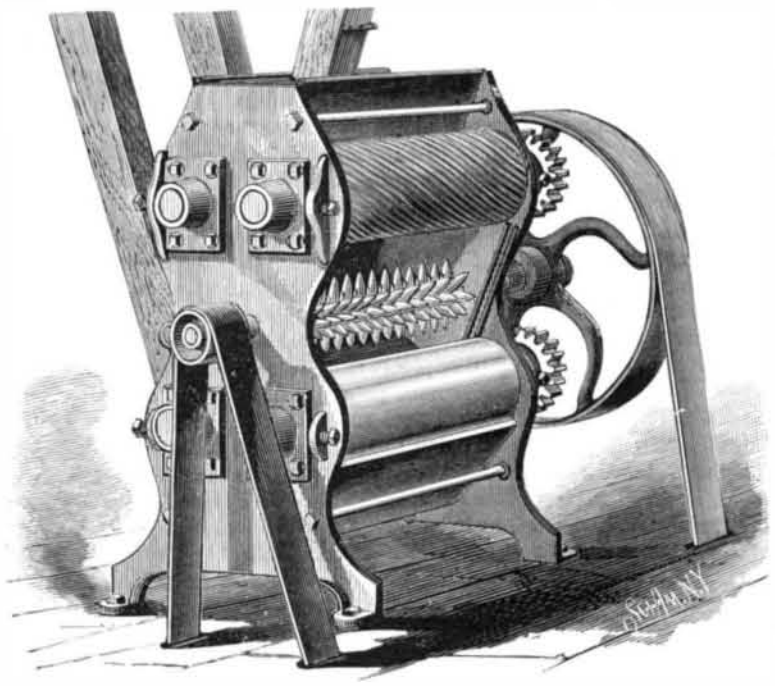
GRAIN CRUSHER AND DISINTEGRATOR.

The machine herewith illustrated thoroughly crushes and reduces the grain before it goes to the millstones, thereby making the work of the stones very light and materially decreasing the wear. The upper and lower sets of crushing rollers are mounted in bearings attached to the end plates by bolts; the upper set being made with spiral corrugations to cause the grain to feed more freely, and the lower set being smooth. The bearings of one roller of each set are adjustable by means of set screws, so that they can be spaced so as to crush the grain coarse or fine, as desired. The cylinder carrying the blades is revolved rapidly, the blades passing between the ribs or bars of a diaphragm above the blades, thus disintegrating the crushed grain after it has passed through the upper rollers. An inclined apron, placed in



JONES' GRAIN CRUSHER AND DISINTEGRATOR.

grooves in the end plates, rests in front of the blades to conduct the grain to the center. A pipe conveys the grain to the hopper, and elevator boxes take the crushed grain from the bottom of the machine up to bins, from which it is distributed to the millstones.

A mill superintendent who has used one of these crushers states that with one of these machines and two sets of stones, all using thirty-five horse power, fully as much meal can be made per day as with three sets of stones using forty-five horse power. By using the machine on wheat, in connection with burrs, about one-fourth more flour per day can be made with the same use of power, and a larger percentage of high grade flour than with stones alone. The meal is not heated by this as by the old process, and is of a more uniform and better quality. The machine is also used for preparing grain for stock food.

For further particulars the patentee, Mr. J. A. Jones, of Raleigh, N. C., may be addressed.

The Radiating Power of Metals.

M. Walter Meunier has, according to the *Revue Industrielle*, been experimenting on the comparative loss of heat from cast iron, wrought iron, and copper tubes. The experiments were carried out in a room having a uniform temperature, and were made simultaneously with the three materials in question. The tubes were all 2·5 meters long, and 150 mm. in diameter, connected at one end with a steam supply, and at the other end with a worm condenser in water. Observations showed that the weight of water condensed, per square meter of heating surface per hour, was, with naked pipes, 3·484 kilos for the cast iron, 3·906 kilos for the wrought iron, and 2·816 kilos for the copper. The non-radiating power of copper, in comparison with iron is thus manifest. It is not stated, however, whether the pipes were all of equal thickness, and similarly polished, or left with their natural surfaces. It is to be understood, perhaps, that identical conditions were, as far as possible, preserved.

Railway Embankment Gardens.

Whatever blessings we derive from our railways (and they are many), they certainly absorb something like 182 square miles, or 116,480 acres, of good land. There is always one and sometimes two sunny sides to railway embankments, and on these strawberries enough to supply the whole country might be grown, besides such low growing fruit trees as gooseberries and currants, while, on the margins of cuttings, cherries, plums, apples, and pears might be advantageously cultivated. The waste land on the sides of the levels should be utilized for vegetables. How all this is to be profitably done is the difficulty. An infinitesimal portion of this scheme is now being carried out at country stations and crossings.

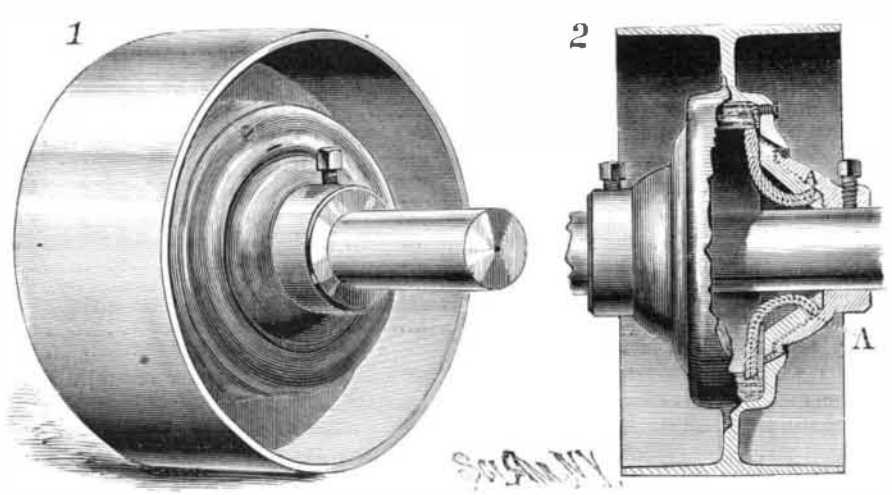
Nearly all railway men are gardeners, and all praise to them for the roses and hardy flowers in which their huts and houses are frequently embowered. They get land near home from their employers at little or no rent, and on that the off duty hours are spent. In a scheme for the conversion of railway banks into fruit gardens, directors and managers would have to be appealed to, and it would be necessary almost in the first instance to supplement each platelayer's gang of men by one who knew something about fruit tree management—one who could utilize his time when not fully occupied by railway duty (as is now done by platelayers in hedging and ditching) in attending to the fruit trees. It is not generally known that just as our coast is perambulated every night by coast guardsmen, so the whole 16,000 miles which we have of railways, mostly consisting of double lines, are walked over each morning by platelayers.

One or two garden inspectors would be required on each railway on somewhat the same scale as telegraph inspectors now are; these would have to superintend the laying out of nurseries on such suitable lands as are to be found on every line, and to direct the transport of the trees to the places required to be planted. After such a plan as that here sketched had been fairly started, the rest would be easy; replacements, pruning, and gathering the fruit would not be difficult. Fruit hampers might lie empty at the stations as meat hampers do now, and of never-to-be claimed returned empty packages there is no lack; these filled with fruit, a few basketfuls daily from each station, would soon so change the markets of our metropolis and large towns that the poor could eat and have to spare.—*The Garden.*

SELF-OILING LOOSE PULLEY.

The pulley shown in the engraving—Fig. 1 being a perspective view, and Fig. 2 an elevation with parts broken away to show the interior—is made with a central chamber for the reception of oil. It makes no connection whatever with the shaft. The hub of the pulley has a conical form, and upon these portions bearings are formed by the collars, which are fastened to the shaft in the usual manner by set screws. The oil being introduced into the chamber through the supply hole, which is afterward closed by a screw, it is distributed by the rotary motion evenly around the periphery of the pulley, and is drawn by wicks through oil holes, A, at the lowest point of the bearing—point nearest the shaft.

The oil works along to the outer point of the bearing, and is then thrown by the centrifugal force into annular drip cups, E, formed by annular projecting rings on the outer surface of the oil chamber, through the return oil holes, of which there are several around the circumference of the drip cup, back into the oil chamber. The oil is then ready to make the circuit again, through the wicks, bearings, and return oil holes, and so on until it is worn out or becomes gummy; there is no appreciable waste. This pulley requires but little attention, there is no annoyance from dripping, and as the bearings are conical all wear can be taken up by setting the collars close to the pulley. It is simple in construction, and the bearing surface is about equal to that of a common pulley of the same size.



SELF-OILING LOOSE PULLEY

The manufacturers, the Eureka Pulley Company, of 297 South Street, Boston, Mass., had a pulley running ten hours a day for three and a half months, with one oiling, and there was scarcely any diminution of oil in the chamber. These pulleys will be shown in operation at the Charitable Mechanics' Fair, to be held in Boston this month.

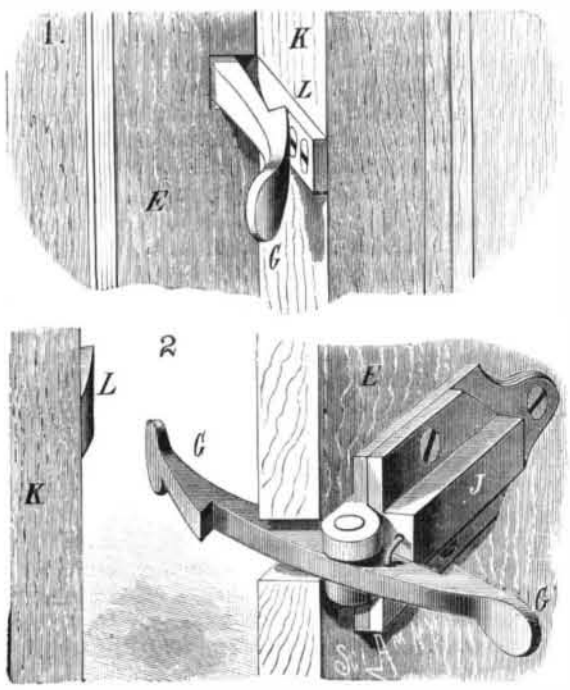
If you want to preserve your strength, work. If you prefer to be weak and feel tired, do nothing.

Fun in a Horse.

Rather a regular series of interruptions occurred on the train due here on a Saturday morning from the West. When leaving Syracuse, a car laden with horses en route from the west to Saratoga was connected with the train. The train had scarcely got under way when the bell cord was jerked, and the engineer warned to stop. The brakes were shut down, and inquiry made along the train as to what was the matter. The trainmen all denied pulling the cord, and after an examination as to the cause, without result, the train got under way. Scarcely 500 yards had been gone over, however, before the bell cord was again pulled and the train brought to a stop. Another inquiry and examination along the line failed to reveal the cause, and another start was made, when, for a third time, the mysterious signal was sounded. This time another thorough investigation was made, which was equally fruitless. Once more was the train started up, and again the warning signal was sent to the engine. This time, when a stop was made, it was determined to ascertain whether any other than human agency was responsible for the signal, and the train was carefully gone over. When the car containing the horses was reached, a jerking of the bell rope was noticeable, and on further examination it was found that one of the animals in the car, finding that the bell rope was within reach, had amused himself by seizing it with his teeth and jerking it to and fro. The mystery of the signals being thus satisfactorily explained, the bell rope was hitched up out of the animal's reach, and the train continued on its way.—*Albany Journal.*

DOOR AND GATE LATCH.

At one end of a plate is a fork between the prongs of which is pivoted a lever which passes through a notch in the edges of the door, E, to which the plate is secured. The lever is formed at each end with a finger plate, G G', and with a prong forming a shoulder; the hook prong, G, on



WORMUTH'S DOOR AND GATE LATCH.

the end of the lever inside the door projecting toward the free edge of the door, and the prong, G', projecting in the opposite direction. The inner end of the lever is pressed against the door frame by a spring in a casing, J, secured to the plate. On the door frame, K, is a shouldered catch, L, with which the prong, G, engages to hold the door closed; and on the wall of the building is a catch with which the prong, G', engages to keep the door opened. By pressing upon the finger plate the door may be opened or closed as the case may be. The latch is fastened to the door by the same screws that secure the spring casing, and may be applied on a right or left hand swinging door. Fig. 1 shows the door closed; Fig. 2 shows it partly opened.

This invention has been patented by Mr. Charles Wormuth, of Little Falls, N. Y.

The Channel Tunnel.

A party of gentlemen, mainly connected with the Society of Arts, lately visited the Channel Tunnel works, accompanied by Sir E. W. Watkin, M.P., and by Mr. Myles Fenton, Mr. John Shaw, and Mr. Charles Sheath, of the South-eastern Railway Company. Among the visitors were the Duke of Buckingham and Chandos, Lord Alfred Churchill, Sir F. Abel, Sir Robert Rawlinson, C.B., Sir Frederick Bramwell, Sir Joseph Bazalgette, Captain Douglas Galton, Admiral Sir E. Inglefield, Captain J. B. Eads, C.B., and Col. J. F. Donelly. The visitors were received by Mr. Francis Brady, C.E., the engineer. They at once descended the shaft, in parties of five, by means of an iron cage, and were conveyed by a kind of tramway through the tunnel, the heading being distant about a mile and a quarter from the shaft. Mr. Brady explained the working of the Beaumont cutting machine, the arrangements for ventilation, etc. Mr. Brady stated that if they were allowed to go on with the work they could easily join the French heading in about two years. The works on the French side are suspended.