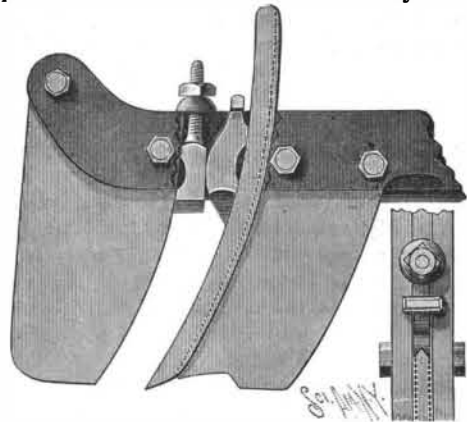
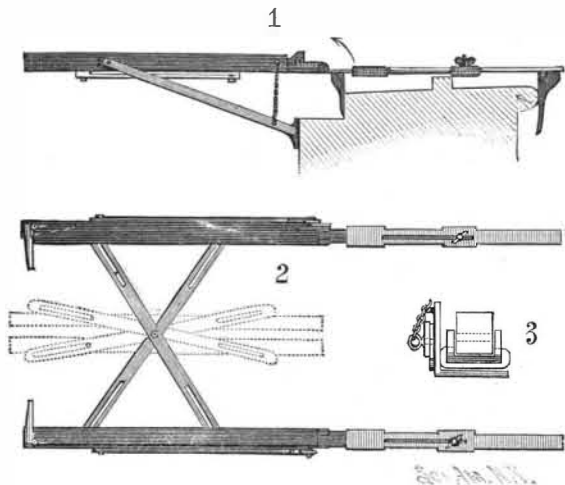


AN IMPROVED FASTENING FOR ICE PLOW TEETH.

In the cutting of ice for market in large quantities, as the industry is carried on up the Hudson River, and in other places, plows are employed, which have several teeth, one behind the other, each following tooth cutting deeper than the one preceding it, and the shallower cutting teeth set at a greater inclination than those which cut deeper. On this account it has heretofore been necessary to fit each tooth fastening separately upon the plow plate and tooth sections carried by the plow

**BODENSTEIN'S FASTENING FOR ICE PLOW TEETH.**

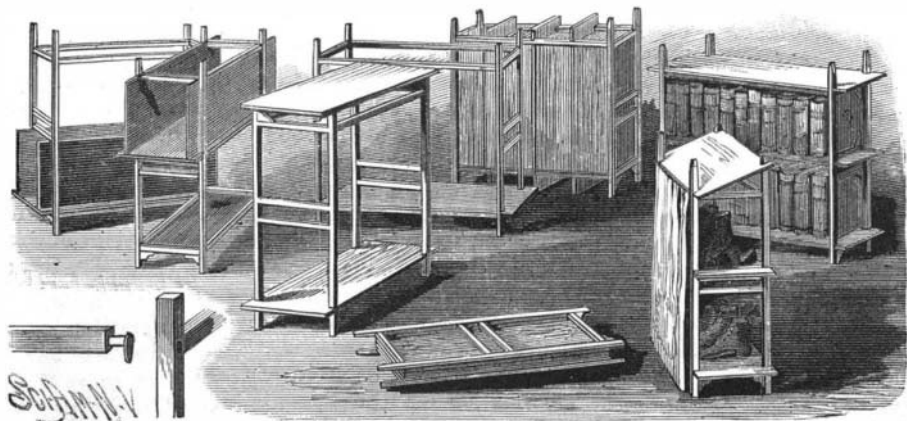
beam. This difficulty is obviated by the invention herewith illustrated, which forms the subject of a patent recently issued to Mr. Henry Bodenstein, of Staatsburg, N. Y., the fastening shown accommodating itself to the various inclinations of the inserted teeth, which are thus held firmly and rigidly in position, yet so as to admit of ready adjustment. The forward edges of the plate sections against which the teeth rest are beveled to receive grooves formed on the back edges of the teeth, and against the front edge of each tooth is held a stop plate of novel form, this stop plate having two bearings against the tooth, and being held in position by a wedge key, which brings the teeth in rigid contact with the plate sections. The peculiar formation of the stop plate and wedge key is such that they always have an even and positive bearing upon each other and upon the teeth and plate sec-

**STRACHAN'S RACK FOR SOLAR PRINTING FRAMES.**

tions, and when a new tooth is inserted of greater or less width, the inclined edge of the stop plate will accommodate itself to the difference.

A STAND ADJUSTABLE FOR MANY USES.

A framework of simple construction, adapted for readily forming therewith quite a variety of stands desirable for various household uses, and which can be quickly taken apart and folded up into compact form for storage or removal, has recently been patented by Mr. Frederic S. Weatherley, of the city of Quebec, Canada. Its adaptations and the principal features of construction will be readily understood from the illustration, the vertical posts forming the end supports being permanently connected in pairs, and rigidly braced by four parallel cross bars. The end posts are

**WEATHERLEY'S CONVERTIBLE STAND.**

longitudinally connected by side bars, one end of each bar being hinged to a post and its free end being formed with a tenon that fits in a corresponding slot in the opposite post, each post thus carrying one hinged end of the side bar, and having a socket for the reception of the free end of another side bar. Three boards of like size are employed in connection with the frame, each of them having slots in their edges adapted to fit closely the posts, and the end and side bars, which are of equal and uniform cross section. At the base of each of the slots in the boards is pivoted a catch adapted to be swung into angle slots in the inner corners of the side bars and end cross bars, and small blocks, equal to the thickness of a board, are adapted to fit in the corners in such way that a table may be made with its upper surface flush with the tops of the posts, or the boards will fit the posts to make a table with an inclined top.

A SELF-LOADING DIRT CART.

A cart designed to automatically take up its load as the cart is started forward is shown in the accompanying illustration, and forms the subject of a patent issued to Mr. Samuel M. Stevenson, of Bastrop, La. The scoop or shovel is rigidly attached to two rearwardly extending levers, pivotally connected to clips secured to the axle, these levers having outwardly extending flanges, which lie within the path of roller-carrying pins upon the spokes of both wheels. When the wheel is revolved, these rollers attached to the spokes raise the levers, carrying the scoop with its contents up over the body of the cart to the position shown in dotted lines in the illustration, whereby the scoop will be emptied into the cart. Just as the levers carrying the scoop reach this position, the rollers upon the spokes of the wheels pass beyond the upper edges of the flanges upon the levers, and the latter drop back to the ground. To an upwardly extending arm of the clips upon the axle are connected levers carrying rods and standards, whereby either of the wheels of the cart can be readily raised from the ground and turned to register with the other wheel, so that the rollers upon the spokes of both wheels will engage simultaneously with the scoop-raising levers. After the cart has been loaded, and is to be moved from place to place, the levers, with the scoop, are held in vertical position over the cart body by side chains from the shafts, the load being delivered from the cart by dumping in the ordinary way.

A FOLDING RACK FOR SOLAR PRINTING FRAMES.

An improved rack for holding the frames to obtain sun exposures conveniently from a window, as ordinarily required in photographic printing, is shown in the accompanying illustration, and forms the subject of a patent recently issued to Mr. Joseph Strachan, of No. 322 Madison Street, Brooklyn. Fig. 1 is a side view, the parts being represented as they appear locked in the window in position to support a printing frame. Fig. 2 is a plan view, the dotted lines showing the frame as folded for storage, Fig. 3 being a sectional view through the clamping attachment. It will be readily understood from the illustration how the side arms are fixed at the desired distance apart for holding the printing frame, by the clamping of the cross rods at the requisite angle, the side arms having flanges for the introduction of the frame. The extensible clamping attachment on the inner ends of the arms is so made that the rack can be readily fixed in position in any window frame, and the brace rods under the arms are adjustable to support the rack in a horizontal plane, or at any desired angle, as will most facilitate printing at different times of the day, according to the position of the sun.

Nitro-Glycerine in Shells.

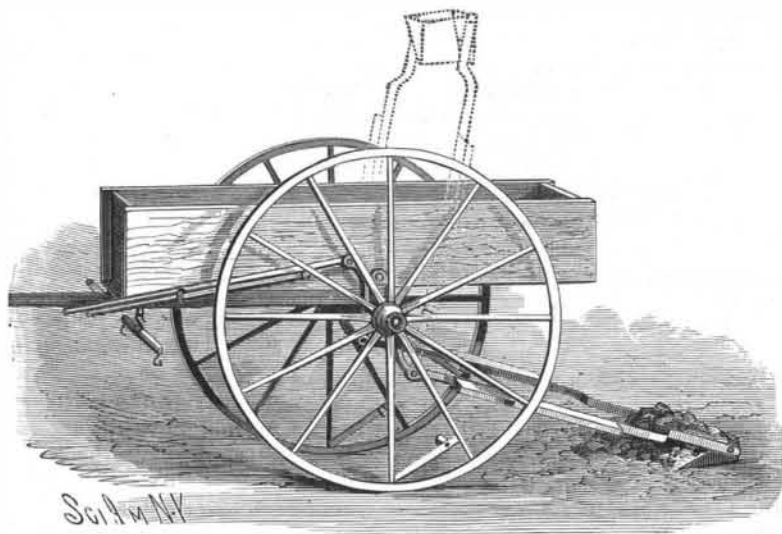
A number of experiments were made with nitro-glycerine on San Francisco Bay, north of San Francisco, California, on June 11th, which were witnessed by many interested persons. A number of shells were fired from a twenty pound Parrott gun, a three pound charge of powder being used. The first experiment was successful, the shell plowing on the opposite bluff ten seconds after leaving the gun. In the second and third experiments the shells used were defective, and failed to explode. The fourth struck the water

and extinguished the fuse. In the fifth trial the gun was aimed into the mud, and the shell exploding sent up a column of mud 100 feet into the air. The hole made by this shell was eight feet in diameter and five feet deep. In the sixth trial the shell was loaded with common powder, the other conditions being the same as in the fifth experiment. The concussion, however, was much lighter, the hole two and a half feet in diameter, and but one foot deep. The experiments were regarded as highly successful, as demonstrating the possibility of firing charges of nitro-glycerine in ordinary shells.

Curious Cause of a Fire.

The Boston Commercial Bulletin records a noteworthy instance:

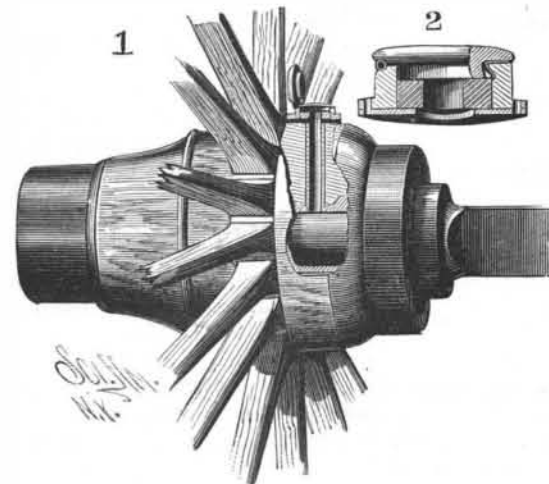
A fire happened in a woolen mill in a most remark-

**STEVENSON'S DIRT CART.**

able way a short time since. Two shuttles in a flannel loom got out of adjustment and the metal points struck each other so exactly on the end as to cause a spark that set fire to the warp. A pail of water extinguished the fire. A fire from this cause was never known before, and might never be known to occur again, as the most minute deviation would have caused the shuttles to slip by. Considering the velocity of their movement, it is as remarkable as though two bullets meeting in the air should strike one another exactly on the tip.

AN IMPROVED VEHICLE LUBRICATOR.

A lubricator intended for application to wheels of almost any vehicle has been patented by Mr. James P.

**RUTH'S AXLE LUBRICATOR.**

Ruth, of West Alexander, Pa., and is shown in the accompanying illustration, Fig. 1 representing a hub with the lubricator in position, and Fig. 2 being a sectional view of the lubricator removed. The lubricator is in the form of a circular box, with outwardly extending lugs by which it may be fixed upon a hub, through the wooden and metal portions of which a vertical hole is made, and lined with a tube. About the upper end of this tube is placed a rubber washer, upon which the lubricator is seated, so that any lubricant poured through the central opening finds its way to the axle and box. Any escape of the lubricant is prevented by turning down the hinged cover, which is clamped to place by a spring. The use of this device obviates the necessity of removing vehicle wheels in order to lubricate the axles.

Magnesia for Vines.

Magnesia forms a very important constituent in all soils in which the French vine resists, and in those where the American vine flourishes best. Its percentage in the ash of the American vine is more considerable than in the ash of *V. vinifera*. Practical experiments are needed on the use of magnesium-ammonium phosphate as a manure for vines.—A. C. Dejardin.