



IMPROVED CAR COUPLING.

We give an engraving of a novel car coupling, which is automatic in its action, and is almost as simple as the common link and draw bar. It seems well adapted to freight cars, and may be used with advantage on passenger cars. The link or coupler consists of a bar of iron having in each end mortises, in which are pivoted the arms of drop bolts, which extend through a mortise in the middle of the bar. These bolts have large square heads fitted to corresponding recesses in the draw head. The lower part of the bolt drops into a slot in the lower part of the draw head.

In the operation of coupling the cars the pivoted arm of the bolt acts as a guide to the link, and at the same time raises the bolt so that it enters the end of the draw head readily. When the link has entered the draw head far enough the hinged pin drops into its place and the coupling is secure.

To release the coupling, the hinged pin is raised by means of a short lever on the inner end of a rock shaft, which extends to the side of the car. Here the rock shaft is provided with a hand lever, by means of which the coupling may be operated. The hand lever is provided with a ratchet arrangement by which the uncoupling lever may be held in position to prevent the coupling from acting.

Fig. 1 shows the draw head in section, and gives the position of the link and of the uncoupling lever. Fig. 2 is a perspective view of the link detached from the draw head.

It will be noticed that no springs or parts liable to get out of repair are used in this coupling. The inventor provides a pin with a square head, which may be used in this draw head in connection with an ordinary link.

We are informed that this coupling is in practical use on one of our principal railroads, and that it is endorsed by eminent railway engineers.

The invention has been patented by Mr. J. C. Cope. Dr. Fred Verneti, of Montgomery City, Mo., is agent.

THE STONER AUTOMATIC SCALE.

Among the ingenious devices which have been attracting public attention at the American Institute Fair this year, the Stoner automatic scale, an illustration of which is here given deserves especial attention. It is made under two patents granted to J. B. Stoner, August 12, 1878, and June 1, 1880. These scales are intended for use in warehouses, mills, and stores, or for putting up packages of flour, spice, corn starch, cracked wheat, or any dry substance that it may be desired to have in packages of uniform weight. They are made of different sizes, according to the work to be done, so that they will weigh from one pound to twenty bushels at a time. The twenty bushel scale will weigh at the rate of three thousand bushels an hour. The weighing is

effected pound for pound, according to the weights shown on the scale beam, so that it is absolutely impossible for the machine to make a mistake, and it can be operated by delivering the exact weight which it has been adjusted to give. At the Institute Fair it has been running for the purpose of showing its operation with cup elevators, which deliver the grain in a continuous stream into the scale; each time the receptacle in the scale has received the required weight, the grain is quickly tipped out, and the filling again commences, but as the grain is tipped out an automatic register records the fact, so that the work done for any particular length of time may always be known by a glance at the register. The machine is so simple in its details that it cannot possibly get out of order with any ordinary use, and it cannot make a mistake in giving exact weight and a true count.

In the same section in which the automatic scale is shown may also be seen the pneumatic grain elevator patented by Mr. B. Stoner. This is worked by an exhaust, and, while it dries, cools, and cleans the grain, does away with all shoveling, saving four-fifths of the cost of that item, and will reduce the cost of annual insurance one per cent. from the fact that no machinery need be located in the warehouse, so there can be no fire from friction. It will also largely reduce the cost of warehouse building, as with this system, no heavy framework is needed to bear heavy machinery.

For particulars in regard to both the above inventions, apply to or address E. L. Hayes, 243 Broadway, New York. These inventions have also been patented in Canada, England, France, Germany and Belgium.

TO PRESERVE WOODEN VESSELS.—Wooden vessels, which, especially in chemical works, are quickly destroyed, should, according to Herr Schaal be well dried in hot air, and then painted twice or thrice with a solution of paraffine in six parts of petroleum ether. Vessels in which boiling is effected with steam should further be coated with linseed-oil varnish, or with water-glass; after drying, the water-glass coating should be removed by means of dilute muriatic acid. Paraffine is also well adapted for packing stuffing boxes, especially in stirring apparatus exposed to vapors of fuming and English sulphuric acid.

NOTES ON STEEL.—Steel merely hardest is hardened on the surface, while in steel that has been tempered the exterior is the softest. In the one case because the surface was cooled in advance, in the other because it was heated in advance. Steel which has rusted can be cleaned by brushing with a paste composed of $\frac{1}{2}$ oz. cyanide potassium, $\frac{1}{2}$ oz. Castile soap, 1 oz. whiting, and water sufficient to form a paste. The steel should first be washed with a solution of $\frac{1}{2}$ oz. cyanide potassium in 2 ozs. water.