

the process of making condensed milk at Gail Borden's factory, which is the one alluded to by us, and for which Mr. Borden obtained a patent through this office several years ago:—

"The farmers bring their milk daily; it is poured into an immense boiler, the superfluous parts driven off, and the condensation effected in a few hours. The details of the process are exceedingly curious and worth studying. Everything is conducted with such scrupulous regard to cleanliness, that the result is irreproachable. Even the large cans, in which the farmers bring their milk, are cleansed by steam before they go back. This prepared milk is sold daily in New York from door to door, as any other milk is, but its chief market is in the army, where it is a great blessing as you will readily believe.

"The same process is applied to the juice of apples, and other fruits, and meat. Coffee is condensed in the same way. Indeed any article of food may be condensed by this summary operation, be reduced in bulk, with all its nutritious qualities preserved, and packed so as to be preserved fresh any length of time. To make the little cans, holding a pound each, a tin shop is at work constantly, and the workers are women exclusively. They are chiefly American girls, from eighteen to twenty years old, and as the machinery is driven by water and steam power, they have no heavy work on hand, and the business is admirably fitted to them. They make more than a dollar a day easily, and the shop makes about 3,000 cans daily. A carpenter's shop makes the packing boxes, and so the entire work, from receiving the milk to sending it off, is done in the factory, and this stands on the edge of the railroad at the depot, so that all labor of transporting is saved. My visit to this establishment was very interesting and impressive, for I do not recollect ever seeing a factory where so much order, cleanliness, and comfort were combined in a production so purely beneficial as this. It is the perfection of the art of condensing.

"Mr. Borden can condense 12,000 quarts of milk daily at this factory, and 20,000 in another at Brewster's station on the Harlem Railroad below, and there are four or five others in operation: one at Winsted, Conn.; one at York, Pa.; one at Livermore Falls, Maine; and two in Massachusetts. They will doubtless become more and more numerous as their great advantages and profits become known."

The British Association on the Metrical System.

At the recent meeting of the British Association at Bath, in Section F (Economic Science and Statistics), Mr. James Heywood brought forward the Report of the Committee on Uniformity of Weights and Measures, which recommended—

1. That it is desirable, in the interests of science, to adopt a decimal system of weights and measures.
2. That in furtherance of this proposal it is desirable, from its scientific capabilities, to adopt the metric system.
3. That as the weights and measures of this country are gradually undergoing a process of decimalization, it would be more advantageous, instead of drifting by degrees into a heterogeneous variety of systems, to change at once to a really convenient system.
4. That it be recommended to the Government, in all cases in which statistical documents issued by them relate to questions of international interest, to give the metric equivalents to English weights and measures.
5. That in communications respecting weights and measures presented to foreign countries which have adopted the metric system, equivalents in the metric system be given for the ordinary English expressions for length, capacity, bulk, and weight.
6. That it be recommended to the authors of scientific communications, in all cases where the expense or labor involved would not be too great, to give the metric equivalents of the weights and measures mentioned.
7. That the influence of the British Association would be beneficially exerted in obtaining from Paris an authorized set of metric weights and measures, to be placed in some public and frequented building in London.
8. That advantage will be derived from the recent

publication of metric tables, by Mr. C. H. Dowling, C.E., in which British standard weights and measures are compared with those of the metric system. That treatises explaining the metric system, with diagrams, should be forthwith laid before the public. That works on arithmetic should contain metric tables of weights and measures, with suitable exercises on those tables; and that inspectors of schools should examine candidates for pupil-teachers in the metric system.

9. On the subject of temperature, it is recommended that the authors of reports to be presented to the British Association relative to temperature be requested to give the degrees of heat or cold according to both the Centigrade and Fahrenheit thermometers.

10. It is recommended that the scales of thermometers constructed for scientific purposes be divided both according to the Centigrade and Fahrenheit scales, and that barometric scales be divided into fractions of the meter, as well as into those of the foot and inch.

11. That a committee on uniformity of weights and measures be reappointed.

The report referred to the history of the movement in favor of metrical weights and measures, and pointed out the advantages that would result from the adoption of a uniform system. Professors Williamson, Levi, Miller, and Daubeny, Sir B. Brodie, Sir William Armstrong, the Bishop of Natal, Captain Maury, and other great authorities upon weights and measures, warmly supported the report.

Straight Edges and Flat Surfaces.

At the recent meeting of the British Association in the Mechanical Section, Mr. James Williams read a paper on the "Flexibility of Iron," from which we extract the following interesting passage:—

"It is a common saying 'rigid as a bar of iron,' and but few persons are aware how very flexible iron, as well as other metal is. Many builders in introducing cast and wrought girders, or beams to support enormous weights, are of opinion that such beams are strong enough to what they call 'bear any weight without bending,' and are much surprised to be told by a mechanic that these same girders, however stiff they may appear, will not even bear their own weight without considerable deflexion. Many good working mechanics even are quite unaware of the extreme subtlety of the metal they are operating on. It is only that class of mechanics who are engaged in scraping up valve faces, slide lathes, and similar tools, and, above all, attempting to make 'flat surfaces' and 'straight edges,' that can comprehend in a fair way the trying difficulty of keeping such works true after they have once got them so. In the engineers' workshop, where straight bars of metal are used for the purpose of testing the work under process of manufacture, it is necessary to keep at least three bars or surfaces of each kind for the purpose of testing each other, for it has often been known that a straight edge, got up with all the care and accuracy possible, true to-day will be bent tomorrow; indeed, the very handling of it while in use is quite sufficient to distort to such a degree that the workman frequently has to put it by awhile until it comes to the natural temperature of the room he works in, the partial heat of the hands alone being sufficient to render it useless for its object. In getting up straight edges and flat surfaces, if two only are used to test each other, it is all but a certainty that one will be hollow and the other rounding, but by using three we are enabled to discover this defect."

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Coffee Roaster.—This invention consists in the employment of a cylinder which rotates on friction wheels by means of flanges projecting from one or both its ends, and which is provided with a stationary feed box at one end, and with a rotary slide or other suitable gate opening at the opposite end in such a manner that the coffee can be introduced into the cylinder and discharged therefrom without

stopping its motion or removing it from its bearings and that by this arrangement cylinders of much larger caliber can be used and much more work can be accomplished than by the ordinary method of hanging, changing and discharging the roasting cylinders. The interior of the cylinder is occupied by double spiral flanges, one inside the other and running in opposite directions, in such a manner that, by the action of one flange the beans are propelled towards one end, and by the action of the other flange towards the opposite end of the cylinder, and the beans are made to travel back and forth through the cylinder without reversing the motion of the same. Jabez Burns, of 269 Washington street, New York city, is the inventor.

Device for Turning-in Dead-eyes.—This invention relates to a new and useful implement for adjusting or fitting the ropes of shrouding in the grooves of dead-eyes, and which is technically termed turning-in dead-eyes. The object of the invention is to obtain a device by which the work can be accomplished with great facility and in a much more thorough way than hitherto, the ropes being fitted around the dead-eyes in a more compact and snug manner. William A. Overton, New York city, is the inventor.

Bolt-cutting Machine.—This invention consists in a ring having eccentric recesses or ways and provided with ribs to connect with the dies, said ribs and ways being made to expand in the direction in which the machine revolves in combination with a spring, stationary flange index plate and brake or friction clutch in such a manner that by applying the brake to the circumference of the ring the dies are instantly expanded, which allows of the bolt being withdrawn without stopping or reversing the machine. By changing the position of the index plate in relation to the stationary flange, the size of the opening in the dies can be adjusted to compensate for wear in the dies. J. A. Merriman, of Chicago, Ill., is the inventor.

Sugar Pan.—This invention relates to a certain improvement in that class of sugar pans in which the three compartments of the pan are separated one from the other by transverse partitions and placed at different levels so that the juice from the first compartment runs down to the second, and from the second to the third or finishing pan. Each of the two first pans is provided with a deep gutter or depression close in front of the partition separating said compartment or pan from the next succeeding one, and the opening or gates leading from one pan to the next are placed at such a height above the bottoms of said gutters that by opening the gates the sediment is retained and the clear juice or sirup is allowed to pass from one pan to the other. In order to retain the scum each gate-opening is furnished with a movable box strainer which can be readily inserted before the gate is thrown open.—H. F. Bartlett, of La Grange, Mo., is the inventor.

SPECIAL NOTICE.

J. STUART GWYNNE, of New York City, has petitioned for the extension of a patent granted to him on Jan. 14, 1851, for an improvement in rotary pumps.

It is ordered that the said petition be heard at the Patent Office, Washington, on Monday, Dec. 26, 1864.

HENRY RUTTAN, of Coburg, C. W., has petitioned for the extension of a patent granted to him on Jan. 31, 1851, for an improvement in ventilating furnaces.

It is ordered that the said petition be heard at the Patent Office, Washington, on Monday, Jan. 16, 1866.

All persons interested are required to appear and show cause why said petition should not be granted. Persons opposing the extension are required to file their testimony in writing, at least twenty days before the final hearing.

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