

IMPROVED CAR COUPLING.

The invention herewith illustrated is adapted to coupling cars of different heights, automatically and by means of the common form of short link. The construction is such that the link is always maintained in proper horizontal position for entering the drawbar of the opposite car.

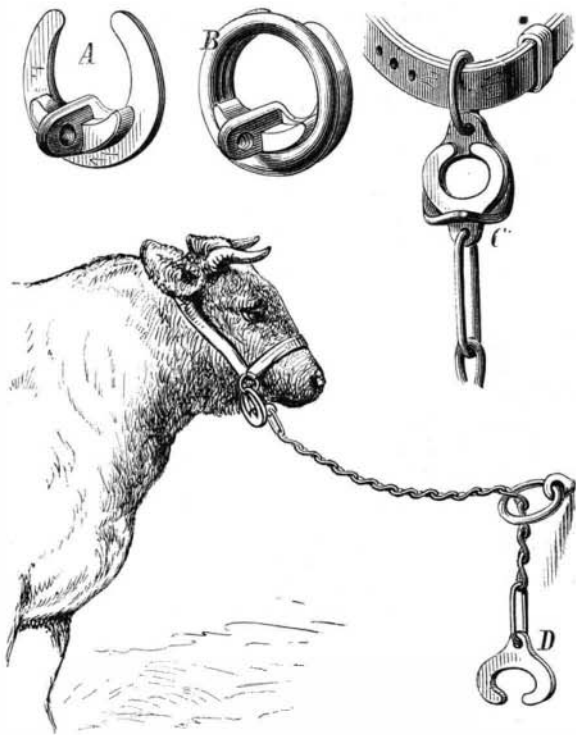
The drawbar, as shown in Fig. 2, is divided into three compartments, and through the same are made apertures for the reception of the pin. A is a crosshead having a stem, B. The latter is enveloped in a spiral spring and moves in a central longitudinal recess of the drawbar. Said recess opens into the central throat and is of sufficient diameter to receive the shoulder, C, of the stem. The spring bears against this shoulder, and also against a pin which is fixed in the sides of the drawbar, and passes through a slot in the stem. The pin thus serves as an abutment for the spring, a guide for the stem, and a stop to limit the forward movement of the crosshead, A, so that the latter simply advanced to its proper position beneath the coupling pin without striking any of the partitions and thus becoming, in time, worn. The drawbar is recessed to receive the crosshead, which is secured to the stem by dovetailing. To make this attachment the stem is first inserted into its position by passing it longitudinally through the middle throat until its dovetail slot is immediately below the coupling pin hole. The crosshead is then passed down through said hole and then driven into the dovetail slot, where it is suitably secured by screw or rivet. The advantage claimed for this construction is that the narrow shape of the crosshead permits the drawhead to be made more nearly solid and stronger; while the mode of connecting the crosshead to its stem preserves the usual shape of drawbar close to the head, and allows of its being made in one piece. The forward side of the crosshead has beveled faces, which press upon the link and force its inner end down, thus holding the link in proper position for entering the opposite drawbar, as shown in Fig. 1. The link is not rigidly held after coupling, but moves freely up and down, so that it accommodates itself to the varying position of the cars.

In using the device, the coupling pin is supported upon the end of the crosshead, as shown in Fig. 1. The entering link pushes the crosshead to the rear, and causes the pin to drop through the link opening, so coupling the cars.

Patent pending through the Scientific American Patent Agency. For further information address the inventor, Mr. I. Floyd Heavener, Laramie City, Albany county, Wyoming Territory.

DILLON'S HALTER, CHAIN, AND TRACE COUPLING.

Mr. John C. Dillon, while Farm Superintendent of the Massachusetts Agricultural College, had in his charge, among other stock, several adult bulls; and, after considerable experience with knobs, buckles, hooks, snaps, and toggles, he became convinced of the need of some new method of fastening these animals, which should be at once simple, easy of operation, strong, durable, and absolutely secure. These conditions, he claims, are combined in the device shown in the engraving.

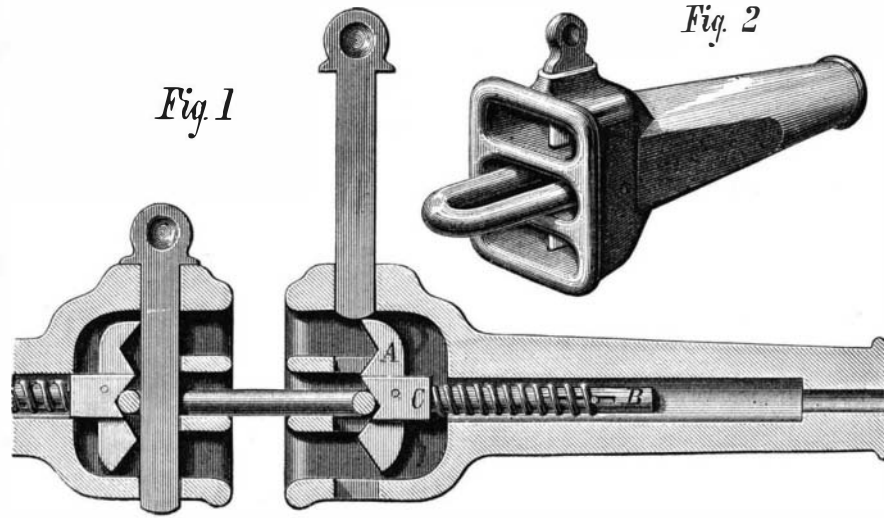


It consists in a crescent-shaped hook, A, and a ring, B. The hook slipped into the ring, as shown, forming a coupling which can be operated instantly and easily, which cannot be accidentally detached, and which, not being dependent on any screw or spring, is as strong and durable as the ordinary links of a chain.

By bending up the coupling ring, on the chord of an arc of it, as shown at C, or by using a coupler with the shank

perpendicular to its perimeter, as at D, the coupler is made to lie flat in its ring. This coupling, we are informed, has been used with much satisfaction on halters, cow chains, traces, breechings, pole straps, and wood chains. It is also adapted to a variety of other uses, such as satchels, shot-belts, fishing-baskets, skirt-supporters, etc.

The following are some of the advantages claimed for the coupling when applied to halters, and will be readily understood by reference to the engravings. It serves as a safe, handy, and durable method of connecting the halter chain or rope with the head-stall, and also with the manger ring or other hitching place. The weight of the lower coupler prevents any slack in the rope or chain between the horse or other animal and the manger ring, and materially lessens



HEAVENER'S IMPROVED CAR COUPLING.

the danger of casting or entanglement. It has also been found to succeed well with horses which were noted for their skill in untying knots. As the chain or rope swings loosely and turns freely in the manger ring, it cannot become twisted. The necessity for constant care and thought as to the proper length for tying up is avoided. When the head-stall is taken off and left attached to the rope or chain, the weight of the lower coupler holds it suspended against the manger, instead of allowing it to lie in the manger or on the floor.

This invention was patented in the United States July 3, 1877, and in Canada July 18, 1877, by John C. Dillon, of Amherst, Mass., to whom engineers are referred.

THE COLORADO POTATO-BEETLE IN EUROPE.—GERMAN THOROUGHNESS.

BY PROFESSOR C. V. RILEY.

When, a few years since, the writer first announced his conviction that there was real danger of the importation of the above named insect from our Atlantic shores into the potato-growing countries of Europe, he was considered an alarmist by most transatlantic and by some American writers; while there were not wanting those of high entomological authority who made out, to their own satisfaction, the impossibility of the insect's thriving and multiplying in a climate differing in so many respects from that of its native home. Time has, unfortunately, but too surely vindicated my position and established the possibility not only of the insect's importation but of its ready acclimation. The occurrence of a living beetle in the Bremen docks during the summer of 1876, in a cargo from New York, was the first evidence we had of the importation so much feared; and, as the sequel has shown, others, unnoticed, must have been carried to other parts of Germany that year.

The discovery of the pest in all stages at Mülheim, on the Rhein near Cologne, during the latter part of last June, was considered of sufficient importance to be telegraphed and cabled to all parts of the world; while the energetic measures adopted by the Minister of Agriculture to stamp it out have been made known. The name of *Doryphora 10-lineata* has lately become as familiar to the members of the British Parliament, the German Diet, and the French Assembly as have the less pronounceable names of the towns and passes over which the Turks and Russians have had their more sanguinary conflicts. But it is not my purpose to dwell on the fact of the insect's successful establishment on another continent, notwithstanding the efforts made to prevent such an occurrence. I desire, rather, to call attention to, and to commend the thorough methods adopted to eradicate the evil. The authorities, not satisfied with causing the field of potatoes in which the insects were found to be covered with sawdust, saturated with coal oil, and burned, had the good sense, in addition, to send to the scene of action Professor A. Gerstaecker, of Greifswald, a well known entomologist connected with the Berlin Museum, in order that he might examine and report. When he arrived, the potato field in question and several adjacent fields toward Deutz were already in flames, under the management of Alderman V. Nieswand and Mayor Steinkopf. Fortunately, these gentlemen had saved some of the larvæ and the beetles taken from the field, and had preserved them in well secured bottles. Those commissioned to perform the work of extermination by burning took it for granted that the beetles were fresh

from America, and had produced the larvæ. They would very naturally have concluded their labors and rested satisfied in the conviction that no *doryphora* had by any possibility escaped from the fiery ordeal it was subjected to. Not so the deeper sighted entomologist! From analogy in other beetles of the family, and from what American authors had written, Gerstaecker took in the situation at a glance. The pale and fresh color of the beetles and the full grown condition of some of the larvæ indicated that the former were recently from the pupa, and suggested that there might be transforming larvæ and pupæ some inches below ground and unaffected by the superficial fire.

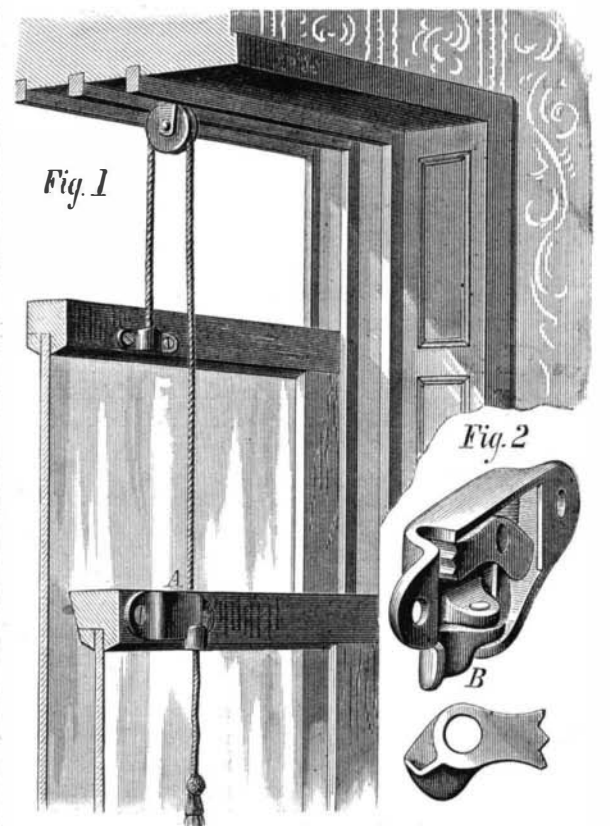
At his solicitation the field was plowed, but without result. No insects were noticed. With faith in the accuracy of his deductions, he still bade the authorities persist, and twelve laborers, in line, commenced turning over the earth foot by foot with the spade. For the first hour this also seemed futile; but as soon as the spot was reached where the larvæ were first observed, one pupa after another was turned up, with here and there a larva not yet transformed. In a few hours over sixty had been found, all alive and some just ready to give forth the beetle. This effort of the German Government to strike effectually at the root of a threatening evil, instead of waiting until it was ramified in all directions, and then spending vast sums in vain attempts to counteract it, furnishes a beautiful illustration of two very plain and simple truths in economic entomology that are too often overlooked. These are, first, that prevention is so much more satisfactory than cure; second, that thorough and special knowledge is necessary in successful warfare against injurious insects. It is doubtful if the thorough measures above described have eradicated the evil in Germany, because the insects found at Mülheim were probably the progeny of a single beetle that went over last year, and other females may have got a foothold in other parts of the empire; but a nation which will use such vigilance and thoroughness in one instance will be apt to do so when occasion again presents.

IMPROVED SASH BALANCE.

We illustrate herewith a simple device whereby the two sashes of a window are caused to balance each other, so that either may be adjusted independently in any position, or both may be moved together.

The fastener, A, Fig. 1, is secured to the meeting rail of the lower sash. The cord is attached to the top rail of the upper sash, passes over a pulley on the window casing, and down through the fastener. The latter is represented in detail in Fig. 1. It consists simply of a spring-acted toothed clamp which clasps the cord. In contact with one arm of the clamp is a pivoted lever, B, which, when the lower portion or tassel of the cord is pulled outwards, acts on the clamp so as to cause the latter to release its clutch on the cord.

When the lower sash is raised the upper one will descend. If it be desired that both sashes shall remain up, then the lower one is first raised and held in position by the left



hand. The cord is pulled outward to release the catch, when it will render through the fastener, thus lifting the outer sash. Similarly to lower the inner sash another pull on the cord releases the fastener, when the sash may be slowly lowered. The movement of the sash may be arrested at any point by simply bringing the cord straight. Patented June 26, 1877. For further information address the inventors, Messrs. Kolb and Osberghaus, Sandusky, Ohio.