New Inventions.

New Wedge Pinch Bar.

The moving of a locomotive engine, when there is no fire in the furnace or steam in the boiler to assist, is not an easy matter. Yet it is a job that is often necessary to be done, especially in locomotive station houses, where the engines "put up;" also in repair shops, &c. If the track where the locomotive stands is slightly inclined, and it is necessary to move the machine up, even for a few feet, much care is required to wedge the wheels, else the engine will be likely to roll back in the wrong direction; great power must also be applied to effect the movement. For this purpose the leverage of a common crow bar is generally used; but the method is slow, and in some respects unsafe.

The present invention consists of a pinch bar, intended, especially, for use on occasions such as those to which we have alluded, but it may also be employed for the moving of all kinds of heavy bodies. It consists in a combination of a short lever of the first order with a long lever of the second order, and the addition of a self-acting spring wedge; the latter is so arranged that when the bar is applied to a wheel, the wedge will spring under, as fast as it moves, so that no ground can, in any case be lost. The improvement seems to obviate all of the objections which attend the use of the common bar, while it affords several important advantages over that implement.

Referring to the engraving, it will be seen that the apparatus is applied to the top of the rail, A, and operates on the lower side of the locomotive wheel, B. C is a short lever of the first order, resting upon a fulcrum pin, D, and connected at its back end, by means of straps, E, with the long lever of the second order, F.

One of the principal difficulties with all pinch bars is the tendency of their fulcrums to slip back when pressure is applied, and thus to become inoperative. This slipping tendency is augmented in proportion as the weight to be lifted is increased.

The fulcrum pin, D, is placed upon the rest piece, G; the lower end of lever F is also connected with G. G′ is a socket to which the end of lever F is attached; the socket is secured to rest G, by means of the bolt, H, seen in dotted lines. This bolt serves as a pivot for the rest piece, G′. The fulcrum, D, also turns on a pivot, D′, shown by dotted lines. The object of having G′ and D pivoted, is to permit the lever, F, to be slightly turned outward, clear from the locomotive, when the apparatus is introduced between the driving wheels. Otherwise the lever, F, would be likely to come in contact, when pressed down, with some parts of the engine.

The contrivance is secured to the rail and prevented from slipping back by means of the jaw clamps, I I; these are connected together at their lower ends by the straps, I′. The upper ends of the clamps, I I, pass through a saddle, J. If the saddle rises, the upper ends of the clamps, I, will be brought nearer together, and the lower ends or jaws opened, disengaging the apparatus from the rail. But when the saddle, J, falls, the upper ends of clamps, J, will be spread apart, and the lower ends or jaws made to gripe the rail. The saddle is bolted to the rest piece, G, and moves up and down with it. Fulcrum D, rests upon the piece, G; lever, F, is also connected to G by means of socket G′. The extremity of lever C, is now placed beneath the wheel, as shown in the cut, and power applied at F. The rest piece, G, is thus pressed down, and with it saddle J. By the descent of the saddle, the upper ends of clamps, I I, are spread, and their lower ends clasp the rail, holding on thereto with a force equivalent to the pressure upon rest G; consequently there can be no slippage, for the heavier the burden to be lifted, the firmer will the clamps take hold.

In front of the rest, G, there is a projecting shell, K, within which is a spiral spring, L, whose office is to push out the rod, M, and cause the head of the rod, M′, to press against the wedge, N. As fast, therefore, as the levers move the wheel, the wedge, N, will advance and block up the wheel; all wedging of the wheel by hand is therefore done away with.

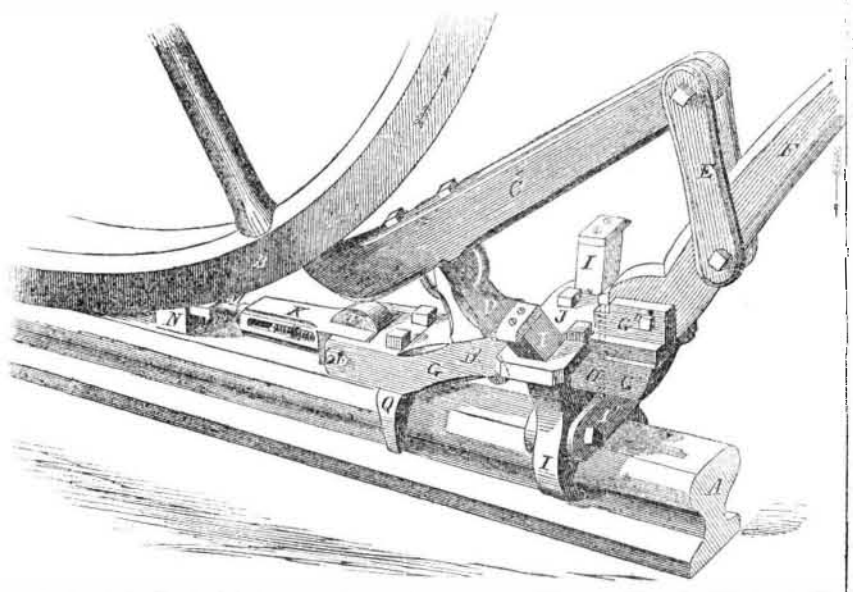
The bolt, O, serves to attach the shell, K, to the rest, G, and also as a pivot to the friction wheel, P. By throwing up the lever, F, the clamps become disengaged, and the apparatus may be shoved up towards the wheel, and a new hold taken. In moving the contrivance from place to place upon the rail, the wheel, P, supports the whole weight of the parts, like a wheel-barrow. Q are guides which keep the front part of the apparatus upon the track.

The force of the common pinch bar must, generally, be applied as far below the wheel as possible. This improvement touches the wheel nearly on its side, and therefore obtains an important advantage in leverage.

This invention strikes us as possessing many advantages. A single person may, by its use, move the heaviest locomotive, and block up the wheels at the same time. At first glance it might strike the observer that there are more parts employed than are necessary; but such is not the case; every portion has an important use, and all are combined in such a manner as to insure great strength. The contrivance cannot easily get out of order, appears to be very effective, costs only about $10 for construction, saves much time, labor, &c. Altogether it is a very desirable improvement; we commend it to the attention of railroad people.

Mr. H. N. De Graw, of Piermont, N. Y., is the inventor. It was patented Jan. 29, 1856. Further information may be obtained on application to the inventor, as above, or to Mr. Phillip Mabie, 330 Rivington st., New York City, assignee of one half.

IMPROVED WEDGE PINCH BAR.



On the Use of High Pressure Steam.

"Taking into consideration the superior economy of high steam, *worked expansively*, it is quite evident, that in all future constructions, either of boilers or engines, we must look forward to the use of a greatly increased instead of a reduced pressure of steam. Indeed, I am so thoroughly convinced of the advantages inseparable from this application, as to urge upon you the necessity of preparing for greatly increased progress, and greatly increased pressure in all the requirements, appliances, and economics of steam as a motive power. It must appear obvious to every reflecting mind, that steam generated under pressure, and compressed into one-fifth or one-sixth the space that it formerly occupied, and that again applied to an engine of little more than one-third the bulk, must be a desideratum in the appliance of an agent so powerful, and so extensively used. Look at our locomotives of the present day, and tell me whether we are or are not successfully progressing in effecting a clearer alliance between the two sister sciences of mechanics and physics; and tell me whether or not the community is not secured equally well from risk, and greatly benefited by the change? Let us calculate for example, the duty performed, and the force applied to one of our largest class of locomotive engines traveling with a train at the rate of 45 miles an hour, and we shall find the amount of power given out to exceed that of 700 horses, or as much as would be required to drive the machinery in some of our largest factories. And why not work our factories upon this principle? and why not propel our largest ships by engines of this description? There is no reason why it should not be done, and that with greatly increased economy, by introducing a well-directed system of condensation along with that of highly attenuated steam."

The above are the views (recently published) of Fairbairn, the eminent engineer; they are in harmony with those which have been advanced through our columns. Those who object to the general use of high pressure steam, however, advance very good reasons for so doing. They say, "high pressure steam will lead to more frequent boiler explosions; it is better, because more safe, to use low pressure steam." They maintain that as high pressure steam is but low pressure steam *compressed*, there can be no economy of fuel in its use—that the only economy obtained is simply the use of smaller engines occupying less space.

A new Anesthetic Agent.

A communication from Dr. Simpson, of Edinburgh, was read at the last monthly meeting of the Academy of Medicine, this city, on the use of carbonic acid gas as an anesthetic agent in uterine diseases.

The paper stated that in some cases the use of chloroform vapor was found to excite temporary pain and a sense of burning heat, while this agent produces a sensation of cold decidedly pleasant and refreshing. The production of this gas is made by carbonate of lime and sulphuric acid in proper proportion mixed in an ordinary bottle carefully stoppered; the cork being perforated by an india rubber tube of any desired length. Dr. Simpson's paper alluded to the antiquity of the use of carbonic acid gas by the ancients, who used it in many ways unwittingly, especially in the fumigations by the burning of perfumed woods and aromatics, the virtue of which arose from the gas evolved in the combustion. Various cases were given of diseases cured or of symptoms relieved by the administration of this anesthetic.

Dr. Simpson was the first to discover the anesthetic properties of chloroform. Carbonic acid gas is a dangerous agent—far more so, we believe, than chloroform.

Artificial Legs.

A manufactory has recently been opened in this city (New York) at 378 Broadway, for the manufacture of Palmer's artificial legs. The public generally and even the medical profession have but a very inadequate conception of the importance of the manufacture of artificial limbs or the consummate ingenuity and perfection of their mechanism. We are told that Palmer's limbs are worn by many ladies and gentlemen in New York and other places; so admirably constructed is the mechanism of the joints that the fact of mutilation is effectually concealed, and defies detection. A medical gentleman tells us th he often sees a lady promenading Broadway whom nobody suspects of having undergone amputation; she wears an artificial limb made by Palmer & Co., and for all the purposes of ease and gracefulness in walking it is equal to the uninjured limb.

Some persons make very ungraceful uses of the legs which Providence has given them; others, the fair sex more especially, complain of the large size that nature furnishes. A complete remedy for all these evils is provided by Palmer & Co. Their legs are made to order, warranted light, easy, and, if need be, *fashionable*. The old stumps, it is true, would have to be removed; but, with the aid of chloroform, that operation would be full of pleasure.

Plowing with Steam Power.

At a meeting of the London Society of Arts which took place on the 1st of last month, a paper was read on the above subject by John Fowler, of Bristol, which elicited considerable discussion. No less than fifty-three patents have been taken out in England for various methods of cultivating the soil by steam power, the first of which dates as far back as 1630. The inventor was David Ramsey, and his object was to employ the old fire engine of the Marquis of Worcester. The next patent was taken out by F. Moore in 1767. His plan was, to use a steam carriage traveling over the land, and drawing the plow. So confident was the inventor and some of his friends of success, that they sold their horses to avoid loss by their reduction in value. Patents have also been obtained for applying steam to stationary engines, using an endless rope and windlass to draw the plow.

At the meeting of the Royal Agricultural Society held at Carlisle in July, 1855, four steam plows were exhibited, but none of them seemed to give satisfaction. From the discussion which ensued on the reading of the paper, we draw the conclusion that plowing by steam in England has thus far proved a practical failure. *The* steam plow has yet to be invented. The method of actuating the plow by an engine stationed in one part of the field, drawing the plow by long endless ropes passing over pulleys, seemed to meet with the most favor. We, however, cannot conceive how this clumsy system can ever come into use. It must be more expensive than horse power. The only proper method of plowing by steam that afford hopes of success, in our opinion, is the locomotive engine traveling over the ground and drawing the plow. The engine must be made light and strong, for a heavy engine and boiler will sink the wheels so deep in the soil that it will consume all the steam power to move them. Perhaps a portable revolving railroad on the wheels to obviate this difficulty, may yet be successfully invented.

Plurality of Worlds.

Prof. Agassiz believes that there is internal evidence that the organic beings of this globe form by themselves a complete system, which does not admit of the supposition that there are other members of the system living elsewhere; and any animals in other systems cannot be constructed on the same plan of organization.—[Exc.

Sir David Brewster and others have presented like views; but inasmuch as Britain possesses a milder climate than the State of New York, although situated from 14° to 20° further north, and this by a cause (the Gulf Stream) which could never have been found out by theorizing, so there may be in other planets peculiar conditions of which we are entirely ignorant. It therefore has appeared to us that the speculations of Dr. Chalmers, Brewster, and other men of science, relating to the planets being inhabited, may be set down as a kind of poetical effusions.

Fine Polishing Powder.

We have received from James G. Sanborn, of Cherryfield, Me., a specimen of a substance found deposited on the shore of a pond in the vicinity of that place, and which is excellent for polishing gold and silver. It is of a beautiful snowy white appearance, very light and soft. It appears to be very fine chalk, deposited from water in which it had been held in solution.