

IMPROVED SELF-HEATING FLUTING AND SAD IRON.

The invention herewith illustrated consists of two flat and one polishing irons combined in one, to which, when desired, and by simple means, various fluting irons may also be attached. The essential feature is that the device is self-heating, as its interior contains arrangements whereby gasoline or other light petroleum product is consumed. This, the inventor claims, is easily and safely accomplished at a cost of not over one cent per hour.

The engravings represent a perspective view, Fig. 1, and a sectional view, Fig. 2, the former showing the iron with the fluting attachment in position. The body of the device is three-sided, two sides serving as flat irons and the other having rounded edges for polishing purposes. The rear portion, A, is detachable, and is seated, by means of its flanged hub, upon the fluid supply pipe, B, so as to turn freely upon the latter. It is locked to the body by hooks and shoulders below, and by a spring latch, C, which engages with an inclined shoulder of the body. Suitable perforations are provided in the latter at the apex, corners, and rear, in order to admit sufficient air to the interior to support complete combustion of the hydrocarbon. The supply pipe, B, is firmly secured in the handle stock, D, and passes at a slight inclination into the lower portion of the oil reservoir, E, which last is fastened to the stock. The spring latch, F, shown at the middle of the stock, catches in a recess on the rear portion. A recess is provided in each corner of the latter, so as to fasten the handle similarly when any one of the three faces is turned down into use. G is a pivoted top latch placed beneath the protecting shield, H, which drops into other recesses at the corners of the body and so gives additional support to the handlestock. In order to detach the latch, E, a curved rod, provided for the purpose and shown on the right of Fig. 2, is pushed into the opening at the corner of the body, so that its end shoves the latch clear of the shoulder.

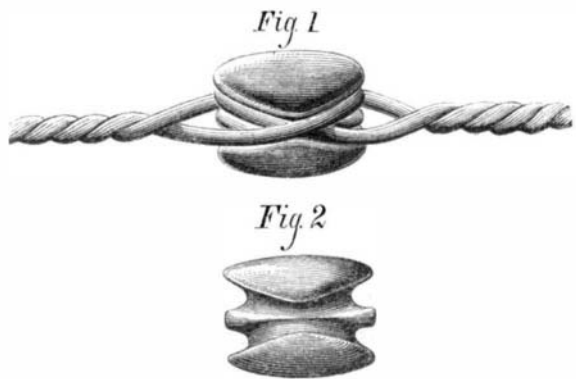
The gasoline is introduced into the reservoir through the faucet shown above, the latter extending down through the receptacle and being seated in the solid portion of the same at the entering point of the supply pipe. Into the latter the oil passes through a groove cut along the faucet, connection being opened or closed by suitably turning the latter. The upper end of the faucet has an orifice for pouring in oil, which is closed by a suitable plug, and also a small vent hole for letting air into the receptacle. By turning this stopper on its seat, the air communication may be closed, thus preventing any escape of the liquid into the supply pipe. The latter, on its outer end, carries a cap piece, back of the flanges, in which small issuing orifices are made. The oil is fed uniformly through cotton or similar material placed in the supply pipe. A burner, I, of triangular shape, divides the flame which heats the sides of the iron.

Flutingirons, J, Fig. 1, of various shapes, double or single, are attached by rear and side lugs, the latter being secured to a V-shaped spring wire, K, which is held by the locking spring, L. This last is seated in one of the corner air holes of the body, and serves to complete the firm connection.

Patented February 2, 1875, through the Scientific American Patent Agency. For further particulars relative to sale of territory and rights, address the inventor, Mr. C. R. Rand, 568 Mission street, San Francisco, Cal.

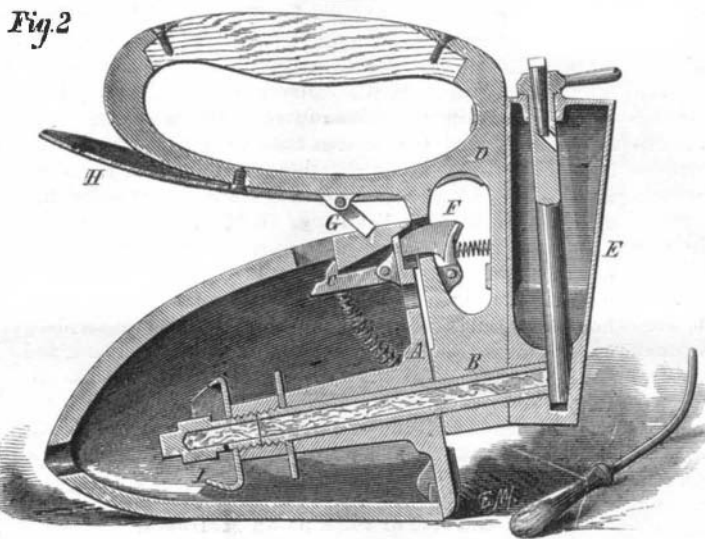
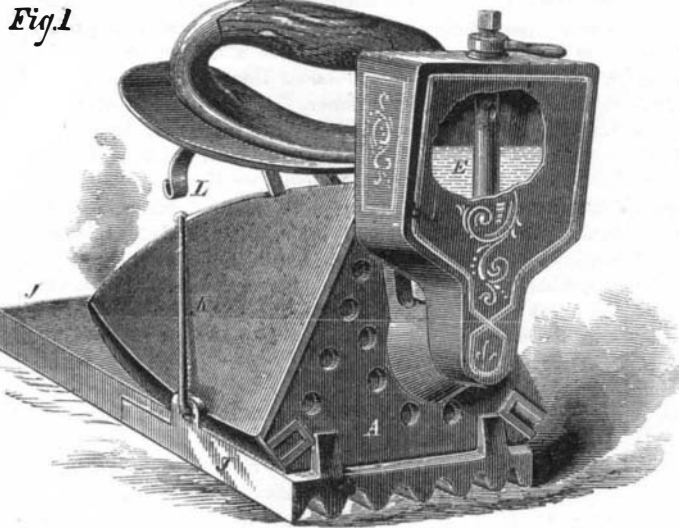
IMPROVED BALE TIE FOR WIRE BANDS.

Wire bands, for confining pressed bales, have, within a few years, to a great extent superseded ropes and wooden hoops, which change is due to the economy, strength, and neatness of wire for this purpose. To obtain the full advantages of its use, the bends should be made large, as short and abrupt bends weaken the wire.



The tie which is here illustrated is a block of cast iron made in a single piece. By multiplying the patterns a large number can be molded at a time in a single flask. Upon this block, and extending entirely around it, are two similar grooves crossing upon opposite sides of the block. These grooves each receive an end of the wire, so that the wires, when placed in them, cross each other, which brings the two wires into such a position that they draw from the same side of the block, consequently it cannot turn over or be upset by any strain, however severe; and as the wires draw against each other, the strain upon the tie is compressive instead of tensile. This renders the use of cast iron practicable for the purpose. As the wires conform to the bottom

of the grooves, they have an easy bend, and retain their full strength. When the angle of the grooves to each other is sufficient to admit of its being done, a spur is placed between them, as shown in the engraving, the object of which is to confine each wire to its own groove. But when the angle is too acute to admit of this, the spur is then placed in one of the grooves over against one side of the tie. Each form has its advantages, depending upon the size of the wire. Before putting the band on the bale, an end of the wire is twisted into one of the grooves, and the other end twisted into a loop, which will just slip over the tie and pass into the other groove. For inserting the tie and forming the loop, the inventor has devised a simple hand tool, with which the purchaser can prepare his own bands. After the bale has been released from the press, the expansion will draw the wire tightly into the groove and change its shape, so that it cannot unhook in handling. The illustration shows a full sized



RAND'S SELF-HEATING FLUTING AND SAD IRON.

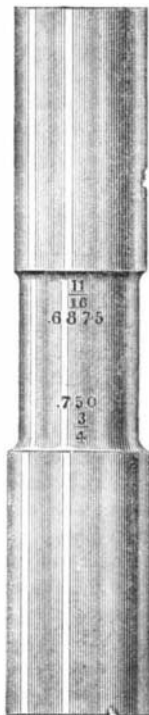
tie for an ordinary hay band, but a more correct idea of its size may be formed by comparison with a one cent nickel coin, which has the same diameter.

A patent has been allowed for this invention to James M. Albertson, New London, Conn. Information regarding the right to manufacture can be obtained by addressing him as above.

CYLINDRICAL STANDARD GAGES.

Those who have been familiar with the improvements made in machine work, for a few years past, will be able to trace the important influence resulting from the use of accurate and finely divided rules in producing more uniformity in measurement in the different workshops and in the improvement in the quality of individual workmanship. Rules graduated to sixty-fourths and hundreds, and vernier calipers reading to thousandths of an inch were, a few years since, looked upon as hardly of practical utility in machine shops. But in addition to such rules, which are now indispensable, fixed standards are frequently needed for those diameters most used, in order to avoid the errors resulting from measurements taken from rules and vernier calipers, and also to save time. Such standards are of constant use in all regular machine work and are especially valuable because they tend to produce uniformity and interchangeability in the parts of machinery manufactured.

The accompanying engraving illustrates a form of gage claimed to meet this requirement. The first cost is small; and in case of accident or wear from constant use, the device can be readily replaced. Standards of this kind have heretofore been so costly as not to admit of their use



by workmen generally, and therefore machine makers have not realized the advantages which will result from their daily use. The diameters are stamped upon each gage in thousandths of an inch, and also in the ordinary fractional parts. The gages are made of best cast steel, hardened and ground accurately to sizes indicated. Parties interested can obtain further information by addressing the Brown & Sharpe Manufacturing Company, at Providence, R. I.

Useful Recipes for the Shop, the Household, and the Farm.

To renovate old feather beds, when no steam apparatus is convenient, put them outdoors during a heavy rain. Let them dry in the sun, beating them occasionally with sticks to loosen the feathers. They should be turned over several times, and thoroughly dried. A paste of soft soap and starch will take stains out of bed ticking. Spread it over the spots.

When dry, scrape off and wash with a damp sponge

A good cheap paint for floors is made of five pounds of French ocher, one quarter of a pound of glue, and a gallon of hot water. When well dried, apply one or two coats of linseed oil.

Stains on wall paper can be cut out with a sharp penknife and a piece of paper so nicely inserted that no one can see the patch.

Do not use martingales on working teams. See that the hames are buckled tight enough at the top to bring the draft iron near the center of the collar. If too low, it not only interferes with the action of the shoulder, but gives the collar an uneven bearing.

In removing ink spots from delicate colors, a concentrated solution of sodium pyrophosphate may be employed when oxalic acid or chloride of lime cannot be used without injuring the color.

A membrane of extraordinary firmness may be obtained by dissolving collodion cotton in equal volumes of ether and absolute alcohol, to which a small quantity of balsam of copaiba is added.

Brass, when laid in a leaden vessel containing hydrochloric and a little arsenic acid, assumes iridescent colors, and may be removed when any desired shade of blue is obtained.

A new case-hardening compound, said to be very efficacious for iron, consists of 16 parts lamp-black, 18 of sal soda, 4 of muriate of soda, and 1 of black oxide of manganese.

To clean flasks which have contained resinous solutions, wash with caustic alkaline lyes and rinse with alcohol; if they have held essential oils, wash with sulphuric acid and rinse with water.

Blocks of wood intended for veneers may be steamed in a solution of borax and ammonia. They will then become soft and easy to cut, and, beside, will retain their flexibility for a long time.

Tracing paper, from which a drawing may be removed by washing, is prepared by first saturating writing paper with benzine, and then immediately coating it lightly with a varnish composed of boiled bleached linseed oil, 20 parts; lead shavings, 1 part; oxide of zinc, 5 parts; Venice turpentine, 1/2 part. Mix, boil for 8 hours, and, after cooling, add white gum copal, 5 parts, and gum sandarac, 1/2 part.

LIFE-PRESERVING MATTRESS.

Mr. J. F. Peck, of Springfield, Mass., is the inventor of the novel form of life-preserving mattress represented herewith. The body of the article is stuffed with cork, and it has a pillow or cushion at each end, by means of straps on which it is secured to the person, as depicted in the illustration. The device is designed as an ordinary berth mattress,



and thus requires no extra space for separate storage. When adjusted, it sustains the wearer's head and shoulders above water, and at the same time protects the body from injury by floating wreck, or in coming in contact with rocks. Several of these mattresses, secured together and attached to spars, will make a life raft. Patented March 21, 1874

Another American Invention Abroad.

Mr. J. W. Cole, to whom we are indebted for the drawing and description of the miner's shaft published a few weeks ago, is traveling on the European continent in the interest of the Tanite Company, of Stroudsburch, Pa. He sends home a description of his visit to the works of the *Société de la Meuse*, at Liege, Belgium. He found them using one of their E machines with Tanite wheels. They had two men working on one wheel, and these men were grinding annealed files, which were to be again annealed and then recut. They claimed that these two men did the same work that it formerly required four to do.

This is another instance of the adoption of American machines on the continent. We believe that file manufacturers and recutters in this country have not yet generally adopted Tanite wheels. Is the subject not worthy their attention? It would seem to be, from this account from Belgium.

THE BRETON CATTLE.

We publish herewith a well executed engraving of the bull of the breed of cattle common in Brittany, the extreme north-western province of France; and it is questionable if there is a domesticated member of the genus *bos* more fully fitted for its situation or surroundings—the right beast in the right place. Living on a poor granitic soil for the most part, among the broom, which, with the scrubby herbage intermixed, forms their chief and in many cases only nourishment, they live and they thrive. Hardy as West Highlanders, Welshmen, or Kerrys, doubtless they are not; the climate of Brittany, though bleak and foggy and ungenial compared with other provinces of France, is less so than that of the mountainous districts of the British islands. Then local circumstances modify considerably the calls made on the hardihood of the breed; they are housed at night, and kept indoors in stormy weather—for the wolf still stalks a dreaded devastator over the length and breadth of Brittany. Shelter and safety, however, are about the extent of what the owner's roof affords (and which in many cases is shared with him as fully and closely as that of Paddy with his pig). A scanty dole of bog hay, and haply a ration of pounded gorse or furze, is all the cottager and the small farmer (who form the majority of the agricultural class) have to bestow.

The effect of such treatment shows itself, as might be expected, in the diminutive size of the breed; and a proof of this being an unmistakable case of cause and effect is the fact that, in every locality to which the breed has been introduced, where the soil is of higher fertility or the system of culture such as to afford good ordinary forage, in a generation or two the progeny becomes changed; the poor, slight, attenuated frame, with the hinder extremities frequently what is called cat-hammed and the concomitant indices of early starvation, develops and expands, and assumes the form of a deep-carcased, shapely

animal. It preserves the deer-like head and limbs of its upland progenitor, and surpasses, in the opinion of most people fitted to judge, in its general conformation as a specimen of what is wanted in dairy stock, the far-famed and justly admired Ayrshires—the breed of milk cows, certainly the hardiest as to short and coarse keep that Scotland produces, and which on this latter point at least must yield the palm to the Brittany.

The Ayrshire breed was to some extent introduced into Brittany some years ago, with the intention of effecting improvement in that district; but the effort has proved for the most part an evident failure. The cross formed does not maintain itself on the keep at the disposal of the poor farmers, who form nine tenths of the bulk of the tillers of the soil.

Our engraving, selected from *The Field*, also shows the rustic costume of the peasants of Brittany, who, like their cattle, are endowed with a vitality persistent in spite of poor food and rough living.

Eclectic Dentistry.

Thousands of teeth are ruined annually by the indiscriminate use of heavy, hard, adhesive gold, and heavy mallet force; where they might be saved for years with soft gold, less force used in filling, and less surface exposed to the action of mechanical leverages. If we have proper self-cleansing surfaces between the teeth we fill for such patients, we do more to preserve them by our separations than we do by our filling, by changing the conditions, so that the destructive agents which wrought the ruin cannot again find a lodgment. The proof of this assertion can be observed where a tooth has been extracted and the adjoining one has a superficial carious cavity on the face which was in contact with the extracted tooth. It will often remain for years without farther change. This example proves the efficacy of self-cleansing surfaces as a preventive of decay.

Gold continues to be the material *par excellence* for filling teeth, where the tooth structure is of sufficient strength for the gold to be impacted into the cavity without fracturing its walls. There are certain exceptional cases, in the posterior teeth, where a good amalgam plug will serve a better purpose and save the teeth longer.

In the preparation of gold foil for filling teeth, we cannot be too careful not to handle it; for however clean we may wash our hands, there are more or less of the excretions of the system oozing from the pores of the skin. The fact can be easily demonstrated by rolling or folding one strip of gold thus, and another on a clean napkin or piece of spunk with a nickel-plated spatula, and then passing each piece through the flame of an alcohol lamp. From the former there may be seen steam and smoke arising, while in the latter we cannot discern either.

Tin, amalgam, Hill's stopping, and oxychloride of zinc are all good materials for filling teeth, where they are properly used. I think it is not improbable that at no distant day a

plastic material will be discovered for filling teeth, that shall possess all the good qualities of gold with none of its objectionable ones. The man who shall make this much-needed improvement will most certainly be a benefactor of his race. *Dr. G. B. McDonnell, in Dental Cosmos.*

Kentucky China Ware.

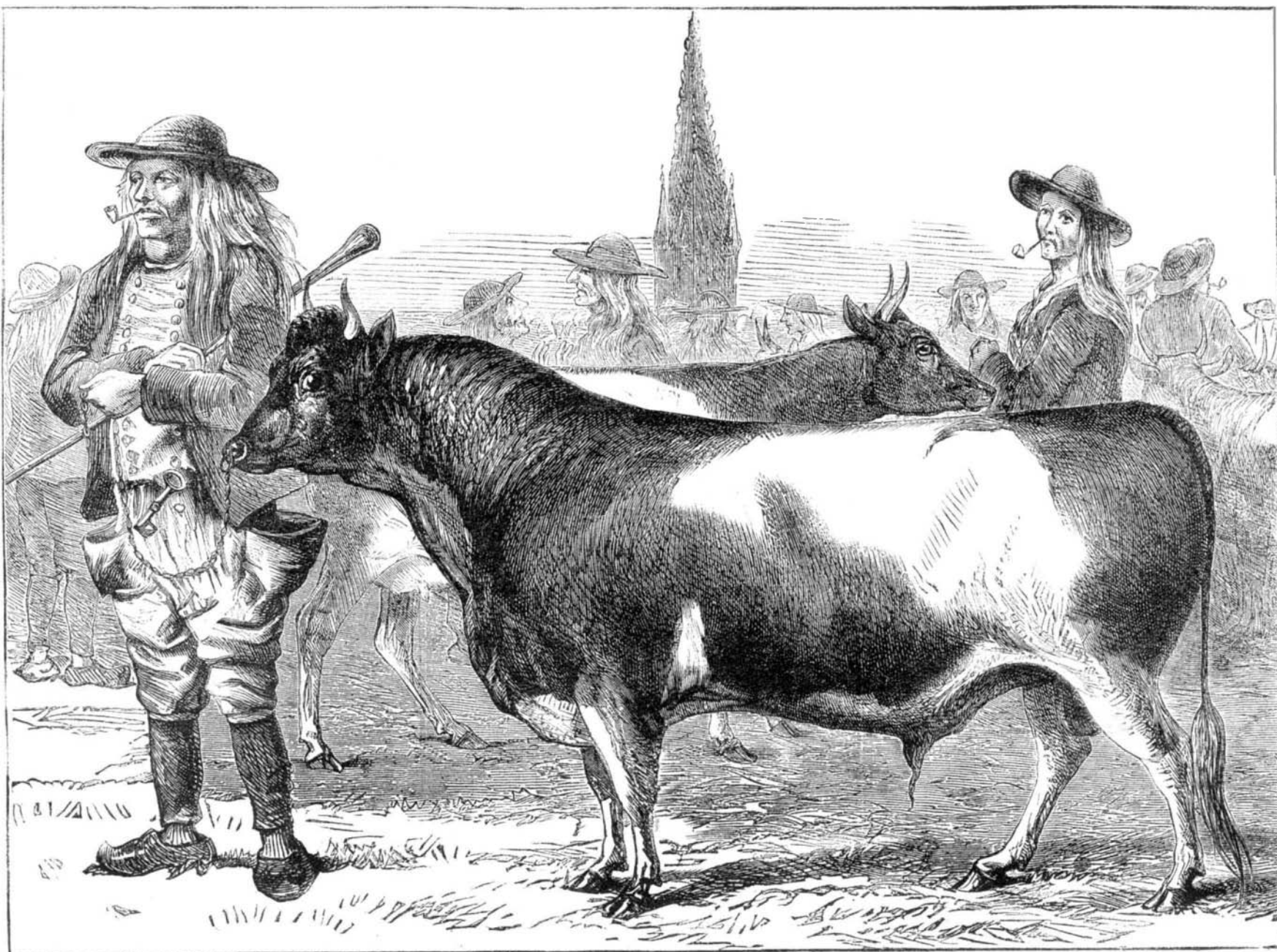
The *Southern Agriculturalist*, published at Louisville, Ky., takes its neighbors to task for not establishing the manufacture of china ware in their State, which, it claims, abounds in the requisite material for the purpose. The editor, in enforcing his views, says that its production has established an industry that employs a capital of \$100,000,000 in England, and as much more in Germany and France.

"Crittenden and Livingston counties in Kentucky contain an unlimited deposit of pure china clay, known among china manufacturers as kaolin, called by ancient pottery men 'petuntse,' which is simply decomposed felspar. It is refractory, resists the most intense heat: in fact it is not fusible by any degree of heat, but assumes a strong consistence in the furnace. A deposit of this clay also exists near Golconda, in Southern Illinois, which supplies a large establishment located at Trenton, N. J., where it is ground, elutriated, made into china ware, baked, glazed, and passed through the various manipulations necessary to produce a marketable article, and then shipped back and sold to our good people, who, of course, glory in their independence, or exult in the progress they are making in manufacturing, and perhaps do not really know that they pay an exorbitant price or profit for the privilege of sipping coffee out of a cup made from their own soil.

If this crude clay can be shipped a thousand miles, made up into china ware, shipped back, and then be sold at large profits, why cannot it be manufactured in Kentucky at much greater profit, and still be sold at present prices? Kentucky's wealth in this material is not known, or, if known, our good people are too indifferent or careless to appreciate it. In the district where these immense deposits of china clay exist, there is also to be obtained, near the surface of the ground, an unlimited supply of fluor spar, French chalk, steatite, fire clay, yellow ocher, lead, iron, and coal. Not only china ware can be made out of these clays, but porcelain, glass, drain and sewer pipe, terra cotta, fire brick, etc., and yield a profit of fifty per cent on the investment, and still undersell present prices."

[If the statement of our contemporary is not overdrawn, Kentucky would seem to be the State producing all the material necessary for the successful manufacture of china tea sets.—EDS.]

The *Revue Industrielle* states that sour milk, after protracted exposure to the sun, develops a poisonous quality, sufficient to cause disease and death to pigs fed thereon.



BRETON CATTLE