very ingenious, a shovel being caused to penetrate the earth, which it raises and delivers upon either side of the ditch at will of the operator.

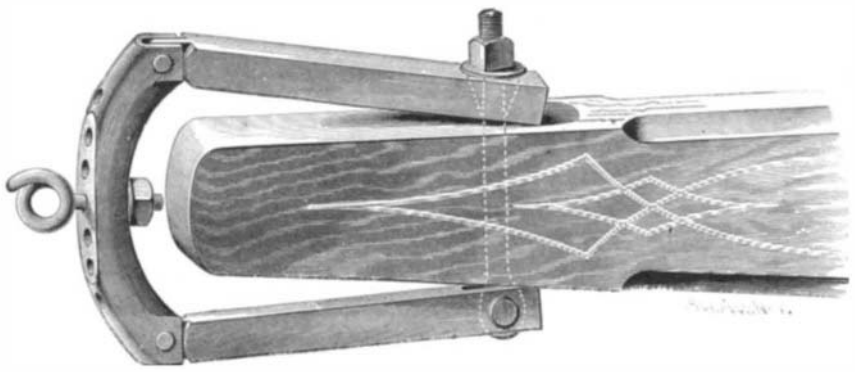
IMPROVED CLEVIS.

The clevis represented in the engraving is to be used on plows, harrows, and other agricultural implements. It may be readily adjusted to fit drawbeams of various dimensions, and may therefore be applied to any of the implements on a farm requiring a clevis. It consists of two bars hinged to opposite ends of a link, and connected with each other by a bolt which is pivoted to one of them and passes through the beam and through the other bar, and is provided with a nut which may be screwed down more or less to adapt the clevis to drawbeams of different sizes.

The curved link has several holes through it for receiving the hook to which the single tree or double-tree is attached.

This clevis may be applied to the beam horizontally, perpendicularly, or at any desired angle, either in front or at top or under the beam, as may be found most convenient.

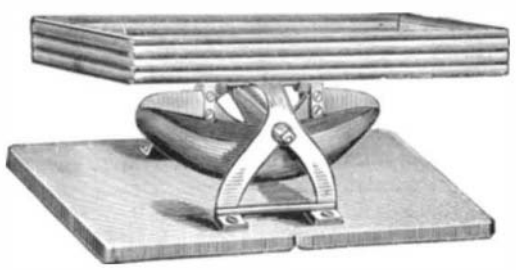
Further information in regard to this useful invention may be obtained by addressing Mr. S. K. Latta Dyersburg, Tenn.



JENNINGS' PLOW CLEVIS.

THE HUSTON SELF-LEVELING BERTH.

It is no new idea to suspend ship berths so that they will retain an even position at whatever angle the ship may be forced by the waves, and several steamship companies have tried and abandoned such devices. In the SCIENTIFIC AMERICAN of May 29, 1880, notice was made of a highly promising exhibition of the Huston ship's berth on the City of Alexandria, plying between this city and Havana. It is gratifying to know that the opinion which we then formed, with regard to the ability of the invention to overcome the causes of sea-sickness, has been justified by the behavior of the berth under a great variety of conditions at sea.



THE HUSTON SELF-LEVELING BERTH.

It will be observed from our illustration that the berth (with its occupant) is counterbalanced by a crescent-shaped weight rigidly attached to the underside of the berth, while the whole is so swung on a universal joint as to maintain a level surface no matter how the vessel may pitch and roll. The motion of the berth is also regulated by rubber bands, so that sudden or jerky movements are made impossible. As will be seen in the subjoined cut the berth takes up no more room than the ordinary ship's berth. Even those who never suffer from sea-sickness will appreciate the value of a contrivance which enables them to lie at ease in the roughest weather; while to invalids, and to those who are certain to be martyrs to the distressing *mal de mer*, the advantage of being substantially independent of the ship's motion while on board ship is beyond one's power to estimate. Obviously the plan here described can, at the best, prevent sea-sickness only while the patient is lying down. It is very desirable that some one should devise a means of preventing sea-sickness absolutely. A fortune would surely be his reward.

Launching a Ship.

Not one-half the people who witness the launching of a vessel can tell how it is done. They hear a great sound of pounding and driving of wedges for half an hour or so, then a loud shout is raised, and the ship starts slowly at first, but, gradually increasing her speed, slides with a steady, stately motion from off the pile of timber and blocks where she has been standing for months; and where but a moment before the huge creature towered aloft, nothing remains but a *débris* of timber and planks, while out on the water floats one of the most graceful works of man.

When the ship is about ready to launch, her immense weight rest principally upon blocks some eight or ten inches square on the ends, and perhaps some fifteen or eighteen inches in length. These blocks are placed directly under the keel, and in order to launch the vessel it is necessary to transfer the weight of the vessel to the way—two long lines of heavy timber reaching about two-thirds the length of the vessel on either side, and about midway the bilge or bottom. These ways are simply two lengths of timber with a thick layer of grease between them, so that as soon as the ship acquires any momentum they will slip one along the other. To transfer the weight of the vessel on to these ways, so that gravity—the stern or heaviest part of the vessel being much lower than the bow—will cause her to move, is the whole secret of launching. To do this, between the top of the ways and the vessel are driven pine wedges, which, of course, raise her somewhat, and so relieve the blocks under the keel of part of the weight resting upon them. This done, workmen take their places under the vessel, and with iron wedges cut and knock away the blocks. When these are removed, the entire weight of the vessel settles at once upon the greased ways, and the result is exactly the same as would be if a person should seat himself upon a sled pointing downhill upon an icy slope—away she goes!

There seems to be a strange sort of fascination for most people in the launching of a large vessel, and in our shipbuilding ports it is not uncommon for a thousand persons to be present to enjoy the spectacle.—*George Bancroft Griffith, in Potter's American Monthly.*

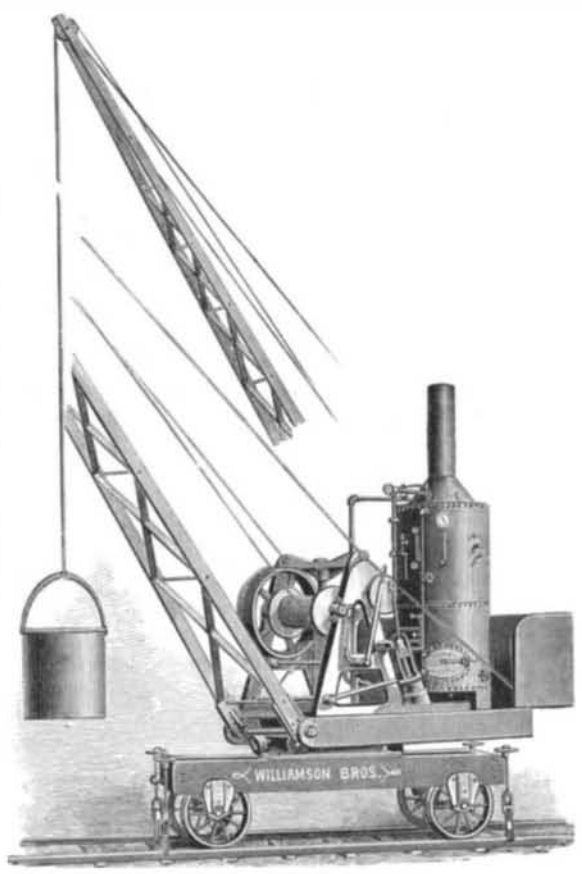
IMPROVED STEAM CRANE.

Handling heavy or bulky articles by sheer muscular force is becoming almost as rare where a great deal of lifting is required as it once was to handle unwieldy objects by steam, and in almost every place where any considerable amount of hoisting, loading, and unloading is required to be done, there steam is employed.

Our engraving shows a steam crane designed and built by Williamson Brothers, Richmond and York streets Philadelphia, Pa., for the Edgar Thomson Steel Works. It is suited to unloading cargo, and has a double engine, which communicates motion to the winding drum through friction gearing. This gearing, which is very simple, has been successfully applied to a large number of cargo hoisting engines for ship use by this firm. One lever controls the hoisting, stopping, and lowering of the load.

The crane is revolved on its base by a double cone friction clutch, which admits of turning the crane in either direction without reversing the engine.

The carriage and the base on which the engine and boiler rest are both made of wrought iron. The jib, which is of wrought iron, is made longer than usual to meet the particular work for which the crane is designed.



WILLIAMSON BROTHERS' STEAM CRANE.

The engines of this crane are 6 bore, 8 stroke, and develop 12 horse power. The machine complete weighs about 7 tons

Messrs. Williamson Bros. make similar locomotive cranes suitable for light or heavy work, with spur gear for hoisting, revolving, traveling, and altering the radius of the jib, and their large experience in this class of machines enables them to construct hoists adapted to any purpose for which they may be required.

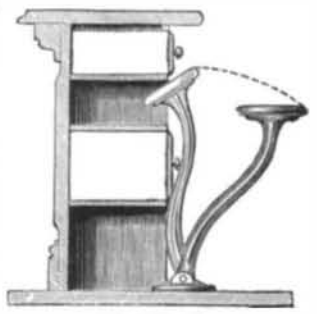
A SEAT FOR SHOP GIRLS.

Scarcely a season passes without a general protest against the common rule in our retail shops requiring saleswomen to stand at all times, even when not serving customers. Physicians have denounced the custom as health-destroying and cruel; ladies have combined to secure its abolition by withholding their patronage from shops in which the girls are not allowed to sit; and our daily newspapers have repeatedly inveighed against the practice and called for its abolition. Still it prevails; not because of any hard-heartedness on the part of shopkeepers, but for purely practical considerations. In the limited space between counters and shelves there is no room for fixed seats of the usual construction, and movable stools would be still more in the way. To widen the space so as to make room for stools would only increase the labor of those who have to handle the goods.

As in most cases of inconvenience and suffering, so in this, it is not the philanthropist or the sentimentalist who must be looked to for a remedy, but the inventor.

What is required is a seat which shall be simple, inexpensive, always at hand when wanted, and able to take itself out of the way when it is not wanted. A step in this direction has been made by an English inventor, who has patented the seat shown in the illustration herewith. The curved iron support carries a plain round seat of wood, and is hinged in the foot plate so as to be easily brought forward to be used or shut back against the counter when the attendant has to stand. It takes up but little room, and is evidently handy and serviceable.

It would be easy to make a stool for the same purpose that would take up still less room and be entirely automatic.



Seat for Shop Girls.

The standard should be set in a narrow slot or recess in the counter, and the seat pivoted off the center so as to drop edgewise and enable it to fit into the slot for the standard. The foot-plate would thus be entirely out of the passage, and the seat top nearly so, when not in use. A bit of rubber under the forward part of the hinge of the base to be compressed when the seat is in use would suffice to swing the seat into its recess the moment the attendant rises. By this arrangement the seat top would not be in the way of drawers or shelves, as in the English plan; and the much desired relief would be afforded to the saleswomen with the least cost of counter space and no obstruction of the passage way.

We look to our enterprising makers of counters and other shop fittings to introduce some improvement of this sort.

Fatal Discipline.

Archibald Gibson, Second Lieutenant Seventh U. S. Cavalry, died in St. Paul, Minn., January 26. The cause of his death was inflammation of the brain, said to have had the following curious origin. One day, while he was on parade at West Point, a spider got into one of his ears. By the rules, he was not allowed to raise his hand, and stood in the ranks more than an hour, while the spider worked his way into the ear. When dismissed his ear was full of blood, and the insect could not be removed for two days. The injury caused him much trouble, but did not prevent his assignment to his regiment in Northern Dakota. After some service, Lieutenant Gibson returned to his home in St. Paul, intending to resign, but, really, to die. His death is charged to inflammation of the brain, caused by necrosis of the inner wall of the skull adjoining the ear, the result of the spider's invasion.

A Great Drainage Project.

It is reported from Florida that an agreement has been entered into between the State authorities and certain Northern and Western capitalists to drain Lake Okeechobee and the great swamp region southward-known as the Everglades. The lake is about thirty miles by forty, and the entire area to be reclaimed is nearly twice as large as the State of New Jersey. The projectors claim that the drained land will make the best sugar country in the world. How they propose to accomplish the work is not stated. So long as the South has so much waste land suitable for sugar growing, without drainage, an undertaking of the sort described would seem to be rather speculative than practical.

How to Use Oil Stones.

Instead of oil, which thickens and makes the stones dirty, a mixture of glycerine and alcohol is used by many. The proportions of the mixture vary according to the instrument operated upon. An article with a large surface, a razor, for instance, sharpens best with a limpid liquid, as three parts of glycerine to one of alcohol. For a graving tool, the cutting surface of which is very small, as is also the pressure exercised on the stone in sharpening, it is necessary to employ glycerine almost pure, with but two or three drops of alcohol.