The Painless Extinction of Life of Animals.

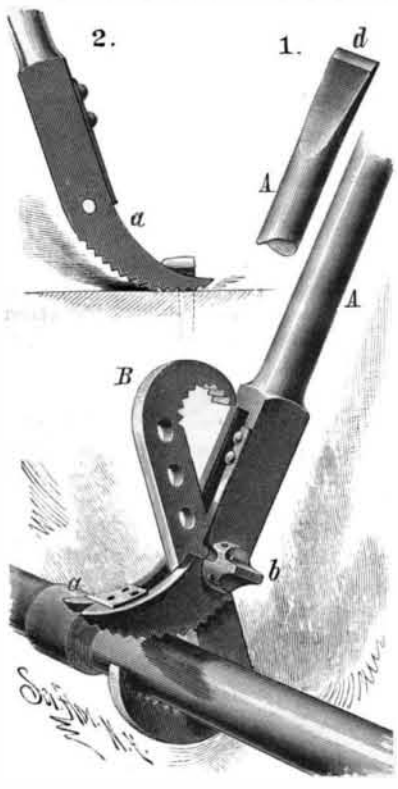
Dr. Richardson, of London, in a lecture on his process of painless killing of the lower animals, said in the closing passages of his discourse that at the Dogs' Home over 6,000 dogs have during the past seven months slept their final sleep, knowing as little of their deaths as of their births. The principal agent used for the narcotic action is carbonic oxide, passing, at summer heat, over a mixture of chloroform and carbon bisulphide into a lethal chamber, in which chamber as many as 100 dogs can at once receive euthanasia. This is on the large scale; but Dr. Richardson described also a small apparatus in which from one to six animals can be painlessly killed, and which is so portable that it can be wheeled from a central station to any house or street ready for immediate use. Thus every village and town may be provided at a small cost with a means that will give painless death to any domestic animal without offending the most sensitive individual. By an extension of the same design the author next intends to apply it to animals of the larger kind that are used for human food. It is no contemptible part of its history in this century for the profession to leave, as a bequest to the future, the means of taking the sting of death from all the lower animals whose fate is under our control.

Peroxide of Hydrogen as a Beer Preservative.

Since peroxide of hydrogen has been recommended as a good preservative for beer, the following experiments by Weingartner will be of interest to our readers, although only negative results were obtained. Some flasks of beer treated with hydrogen peroxide became clouded, while some pasteurized samples remained perfectly clear; the taste of the beer had changed to a flavor of rum, a microscopic examination showing much albumen and many living yeast cells. In another series, nine flasks of beer, to which had been added 3, 5, 6, 7, 8, 9, and 10 c. c. hydrogen peroxide, were placed on board a ship for a sea voyage lasting a month; they were daily inspected as to color and transparency; three days after commencement of the voyage two flasks which were not so treated, but kept as control, became muddy; the nine flasks treated with hydrogen peroxide remained clear and bright throughout the voyage; but on opening the flasks four days afterward, during very hot weather, it was found that the beer became clouded, although the taste and aroma remained good.

IMPROVED PIPE WRENCH.

The handle bar, A, of the wrench has a curved foot, and is slotted to receive the arm, B, which is held in place by a pivot pin, *b*, that is held by a spring catch which allows its ready removal. The arm has both ends made hook shaped—one being larger than the other—and is made with three or more holes for the pivot pin, so that the end in use can be set nearer to or farther



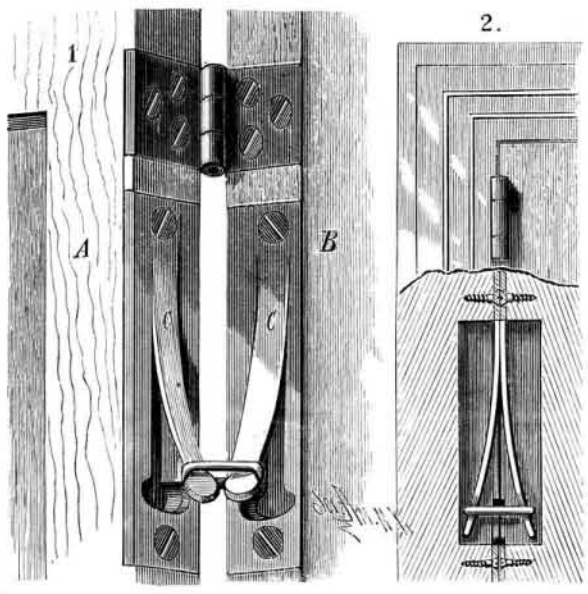
MORRISON'S IMPROVED PIPE WRENCH.

from the serrated end of the foot. The arm is to be reversed end for end, according to the size of pipe, and, with its endwise adjustment, adapts the wrench for a large range of work. Pipe fitters usually have to carry separate chisel bars and nail drawers, and in order to save this extra weight and expense the outer end, *d*, of the bar is tapered, so as to serve as a chisel bar or screw driver, and the curved end of the foot, *a*, is made with a notch, so that the bar can be used for drawing spikes and nails, as indicated in Fig. 2.

This invention has been patented by Mr. W. S. Morrison, and further particulars may be obtained by addressing Mr. James Lond, of 1101 Main Street, Fort Worth, Texas.

DOOR SPRING.

Let into and fastened to the edge of the door and the side of the jamb-rabbet are the like plates, C, which have spring tongues formed by slitting or pressing the plates by suitable dies. The free ends of the tongues are formed with notches which connect with a link. Normally, the free ends of the tongues lie back of the plane of the plates, the door and jamb being recessed to permit their entrance, as shown in the sectional elevation, Fig. 2. By this construction the tongues have a drawing or pulling action on each other, when the door is shut, to hold it firmly closed. It is evident that when the door is opened the tongues will be drawn outward



CLARK'S DOOR SPRING.

by the link and put in greater tension, so that on releasing the door they will act instantly to close it. The link, by its rounded ends, adjusts itself in the notches as they change their positions relatively to each other as the door is opened. The spring is wholly concealed from view, is positive and efficient, and can be cheaply made from suitable spring metal plates.

This invention has been patented by Mr. Enoch H. Clark, of Greenland, N. H.

Limited Use of Lumber in Mexico.

United States Consul Winslow, of Guerrero, writes that the amount of timber useful for manufacturing purposes in Northern and Central Mexico is very limited. The mesquite, the principal native product, although it is a very hard wood, and capable of taking a fine polish, is not suitable for general manufacturing purposes, as the trunk and branches are very crooked, and a straight piece of over two yards long seldom occurs. It is used, however, for making doors, door frames, for railroad ties, and for the heavy beams placed over the doors to support the stone walls, and for a number of other articles for which long lumber is not required. Its hardness, color, susceptibility of taking a fine polish, recommend it as useful for veneering, for making clocks, sewing machines, tool handles, and some articles of furniture.

There is, and will be, a demand for lumber, especially pine lumber, at those points reached by the Mexican Central, National, and International railroads, as new towns are being built along these roads; and, besides, large quantities of lumber are used in the mines and in the construction of bridges. All this lumber must come from the United States, but then the demand is not so great as may be supposed, as the manner in which Mexican houses are built must be taken into consideration. The houses, with but few exceptions, are of one story, some twenty feet high, and from twelve to fifteen wide, with flat roofs; built of blocks of stone, with walls two feet thick. The floors are made of a concrete, consisting of lime, sand, small stones, and water mixed together. The ground having been leveled where the floor is to be made, this composition is spread evenly over the surface, is allowed to dry somewhat, and is then beaten down by heavy wooden pestles, and afterward when nearly dry is smoothed down and polished by rubbing it over with round blue limestone. This requires considerable time and patience. The floor when thus made is smooth and glossy and hard, and will last twenty years. Wood floors are not suitable for this country, as they are liable to be eaten by insects, and afford a hiding place for vermin. The walls are plastered inside and outside, and whitewashed. The roof is made by extending joists from one wall to another, so that the joists show inside, and on the principal joist is painted date of building and some religious or political motto. Over the joists is nailed a flooring of boards, so that the flooring of a Mexican house is really on the roof. Over the roof is spread a composition, similar to that of the floor, which is also beaten down, so that the house becomes perfectly watertight and fireproof, and will easily last a hundred years. For example, the house in which the Consul lives was built in 1778. The roofing is of sabine and the doors of mesquite, and they are still sound. The houses consist generally of one room, some ten or twelve yards long, with sometimes another attached, as a kitchen; but the kitchen is most frequently made of adobe, and thatched with straw, and is in the back yard, retired from the house. The houses of the poorer class are made of adobe, or of sticks stuck in the ground and plastered with mud.

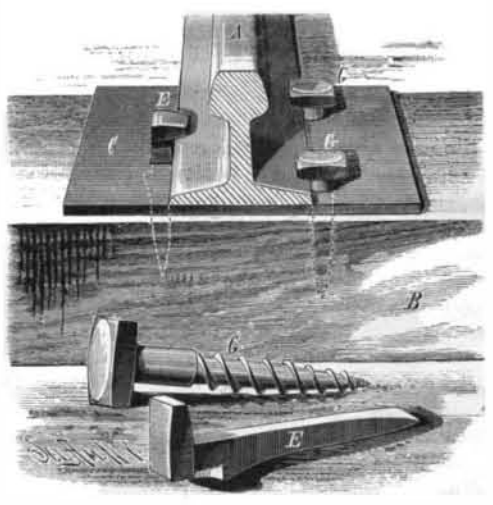
The kinds of lumber best to ship to Mexico are joists, two by twelve inches and sixteen and twenty feet long; pine and cypress boarding, one inch thick and twelve inches wide; scantling, two inches thick and four inches wide; double doors, one and three-quarters of an inch thick, six and a half feet high, one foot and a half wide; Venetian blinds for doors; shingles; oak, hickory, and ash lumber, three to four inches thick and ten to twelve feet long; materials for making carts; cart and carriage wheels, etc.

Expenses of Business.

A well informed merchant of Boston recently said to a representative of the Boston *Herald* that he had been looking back over his accounts, and was surprised to find that since the close of the war there had been a steady increase in the ordinary expenses of carrying on business. Mere office work cost a great deal more now than it did in 1865; more clerks were needed, and, on the whole, each of these received higher pay. Assistance was required in the receiving and delivering departments to an extent and of a character that would not have been dreamed of two decades ago. Then there were a variety of incidental expenses that now entered into the compilation. There were telephone charges, printing, the expense of solicitors, the whole making up an amount sufficiently large to eat up all that would have been considered fair profits a quarter of a century ago. It is probable that the experience in different trades varies, and yet we fancy that in most lines of business statements somewhat similar to the above might be made. The tendency, all the time going on, to lessen the hours of service, both in offices and workshops, would of itself make the cost of business proportionately higher. The cheapening process, if there is one, would seem to be in enlarging the amount of business which each concern carries on.

A NOVEL RAIL FASTENING.

For ordinary railway tracks and traffic the preferred dimensions for the wear plate, C, are 14 inches long, 6 to 7 inches wide, and about $\frac{3}{8}$ of an inch thick; but the size may vary with the hardness of the tie, one of hard wood not requiring so large or thick a plate. Next to the outside flange of the rail is punched a rectangular hole in the plate, through which the spike, E, is driven, and next to the inside flange are punched two round holes, through which the screws, G, are turned down into the tie. The spike and screws are so arranged as to take a triangular hold on the base of the rail. The spike has a projecting lip at the back, with a square shoulder formed at a distance from the under side of the head corresponding to the thickness of the flange and plate. In laying the rails they will be set on the plates, which will be placed so that the inner ends of the spike holes will lie about in line with the edge of the outside flange. The spikes will then be driven home, which will bring the shoulder just below the under surface of the wear plate, which will then be driven inward until the outer end of the slot comes



HOWE'S NOVEL RAIL FASTENING.

against the spike above the shoulder. By this means the rail is locked to the plate and tie by the spike, which is also locked by the plate. The screws are now turned down until their heads rest upon the flanges, to complete the fastening. It will be seen that a spreading of the rails is prevented, since the edge of the outside flange comes against the side of the spike below its head, and the screws have a firm downward hold on the inside flange. With this device fewer ties may be used, and those used will last longer. When considered necessary, the wear plates may extend along the tie from one side rail to the other under both rails.

This invention has been patented by Mr. John Howe, of Newhall, California.