

IMPROVED FLOOR CLAMP.

We illustrate herewith an improved floor clamp, which, by a single operation, is tightly secured to the joist while caused to push the flooring boards together. By a reverse proceeding, the pressure on the latter is removed and the joist clamp unfastened simultaneously. The device may be advantageously used for the clamping of doors, sashes, etc., as well as floors. It may be also employed as a lifting jack by placing it endwise on a suitable support.

A is the driving screw, which is rotated so as to cause the clamp, B, to move in or out by means of the bevel gear actuated by the crank handle shown. The screw works in the rear end of the straight piece, C, a nut being cut to receive the thread, and the interior being hollowed so as to serve as a shield for the screw. D is a toothed cam, the shaft of which is provided with a spring which throws the teeth against the side of the joist. The upper extremity of the shaft carries a short arm, and this, by a spring joint, is connected with the catch, E. The object of the spring in the joint last mentioned is to throw the catch inward, to the position represented.

The mode of adjusting the device is clearly shown. On rotating the handle so as to drive the screw outward, thus pushing the boards together, the rearward motion which the apparatus first takes causes the cam, D, to be partially turned and its teeth to bite against the joist; so that the latter becomes tightly jammed between said cam and the stationary jaw on the opposite side of the bed plate. On reversing the motion of the screw, the straight piece, C, engages with the shoulder of the catch, E, and carries the latter to the rear with it, thus turning the cam shaft and so loosening the same. This continues until the catch strikes the inclined side of the stop, F, which pushes it out of engagement with the piece, C, when the catch is carried back by its springs to its former position.

It will be seen from the above that the device has the merit of simplicity both in construction and in operation. It is necessary only to place the apparatus in position and begin turning the handle at once, its automatic attachment and loosening saving the expenditure of time usually devoted to securing the clamp in place.

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IMPROVED SUDDEN GRIP VISE.

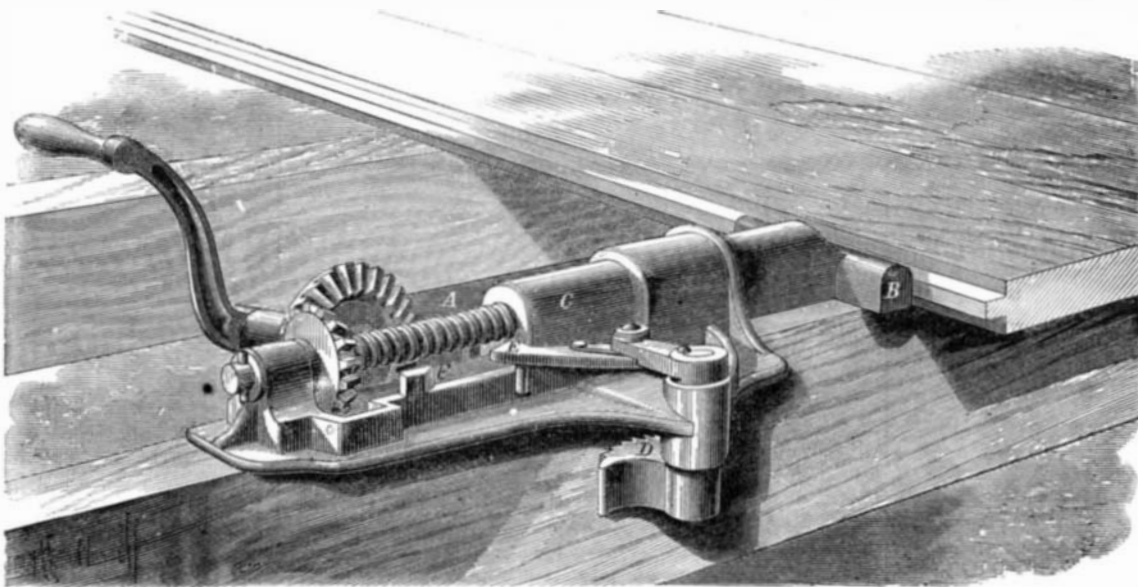
The improved form of parallel vise, a perspective and a sectional view of which are given herewith, is adapted to the uses of all classes of mechanics. It possesses the advantages of rapidity in action and of being able to clasp any sized piece of work within its capacity through the one motion of the hand. It has a self-acting swivel, which allows of its adjustment to any desired position, so that it may be used with the right or left hand with equal facility. The holding mechanism, as will be seen from the following description, is constructed so as to apply the power with great advantage, and the position of the handle is such that, while it is convenient to operate, it is turned out of the way of the workman after the jaws are caused to embrace the work. The various parts are interchangeable, and therefore, in case of injury or loss, easily duplicated; and finally, the castings and other portions are made with a view to the highest strength and durability.

From Fig. 1 the general appearance of the implement, and the mode of operating the lever which determines the movement of the jaws, will readily be comprehended. The interior mechanism is shown in detail in section in Fig. 2. B, in the latter engraving, is the stationary jaw through which the movable jaw, A, the straight part of which is cored out, passes. P is the bed plate, made in two pieces so as to be adjusted into the dovetail formed by the lower portion of the jaw, B. To retain said plate in place, a wedge, W, is driven in between the sections, spreading the same just sufficiently to make a neat fit with the jaw base. Above the plate, P, and held in front and rear by the lower portions of B, is a steel rack plate, H. The rear end of this is secured, and the entire plate prevented from rising by the screw, N.

The lever handle has cast, on each of the sides of its inner end, a disk. These disks are inserted in a socket in the outer extremity of jaw, A, and held in place by friction straps, T, which are adjusted to hold said disks loosely or tightly by means of the set screws, S. On the inner portion of the disks is a pin, K, which, when the lever is raised as shown, presses down the end of a pivoted bar, J, located inside the hollow jaw. Said bar thus raises the toothed clutch, G, and disengages the teeth of the same from the rack, H. Under these conditions, it will be

seen that, by pulling or pushing on the handle, the jaw, A, may be drawn out or shoved in very easily, and so adjusted in contact with the work.

As soon as this last is done, the lever handle is pushed down. The effect is to release the lever, J, and so as to allow clutch, G, to drop, and also to draw a bar, D, which is pivoted to the handle disks, outward; and thus the end of said bar acts as a wedge to push down the toggle joint, E E, and so to force the clutch, G, forward, to act against the rack

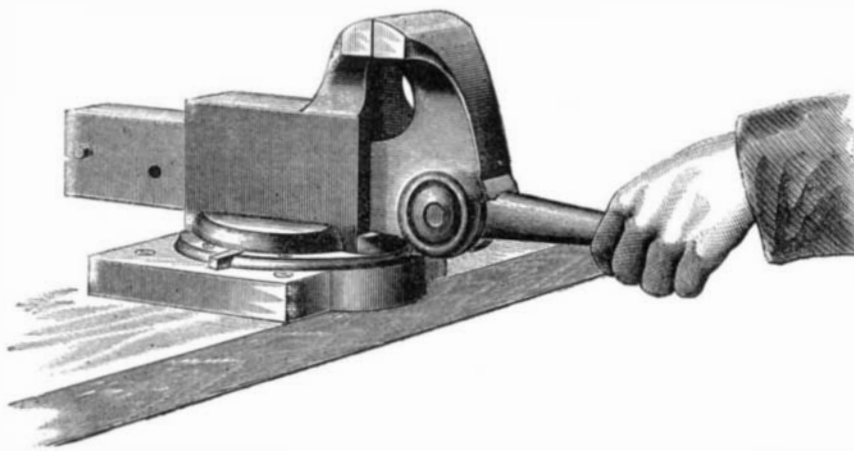


WOOD'S FLOOR CLAMP.

teeth. As the part, E, of said clutch bears against the bar, R, which is cast with the jaw, A, it is evident that, acting on the bar, R, as an abutment, the extension of the toggle joint tends to carry jaw, A, inward, with great force, and so to grasp the object inserted between the jaws very tightly. As soon as the lever is raised to loosen the work, the coiled spring, L, acting on the upward turned end of the clutch, G, carries the latter to the rear, and so removes it from the rack teeth, and, at the same time, returns the toggle joint to its normal position.

A moment's consideration will show that the tendency of the downward as well as rearward thrust of the toggle joint is to raise to the jaws. The screw, N, prevents the raising of the rack by the clutch teeth. The same downward action is also utilized to prevent the swiveling of the vise after the grip is put on. That is to say, as the lower portions of the jaw, B, embrace the bed plate, P, the latter acts as a center of rotation; but when the lever is carried down, the force of the toggle joint jams the above parts together, and prevents motion of the swivel.

The handle, when turned down, it will be noticed, is entirely out of the way of the workman, and is very quickly operated. The apparatus is secured to the bench by the screws, Y. In a later model of the vise than that represent-

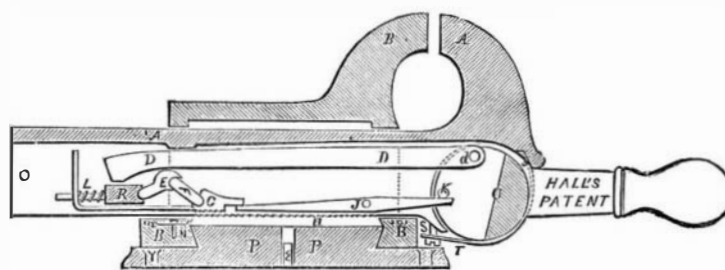


HALL'S SUDDEN GRIP VISE.—Fig. 1.

ed, the base of jaw, B, is carried out to the edge of the bed plate, thus covering the heads of the screws, Y. A gate, in such portion, gives access to the screws, when the vise is turned so that the opening comes over each head in succession.

This implement gained the medal of progress and a diploma of honor at the Vienna Exposition, such awards being, we are informed, higher than those given to any other vise. It also took the highest premium at the Fair of the Franklin Institute in Philadelphia in 1874.

Fig. 2.



Patented in the United States, Canada, and in the principal foreign countries. For further particulars relative to sale of rights, etc., address Mr. Thomas Hall, 411 Fulton street,

Brooklyn, N. Y., or Mr. Charles Parker, manufacturer, Meriden, Conn.

English Sugar-Cutting Machinery.

It is with sugar as with a great many other articles of commerce: the appearance of the goods, without any reference to its intrinsic quality, largely influences the sale. Sugar neatly divided into regular lumps, each one presenting a clean, crystalline, and brilliant surface, is certainly more attractive than a mass of fragments resembling bits of chalk; while the uniformity of the pieces renders its use much more convenient. The mode of cutting up the sugar, as practised in this country, is to saw the loaf crosswise into slabs, and then to stab the latter on both sides with a number of spikes, breaking the mass into fragments of varying sizes. A new apparatus, called Burton's diamond sugar-cutting machine, has lately appeared in England, which, according to the London Grocer, cuts the loaf into perfect forms with great rapidity. The machine, says our contemporary, stands above four feet high, is over six feet long, and about three feet wide. At one end, on a sort of platform, a man is engaged in placing the loaf of sugar horizontally, with its base pressing against the mid-

dle of the machine, where a circular saw, worked by steam power, cuts the loaf into slabs. These, being round, of course run by themselves on to a pair of rollers fitted with longitudinal knives, between which they are cut into splints or sticks. Much quicker than it takes to tell, these again, watched by a boy, pass down an inclined plane into grooves, and fall vertically from a smaller pair of knife rollers into a hundredweight box prepared to receive them. They are now quite ready for service on the table, and, surrounded by a blue paper lining, present an endless variety of sparkling cubes, triangles, and diamonds, that can be dropped into the cup at a word to suit the different likings of tea and coffee drinkers. On each side of the box is placed a receiver, one for the fine pulverized powder that falls from the saw, the other for a more gritty substance that comes from the knives. Both are put into bags to be sent where they meet the freest purchasers. A more minute examination of the cut portion shows plainly enough that, while four sides glisten from the action of the knife, only two bear evidence of the marks of the saw; and such a result being the very reverse of that produced by the French *modus operandi*, it must be admitted that the new sugar cutter, in point of cleanliness, neatness, and rapidity, leaves scarcely anything to be desired. Just imagine a whole loaf being cut up entirely in about two minutes, which is at the rate of five hundred cwt. an hour, or three tons in a working day of twelve hours, without stopping, and say if such a thing was ever known before! And the same engine that drives this machine can also be employed for grinding pepper, roasting coffee, cleansing rice, etc.

New Style of Telegraph Poles.

There has lately been erected at the junction of Broadway and 23d street, in this city, an example of a new form of telegraph pole, of iron. It is said to be lighter than a wooden pole of the same height, stronger, and capable of supporting a greater weight. It is constructed of a number of wrought iron bars, rolled out the entire length of the pole, which bars are placed around light cast iron cores, arranged at proper intervals from each other. The cores have seats or notches to hold the bars in their places to prevent their moving sideways, and the bars also have notches, into which the cores fit to keep them from moving up or down. Around the outside, where each core is placed, a ring or band of wrought iron is tightly fitted, which holds the bars firmly in their places, and thus forms the whole into a light, open, and graceful column. Any number or any size of bars may be used, but it is found that six very light bars of angle iron arranged in this way afford a strength that fully meets that required for a telegraph pole of fifty feet in height. The cores are large at the base and are made smaller as they approach the top, which gives the column a graceful taper, and the whole is surmounted by a suitable crosshead to hold the arms for the wires. Such a column is very simply constructed and is without a rivet throughout its entire length. No machinery or shop labor is required to put it together, other than the making of the outside rings or bands by an ordinary blacksmith, so that the pole may be ordered in pieces and put together at the point where it is to stand. The column is suitable not only for telegraph poles but for masts for iron ships, derrick masts and booms, stringers for bridges, lamp posts, and a variety of other purposes.

Pour preserves into jars and seal while hot