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The New Steam Frigates.

The six new steam frigates ordered by government, are now all launched,—the last being the *Colorado*, from the Norfolk Navy Yard on the 18th ult. The following is a statement of their relative lengths, measured from fore side of rabbit of stem to aft side of forward stern post, on a line of 12 feet above the lower edge of the rabbit of the keel:

Minnesota, - - - -	264 feet 8 1-2 in.
Wabash, - - - -	262 " 4 "
Merrimac, - - - -	255 " 9 "
Roanoke, - - - -	263 " 8 1-4 "
Colorado, - - - -	263 " 8 1-4 "
Niagara, - - - -	315 "

Excepting the *Niagara*, they have all been built by government naval architects. The *Merrimac*, thus far, has done little credit to its builders, especially her engines. At least these appear to be her most defective parts, as her recent long passage from Norfolk to Havana, was caused, it is said, from her machinery becoming disabled.

When all these frigates are completed, it is believed here that the *Niagara* will far surpass them all in every respect. If this proves to be the case, it will be a strong argument in favor of letting out government work to public contractors, and abolishing national naval yards altogether.

The Government Arms and their Manufacture.

Our government has twelve large depots for arms, besides two national armories, which manufacture them. In these depots there are 142,000 stand of small arms, guns, pistols, carbines, exclusive of the number issued to the arsenals of the various States and the supply of the army. In 1854-5, the armory at Springfield, Mass., turned out 10,000 muskets and 2,000 cavalry musketoons, while that at Harper's Ferry, in Va., manufactured 9,000 muskets and 2,571 rifles. Colt has manufactured 6,000 of his revolvers for the army. At Watervliet arsenal, Troy, during the same years, were 70,642 stand of arms stored for use, in perfect order. At the Allegheny arsenal, 13,840 muskets and 11,000 pistols were put in order. At the St. Louis arsenal were stored 32,476 stand of fire arms of all kinds. These statistics do not include the cannon, howitzers, and mortars stored at the above-named depots.

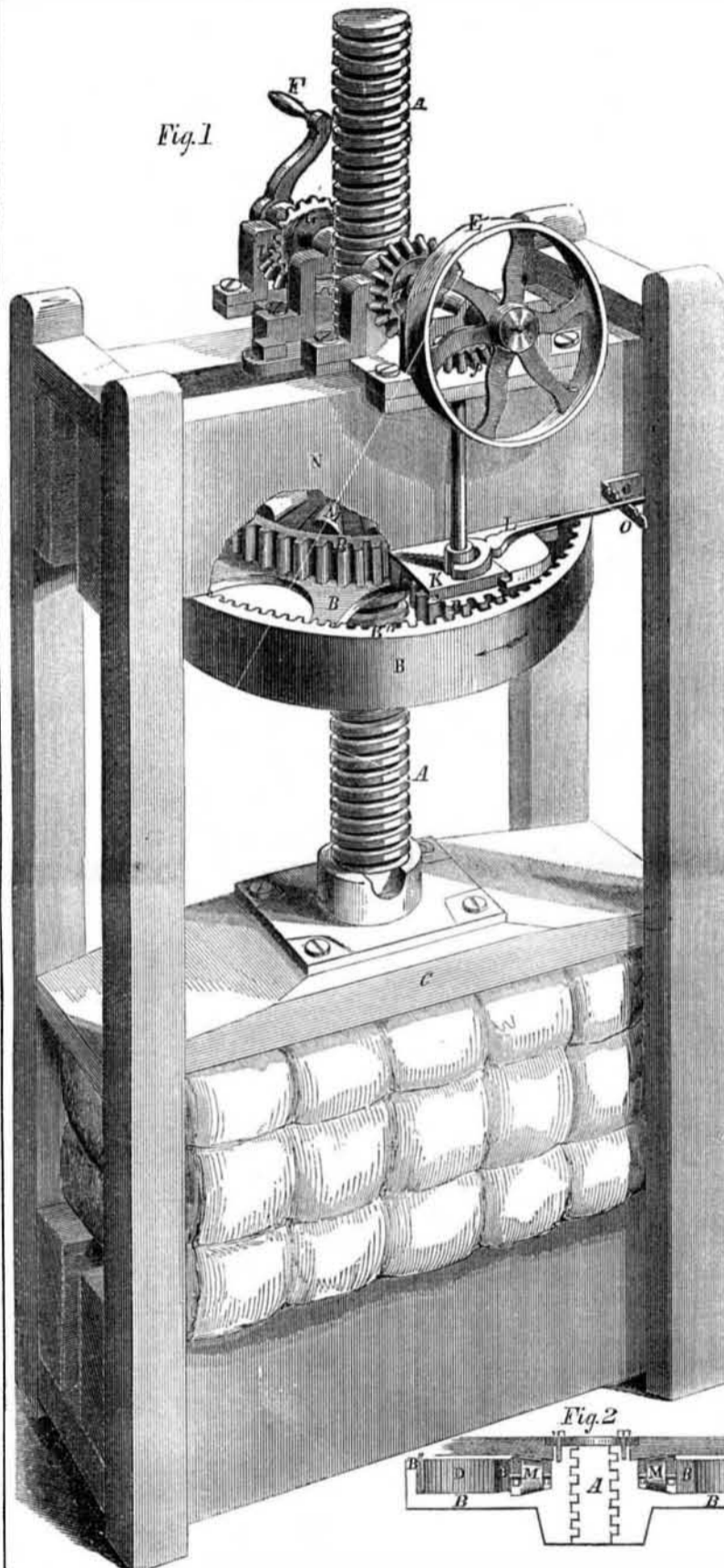
Chemical Minuteness.

On the recent trial of Dr. Palmer, in England, for poisoning Mr. Cook, and for which he has been executed, Dr. Herepath, the well known chemist, stated that the presence of strychnine could always be detected, and gave as an important proof that if he put 10 grains into 70,000 grains of water he could detect its presence in a tenth part of a grain of that water.

Nebuchadnezzar Disentombed.

The London *Atlas* says that Colonel Rawlinson has lately found a mummy which is believed to be that of Nebuchadnezzar. The face, which is eminently handsome, is covered with a golden mask. Some woolly horse speculation, no doubt. Where's Barnum?

IMPROVEMENTS IN COTTON PRESSES.



Improved Cotton Press.

Our engraving illustrates an improvement by Mr. M. L. Parry, of Galveston, Texas. The invention consists in a peculiar arrangement of parts, whereby the movement of the press may be stopped, or reversed, instantly; also in a method of reducing friction, and thus causing the press to operate with ease.

The pressure is obtained by means of a large screw, A, working through a double geared combination nut, B. C is the follower, beneath which the cotton is pressed. The interior part of nut B is hollow, and furnished with two sets of gear teeth, B and B'. A driving pinion, D, is introduced between the teeth B' and B. By shifting the pinion, D, so as to cause it to gear with one or the other set

of teeth, the direction in which the nut B, moves, will be altered, and the follower, C, raised or depressed.

Power to drive the machine is applied either to the hand wheel, E, or crank, F, the shafts of which are separate, each having a gear wheel, G H, communicating respectively through gear wheels, I J, with pinions, D. There are two pinions, D, one on each side, but only one appears in the cut.

In our engraving, pinion D is shown to be in gear with the teeth, B', on the outer edge of nut B.

The lower bearing of D is on a slide, K, which latter is moved by means of lever, L. Thus, while the upper end of the shaft of pinion, D, is always in gear with the driving

power, the lower end may be shifted, by means of lever, L, so as to throw pinion, D, into gear with either set of teeth, B' B". The direction in which nut B moves, may be thus instantly changed, but with greater power. When compression is going on, the pinion, D, is in gear with B', and B moves slowly. But when the follower is to be run up, pinion D is thrown into gear with B", which, owing to its smaller diameter, causes B to move quickly, little power being needed. If the lever, L, is so moved as to bring pinion D into an intermediate position, between the two sets of teeth, B' B", so that it will gear with neither, the motion of the press will be instantly stopped. O is a rest catch to hold lever L.

M are conical friction rollers, sunk in the central parts of nut B. There is an iron plate attached on the under side of frame cross piece, N, against which the rollers, M, press, and thus relieve the nut, B, of friction. See section fig 2.

It will be observed that the various parts of this press are strong, while, as a whole, it is very compact and simple. Its convenience, strength, rapidity of operation, and other advantages will insure for it an extensive introduction. Address the inventor, as above, for further information. Patent applied for.

Curious Experiment with Chalk.

The following is from a late number of the London *Mechanics' Magazine*, by Horatio Prater, in an article on petrification:—

"I shall here state what I believe to be a new discovery, viz., that carbonate of lime undergoes fusion at a certain heat, when surrounded by an atmosphere of carbonic acid gas, without any assistance from pressure. Sir J. Hall discovered that limestone undergoes fusion under a pressure which prevents the escape of its carbonic acid, viz., 173 atmospheres, equal to a column of sea-water of 5,700 feet. I have repeated the experiments above alluded to, which I first performed several years ago, lately, in the following way. Some chalk powder was put at the bottom of a crucible; over this was spread a pretty thick layer of nitrate of potass, in which were pieces of plumbago, common charcoal, and silica; over this, again, was a thin layer of chalk, and the whole was covered with common earth, and heated to redness for two or three hours. On examination, the chalk above and below the nitrate of potass was fused into a hard, porous, gray mass, something like some kinds of lava, the pieces of plumbago and charcoal had totally disappeared, having been converted into carbonic acid gas by the oxygen of the nitrate of potass; the piece of silex was changed to an opaque white by the heat, but otherwise unaltered.

I have no doubt that many of the very hard masses of carbonate of lime seen on the banks of the Nile have been fused in a manner somewhat similar to the above, since the enormous pressure that Sir J. Hall employed can only occur occasionally in nature, and in subterranean parts. An excess of carbonic acid gas is well known to assist the solution of carbonate of lime in water. In the above experiments we also observe that it tends to render it fluid by fusion."

East India Railroads.

Railroads, upon a truly gigantic scale, are in course of actual construction in British India, in furtherance of which the East India Company have loaned their credit. 1. The East India Railway, to Delhi, 900 miles; 590 miles under contract; 100 miles or more now open and the whole to be completed during the year 1856! 2. The Great India Peninsula Railway from Bombay, 47 miles opened for travel last year.