204

## INVENTIONS. NEW

#### Safety Steam Boiler.

Measures to secure a patent for improvements in the above have been taken by Stephen Waterman, of Williamsburgh, N. Y., the original invention having been patented on the 28th of Dec., 1852. It is an improvement on the plan for preventing the serious casualties consequent to boiler explosions, which was noticed on page 108 of the present volume. It will be recollected that a "safety chamber" was placed upon the hoiler, and that when the steam attained an undue pressure it tore a plate which separated the chamber from the boiler, and as the steam gained additional space, its pressure on the square inch was reduced. This plan, although completely effective, involved the necessity of a large safety chamber, it is to reduce the dimensions of this appliance, that the present patent is chiefly designed. A reservoir ot cold water is placed in juxtaposition to the boiler and its appurtenances, so that the top communicates with the boiler and the bottom with the "safety chamber," both communications being opened and closed by cocks. By this contrivance, when the plate bursts, its disruption acts upon an arrangement which opens both communications, and the steam pressure on both sides of the water being equalized, this latter fluid, by its gravity, will descend into the chamber and condense the steam, or if considered preserable, it might pass directly into the boiler.

### Improved Cotton Press.

A press of an improved description, for cotton, hay, and other articles, has been invented by Levi Dederick, of Albany, New York, who has taken measures to secure a patent. In this machine two tollowers are employed, one at each end of the box, which are operated by double levers, likewise fixed at either end, and worked by means of cords and pulleys. The article to be pressed is placed in the box, and the ends being drawn outwards, the outer ends of the levers are of course depressed, and the followers forced inwards, the article being pressed at the centre of the box. The levers and followers are restored to their original position by turning a winch at each end of the press furnished with cords and rollers.

#### Another Press.

This is a press for similar purposes, by the 3 is a vertical section of a plan of carrying out room will then pass up the chimney through The ventilation is shown as applied to the same inventor, who has taken measures to sethe improved mode of ventilation, and figure the pipe, G. When the room requires warmcure a patent for it. The improvements, 4 is a view of the system applied to a chiming, the throttle value, h, must be closed and however, are of a different nature from the ney in a dwelling where a stove is used. the slide valves, B B, opened when the cold last exhibited. and are not intended to alter In figures 1 and 2 the fire-place consists of air will be warmed by contact with the heatexisting mechanical arrangements, but merely box made of sheet-iron, lined with fireed sides of the case, E, and it will then asmake a change in the shape of the box, and brick; the lower end of the fire-brick is in cend by the pipe into the room. the method of securing certain doors with clined outwards for the purpose of reducing In figure 3 the lower aperture of the chimwhich the inventor proposes to furnish it. the capacity of the fire-place without diminney 1s not closed as in figures 1 and 2, and the The shape of the box is rectangular, rather ishing the radiating surface. The grate is construction of the fire-place is such that it lors, &c. greater in height than width, and it is proviplaced in the usual recess under the chimney may be applied to any chimney without the ded with end doors and a side door. If two the lower end of which is closed-as in figure necessity of closing the bottom part. In figtollowers are used there is a door at each end, 2-leaving only an opening for the metal flue, ure 3 the fire-place is enclosed in an outer but if only one, then one end alone is provif, of the fire-box. The space, E, round the casing so as to form a space, E, hetween the ded with a door. The arrangement of the grate, is closed in front by a plate, so as outer and inner casings, into which space side door is likewise suited to the circumto form a close chamber into which air may air is admitted either at the bottom or from stance of one or two tollowers being used. In be admitted from the lower part of the room, the upper part of a room. The tube, F, which the latter case it is placed at the centre, and at the openings, B B, figure 1, such openings conducts the vitiated air from the room terin the former, at the end, this is done to suit heing turnished with slide valves, to be openminates at the bottom in this chamber .-the convenience of taking out the bale, which ed and closed at pleasure. From the upper When it is required to warm the air of the will be pressed at the centre of the box or part of the space, E, there rises a pipe, F, the down at the hottom, according as one or two upper end of which communicates with the followers are employed. The other improveupper part of the room near the ceiling, as ment in this invention consists in the fastennown in figures 1 and 2. It will therefore ing for the doors, which, particularly in the instance of the side door, is made with very to the space, E, through the holes or openings to be admitted, and to open and close the great stability, a precaution that it will be evidently seen is very necessary when great it will pass up the pipe, F, into the room. A by closing the valve which admits the cold pressure is employed. The end doors are in continuous current is thereby produced, so air below by the pipe into chamber, E, at the like manner secured in an efficient manner by that the air admitted to the space, E, is not | back of the fire, when the hot air from the means of a bar which can be easily turned, burned, but merely warmed before it issues upper part of the room, will pass down pipe, when the doors are required to be raised or into the room. If by this arrangement the F, go into chamber, E, and pass away by an opened. atmosphere of the room is rendered too opening at the back up into the chimney .warm, it will only be necessary to close the Improved Trip Hammer. This mode of heating and ventilating rooms Measures to secure a patent for improveopenings, B B, by means of the slides, and is upon the syphon principle; one which is ments in the above have been taken by Wil then there will be no current of air through old and well known, but which may, as liam Van Anden, of Poughkeepsie. N.Y. In the pipe, F. The same arrangement may shown, be applied in many ways. In figure 4 the stove, S, is of any of the also be employed for ventilating the room, for this invention there are two distinct improveknown forms-it looks much better in its which purpose it will only be necessary to ments. The first enables the workman to reto \$2,500 for the large size. plain unpretending style than the florid ornagulate the force with which the hammer decause the vitiated air in the upper part of the scends upon the anvil, and the second is a suroom to pass down the pipe, F, into the space, perior manner of placing the friction rollers E, when it will be conducted into the chim. inserted in the chimney which is closed at Ireland.

# Scientific American.

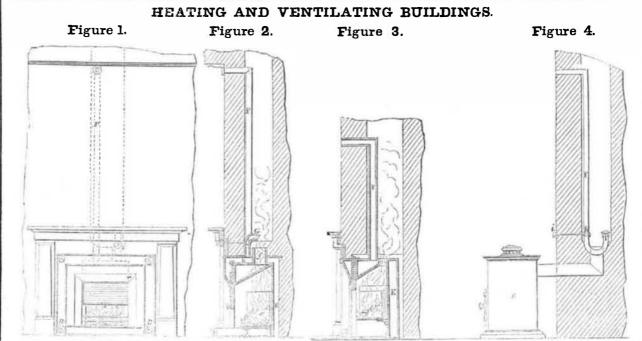
works loosely around a shaft provided with a spring, whose duty is to force down the hammer, which it does with more or less energy according to its adjustment. When the cam shaft is made to rotate, the hammer shart is elevated by the action of the cams against the friction rollers, which are placed in a frame capable of vibration, so as to relieve the cams after their highest points have performed their functions. A third cam, acting through the medium of a lever and set screw, causes a spring to bear against the hammer shaft when the downward motion is to take place.

Soap Cutting Machine. Measures to secure a patent for improvements in the above have been taken by James' the cakes when cut.

which receive the action of the cams. The B. Duff of New York City. This machine hammer shaft is attached to a collar which is intended to cut soap into bars and cakes, and contains several improvements over the apparatus hitherto used. The vertical knives which are of wire, are not kept taut whilst king tubes by rolling up sheets of iron or cutting, but are capable of yielding, so that other ductile meal in successive convolutions they form a loop, whilst passing through the soap, which will have a smooth and straight formed, and thesecuring it in such form by appearance when cut in this manner. The material is ted up to the cutters by a bed which is made to traverse by means of a rack and pinion, two horizontal wire cutters serving to smooth the top and bottom of the soap. ed. The advantage proposed is its capability The bars are cut into cakes by a similar plan, of offering greatresistance to tension, torsion, excent that the wire cutters in this case being short do not require to yield. A self-adjusting spring lever regulates the delivery of way, for the remon that any flaw or defect in

#### Impoyed Metal Tube

Measures to scure a patent for the above have been taka by Ernest Marx, of New York City. The invention consists in mauntil the requird diameter and thickness are any suitable mens. Tubing thus made may be used for mahine-shafting or connecting rods, tor masts & vessels, and for almost all purposes where ubes or bar-iron are employor flexure, beingstronger in proportion to its weight than bar or tubes made in any other the metal cannot extend far.



The annexed engravings are views of improvements in warming and ventilating buildings, taken from " Newton's Repertory of Arts Inventions," &c., London. It is a subject which is frequently urged upon our notice by correspondents, and we endeavor to embrace every opportunity to present something that may be of general interest.

Figure 1 is a front view of an open fireplace with the arrangements for ventilating. Figure 2 is a vertical section thereof. Figure

with a cap over it. This short pipe is furnished with a throttle-valve, h, which is worked by a button, i, and when the room requires ventilation, it will only be necessary to open the valve, h, and close the valves, B B; the heated air of the room will then pass down pipe, F, into the case, E, which is filled with hot air, and the vitiated air from the

hey by the short pipe, G. This pipe has its the bottom to exclude any air except that mouth bent to keep the soot from falling into which passes through the stove. The syphon it; but a better plan is to have it straight pipe is shown at F. It is furnished with a valve, h, and button, i, for opening or closing communication with the room. The heat of the chimney is sufficient to rarefy the air in pipe, F, and thereby cause a draught from the room, which will by this means be ventilated. The stove is a close one the door opens in front of the circular grate, and it is made of wire gauze which acts as a blower.stove; the heating of the air by the grate plan being accomplished by the stove itself, which is placed in the room, and which, on this account, as is well known, heats a room with far less coal than a grate in the chimney. The fire-place with a grate, however, is the most cheerful plan, and is the one in general use in this city in sitting rooms, par-

The greatest part of the heatgenerated in a grate goes up the chimney, and is lost so far as any benefit is derived from it by persons in the room. Dr. Arnot, by exposing ice in a chimney made the discovery, that more of it was melted in a given time there than in the room; this led him to invent the stove which still bears his name. Great attention should be paid to the best methods of economizing tuel, and proper ventilation. We have often room by passing a portion of it through the directed attention to these questions by illusspace, E, air is admitted through a branch trating Ruttan's system, and in the notice side pipe into said space. The branch which we presented two years ago, of Dr. pipe which admits the air into, E, below, has Griscom's work on the subject. We have be understood that cold air may be admitted a valve in it to regulate the quantity of air only to add at present that if all stove doors were made to open in front of the grate, and at B, and after being warmed in the space, E, communication. The room can be ventilated had a slit in the lower part to admit air by a wire gauze screen under the grate to supply the oxygen requisite for combustion, a greatimprovement would be effected. The coals could be fed in at the top, and the door used only for cleaning out the contents of the stove with a shovel. The door should be small and made with ribs tastened to it inside. The common ash pan cannot be dispensed with. A proposition has been brought before Congress to purchase 100 fire annihilators for the use of the navy. The price will amount mental stoves in common use. The pipe is Beet root sugar is now made successfully in