AUTOMATIC CAR COUPLING.

The invention illustrated in our engravings is a new form of car coupling, which, while it connects the cars automatically as they are brought together, allows of the uncoupling of the vehicles from either their tops or sides. The device is claimed to operate perfectly on the sharpest curves and steepest grades, and to bring the cars as closely together as the ordinary drawheads now used. It is attached to the carriages in the usual manner, with perhaps somewhat more up-and-down and sideways play.

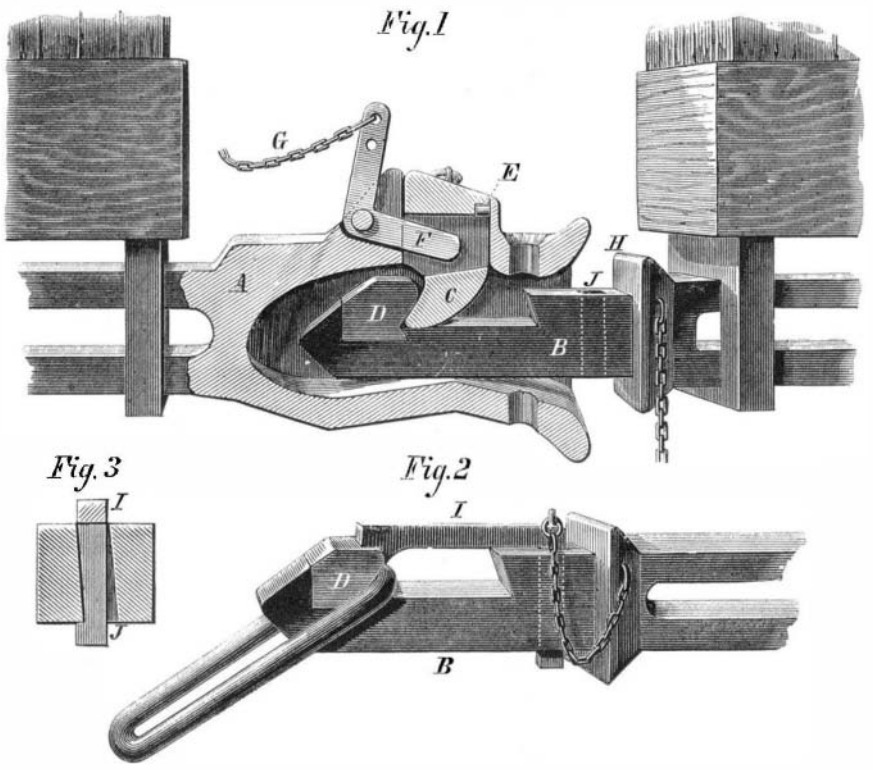
From Fig. 1 the construction will be readily perceived. A is the drawhead of one car, made with a cavity of sufficient size to receive the connecting drawhead, B. Fitting into a recess in A, so that its lower and hook shaped end may project down into the hollow portion, is a steel coupling block, C, which engages with another steel block, D, dovetailed and bolted to the drawhead, B. The block, C, is provided with a ring or handle at its upper portion to admit of its being readily lifted out by hand, when it is so desired, to uncouple the cars, while its movement is limited by a pin or screw, E, working in a suitable groove on its surface. When raised, the coupling block, C, may be held up by a pin placed in a hole therein and above the drawhead.

Pivoted in a slot in the upper part of the latter is a bent lever, F, of which the forward arm enters a slot in the coupling block, so that, by suitably operating the lever, said coupling block may be easily lifted up, and the cars thus uncoupled. This is effected by a chain, G, attached to the upright arm which, passing over suitable rollers, connects with one lever near the top of the car and with two other levers attached to the sides of the vehicle.

The draw bar, B, has a collar, H, to prevent its being forced too far into the opposite drawhead when the cars are brought together.

A point claimed as of considerable advantage in the invention is the facility with which it may be adapted to connect with and in the same manner as the common form of drawhead. In the forward part of the bumber, A, is a hole for a coupling pin which secures one end of the link. The other extremity of the latter slips over the coupling block, D, where it is held in place by a square angle bar, I. One portion of this bar drops into a square though somewhat inclined hole in the drawhead, B, at J, and its lower extremity, being notched, locks itself in. This will be more clearly understood from the section shown in Fig. 3. The horizontal portion of the bar, I, simply rests along the top of the drawhead, B, and terminates in an end angled to fit the corner of the block, D, thus securely confining the link.

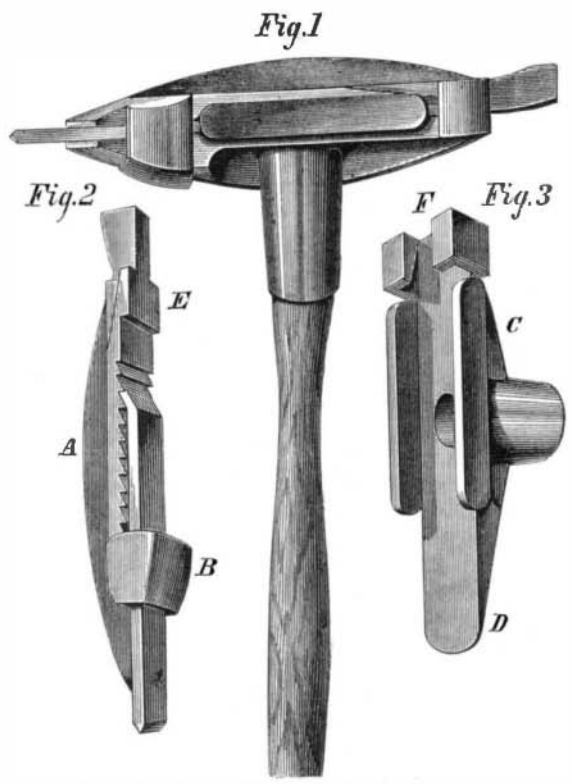
Patented through the Scientific American Patent Agency, September 2, 1873. For further particulars regarding purchase of interest in the patent, etc., address the inventor, Mr. Franklin E. Howard, Geneseo, Livingston county, N. Y.



HOWARD'S AUTOMATIC CAR COUPLING.

CUMMINGS' IMPROVED MILL PICK.

The invention herewith illustrated is a small pick, designed for both furrowing and cracking, or for light and



heavy stone dressing. The principal advantages are the firmness with which the blades are held, the manner of letting the same down, to compensate for wear, and also the facility with which they may be changed. The latter is an important feature, as it is often necessary to remove blades for sharpening as many as one or two hundred times in dressing a mill or a run of stones. Two sizes of the implement are made, one for furrowing and the other for cracking.

Fig. 1 represents the entire pick ready for use. Fig. 2 is a stationary stock bearing the handle, and Fig. 3 is a detachable clamp plate. The latter is a thin metal plate, having a ratchet on its inner surface, a convex rib, A, on its rear side, and a loop or socket, B. The pick or blade is a thin steel plate of even thickness, with its upper end bent to fit the notches in the clamp plate.

In adjusting for use, the blade is placed upon the clamp plate, its sloping end entering one of the notches, when both are applied to the stack, C. The lower wedge-shaped end, D, of the stock, enters the loop or socket, B, of the clamp plate, and the wedge-shaped lips, B, of the clamp plate fit into corresponding channels formed in the ears, F, of the stock. It will be seen that a blow upon the cutting edge of the blade will force the clamp plate and blade upward, and cause them to embrace the stock with great power. The more powerful the blows upon the stone, the more firmly, it is claimed, is the blade confined in its place. To remove the blade the implement is reversed, and the opposite end of the clamp plate struck on any solid substance, when both clamp plate and blade will be instantly released.

As the blades are abraded by use, they can be let down in the ratchet until worn out. They are tempered along the entire length, and only require grinding to sharpen.

Patented June 24, 1873, by Mr. Jotham Cummings, of West Charleston, Vt., by addressing whom further particulars regarding sale of rights, etc., may be obtained.

The Effects of Worry.

That the effects of worry are more to be dreaded than those of simple hard work is evident from noting the classes of persons who suffer most from the effects of mental overstrain. The casebook of the physician shows that it is the speculator, the betting man, the railway manager, the great merchant, the superintendent of large manufacturing or commercial works, who most frequently exhibits the symptoms of cerebral exhaustion. Mental cares accompanied with suppressed emotion, occupations liable to great vicissitudes of fortune, and those which involve the bearing on the mind of a multiplicity of intricate details, eventually break down the lives of the strongest. In estimating what may be called the staying powers of different minds under hard work, it is always necessary to take early training into account. A young man, cast suddenly into a position involving great care and responsibility, will break down in circumstances in which, had he been gradually habituated to the position, he would have performed its duties without difficulty. It is probably for this reason that the professional classes generally suffer less from the effects of overstrain than others. They have a long course of preliminary training, and their work comes on them by degrees; therefore when it does come in excessive quantity, it finds them prepared for it. Those, on the other hand, who suddenly vault into a position requiring severe mental toil, generally die before their time.—*Chambers' Journal.*

HAMILTON'S CONTINUOUS SELF-FEEDING PERMEATOR.

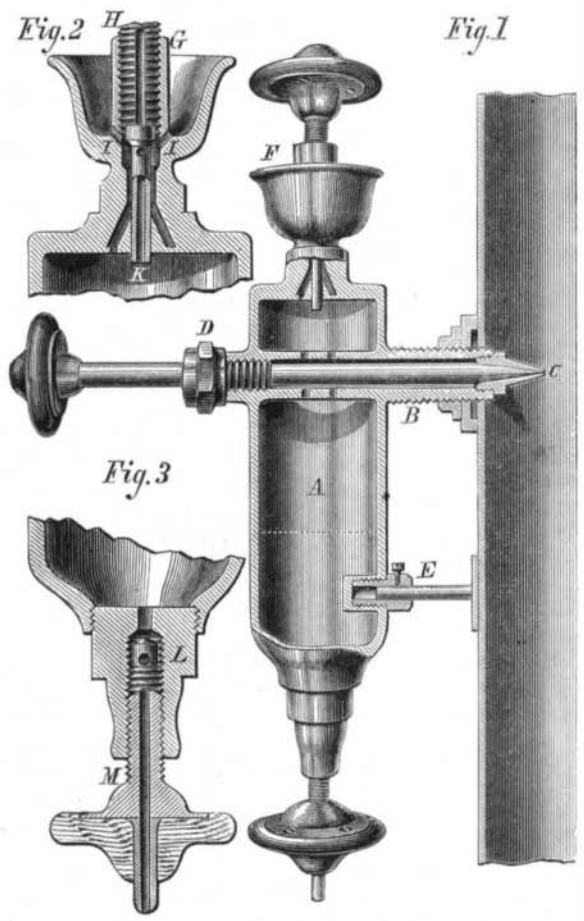
The object of the device herewith illustrated is to inject tallow, oil, or similar material, into the steam in an engine cylinder, and thus, by thoroughly permeating, to lubricate the vapor and, consequently, the machinery with which the same comes in contact. The invention is an ingenious application of the needle principle, the supply orifice being not over one thousandth of an inch in diameter, so that the lubricant is driven in, in the shape of fine mist or spray. Probably the most important advantage claimed is that the apparatus will continue to supply oil even after steam is shut off, as in cases of locomotives on down grades, etc. How this is effected will be noted as we progress, in the description which follows:

The chamber, A, and distributing bolt, B, Fig. 1, are cast in a single piece of any suitable metal. In the bolt are orifices through its wall, leading to the channels formed by the intermediate space between the needle, C, and its interior. At the end of the bolt is arranged a conical discharge orifice, in which is the steel pointed valve spindle or needle. The relative diameters of the needle and opening are such that, when the former is screwed down so as to shut off all further flow of the lubricant, its point projects beyond the hole and into the cylinder, so that the orifice is, by this means always kept free from incrustation. The needle spindle passes through a stuffing box, at D, and is rotated by the hand wheel shown. At E is a socket bearing, to which is secured, by means of a screw, a bearing plate for retaining the cup in proper position beside the steam chest or cylinder.

The oil is poured into the cone-shaped vessel, F, in the center of which is cast a vertical tube, E, shown in section in Fig. 2. The interior of the latter is threaded to receive the screw, H. In the bottom of the receptacle are made annular supply channels, I, and along said screw, H, is cut a groove, as shown, to serve as an air passage. The screw, H, forms a screw plug valve, and terminates in a hollow spindle, K. The surface of the female thread in tube, G, extends below the discharge orifices, I, of the supply chamber, and also below the inlet or escape openings of the air passages, so that each can be opened and closed at pleasure by simply turning the plug valve. The tube, L, of the sediment cock (Fig. 3) is screwed into an opening at the base of the chamber, and is formed, with a female thread, within a small valve chamber into which the oil flows through the short passage shown. The valve plug, M, is conical at its end, and has a passage, throughout its length, opening by branches into the valve chamber.

The apparatus being secured to the cylinder or steam chest, oil or other lubricant, is poured into the cup, the valve plug, H, being elevated to such a position as to leave the lower orifices of the channels, I, and air passages open. The air then will escape as the liquid flows in, a point of advantage, as it is claimed to give the engineer control over the cup, whether the engine is in motion or not, and with no risk of his getting scalded with boiling oil or tallow.

When the chamber, A, is filled, the plug, H, is screwed down, thus cutting off the supply. The needle spindle, C, in bolt, B, is then caused to open the orifice leading into the cylinder. The lubricant passes into the bolt, B, through the orifices in its walls, and is discharged, as before stated, in spray-like form. The steam also enters the chamber, A, through the same orifices, but, becoming condensed, falls to the bottom, and lifting the lighter lubricant, keeps the latter in condition readily to flow to the tubular section of the bolt, B. It is stated that when the cup is emptied the amount of oil drawn off is just equal to the capacity of the chamber, and that the lubricant must, consequently, be always



above the bolt and in condition to be fed through the openings. The mere action of the valves, therefore, when steam is shut off from the cylinder, it is claimed, is sufficient to bring the oil away, so that the lubricant is supplied just when the facings become dry and cutting begins.

To draw off the contents, it is only necessary to turn the valve plug, M, and thus allow the sediment, etc., to escape through the opening through its center.

Patented June 24, 1873, to Mr. William Hamilton. For further information address William Hamilton & Co., Box 379, Erie Pa.