

Interesting Inventions

FARMING IMPLEMENT THAT GUIDES ITSELF.

ONE of the latest innovations in farming implements is a gasoline-driven vehicle that guides itself around the field and needs no attention except to be started and stopped at the right points. This vehicle, which travels in a constantly narrowing circle, is so designed that any of the devices used in row-crop farming, such as plows, ridgers, cultivators or sprayers, may be readily attached to it, but in order to use the implement it is necessary to abandon the usual rectangular form of field with straight rows and adopt a circular field with circular rows spiraling toward the center.

The method is not adapted for big farms, but is intended for truck gardening and for farming on a small scale where the expense of employing an operator for the machine would be prohibitive. At the center of the field an iron post is erected and strongly guyed. At the top of the post is a drum, and from this a slender steel wire runs through a guide pulley and to the steering lever of the implement, which may be anywhere from twenty feet to several hundred feet away.

At each trip of the vehicle around the field the wire winds once around the drum, and this guides the implement the width of one furrow closer to the center. This process is continued until the implement comes as close to the center as the guy wires will permit. The drum is then released so that it will revolve freely and the implement is run out of the field under hand steering, unwinding the wire as it goes. The implement has already been used successfully in working a circular field containing about seven acres.

PROTECTS TRAIN FROM REAR-END COLLISIONS.

Many suggestions have been made regarding ways to guard against rear-end collisions on railroads, but the most feasible seems to be a mechanical flagman, of which two models have been perfected. They would replace the rear brakeman, who, when the train stops on account of an accident or washout, is expected to go back a quarter of a mile to flag any approaching train.

Brakemen sometimes are slow about going back or neglect to go far enough and rear-end collisions occur. One of the machines for replacing the unreliable brakeman is in the form of a little car or track bicycle, to be carried or hauled at the rear end of the train. If the train is stopped an employe drops the tricycle to the track by a mechanical device and it runs back 2,000 feet by electric power from storage batteries. As it runs it unreels a cable connecting it with the train. Flags and lights are carried on the little car to give warning.

The other invention is a device which unreels 2,000 feet of magnetized torpedoes which adhere to the track. An approaching train would explode them and be warned. The strip rolls up automatically by machinery on the rear coach.

NEW TOASTER TURNS BREAD AUTOMATICALLY.

An electric bread toaster recently placed on the market is equipped with a frame by which the toast is turned automatically and without the neces-

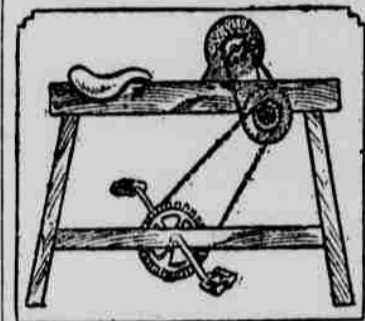


sity of touching it with the fingers. A frame controlled by a knob is placed on each side of the toaster. The frame is first turned outward to a horizontal position, and with the bread laid on it is turned upward to the position required for bringing the bread close to

the heated surface of the toaster. As soon as one side is toasted the frame is again turned outward, the lower edge of the bread slides on the frame, and the untoasted side of the bread is presented to the heated surface when the frame is returned to an upright position. The whole operation is performed by a succession of right-hand and left-hand turns of the knob, which does not become hot.

USE FOR OLD BICYCLE.

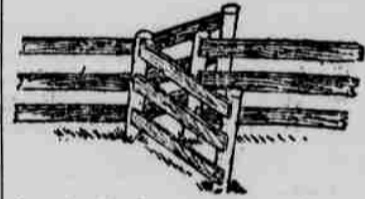
The illustration shows how an old bicycle may be used to furnish power for an emery stone. It may be rigged up on the frame of an old grindstone, or something similar. The



large sprocket and pedals are placed between two pieces of timber, the hub, on either side, fitting into large holes bored in the crosspieces. The counter shaft is placed below the top of the frame. The mandrel is raised about three inches, so the stone will not rub against the shaft. If there are no boxings handy, good ones may be made from maple or other close grained wood.

ANIMALS CAN'T PASS.

It is necessary to have an opening in an enclosure where cattle, horses or other animals are kept, but it is annoying to have to open a gate each time a person goes in or out. The kind of gate



shown in the drawing is in use in many parks and is practical for the same purpose elsewhere, as large animals cannot get through, but a person can pass readily. It may be constructed as shown or woven wire may be used.

REMEDYING THE SMOKE NUISANCE.

The smoke nuisance prevails wherever soft coal is burned. Many devices have been devised to consume this smoke, not only to secure more heat but also to eliminate dirt and grime. One of the most successful devices for stoves and furnaces in residences is the hot air blast. The gases driven off from the fuel cannot burn unless mixed with oxygen. The necessary oxygen must be admitted in part from above; but opening the door (or its damper) interferes with the draft, and generally cools the gases below the burning temperature. This is remedied in good modern stoves and furnaces by admitting fresh air from above through a long metal tube, in which it is heated before mixing with the gases to be burned.

TELEPHONE MAKES COST KEEPING EASIER.

The telephone is used successfully in a Chicago establishment as a means of keeping track of the time spent by employes on repair work and special jobs. Each department in which work outside of the regular routine is done is connected by telephone with a central switchboard, the operator at which has nothing else to do but record the time of employes. A worker, taking up a particular piece of work, calls this switchboard and gives the number of the job on which he is starting. The time is recorded on a job ticket by the operator, and when the work is finished the worker calls up again, announces that the job is done and gives the number of the next one to be undertaken. In this way the exact cost to the establishment of each job is readily computed.

Health and Sanitation

"The New Health"

A CLOSE companion of hygiene is sanitation. "Broadly defined," says George C. Whipple in the Atlantic, "sanitation covers all the arts which make for clean environment, and sanitary engineers concern themselves with all of the many activities required to provide communities with pure water, fresh air, clean food, and in general, clean surroundings. A few years ago, sanitarians were assiduously cultivating newly discovered germs; now, they are also studying flies and mosquitoes and rats and squirrels and other insects and animals which may harbor and spread these germs. They are also studying the currents in lakes and the laws of sedimentation and filtration. They have found that very few cases of sickness are ever caused by infection passing through the air. The aerial transmission of disease germs from patient to victim is not denied, but it has been found to be a very small factor, indeed almost a negligible factor, except in the case of a few diseases where the virus is ultra-microscopic.

Abandoning Fumigation.

Acting on this theory, health officers, little by little, have been abandoning the practice of fumigating and disinfecting rooms which have been occupied by persons sick with contagious diseases. In hospitals, segregation of different contagious diseases in separate rooms is no longer deemed absolutely necessary. Cases of scarlet fever, measles and typhoid fever have been kept in the same ward with an extremely small portion of cases of cross-infection. Aerial transmission has been replaced by the theory of contact. The germs do not float in the air from one person to another, but are carried on solid objects—on spoons and knives and forks, on soiled clothing, on pencils and toys, books and tickets, doorknobs and drinking cups, and on scores of objects which pass from hand to hand or from hand to mouth.

In the study of water the discovery has been made of the natural processes of purification which occur in water during storage. Typhoid bacilli do not multiply in water, as once thought, but become gradually devitalized—or, to use plain English, they die—in a few days or a few weeks, according to the temperature and character of the water. They are able to live longer in cold water than in warm water, hence there are more typhoid epidemics in winter than in the summer and more in the North than in the South.

Microscopic Plants.

It has been found that the algae, the microscopic plants seen floating in the waters of lakes, use up the carbonic acid dissolved in the water, and even take carbonic acid away from the dissolved bicarbonate of lime. This leaves the water in a condition in which the typhoid bacilli are speedily killed. Whatever typhoid bacilli there may be in river water may be practically eliminated by filtration. For example, after the water filtration plant was put in operation at Pittsburg the typhoid-fever death rate fell from 135 per 100,000 to 10; at Philadelphia it fell to 17.5; at Cincinnati, to 9 per 100,000.

In the matter of ventilation old ideas are being flung to the winds. There is not so much fear now of carbonic acid, for it has been found that the human body possesses powers of automatic readjustment to slight changes in the oxygen and carbonic acid content in the atmosphere of a room.

Keep Air Moving.

Much of the discomfort in crowded rooms and cars is found to be eliminated by the artificial movement of the air. Cooling the skin affects metabolism, and thus in an indirect way stimulates the lungs to secrete more oxygen. Instances of the effect of movement of the air may be seen during church services. During the sermon many people will feel drowsy. Let the audience rise while a hymn is being sung and the effect upon the atmosphere is such that the sleepy feeling is entirely eliminated. There has been no new air brought into the room, but the movement of the air as the result of the audience rising has caused the change. This is a point that clergymen might bear in mind when they find their audiences going to sleep. Cut the sermon in two, give out a hymn and with an awakened audience the gospel truths can be driven home with more telling effect. And the audience will rise up and call him blessed.

UNDER the title of "The New Health" F. C. Walsh, M. D., says in the Forum that too much attention has been given to diseased humanity while the healthy have been allowed to shift for themselves. There is too much truth in this. Because a person is apparently well he is neglected, allowed to shift for himself, no thought being given to any of the elements of weakness that his system may have held from his childhood days when he had the scarlet fever, the measles, whooping cough, etc.

Bright's disease, heart trouble, or a chronic bronchial ailment may be a manifestation of damage that may have been suffered from these diseases of early life. Hence the need for the healthy to take an interest in being more healthy, to increase the stored-up energy that gives them the present condition of health.

"Medical science," Dr. Walsh says, "is seeking a special serum to kill or offset each separate and distinct infectious disease. The hope of the future is to vaccinate against everything." This he calls a superb idea. Nevertheless, he recognizes in chemotherapy another hope, and sees in it something better than serums. "The idea, though not definitely crystallized until lately," he says, "in reality dates from the use of quinine in malaria, which is a typical instance of treatment by chemotherapy in a parasitic disease. Ehrlich, the hero of the last International Medical Congress convened a short time ago in London, has become the leader in this field through reducing the idea to a principle of treatment and the wide application of his own discovery in dealing with the scarlet plague.

The use of quinine or some similarly acting compound in the treatment of hydrophobia will be the next extension of this idea, for through the discovery of Noguchi, the Japanese, the parasite which causes the disease has at last been isolated. In the tropics especially the parasitic and fatal diseases common to equatorial regions will probably be stamped out by this latest agency of chemotherapy."

While this is one step in advance of the use of serums injected into the blood, Dr. Walsh recognizes that the end has not been reached. "In the past," he says, "we have dealt with the abnormal mind and diseased body too exclusively. Hygiene has been little more than a negation, a hint of what not to do. That young science is just beginning to realize that it has a future."

Dr. Gorgas and his aids at Panama proved that hygiene is much more than a theory or a young science. By cleaning up the malarial districts and compelling the men to live under hygienic conditions, the region which had become known as practically a death trap was made one of the healthiest in the world.

Undoubtedly some quinine was used to prevent the malaria in the beginning, but when the hygienic conditions were established all kinds of medicines became practically unnecessary. The Americans' clean-up of Havana tells a similar story of the efficacy of hygiene. If the science is a "young one" it is young only to those who have put more faith in medicine than in correct living. Dr. Walsh gives evidences that the medical profession are learning from the sanitary engineers things more valuable than have been included in their college curriculum.

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