Machinery and Tools as they are.---Stamping Presses.

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The elementary parts of machinery are but few, it is in their multifarious combinations that the mechanical inquirer finds such an unbounded region for research, and the class of machines specified above is not the least among the achievements of the mechanic. Be that as it may, it is certain that the term "press" is common to a myriad of contrivances, which resemble each other only in their adaptation for the process whence they derive their generic title. At present, however, we will abstain from commenting upon those presses that perform their office by a rolling contact, and rather direct attention to those whose operation is by a direct impact. In nearly all these, however dissimilar they may otherwise be, either a screw or a cam, and in some instances both is the agent employed for transmitting and regulating the power. The cam is an element of machinery well worthy the attentive consideration of all interested in mechanics, and who, at the present day is not? It is a contrivance in which sliding contact is employed to communicate motion from one part of a machine to another, but its chief peculiarity and advantage is the ability that it confers of timing its effective action, although it is intermittent, so that the cam may act in unison with the rest of the mechanism, and thus, when several mutually dependent processes are being carried on by the same machine, the whole are effected with automatic precision. The skill of the contriver is displayed in giving a suitable shape to the cam, which it is scarcely necessary to remark, is a revolving disc, part of whose periphery is more distant from the axis than other parts, the varying distances being united by a curved line. In its most simple form, the shape of the cam is that of an eccentric, when one complete double stroke of a sliding bar is made for each revolution of the axis, and the effect is similar to that of a crank. When the bar or follower is to make a number of strokes during each rotation of the axis, the cam has, on its periphery, a series of projections or litts, and these are united by a curve more or less abrupt, according as the stroke of the follower is to be given more or less suddenly. But if it is to be uniform and constant, an involute curve will effect it, and where the movements are more complicated it is necessary to make the curve of a more complex shape. A beautiful example of this arrangement is given in a recent Envelope-Folding Machine, where, as it is of advantage to give equal impetus to the machine, the law of falling bodies is followed in the extent of motion given by the cam to a lever, but if this were to operate until the end of the motion a considerable shock would be given to the machine; it is therefore arranged that after maintaining this velocity a certain time it then gradually decreases in the same ratio as it before increased. The large class of machines employed by stationers are well worthy of remark, and the majority of them are intended for stamping and embossing processes,—many of these presses being exceedingly powerful. But diverging from these we will glance at the common fly press, an instrument that is used in so many occupations. It is a most useful machine, which, independently of the punch or dies, may be considered as a means of giving a hard, unerring, perpendicular blow. The precision of the blow is caused by the slide, by which the punch is guided and its force is imparted by the heavy revolving fly attached to the screw of the press. When steam power is used to work these it is variously employed, in the case of a mint, twelve presses for cutting out the blanks for coin were arranged in a circle around a heavy fly-wheel, which revolved horizontally, it had one projecting cam, which caught successively the twelve radial levers fixed in the screws of the presses, and the screws were forced back by springs. Sometimes a crank motion is used, or in lieu, an oscillating air cylinder with its piston. The lever is often suspended by a contrivance well known as the "toggle" or knee joint, and frequently by another superior arrangement, as employed in Dick's Anti-Friction Press, in the most powerful form of which a central roller is made to revolve, and carries with it two eccentric wheels or cams, one on each side, and having their bearings on the faces of sectors which are likewise made to partake of their motion, and so give the necessary pressure.

Presses with the toggle-joint are perfectly suited to cutting out works with punches and bolsters, provided the relative thickness of the work and tools is such as to bring to bear the strongest point of the mechanical action at the moment that the greatest resistance occurs in the work; but as the fly-press with a screw is in all cases powerful alike, irrespective of such proportions, the screw-press is more generally useful. The presses used to punch boiler plates afford a surprising proof of the power developed by this tool, and in its simplest form a long lever, moved by the hand, gives the requisite intensity to the descent of the punch. The saw-gumming machine is a trifle more complex, but when more powerful presses are required, the lever becomes a massive beam which is lifted by a cam in a manner analogous to the tilt-hammer. This last-named tool may likewise be classed as a press, as may also another machine which is rapidly replacing it. This latter, namely, the steam hammer, is merely a piston moving in a covered cylinder where steam is admitted, the piston rod is attached to a heavy hammer so that when the piston is forced to the top of the cylinder, and the steam then withdrawn, the hammer falls violently on the mass of hot iron placed on the anvil directly beneath the cylinder. The press has been employed to rivet boilers, when the pressure is given by a knee-joint impelled by a cam, and the forging of spindles and similar articles is another of its recent applications. In this latter instance the machine is quite portable, occupying a space of 3 feet by 4 feet, and contains five or six sets of anvils and swages. The anvils are arranged in a row in the frame at the usual height from the ground, and each swage is fixed to the lower end of a vertical bar, moving between proper guides, so as to be capable of rising and falling through a small space above its anvil. Its horizontal axis passes across the upper ends of these swage-bars, and has an eccentric for each, so that the uniform rotation of this axis causes every one of the swages to rise and fall periodically in order. The workman has merely to heat the bar in the fire and hold it under the vibrating swage turning it or otherwise changing its position according to the form he wishes to produce. It is stated that the machine will perform the labor of three men and their assistants or strikers, and will complete its work in a very superior manner and with great rapidity. Thus a piece of round iron 1¾ inch in diameter was reduced to a square of ⅞ inch, 2 feet 5 inches long at one heat.

(To be Continued.)

The Patent Office Safe.

On Thursday, the 17th inst, the House of Representatives, in Committee of the Whole, while considering the House Bill, making appropriations for the civil and diplomatic expenses of government for the year ending June, 1854, an attempt was made to insert a clause in the bill whereby the Secretary of Interior could construe it to take possession of the east wing of the Patent Office, and thus divert it from its legitimate object, a movement against which we have always spoken on every proper occasion. The present attempt met with a signal and well merited defeat, and resulted in an amendment made to the bill, which is prohibitory of the Patent Office being used by the Secretary of the Interior, until directed so to do by law.

The question came up in this way:—

"The last clause of the section, providing for the expenses of the Department of the Interior, was then read as follows:—

'Contingent expenses of said building, viz.: For labor, fuel, lights, and incidental expenses, two thousand two hundred dollars'

Mr. Houston said, I move to strike out the word 'said,' and insert in lieu thereof the words 'east wing of the Patent Office.'"

Mr. Stanton asked of Mr. Houston, the Chairman of the Committee of Ways and Means, what was the meaning of the amendment. He was answered. The proposition is, "that as the Secretary of the Interior will occupy the east wing of the Patent Office, and the proposition is that the fund shall be applied to that purpose." Mr. Stanton stated that he knew of no law that allowed the Secretary to enter and take possession of the building. Mr. Cartter, of Ohio, Chairman of the Committee on Patents offered the following amendment.

Provided, That neither the office of the Secretary of the Interior, nor any bureau thereof, other than the Patent Office, shall be located in the Patent Office Building until directed by law.

Mr. Houston asked the Chair if this amendment to his amendment was now in order. The Chairman, Mr. Orr, decided that it was not. Mr. Cartter said:—

"I appeal from that decision. This is an insidious attempt to divert the Patent Office Building from the purpose for which it was designed. I ask for the reading of my amendment.

The Clerk read the amendment.

The Chairman. The Chairman decides that that amendment is not in order. From that decision the gentleman from Ohio appeals. The question is, "shall the decision of the Chair stand as the judgment of the Committee?"

Mr. Sweetser. Upon that question I demand tellers.

Tellers were ordered, and Messrs. Polk and Hart were appointed.

The question was then taken, and the tellers reported—ayes 39, noes 83.

So the decision of the Chair was overruled, and the amendment to the amendment was decided to be in order.

Mr. Cartter. I wish simply to remark, without detaining the committee, that my sole object is to preserve the Patent Office Building, to answer the necessities of this self-sustaining Department until Congress shall by law say that they shall not have it That is the whole object of the amendment

The question was then taken on the amendment to the amendment, and on a division there were—ayes 74, noes 48.

So the amendment to the amendment was agreed to.

Last year an attempt was made to get a law passed for the Secretary of the Interior to have the east wing of the Patent Office; it was defeated, and here comes up a second attempt, and an *insidious* one, as stated by Mr Cartter to obtain it again. The movement exhibited a remarkable want of political sagacity.

Messrs. Stanton, of Kentucky, and Mr. Cartter, were the principal defenders of the rights of inventors. Messrs. Stephens and Jones were the advocates of Mr. Houston's amendment. We believe that both Mr. Stephens, of Georgia, and Mr. Jones, of Tennessee would have spoken otherwise than they did if they had understood the question in all its details. They no doubt thought they were in the right upon the information which they had received respecting the Patent Office. The following are a few of Mr. Cartter's remarks:—

The gentleman says that the object of the amendment is to make sense of the clause. No sir, it is to plaster the Department of the Interior upon the Patent Office Building, and that is a kind of sense that I do not want made of it.

Now, let me say a word or two in reference to the precise attitude of the Patent Office to the Government. In the first place, it is a Congressional office—an office created for a specific purpose, maintained by its own funds, and accountable directly to this body with the co-ordinate branch of the Legislature. To whom are the reports of the Patent Office made? They are made here and to this body directly. How is the machinery of the Patent Office maintained? It is maintained out of the funds contributed to it by the artisans who take out patents—a peculiarity that the inventors and mechanics seek to maintain for it. How are the appointments made? They are made directly by the President.

But, sir, in reference to the capacity of this building. My colleague says that this building is sufficiently large for the accommodation of both of these Departments. Now, there are something like one hundred and fifty clerks in the Department of the Interior.—Stow them away in the Patent Office, and there will not be room for a solitary Examiner. But my colleague says that the building is abundantly sufficient, or that it has surplus room. Why sir, is my colleague aware that the damp from the walls of that building is to-day moulding away the models of patents granted to the genius of this country?

On the 21st inst. the House took up this Bill to act on the amendments reported from the Committee of the Whole, and the amendment offered by Mr. Cartter was carried by a vote of 104 to 69.

We understand that the Secretary of the Interior gave an order two weeks ago for the Commissioner, S. H. Hodges, to vacate the two new rooms now occupied by him; this amendment to the House Bill, keeps him out of the Patent Office.

We have intelligence from Washington stating that the new government will retain the new building of the Patent Office, for its legitimate purpose, and that the new Commissioner of Patents will have a higher salary, and an independence of the Secretary of the Interior. If the Democrats carry out this sensible and just policy, they will retain and make many friends. We hope they will do o for the promotion and advancement of science and art.

Suspension Bridge.

We have received, says the "Montreal Herald," a copy of "a report on a Railway Suspension Bridge over the River St. Lawrence, near Quebec, made for the City Council, by order of N. F. Belleau, Esq., Mayor of Quebec, by William Serrell, Civil Engineer."—The report reflects the highest credit on Mr. Serrell. It has been most carefully prepared. Three sites for the proposed bridge were surveyed—one near the river Chaudiere, about four miles from the mouth of Cape Rouge Creek, another from Durham Terrace to Point Levy, and a third from a few hundred yards above Cape Diamond to the opposite shore. The result of which surveys or examinations is, that Mr. Serrell sees the entire practicability of a bridge for railway and other travel, and "that too, within the means at your (the City Council's) command." The site selected near the Chaudiere will require a bridge of three thousand four hundred feet. The plan proposed is a wire uspension bridge, consisting of two massive towers of masonry, built in the river in twelve feet deep of water at average low tide; these towers to be in total height from their base about 330 feet, and 52 by 137 feet square at the base, battering regularly upwards; and they will be 1,610 feet apart at their centre. The height of the roadway above high water is to be 162 feet; the roadway will consist of two carriage ways, each ten and a half feet wide in the clear, and a railway track of such width or gauge as to match the railways which may connect with it; the entire width of the road being 32 feet in the clear inside the parapet.

Port Wine Adulteration.

The following curious statement about port wine is taken from a late English journal:—

"A pipe of port wine is sometimes compounded in London of fifty gallons of cider, sixty gallons Cape Pontac, paying a duty of only 2s. 9d, five to ten gallons of British brandy, and cider added to keep the cask full, till all the ingredients, are well blended together. Eight pipes of port wine, of one hundred and fifteen gallons each, which can be sold for £70 a pipe, are manufactured at an expense of £101, out of the following materials:—two pipes of Beni Carlos, at £38 a pipe; two hundred and thirty gallons of Figueras, costing £60; a pipe and a half of Cape Pontac, costing £48; a pipe and a half of good port, £109; a pipe of common port £68; twenty gallons of mountain, £11 8s. 7d.; washings of brandy casks, elderberries, salt of tartar, gum dragon, &c, in proportion, costing in all £401, including the payment of duties for eight pipes of duty paid port wine, which are then worth £560. The revenue and the wine drinkers are both defrauded by such concoctions.

Gold has been discovered in a cliff in Pine Creek, Va.