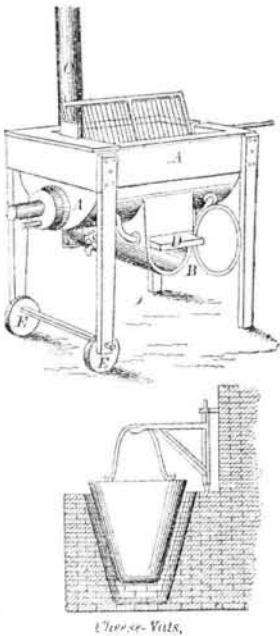
CHEESE AND CIDER MAKING AND LARD RENDERING.

Continuing our series of abstracts from Knight's "New Mechanical Dictionary," we give herewith illustrated descriptions of various apparatus used in the operations named in the above heading. The necessity for preserving a certain temperature in

CHEESE VATS

has given rise to numerous devices, among which may be cited that illustrated at A, in Fig. 1. The vat is here semi-cylindrical and double walled, water being contained between the shells. Under the vat is a furnace, B, for heating the water, the smoke escaping by chimney, C. D is a damper for regulating the heat applied to the water, and said heat is equalized by a coil of circulating pipes connecting the water space at the center and ends of the vat. To aid in drawing off the water and whey, and discharging the curd, the machine is set on eccentrics at E. The wire frame shown cuts the curd into small blocks and sweeps it from the inner surface of the receptacle. The vat used in making Parmesan cheese in Italy is also represented in Fig. 1. It is a copper caldron slung from a crane over a conical fire place. In this the milk is heated and co-

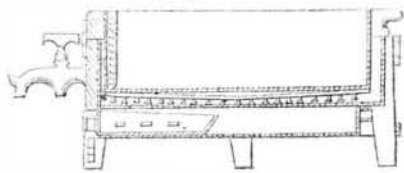
Fig. 1.



Cheese-Vats.

agulated, and, without removing, is broken by a stick having cross wires. The curd is then again heated, taken out,

Fig. 2.



Cheese-Vat.

drained, salted, pressed, and in forty days is moved to the cheese loft.

In Fig. 2 the pan is hinged to the vat and rests upon pins within it. The contents are warmed by a furnace beneath, and the whey is draw off by a strainer. Adjustable legs permit the inclination of the vat.

Fig. 3 represents two

CHEESE PRESSES,

the upper one of which is constructed of iron. The hoop containing the curd is placed in the bottom plate, A, and the upper plate, B, is made to descend upon it. On the axis, C, of the wheel, D, there is a pinion of eight teeth which works in a rack, R. On the axis, E, there is another pinion of eight teeth which act in the wheel, D, of twenty-four teeth. This axis, E, may be turned by the crank handle, H, three turns of which will make the rack descend through a space equal to eight of its teeth. In this way the plate, B, may be lowered to touch the cheese, and to commence the pressure; but when the latter becomes considerable, the second method of acting upon the rack is resorted to. On the axis, E, besides the pinion before mentioned, there is a fixed ratchet wheel, F; the lever, I, which embraces F, is also placed on this axis, but turns freely round it. A pawl, turning on the pin, may be made to engage in the notches of the ratchet wheel, F. By means of this arrangement, when I is raised up and the pawl engaged in F, the axis and its pinion will be turned round with great power on depressing the end, I, of the lever; and by alternately raising and depressing I, any degree of pressure required may be given to the cheese, and continued by the suspended weight, W.

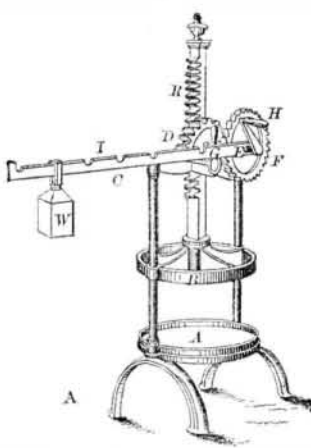
The pneumatic cheese press, B, shown in the lower part of the same figure, consists of a stand about three feet high, on the top of which is a metallic vessel, a, forming a hoop for the curd. This vessel has a loose corrugated bottom covered with wire cloth. The bottom of the vessel communicates by a pipe, c, with a receiver, d, which is exhausted of air by means of an air pump, b, and pipe, e. The curd being salted and placed in a cloth in the vessel, a, the pump is worked and the pressure of the atmosphere drives the whey down through the curd, and collects it in the receiver, whence it is discharged by the faucet, f. Another form of press, shown in Fig. 4,

involves the use of the toggle, as the leverage increases as the platen descends. The weight is suspended by a chain which runs over the pulley on the end of the long arm of the toggle. A hand lever operates the screw for quick movements. A variety of

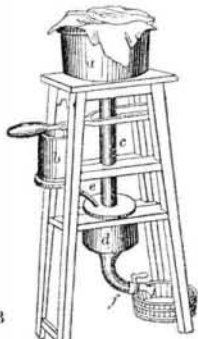
CIDER MILLS

is given in Fig. 5. The common cider mill, a, used in the

Fig. 3.

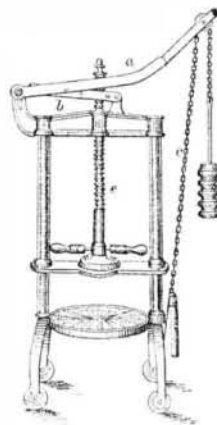


A



Cheese-Presses.

Fig. 4.

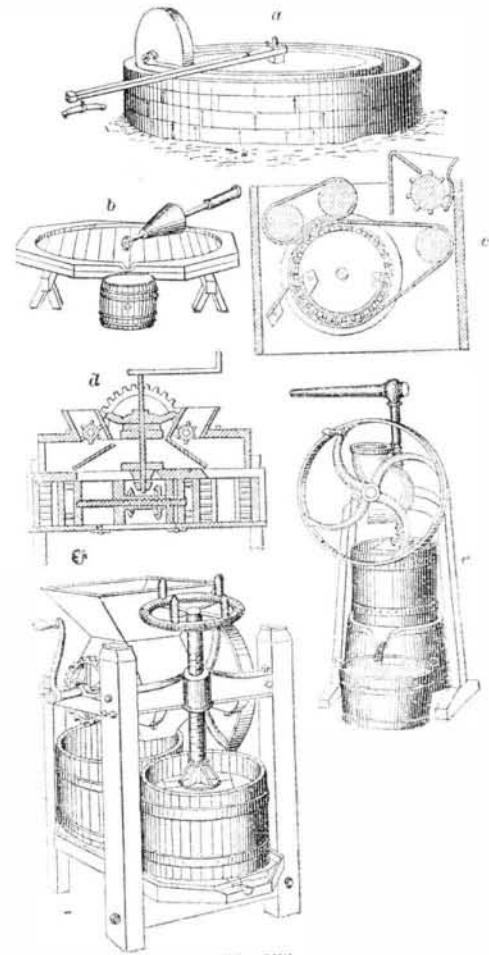


Cheese-Press.

southwest of England, has a cylindrical stone, weighing one or two tons, and rotating in an annular trough of masonry. The axis of the stone is connected by arms to a sweep, which is pivoted on a central post, and revolved by a horse. In some cases the central space forms compartments for holding apples. The cider mill, b, used in the south of France, has a platform of boards framed together, and is traversed

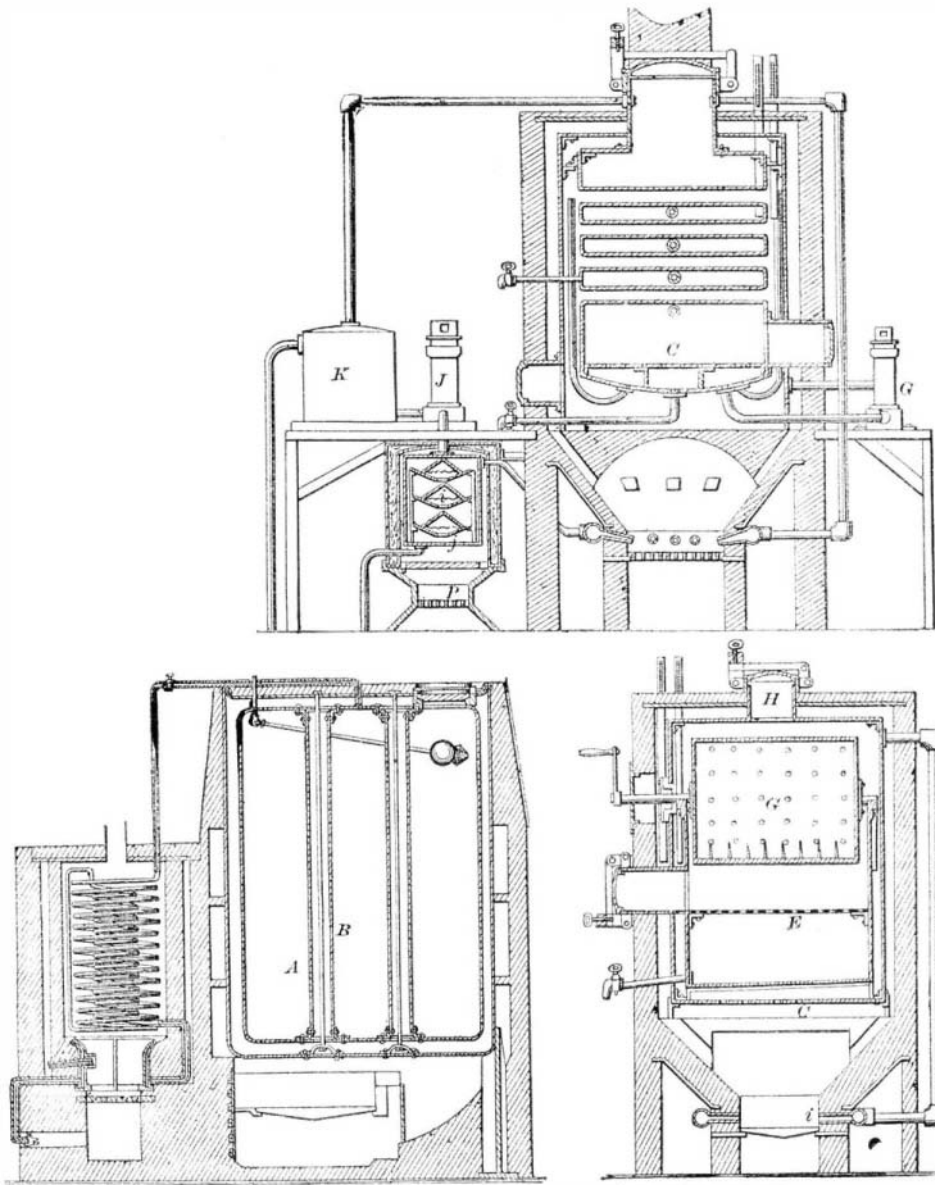
alternately grinding portions, and a double-headed piston which presses the pomace against the ends of the box alternately; one end of the box is filling while the other is pressing. c has a metallic grinder and a hoop with a screw. f has a grinder and presser which may act simultaneously. A hoop filled with grindings is pushed from below the hopper to be-

Fig. 5.



Cider-Mills.

Fig. 6.



Everett's Lard-Rendering Tank.

Broadnax's Lard-Tank.

by a conical frustum of cast iron. The axis of the latter is hooked to a rotating eye in the center of the platform, and is swept around by manual power, crushing the fruit in its passage

The mill, c, has a grinding wheel and concave, and an apron which carries the pomace between two pressing rollers, and a wire screen through which the juice runs. d has

neath the screw, and an empty hoop substituted beneath the former.

LARD TANKS

are vats in which fats are cooked to obtain them free from watery matters and membrane. We give three forms of the apparatus in Fig. 6. Everett's tank (left lower part of figure) has a digester containing the fat, which is surrounded by an outer shell constituting a hot water and steam space, to which it is connected by stay rods, which unite the water space at bottom with the steam space at top, and pass through the vertical flues, A B. The vapors from the digester, charged with odors and organic matter, pass through a pipe at the top of the apparatus into a superheating coil over the furnace, into which they are finally discharged to be consumed. A spiral flue surrounds the outer case of the boiler.

Broadnax's apparatus consists of an exterior casing, in which the digester (which may be of the form shown either in the upper or lower part of the figure) is placed. In the first it is stationary, and consists of an inner and outer shell, between which and through the flues in the inner one, A A, the heat circulates. The rendered fat in a fluid condition descends from shelf to shelf, and is strained through the perforated bottom, C, whence it is drawn off. The furnace has an inclined flue at each side, through which the products of combustion pass to and around the digester. Gases from the latter are delivered into the furnace. This may be effected as shown in the upper figure by an air pump, J, and condenser, K, by which the gases are forced through a cylinder, heated by grate, P. In the cylinder the watery particles are condensed by a series of plates, i j, and drawn off by a pipe. The dry vapor ascends through another pipe, to assist in heating the furnace. In the lower figure the perforated digester, G, is mounted on trunnions and rotated by a crank. The oil exuding is strained through the diaphragm, E, and the gases pass through the pipe, i, to the furnace. H is the charging manhole, situated on the top of the apparatus.

Inventor of the Piano.

A committee has been formed at Florence for the purpose of celebrating, next May, the centenary of Cristofori, the inventor of the piano. The principal feature of the celebration will be international concerts on a grand scale. The Abbé Liszt has promised to play.

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