

NEW CAR DOOR FASTENER.

We illustrate herewith a novel and effective car door fastener, patented by Messrs. William H. Buser and Burrell L. Shaw, of Denison, Texas. It is designed to afford a positive means of fastening car doors and, at the same time, to dispense with the cleat which is commonly used for stopping the door and which is so damaging to the side of the car.

An iron box, A, secured to the side of the car, has a recess, B, capable of receiving the staple block, C, which is pivoted on a vertical rod extending through the box. The recess, B, has a vertical branch into which the pivoted end of the staple block, C, may drop when the block is swung around at right angles with the face of the box, A, and when in this position it acts as a rigid stop for the door. It has a staple formed on its outer end to receive a hasp attached to the door and a lock or pin for securing the hasp. When the fastener is not in use the staple block, C, is raised up and turned upon its pivot until it is wholly within the recess, B, when the door, D, is closed, making all flush with the side of the car. The door is also closed when the fastener is in use, excluding dirt, snow, or ice, from the recess, B.

This fastening is very strong and well calculated to withstand the rough usage to which it must be submitted.

SPEAKING PICTURE BOOK.

The engraving represents a novel toy recently patented in



BRAND'S SPEAKING PICTURE BOOK.

this country by Mr. Theodor Brand, of Sonneberg, Germany.

The invention consists of a device combining, in book form, pictures of animals and human beings, and mechanism for producing sounds in imitation of the voices of the beings represented.

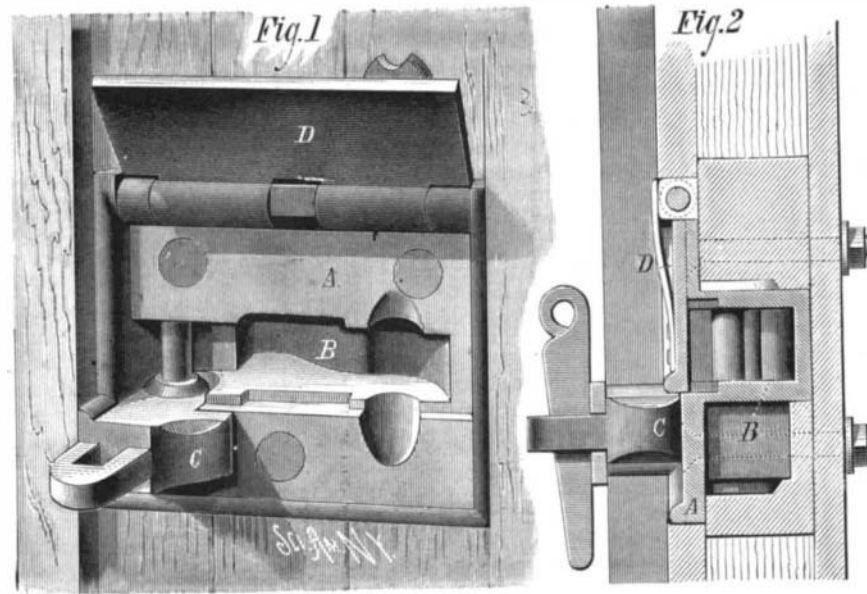
The book contains a number of picture sheets, having on the reverse side the text referring to the picture on the preceding page. A part of the text page is shown in the engraving with the title, The Rooster, referring to the opposite page.

A portion of the book is broken away to show the mechanism beneath, which consists of bellows and whistles of well known construction for imitating different voices. The bellows are operated by the strings which project through the edge of the book, and are provided with buttons for convenience in operating the toy. By pulling the particular button belonging to the picture being exhibited, a sound is produced which imitates the voice of the subject represented.

ENGINEERING INVENTIONS.

Messrs. John Boyd, of Baltimore, Md., and Roy O. Crowley, of New York city, have patented an electrical water indicator for steam boilers, by means of which changes in the height of the water in a steam boiler may operate an electro magnetic apparatus to open and close the feed water pipe of a steam boiler, to admit and shut off the feed water automatically, as required, and to sound an alarm.

Mr. Eli Shafer, of Sigourney, Iowa, has patented an improved car coupling, consisting of an open mouthed drawhead, within which is a flat headed drawbar encircled by a strong spiral spring to force it outward. In the face of the head of the drawbar there is a transverse rectangular groove, within which the flattened end of the link is placed and held by a metallic block. The coupling has other novel features which cannot be explained without engravings.



BUSER & SHAW'S CAR DOOR FASTENER.

An improved rotary engine, patented by Mr. James A. Adams, of Lampasas, Texas, consists, essentially, of a wheel provided with radially sliding pistons, and revolving within a fixed circumferential steam chest, and having fixed on its axle an eccentric and spring that operate to throw the pistons or floats outward to receive the pressure of the steam.

An improved car coupling has been patented by Mr. Horace E. Henwood, of Hamilton, Ontario, Canada. This invention is an improvement upon the automatic car coupling, forming the subject of United States letters patent No. 143,011; and it consists in a novel construction and arrangement of parts which cannot be explained without engravings.

Messrs. James P. Meredith and John S. Lyon, of Augusta, Ga., have patented an improved railway safety switch, in which the continuity of the main line is not broken and the use of frogs is dispensed with. The invention consists in the novel arrangement of jointed leading tongues, a lap rail section for crossing the main track, and movable guard rails, all connected so as to be operated at will, or by the wheels of the locomotive in passing over the track.

IRONING TABLE, CLOTHES DRIER, AND STEP LADDER.

The annexed engraving shows one of those novel combinations that may be used to advantage in any household. It comprises a convenient ironing table or skirt board, a strong step ladder, and a handy clothes drier.

The body of the device consists of a board of the proper form and size for an ironing or a skirt board, divided into three parts, two of them forming, together with the steps and side rails, the ladder, A, while the third part is hinged to the other two, and forms the brace, B, which supports the ladder. Two lateral braces, C, are pivoted to the board, B, and are each divided into three pieces, two of which are pivoted to the main piece, so that they may be turned at an angle with it, forming a radial support for clothes. When

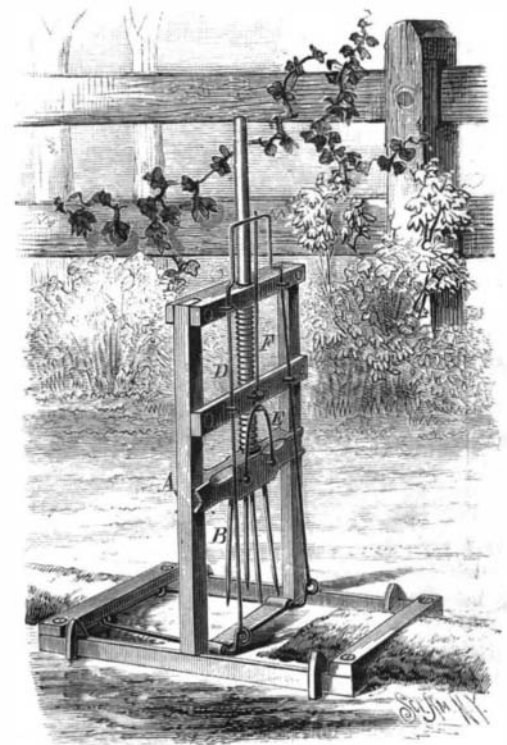


COMBINED IRONING TABLE, CLOTHES DRIER, AND STEP LADDER.

the braces, C, are used for clothes drying, they are supported in a horizontal position by long hooks, which engage eyes in the under surface of the board, B. When they are employed to steady the step ladder they are folded compactly together, and their free ends are allowed to rest upon the floor. The legs, D, are pivoted to the side of the stepladder rails and are used as additional supports for clothes when occasion requires. When the device is used as an ironing table, the braces, C, are folded upon the board, B, and the latter is shut into the part, A. The legs, D, are then folded up, and the larger end of the board is placed upon a common table, where it is held by sharp spikes which engage the under surface of the table. The act of raising the small end of the ironing board forces these spikes into the table; the legs, D, being unfolded, the device is ready for ironing purposes, and appears as shown in Fig. 2. This ingenious combination was recently patented by Mr. J. H. Martin, of Hartford, N. Y.

NEW MOLE AND GOPHER TRAP.

The mole and gopher are great pests to the farmer



ROGERS' MOLE AND GOPHER TRAP.

and gardener, destroying enormous quantities of grain and doing great damage to gardens, lawns, nurseries, small fruit orchards, and young hedges. These animals are found in most parts of the United States, and, although they may not all be vegetarians, they actually destroy millions of dollars' worth of crops every year.

As many of our readers know, it is the habit of the mole to travel just beneath the surface of the ground, in search of worms and insects, upon which it feeds. Its subterranean paths are usually formed so near the surface that a ridge appears, indicating the track of the animal, and where this ridge is the grass withers. If one of these ridges be pressed down with the foot, the mole, on its return, reopens its track, and in so doing, restores the ridge to its original form.

To get rid of moles and similar vermin, a great deal of ingenuity has been experienced and a large number of devices have been patented. Among the latter is the trap represented in the accompanying engraving, which seems to possess advantages not before accomplished. It is set across the mole track after the ridge is pressed down, and is sprung by the animal in its attempt to reopen its track.

The trap has a spring-acted follower guided by the vertical frame, A, and carrying four sharp tines or spikes, B. In the lower portion of the frame is pivoted a lever or trigger, C, which is jointed to the sliding wire frame, D. A bail, E, jointed to the follower is engaged by the catch, F, when the trap is set, and the long arm of the catch is retained by the upper part of the sliding frame, D.

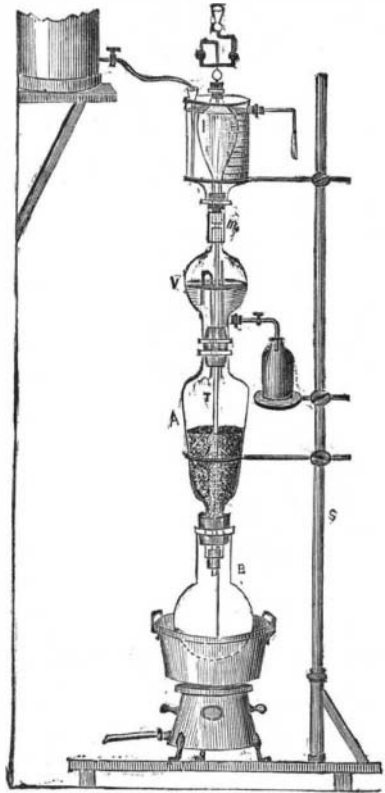
A short section of the ridge of the mole track is pressed down by the foot and the trap is pinned down over the flattened place. When the mole returns it presses the lever, C, upward in the act of opening the path, thus releasing the catch, F, when the tines, B, spring downward and impale the ani-

mal. For gophers the trap is fastened down over the mouth of the hole where he carries out earth. When it emerges with a load it presses up the trigger and springs the trap.

This useful invention was recently patented by Mr. Albert G. Rogers, of Lathrop, Mo., who will furnish further particulars.

APPARATUS FOR CONTINUOUS DISPLACEMENT.

To the long list of apparatus devised for continuous displacement or extraction, another has been added by Mr. G. Guérin, of Lyons. The flask, B, which has a wide neck, is intended to receive the volatile liquid used for extraction. Into the neck is fitted, by means of a tightly fitting cork, the percolator, A, containing the substance to be extracted. The percolator is connected with a globular receiver, V, containing three tubulures, the lateral one of which terminates in a stoppered bent tube, pointing into an empty bottle. Over the receiver is fixed a condensing apparatus, surmounted by a safety tube filled with mercury. The substance which is to be extracted having been introduced into the percolator, A, and a sufficient amount of the volatile menstruum having



GUERIN'S CONTINUAL DISPLACEMENT APPARATUS.

been introduced into flask, the apparatus is connected together, as shown in the illustration, and the water bath surrounding the flask, B, heated by means of the gas stove.

As soon as the liquid boils the vapors ascend through the central tube, T, into the pear-shaped receiver, I, which is kept cold by a supply of water. The upper part of the tube, T, where it passes through the joint, m, and through the neck of the condenser, is not in contact with the walls of the apparatus. Hence the condensed liquid flows down the sides of the condenser, I, into the receiver, V. The latter is provided with a small straight air tube and with a bent siphon tube, both communicating with the percolator below. As soon as enough liquid has accumulated in the receiver to rise over the bend of the siphon tube, it will begin to flow into the percolator, until the short leg of the siphon is clear of the liquid. The flow will then stop until it has risen to the former level. The liquid falling upon the substance in the percolator will penetrate it and finally pass into the flask, B, loaded with the soluble matters.

Fresh Meat from Australia.

On Friday, February 6, a number of visitors assembled by invitation of the firm of McIlwraith, McEachern & Co., Leadenhall street, on board the Strathleven, one of Burrell & Son's line of steamers, now lying at the West quay, East India (Import) Dock, London, to inspect the "meat room" and the machinery, and to practically judge of the experiment of the practicability of bringing fresh meat by the freezing process from Australia, the first consignment of which came by this vessel.

On November 29 the vessel left Sydney, having on board 55 carcasses of beef and 357 carcasses of mutton. She proceeded to Melbourne, where an addition was made to that portion of her cargo by the shipment of 5 carcasses of beef and 205 carcasses of mutton, the total weight being from 30 to 33 tons. The Strathleven is 1,588 tons register, 2,436 tons burden. She left Melbourne on December 6, passing through the Suez Canal, and arrived at London on Monday, February 2. The whole of the meat must therefore have been killed about two months since. The chamber in which the carcasses were stored is about 26 feet square, and 6 feet 6 inches in height, and connected with it is an engine fitted with refrigerating apartments, the air being drawn out of the room, compressed, and chilled, and then forced back again through about 300 feet of piping. By these means an average temperature was kept during the voyage of from 10 to 15 degrees of frost; on Friday, although until the middle of the day the engine had not been at work since Sunday or

Monday, the temperature was 23° Fah. About 3 tons of butter were also brought over in the same department. The vessel was 23 days in the tropics, and in the Red Sea the temperature was from 72° to 74°, but no difficulty was experienced in keeping the "meat room" at 12° of frost. It was not found necessary to have the engine constantly at work, and no chemicals were used.

After the inspection, the company sat down to luncheon, which consisted almost entirely of Australian fresh meats which had been brought over in the Strathleven. The menu comprised lamb cutlets, beef olives, stewed chops and asparagus, minced collops, roast beef, mutton, and lamb, boiled mutton, and corned beef.

The Premier of Queensland (Mr. T. McIlwraith), said it was the immense undeveloped resources of that colony which prompted the chairman to try the experiment of which the success had been proved that day. About £5 per head had been paid for the bullocks, which would have cost £28 or £30 per head in England. He referred to the immense capabilities of New South Wales and Queensland for producing meat, and expressed the belief that in the future a great trade would be developed. They could produce meat and sell it at a profit of 2d. per lb., and he had no doubt it could be placed before the British public for 4d. per lb.

Mr. A. McIlwraith, in responding to the toast of his health, said that the meat was purchased at about 1½d. per lb., and was expected to realize 6d. to 7d. in Smithfield Market. He hoped that in a short time he would be able to collect such information as would show that this meat could be imported on a much larger scale. If they could bring from 100 to 150 tons per week to England, it would relieve the surplus produce of the Australian colonies. Mr. T. McIlwraith next gave the health of Mr. James Campbell, C.E., who, he said, had really carried out the details of the experiment.

Mr. Campbell said that although fears were entertained for the success of the enterprise before they reached the tropics, no difficulty was experienced in passing through those regions, and he should have had no fears for the success of the experiment, even if a temperature had been experienced of 90°.

American Watches.

The American Watch Company, of Waltham, Mass., has lately received an order from the British Government for 372 watches, intended for the use of conductors, engineers, station masters, and other employes of the state railroads of India. This is the third large order received by the company from the same source, and, like the former ones, was obtained in public competition with foreign manufacturers. The London *Jeweler and Metalworker*, in its issue of January 15, observes, in reference to this order:

The contract for watches to be used by the officials on the Indian state railways has again been secured by the American Watch Company. This is the third time Messrs. Robbins & Appleton have received this distinction, which is not a barren one, for it must be evident to the most prejudiced individual that the timekeepers supplied on the previous occasions must have given satisfaction, and answered the tests required of them. This is a mortifying fact for Englishmen, especially for those who believe that were manufacturers here to show more enterprise, they would be able to compete advantageously in the manufacture of all grades of watches. —*Boston Advertiser*.

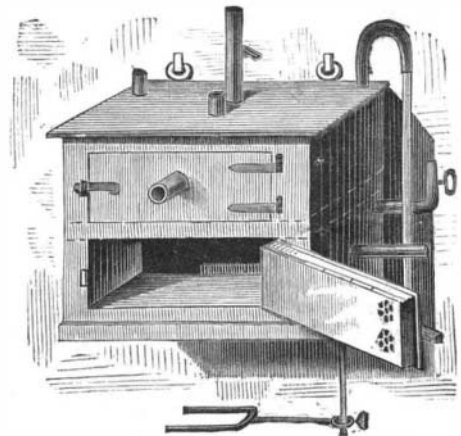
Light in the Home.

The eminent English writer, Dr. Richardson, produces in one of our contemporaries, an article called "Health at Home," which is replete with wisdom. A most important point, and one on which he dwells, is the fact that so many people are afraid of the light. "In a dark and gloomy house you never can see the dirt that pollutes it. Dirt accumulates on dirt, and the mind soon learns to apologize for this condition because the gloom conceals it." Accordingly, when a house is dark and dingy, the air becomes impure, not only on account of the absence of light, but from the impurities which are accumulated. Now, as Dr. Richardson cleverly puts it, we place flowers in our windows that they may have the light. If this be the case, why should we deprive ourselves of the sunshine and expect to gain health and vigor? Light, and plenty of it, is not only a purifier of things inanimate, but it absolutely stimulates our brains. It is in regard to sick rooms that this excellent authority is particularly impressive. It used to be the habit of physicians in old times to sedulously darken the rooms, and this practice continues to some extent even to-day. In certain very acute cases of nervous diseases, where light, the least ray of it, disturbs in over exciting the visual organs, this darkening of the room may be permitted, but ordinarily to keep light out of the room is to deprive the patient of one of the vital forces. Children or old people condemned to live in darkness are pale and wan, exactly like those plants which, deprived of light, grow white. Darkness in the daytime undoubtedly makes the blood flow less strongly and checks the beating of the heart, and these conditions are precisely such as bring constitutional suffering and disease. The suppression of the light of day actually increases those contagious maladies which feed on uncleanness. Dr. Richardson states: "I once found by experiment that certain organic poisons, analogous to the poisons which propagate these diseases, are rendered innocuous by exposure to light."

DRYING OVEN WITH CONSTANT DRAUGHT OF DRY AIR.

Dr. Hermann Rohrbeck has devised some improvement in the usual drying ovens, whereby the complete drying of bulky precipitates at a constant temperature may be accomplished much more rapidly than usual.

The drying oven consists of a double walled square box, one side of which is provided with a door, or, as shown in the cut, with several doors. The upper surface shows three tubes, one of which communicates with the interior of the walls, and is intended for filling in water or other liquids, according as a higher or lower temperature is desired; the second (short) central tube communicates with the interior and is intended to receive a thermometer. The third (longer) tube, which is provided with a damper, is intended to regulate the draught and to allow the moist air to escape. The door or doors are also constructed with double walls, which are, however, not filled with water, but with fused calcium chloride. In the center of each door a tube, also containing a damper, is soldered upon the outer surface, by which the air enters the interior of the door walls, where it loses its moisture while passing over the calcium chloride, and it enters the interior by way of the star-shaped perforations in the inner surface of the door (see cut). In this manner the substance, which it is desired to dry, is constantly supplied with a current of warm dry air, and exsiccation proceeds quite rapidly. If a temperature of 100° C., or thereabouts, is to be maintained for a long time, an upright condenser may be connected with the tubulure through which the steam escapes, so that the water may be preserved at the same height. The apparatus is also provided with a water gauge, a faucet near the bottom for drawing off the water, and, if of the kind shown in the cut, with a double-walled diaphragm, through which the water likewise circulates.



ROHRBECK'S DRYING OVEN.

As the joints are hard soldered, the water may be replaced by higher boiling substances, such as anilin, paraffin, etc., without injury to the apparatus. The oven may either be placed on a stand, or it may be suspended on the wall, as shown in the cut.

RECENT INVENTIONS.

An improvement in pantaloons pockets has been patented by Mr. Morris Shrier, of New York city. The object of this invention is to provide pantaloons with two separate and distinct side pockets under the same outside pocket flat, so arranged that one can be entered from the side and the other from the top.

An improved ticket holder has been patented by Mr. Samuel Herzberg, of Pontiac, Ill. It is designed for holding the tickets on which are marked the sizes and other particulars of goods, such as pantaloons and other clothing.

Mr. John Hill, of Columbus, Ga., has patented an improved feed indicator for cotton openers. This relates to a convenient and certain means for determining the quantity of cotton to be fed to cotton openers, which serve to tear up and loosen the tussocks of cotton as they come from the bale, and distribute the fiber in the form of a fleece. In using these openers, two are sometimes employed together to act successively upon the cotton; or one opener may be employed in connection with a lapping machine, the function of which latter is to press together and compact into a fleece. In either case a hollow trunk has been employed as a conduit, in connection with a blast of air passing through the same, to act as a vehicle to carry the fleece from one opener to the other, or from the opener to the lapping machine, which second machine is generally located upon a different floor, or at a point more or less remote from the first. The invention consists in making the boxes of the upper feed roll of the second opener or lapper vertically adjustable, and connecting them with an index hand within sight of the operator at the first machine, so that the operator, at a point remote from the second machine, can tell the amount of cotton fed to the second machine by the rise or fall of the movable roller due to the passage of a greater or less quantity of cotton to the second machine.

Mr. T. O. Memery, of Key West, Fla., has patented an improved hinge for awning blinds, which is easily applied, and is not more complicated than the ordinary blind hinge.

An improved stock car has been patented by Mr. Sanford Bray, of Charlestown, Mass. The object of this invention is to furnish cattle cars so constructed that the cattle will be arranged compactly, and can be conveniently loaded and unloaded.