

**Dividing Profits with His Workmen.**

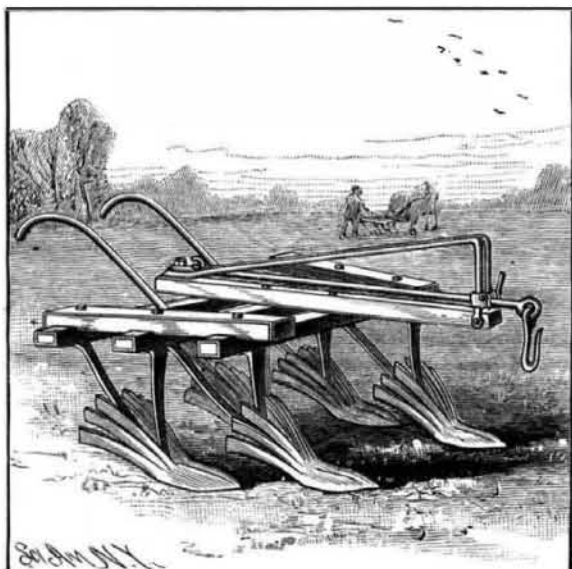
At the French Association for the Advancement of Science an interesting account has been given of the successful application of the system of admitting workmen to a share of profits in the large cotton printing establishments of M. Besselievre, near Rouen. The *Pall Mall Gazette*, referring to the subject, states that M. Besselievre does not, indeed, give his hands a share in the management and risks of his business. He keeps his books to himself, and pays them the wages ruling in the district, like ordinary laborers. But in addition to their wages he has since 1877 distributed among all the workmen who have been in his service for five years an annual bonus proportionate to his own profits, which has amounted on the average to 12 and in one instance reached 17 per cent of the wages earned by them during the year. Half of this bonus is paid to the men in cash, and half is retained to form a sick and pension fund and to provide for the family of the workman in the case of his death. This money is invested in the business at the rate of four per cent, but it is not confiscated if the workman is dismissed. To give the best of guarantees against capricious dismissal, moreover, the right to discharge a workman has been ceded by M. Besselievre to a committee, of which the majority consists of persons engaged in the factory. M. Besselievre has disbursed 80,000 francs in the last six years in these extra payments to his workmen, but considers himself to have been commercially the gainer by his liberality, owing to their increased devotion to their work and attachment to their employer. The success of such experiments wherever they have been tried ought to encourage more frequent imitation.

**Enterprise in Dakota.**

The following good story, which illustrates the rapidity with which towns are built up in new Territories, was told the *Northwestern Lumberman* by a gentleman who was looking around in Dakota recently. He was present when officials of the Chicago, Milwaukee & St. Paul road arrived at a point thirty miles north of Mitchell and planted a town which they called Woonsocket. At the time only one farm house was standing in the vicinity, and a car was used as a depot. This was on Thursday, and on Saturday of the same week there were twenty shanties, a livery stable, two stores, a saloon, a hotel, and three lumber yards. There are men who have loaded lumber on cars without knowing where it would be unloaded, and then run it to the first new town they hear of being started. But it is not best to imagine that all of the yards which are established so suddenly in the new Dakota towns have complete assortments or are models of neatness. A few hundred feet of lumber thrown down by the track constitutes a yard, which grows and is put into shape as the town progresses.

**CULTIVATOR.**

The plows, in the cultivator herewith illustrated, are made with angular forward parts, and have their rear parts cut into strips bent into the form of mould boards and twisted through a quarter of a turn, so that the soil may sift through while the weeds will fall to the ground from the rear ends of the strips. Each plow is connected to the frame by two standards of unequal length, so that they are firmly supported against the draught strain. The frame is formed of three cross beams connected near their ends by two side beams, and at the center by a beam projecting in front to serve as the draw beam, and to its forward end are secured two parallel rods, which extend nearly vertically upward for a suitable distance, when they are bent to the rearward and secured to that end of the beam. The draw rod passes

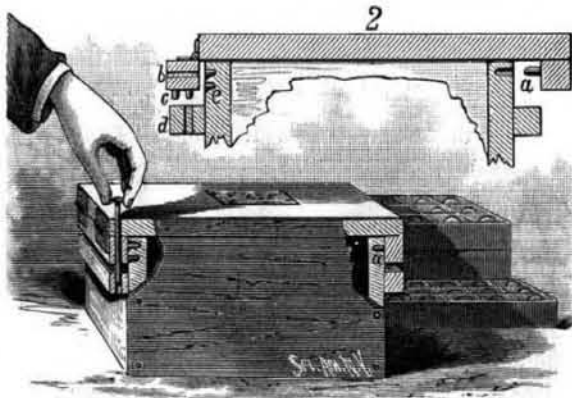
**PLATTEN'S IMPROVED CULTIVATOR.**

forward between the parallel or guide rods, and its forward end is provided with a hook for the attachment of the draught. The draw rod passes through a clamp, by which it can be held at any point on the upright parts of the guide rods, thus regulating the depth to which the plow works. The forward parts of the plows are made angular and nearly flat, and run beneath the surface, cutting off the roots of the weeds.

This invention has been patented by Mr. John Platten, Sr., of Fort Howard, Wis.

**BOX FASTENER.**

The object of an invention recently patented by Mr. James R. Morrison, of Oakdale, Ill., is to provide a fastening for the covers of egg cases or other boxes, whereby the cover can be held firmly on the box and can be removed easily and rapidly. One end of the box cover is provided with a fixed cleat having one or more dowels, *a*, and the opposite end has a hinged cleat, *b*, also furnished with dowels. The dowels in the fixed cleat are passed into holes in one end of the box, and those on the hinged cleat into holes, *e*,

**MORRISON'S BOX FASTENER.**

in the other end of the box. The hinged cleat is then locked in place by a pin or bolt, which is passed through the cover, the hinged cleat, and a fixed cleat on the end of the box, as shown in the perspective view. Fig. 2 is a section through the cleats and box.

**BARREL PUMP.**

The device is attached to the barrel by means of a bung tube, *d*, within the upper end of which fits a short tube, *a*, through which passes the pump tube, *e*, provided at its lower end with sharp points, *f*, that are to be embedded into

**GUIGNON'S BARREL PUMP.**

the barrel for staying the bottom of the pump tube and steadying the device while pumping. The pump and plunger are of the ordinary construction. The bottom of the tray, *h*, is made conical, so that the drain will be from center to circumference. Near the edge of the tray the bottom is provided with a short tube, *a*, through which the drip finds its way from the tray back into the barrel, thereby avoiding the use of a separate drip pipe. The detachable brace, *f*, is formed at one end with a sleeve, *c*, that fits upon the bung tube, and at the other end with a crosspiece that fits in the channel formed upon the bottom of the tray, serving to support the tray and prevent vibration. A guard with radiating arms is placed in the tray to prevent articles from falling upon the bottom. The vessels to be filled stand upon this guard. The pump is simple in construction, and is firm and steady while being operated.

This invention has been recently patented by Messrs. L. E. and E. E. Guignon, of Corry, Penn.

**Conscience in Boiler Making.**

We are sometimes very much annoyed by the want of good faith in boiler construction. There seems to be a feeling, certainly on the part of some, that a little departure from the correct thing is of little account if it will only pass. One of the tricks is to use thinner iron for the construction of the shell in places where the lap of the sheet is inside. For instance, if a boiler shell is constructed of three sheets in length, the outer sheets will overlap the center sheet and prevent the edges being seen unless one gets into the boiler. Now it is not unfrequently the case that this center sheet is of thinner iron than the other sheets. An inspector discovers this when making the internal examination.

In casting up the safe working pressure of a boiler, the strength of the weakest point must be the highest limit allowed for bursting pressure, and the factor of safety must simply reduce the pressure which would burst the boiler to a safe working pressure. Now the thinner the iron the less resistance it affords, and if the thin sheet is the weakest point, it must be made the basis for calculating the safe working pressure, which would be lower than would be allowed if the sheets in the boiler were of uniform maximum thickness. We call attention to this fact because the dis-

covery of such practice has made serious trouble between the boilermaker and the steam user.

This business is sometimes carried so far that the edges of the plates are "upset" so as to appear thicker and heavier than they really are. We would not believe that there were men so blind to the duties and obligations which rest upon them as to resort to such practice, but the careful inspector finds all such defects, and in time we come to know whose work is carefully and honestly done, and whose is open to suspicion. In States and cities where inspection laws are in force that give the methods and rules by which the safe working pressure of a boiler is calculated, there is no alternative except to follow the rules; and if certain requirements regarding construction are a part of the law, there is no authority or right to depart from it, and yet there are boiler-makers who try to force their boilers into such localities when their work is not up to the requirements of the law. Now this boiler making is pretty serious business, and inasmuch as some one must be blamed when accident occurs, it is important that all who have to do with boilers, from their construction to their care and use, shall be honest in all their work.—*The Locomotive*.

**Transplanting Trees.**

A writer in *Farm and Fireside*, in his directions respecting the treatment of trees before their removal, states as follows:

"A tree in full leaf may be compared to a powerful pump, the roots absorbing water from the soil, which is carried upward through the stem and exhaled from the leaves in the form of vapor. This exhalation from the leaves is really the primary operation, however, being simply a process of evaporation. If, now, the principal portions of the roots be cut away, and especially the fine rootlets which are farthest from the stem and through whose extremities nearly all the water is absorbed, the leaves, if allowed to grow, will exhaust the water from the stem and roots more rapidly than it can be supplied by the remnant of the latter, and the consequence will be the destruction of the tree. Hence, in transplanting trees the leaf bearing twigs should be cut away in proportion to the loss of roots, and it should be remembered that the root surface is generally equal to that of the twigs; consequently the safest rule is to remove nearly all the branches, trimming to bare poles. It is hard to do this, but the after-growth of the tree will be enough more rapid to compensate the apparent loss. In moving large trees it is an excellent plan to dig down and cut off a large portion of the roots a year before transplanting, removing a portion of the top at the same time. This will cause the formation of new rootlets near the stem, which may be preserved in the final transplanting."

**SLOTING SHEARS.**

The slotting shears recently patented by Mr. Charles W. Crane, of Batavia, Iowa, are designed to cut slots in tin for any purpose. The shear blade is movable and is fitted to a stationary slotted die plate. The blade has a point near its pivoted end to punch through the tin to form one end of the slot, the sides of which are cut by the side edges of the shears. The slot will be limited by one of the series of ledges on the blade coming down in front of the end of a bit which is movable along the slot between the plates to be set for any ledge. The bit, shown in section in Fig. 3, has tongues running in grooves on the sides of the plates of the die. A single stroke of the blade, which is provided with a lever handle, will cut slots of different lengths. The sheet

**CRANE'S SLOTTING SHEARS.**

may be shifted sidewise to make slots wider than the blade. In order to sharpen the edges of the die plates and reset them closely to the blade, they are made separate and bolted to the table. By removing one of the die plates a straight cutter is formed. In Fig. 2 the device is shown adapted for cutting wire of all sizes. Fig. 1 shows a slotted sheet to indicate the work done by the shears. Fig. 4 shows the way of operating the shears. The apparatus is particularly applicable for making the slotted tin strips used in making the glass gauges for cream cans.