NEW INVENTIONS.

Omnibus Register.

F. O. Deschamps, of Philadelphia, Pa., has taken measures to secure a patent for improvements in the above. The machine, as its name imports, is an apparatus for registering the fares paid by passengers in omnibuses. Its mechanism is contained entirely within a case having in front the exterior dial plate, behind which are three revolving dials. Of these the first is upon the same axis as the external pointer, and is divided like the outer dial, which latter has three apertures, so that when a secret slide is withdrawn, it is possible to see one number on each of the three concealed dials, and the sum of these three numbers denotes the amount of passengers since the commencement of the registering. Between the outer dial and the inner ones is the secretslide, whose office has just been denoted, this rests upon the axles of the concealed dials, and is attached to the bolt of a lock so that it cannot be moved unless by a suitable key. The axle of the first innerdial and the external pointer, receive motion to register the fares, and a hammer strikes a bell previously to each registration, which process is effected in a manner indicated in a former patent, but further improved in this, so that to operate the apparatus, it is merely necessary for the driver to pull a handle. The second interior dial moves one division for each revolution of the first, and to do this promptly is a desideratum; it is effected by a vertical rod acted on by a stud connected to the first dial, and its action is rendered instantaneous and certain by springs and pawls. The third dial is moved by attaching to it a wheel having a series of notches, in which gears the single tooth that is in the periphery of the wheel pertaining to the second dial. The difficulty of successfully tampering with the apparatus is increased by the following check, which serves to register the revolutions of the first dial. A number of balls are placed in a pipe, which are successively allowed to descend into a drawer in accordance with the revolutions of the dial. The machine is rendered inoperative (whenever the secret slide is withdrawn) by a slide bar, which is attached to the lock-bolt, coming in contact with the teeth of the driving wheel.

New Carriage Spring.

A carriage spring of a novel construction by which the vehicle is allowed to have a free and easy vertical motion, and at the same time prevented from any side-swinging, has been invented by Nelson N. Titus, of Cherry Valley, N. Y., who has taken measures to secure a patent. It consists of a spiral spring wound round a spindle that passes vertically through a barrel, in which the spring is encased, and likewise through a drum on which the straps, by which the apparatus is connected with the carriage, are secured, the spring and its attachments thus serving to sustain the carriage, and regulate its action according to the burden. To effect this latter purpose the spindle is made square at the lower end to which a key can be fitted for winding up the spring, so that its tension may be proportional with the weight that it has to support. The spring is likewise kept to its required position by means of a pawl which catches into ratchet teeth on one of the flanges of the drum, and there is a similar contrivance on the other flange to prevent the drum from turning with the spindle, which can only be done by disconnecting the pawl from its place.

Self-Acting Brake.

A brake of the above mentioned kind has been intented by John T. Denniston, of Lyons, N. Y., who has taken measures to secure a patent. This brake is self-acting and the engineer by reversing the engine, and thereby retarding the velocity of the train, causes the brakes of each car to act upon the wheels independently of the attention of the brakesman. It consists in having two sets of springs to each buffer rod, and so arranged that one set acts upon the buffer rods when they are drawn out from the cars (as when the train is going at a high speed), whilst the other set acts upon the buffer rods when they are forced inwards (as when the speed is relaxed). The buffer rods are connected to brake levers which cause the shoes to bear upon the wheels when the buffer rods are forced inwards. As it is occasionally necessary to back the train, a simple device enables the engineer to operate all the brakes, so that the above arrangement offers no impediment to the backing.

Safety Brake.

John Askwith, of Birmingham, Conn., has taken measures to secure a patent for the above. Instead of the ordinary brake blocks, the inventor employs swinging or movable shoes, which extend from the frame of the truck to the rail, and have flanges which reach below the top of the rail, and being on the inside of it act in a manner similar to the flanges on wheels. These shoes therefore press upon both the wheels, and also upon the rails, thus lessening the wear and tear by exposing a greater surface to be acted upon; the main object attained is safety, for besides the beneficial tendency of the flanges should an axle break, the shoes will fall on the track and sustain the car. Two sets of knuckle-jointed levers are used to work the shoes, that set immediately connected to them being horizontal, while the others are vertical, and besides jointing on to the former, are also connected to a cross piece. A chain and windlass give the required tension, and one part of the drum on which the chain winds is conical in order that it may be operated with rapidity whilst slack. That the brake may be applied as tightly or as loosely as desired, there is employed a ratchet wheel having teeth on both the cylindrical and flat surfaces, so that by using a double-toothed pawl the chain may be tightened the half length of a tooth.

IMPROVED MACHINE FOR CUTTING TIN---Fig. 1.

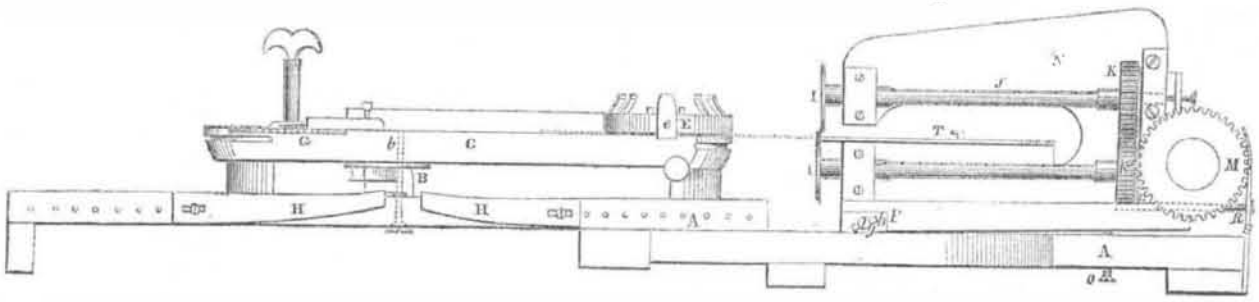


Figure 2.

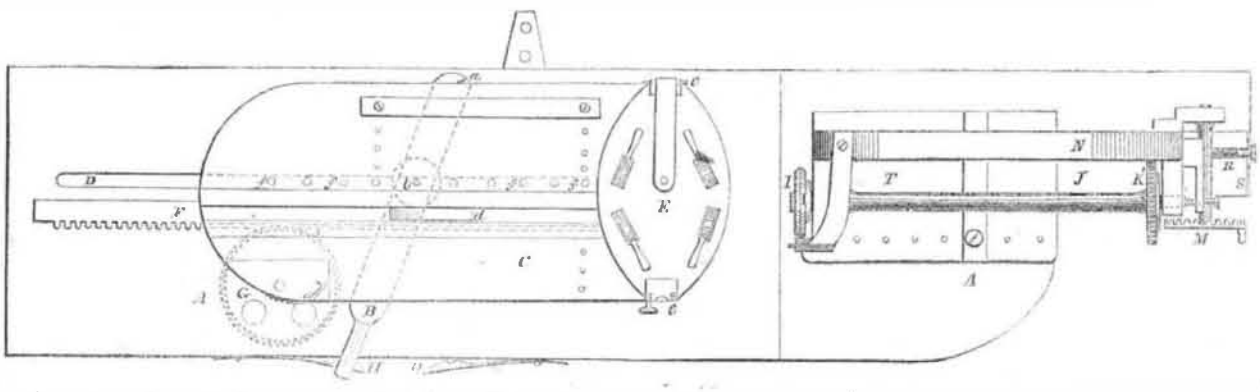


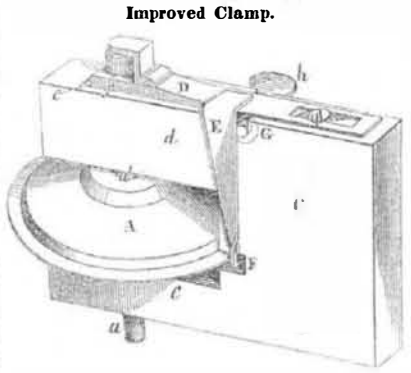
Figure 1 is a side elevation, and figure 2 is a plan view, of an improved machine for cutting tin in forms of sections of a circle for various articles of tin ware. The same letters refer to like parts. The inventor is H. C. Hart, of New York city.

A A represents the bench, and C is a movable feed table on the bench to feed in the tin plate into the cutters, in the manner desired; B is a lever with its fulcrum at *a*, to feed forward and run back the table C. The bolt, *b*, is an axis passing through lever, B, and table, C, working in a longitudinal slot, D, in the bench or bed plate, A, under C; E is a clamp at the front end of the table for securing the tin plate to feed it to the cutting rollers; F is a rack bar operated by a pinion, G, for moving forward the plate of tin in the clamp; H H are spring catches secured at one side of the bench, A, for retaining one end of lever, B; I I are the circular roll cutters or shears. They are secured on spindles, J, and receive a rotary motion by the bevel gearing, M K K'. The cutting shears are secured in an appropriate frame, N.

The clamp, E, is raised; it being attached to hinge, *c*, at one end, and the plate of tin is then placed under it on the table, C. The back edge of the plate rests against the stop, *d*, and rack bar, F, the clamp is then pressed upon the tin plate and secured by the catch, *e*. The front of the plate of tin is thrust sufficiently far forward as to allow it to go in between cutting rolls, I I, as shown in dotted lines in figure 1. As the table swings on the bolt axis, *b*, by moving from one side to the other it describes the arc of a circle, consequently the tin plate is cut with its edges forming part of a circle. Every piece of tin so cut complete in itself, will form the section of a concavo-convex body. The lever, B, moves the table, C, forward, and the rack bar, F, moves the tin plate forward in the clamp to be cut into such segments of a circle as may be required. A series of holes, *f*, is made in table, C, for the purpose of shifting the axis bolt, *b*, to alter the sweep of the table, C, on its axis to cut large and small segments of a circle from the tin plate.

O is a screw bolt on which the back end of frame, N, rests, and by which it can be elevated or lowered and the cutting rolls, I I, made to cut to the incline necessary to operate well; R is another screw bolt to draw back frame, N, in plate, S. In the plates, P (one on each side) are inclined slots, *h*, in which screws, *g*, work to allow the frame to be slightly elevated or depressed and drawn back, so that the cutters can be placed in line with respect to the feed table, C; T is a bed behind the roll cutters on which the outer edge of the plate of tin rests while the plate is being cut. The key on the arbor of the rack wheel, G, is to move the wheel to operate the rack bar, F, and advance the plate of tin.—The two catches, H H, are to hold the lever, B, for the first and second cuts of the rolls on the tin plate. There are small eccentric heads working through the plate of clamp, E, to press upon and release the plate of tin which is held between the plate of clamp, E, and on the face of feed table C. It will be observed that by means of the lever, B, arranged and operating as described, the feed table, C, is so adjusted as to allow the plate of tin to be cut in segments of circles of various sizes, and by properly adjusting the set screws, R O *g*, the cutters can always be properly inclined, and placed in correct cutting line, with respect to the position of the plate of tin.

Improved Clamp.



This figure is a perspective view of an improved clamp for tinsmiths, by the same inventor. Its nature consists in securing the sheet of tin, or it may be iron, between two discs, which have a rotary motion communicated to them by the cutters or cutter, as they act upon the sheet of metal. The upper disc has springs connected to it, by which the operator, by an eccentric pin, makes it press upon the sheet of metal, and also releases it to hold the plate to the cutter, and take out the cut and feed in a new plate.

A is the top disc; the under one is just like it. They are placed on separate spindles, *a a'* with their interior smooth faces together. C is the stock of the clamp; the spindle, *a*, is retained in the bearing stock, *c*, and *a'* in that of *d*. The central space between the two discs is for the reception of the sheet of tin to be cut, into the bottom or lid, of boxes, pans, &c.; *f*, is a clasp around a groove, *e*, in the shoulder of spindle *a'*; near the top, *e*, is a strap, and there is a spring, F, inserted in the stirrup foot of this strap with its tension downwards, which makes the strap, E, with its top plate, D, and clasp, *f*, act on the spindle *a'*, to press down the top disc, A, firmly against the face of the under disc, so as to keep them close together and hold the sheet of tin firmly between them; *h* is a pin which works in a space, G, under the top plate, D, of the spring strap, E. This pin has an eccentric knob on it inside, by turning it therefore, the plate, D, is raised, and the clasp, *f*, raises the spindle, *a'*, and thus raises the disc, A, in other words, opens, the mouth of the clamp to take out and put in a plate. The disc having separate spindles, they turn easily in their bearings; the sheet of metal to be cut is placed on the lower disc; the eccentric pin, *u*, is turned, and the spring, F, acts to clamp the sheet at once between the discs; *g* is a slot and screw to move the plate, D, backwards or forwards. This is certainly a very beautiful and excellent clamp for holding plates of metal to be cut into circles, for the bottoms of tin vessels. The clamp is so made that discs of different sizes can be placed in and taken out to cut large and small discs.

Measures have been taken to secure a patent for these useful improvements, and more information respecting them can be obtained by letter addressed to Cowing & Co., Seneca Falls, N. Y.

A casting took place March 19th at the foundry at Woolwich dockyard, Eng., of a brass screw propeller for the Agamamnon, 91, screw steamship, at Portsmouth. The quantity of metal required for the casting was about 11 tons, and the time occupied in running it first, into an iron pot made for the purpose, and subsequently into the screw propeller mould, was about 20 minutes.