NEW INVENTIONS.

We publish descriptions of the following new inventions, obtained through Dewey & Co., *Mining and Scientific Press* Patent Agency, San Francisco:

BREAKING CART.—De Witt C. Putnam, Petaluma, Cal. Patented Sept. 14, 1880. No. 232,207. This invention relates to certain improvements in that class of vehicles known as "breaking carts," in which young colts are broken to harness. Carts of this description are usually provided with very long shafts, and the seat is placed on springs immediately over the axle, or at such a distance back that the driver is not in danger of being kicked by a fractious animal. In this class of vehicles the foot-board is usually secured to the axle while the seat is on springs, and it is therefore uncomfortable to ride upon, since while the body of the occupant may move up and down his feet must remain stationary. The improvements consist in so attaching the foot-board to the vehicle that it shall move in unison with the seat, the same spring which supports the seat serving as a spring for the foot-board.

ELECTRICAL RECORDING TARGET.—Richard H. Savage, Empire Foundry, San Francisco Patented Sept. 21, 1880. No. 232,417. This invention relates to a self-recording target and indicator for small-arm practice, which is also useful for testing guns, cartridges and powder for penetration, as well as accuracy of aim, as well as to record time of flight of projectiles. It consists of a target which is subdivided into a number of areas, each of which is properly supported and guided, and is free to move backward upon the impact of a shot and be returned to its place by the action of elastic buffers, springs or hinges, in combination with certain details of construction. It also consists in a combination of wires, sectional target, a timing device, and the weapon being fired, whereby the velocity of the shot is measured.

BREECH-LOADING FIRE-ARM.—Charles Slotterbeck, Lakeport, Cal. Patented October 5, 1880. No. 233,034. This device relates to certain improvements in breech-loading guns of that class in which the barrel is hinged to the fore end of the stock, so that when unlocked it tilts in a vertical plane. It is especially adapted to be used for a single-barreled, breech-loading rifle, in which great solidity of action is necessary to prevent derangement in the accuracy of its shooting. It consists in an improved construction of the fore-end joint, by which a neater appearance is made; a joint which is stronger and less liable to become loose with use, and which supports the barrel, when open, upon a solid surface of considerable length.

HOISTING MACHINE BRAKE.—William R. Eckart and Hans C. Behr, S. F. Patented, Aug. 31, 1880. No. 331,766. This invention relates to certain improvements in that class of machinery which is used for hoisting and lowering in mines and other places, but which is more especially adapted for heavy mining work; and it consists in a novel construction and operation of the friction brakes, by which the speed of the descending load is regulated, checked or stopped at will, said brakes being adapted to move on parellel lines, so that all parts of the faces of the brake-shoes will be approached to or retracted from the drum at an equal rate of speed.

HARROW.—Silas Harris, S. F. Patented Sept. 28, 1880. No. 232,641. The object of this invention is to provide an improved means of securing teeth in harrows so that they will remain fixed, but may be readily removed when desired. This is attained by providing a cam or eccentric which will jam the tooth in place and hold it there. When it is desired to remove the tooth the cam is turned and the tooth loosened.

DOMESTIC RECIPES.

TO TEST MILK FOR WATER.—A German chemist furnishes a very simple procedure for testing the amount of water in milk, which can be applied by any one. All that is required is a small quantity of plaster of Paris, say one ounce. This is mixed with the milk to a stiff paste, and then allowed to stand. With milk of 1,030 specific gravity, and a temperature of 60° F., it will harden in 10 hours; if 25% of water is present, in two hours; if 50%, in one and one-half hours, and with 75%, in 30 minutes. Skimmed milk which has been standing for 24 hours, and is of 1,033 specific gravity, sets in four hours; with 50% of water, in one hour, and with 75%, in 30 minutes. Heat should not be applied, as then the use of the thermometer would be required. This test is certainly very simple, and not costly.

ORANGE MARMALADE.—Choose medium sized juicy oranges. Slice a dozen of them as thinly as possible, and also three small, fair skinned lemons. Don't try to take the slices clear across the fruit; it is better to have them in smaller pieces, and be careful to take out every seed. Put the fruit into an earthern bowl and cover it with cold water. Let stand 12 hours, then boil together until the orange skins are tender, after which add as many pounds of granulated sugar as there were of fruit at first. Boil until the rinds look clear, and the mixture thickens when a little of it is cooled. Put it into small earthen or glass jars; when cool press brandied paper close to the marmalade and paste paper dipped in the white of an egg over the top of the jar.

CANNING TOMATOES.—Many good cooks have given up canning tomatoes because they have been unsuccessful in keeping them after having had all the trouble of putting them up. I have never known of a can being lost where the following directions have been observed: Slice the tomatoes and let them stand 15 minutes; then drain off all the liquor that has collected; boil them an hour and a half. A great deal of scum will rise on them, which must be skimmed off—herein lies the secret of success. Seal in ordinary glass cans and set in a cool, dark room.

BREAD AND FRUIT PUDDING.—Take a deep pudding-dish and butter it; cover the bottom and sides with thin slices of bread, white or brown, then a layer of pared and cut apples or pears, or both, mixed with any other fruit you fancy; then sprinkle some sugar; then a layer of bread in slices or bits; then fruit, and so on until the dish is full. Lay thin slices of bread over; fill up with any fruit juice, or water, lacking this; cover with a plate and bake in a slow oven 4 hours. Hot or cold, it is most delicious. Any sauce would spoil it.

POT-ROASTS.—Meat of any kind, chicken, prairie-fowl or pigeons may be pot-roasted. Slice an onion and a few slices of pork, and put into the bottom of a kettle. Place on top whatever meat is to be cooked; add just water enough to stew it. Be careful not to use too much water; it can be easily added if it cooks away, but it spoils the dish to be obliged to take out any. Keep turning the meat, and let it stew or roast slowly till brown or tender, then take out the meat, strain and thicken the gravy, pour over the meat and serve hot.

CHEAP CARAMELS FOR CHILDREN.—One cupful of water, 1 of sugar, ½ cupful of grated chocolate, and a piece of butter the size of a walnut; boil the water, sugar and butter to a syrup, and add the chocolate when nearly done; stir to prevent lumping; spread on greased paper, and cut into squares. 2. One cupful of milk 2 cupfuls of sugar, 2 cupfuls of New Orleans molasses, 1 cupful of chocolate; boil till it candies, be careful not to burn; pour on greased tins, and mark in squares.

CABBAGE IN ITS OWN JUICES.—Cut fine as much clean nice cabbage as will fill a spider. Place it in this utensil, cover with a plate, and let it cook till done in the steam from its own juices.

WAYS TO USE UP STALE BREAD.

Clara Francis gives the *Prairie Farmer* an essay on this subject from which we take the following recipes:

Brewis.—Butter the bottom of your saucepan and put some fresh milk in it. The butter will prevent the milk from sticking. Bring to a boil, and season with salt and a generous piece of butter. Have the bread broken into little bits, and as soon as the butter melts stir them in until all the milk is absorbed. Serve immediately, as longer cooking will make it sticky.

Bread Fritters.—Slice the bread and cut off the crust making the slices of uniform shape. Soak these in a custard made of a cup of milk, one egg, and a little sugar and flavoring. Remove them before they get so soft as to break. Dip each piece in rolled bread crumbs, then in beaten eggs, and then in bread crumbs again. Fry in boiling lard to a golden brown and serve with lemon sauce made thus: Cream together a cup of sugar and half a cup of butter; stir in a well-beaten egg, half the grated peel and the juice of one lemon and a little grated nutmeg. Beat hard, then stir in gently and gradually half a tea cup of water. Do not beat. Set in a bowl on top of the boiling tea-kettle, until it thickens. Stir occasionally and don't let it boil.

Custard Bread Pudding.—Make a custard with a pint of milk, 3 eggs, some sugar and flavoring. Put it into a neat pudding dish, and fit thin slices of buttered bread over the custard. Don't lap the slices over each other. Grate a little nutmeg over the top, and bake in a moderate oven until the custard is done, but not until it turns to whey. Serve warm.

INFLUENCE OF LIGHT, COPSE AND MOLD ON FOREST GROWTH.—M. Gurnaud has conducted a series of observations, during the past 19 years, upon the solid contents of annual growth in a forest among the Jura mountains. He finds that: 1. Light, when it strikes the ground without having been sifted by foliage, stimulates the production of carbonic acid in the decompositions which are engendered by the humus, together with a decomposition of the same gas by the chlorophyll. 2. The growth of wood diminishes when the underbrush intercepts, to any great extent, and the access of light to the soil and diminishes its reflex action on the branches of the trees. 3. This interruption of reflex action is due mainly to the spread of the underbrush, for when it is kept trimmed the vertical shoots which are retained interpose no obstacle. 4. The mold, under too great a thickness, loses a part of its virtue, and, like barnyard manure which is too deeply buried, remains inert for many years. —*Comptes Rendus.*

TAKING AN INVENTORY.—Occasional retirement, self-inquiry, meditation and secret communion with God, are absolutely essential to spiritual health. The man who neglects them is in great danger of a fall. To be always preaching, teaching, speaking and working public works, is unquestionably a sign of zeal not according to knowledge. It often leads to untoward consequences. We must take time for sitting down, and calmly looking within and examining how matters stand between our souls and Christ. The omission of this practice is the true account of many a backsliding, which shocks the church and gives occasion to the world to blaspheme. Many could say, in the words of the Canticles, "They made me a keeper of the vineyards, but my own vineyard have I not kept."—*Rev. J. C. Ryle.*

INJURIOUS TO THE EYES.—Medical investigation has shown that some of the occupations for children at kindergarten schools are calculated to injure the eyesight. Among these are the pricking holes over a tracing on paper, braiding bright colored bands of paper, or sewing fine silk upon tracings.