



## New Inventions.

### Process for the Reduction of Sulphate of Lead to the state of Metallic Lead.

In the calico-printing works, a considerable quantity of sulphate of lead is produced in the preparation of acetate of alumina or red liquor, by decomposing acetate of lead by means of alum. This sulphate of lead may be decomposed, and the lead obtained in a metallic state, by reduction by means of zinc or iron. Another plan is recommended, viz.: Mix 100 parts of sulphate of lead with 10 of salt, so as to form a paste rather liquid, then place blocks or sheets of metallic zinc, or what is better, cover these latter with a layer of the saline mixture, about  $1\frac{1}{2}$  inches thick. The white mass soon becomes converted into a grey substance, which is metallic lead, impregnated with sulphate of zinc and salt. Wash this product and melt it; pigs of pure lead may thus be obtained; or the lead well washed, but not melted, may be employed for the preparation of either acetate of lead or white lead, for either of which purposes it is very fit, on account of the finely-divided and porous state of the metal rendering it susceptible of rapid oxidation. Exposed to the simultaneous action of a little acetate of lead and an atmosphere rich in carbonic acid, it is readily converted into white lead, which covers very well. In the white lead works on the Dutch plan, plates of this porous lead, formed by pressure of the finely divided particles thus produced, may be advantageously substituted for the plates and coils of lead at present employed.

### Improvement in Button Manufactures.

In our List of Patents, this week, will be found the name of Peter Kirkham, for improvement in covered buttons, the right of which has been assigned to Hitchcock & Co., button manufacturers in Waterbury, Conn. We believe this improvement is a very valuable one. By it buttons can be made at a less price and more handsome than by the old plans. The shank, or eye, and the covering, are all fastened in the interior of the button.

### Alarm Whistle for Sea.

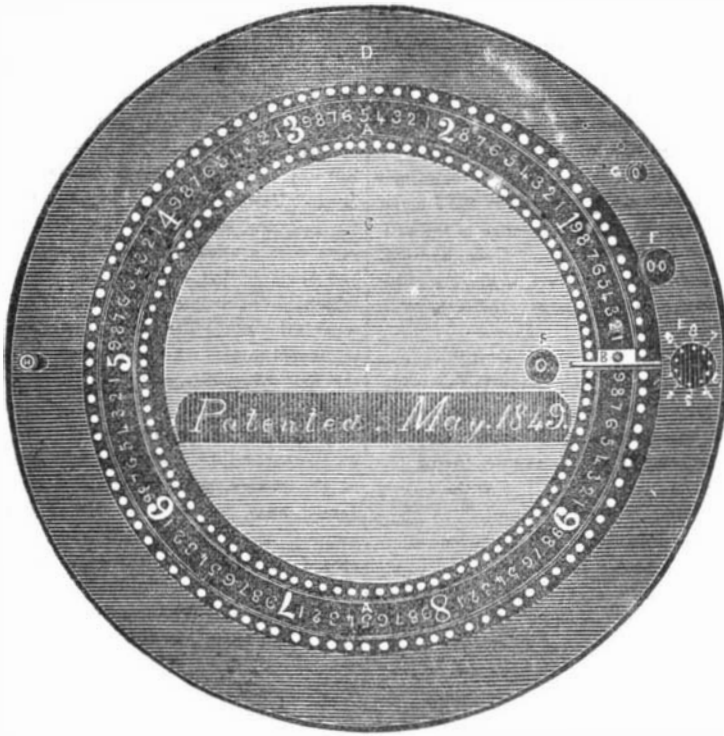
A newly invented apparatus for the prevention of collision at sea during foggy and thick weather, when lights and other methods now in use are altogether unavailable, was exhibited lately at Lloyd's rooms, Royal Exchange, Liverpool. The machine is extremely portable, occupying a case of about two feet square, and capable of being worked by one man, who, turning a cog-wheel acting on a force pump, produces a volume of sound that will penetrate several miles distant, which being continuous, satisfactorily marks the position of a vessel. The machine, which was inspected by numerous merchants, ship-owners, captains, and practical nautical men, was highly approved of, and it appeared to be the prevailing opinion that all vessels proceeding to sea should be furnished with one, not only to prevent collisions, but also to be used when off a lee shore, or in distress.

[The above is from the Liverpool Times. It has been got up after the sad affair of the Europa and — Bartlett. But the invention is not new by any means. It is well known both here and in England.]

### New Invention for Paper Makers.

An important invention for producing water-marks on all kinds of paper, and particularly adapted for bank-notes and paper requiring security from forgeries, has been patented by the inventors, Messrs. W. Brewer and T. Smith, of England. The invention produces an unlimited series of any given design in water-mark with precise similarity, which cannot be produced by the method now employed, in which wires are used.

## NEW CALCULATING MACHINE---Figure 1.



This is a neat and unique calculating machine, invented by Mr. William M. Harnes of Rochester, N. Y., and patented in the month of May last. It consists of a neat wooden frame with a central moveable disc, and an outer moveable ring, in which are openings which display the sum or result of the calculation. It is therefore a calculating machine which exhibits the results of certain operations, and on that account the operator is not liable to make any mistake, a fault which belongs to all other calculating instruments.

Figure 1, is a face view of the apparatus, and figure 2, is an inside inverted view showing the mode in which the moveable discs and circles are operated.

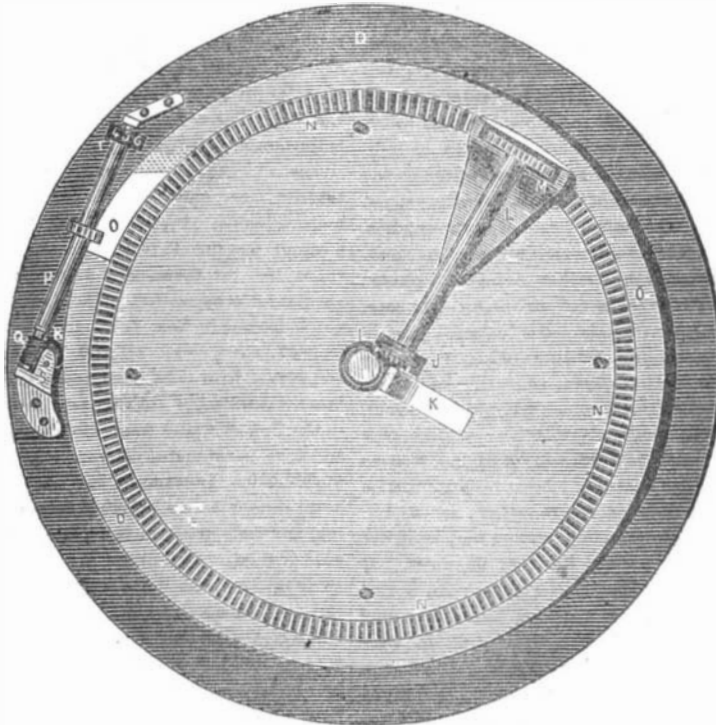
The wooden box in the above engraving, is removed, to show the parts better. Suffice it to say, that a round block of wood is cut out to receive the machinery, (which is very simple,) to allow it to move. And in the first place the circular brass plate Z, fig 2, secured to the wooden block by two screws passing through its bottom. To this brass plate the whole of the machinery is secured

It has three circles of figures on it. One circle is A, fig 1, which is elevated above the others. It has 100 figures on it, in section from 1 to 9, marked by the nine digits, in large figures, which stand for numbers from 10, to 100.

B, is a small piece of steel screwed to it, which is for a definite pointer. The brass plate Z, fig 2, has one under circle of figures on it also. It is seen in the opening F, fig 1, showing the cipher (0.) There is another circle (moveable) under D, showing two ciphers (0, 0) in the opening F

The inner circle under the moveable disc C, has 100 figures on it from 1, to 100; the outer circle under the moveable ring D, has 100 figures on it from 00 to 100. In the opening G, fig 1, is seen ten figures from 0 to 9, cut on the periphery of a small roller T, seen in fig 2. There is also a minor circle, on the ring D, seen at the extreme right with figures from 0 to 9, on the ring, but the small moveable plate, inside of the circle, moves, and it has a fixed pointer on it to indicate its number of revolutions.

Figure 2.



**OPERATION**—The way to operate the machine is as follows. Bring the inside opening F, till the cipher 0, is seen in it, and the outside in the same way, as it is now represented to be set in fig 1. The small round holes seen in the circles, are to receive the point of a pin to move the disc C, and ring D. Having the machine set as represented, we desire to find out the sum total of 8743 8621

Take the pin and put it into the small round hole on the outer circle D, opposite 7 in the 9th section of the raised circle A, and turn it round till the pin touches the pointer B, then put the pin in the small hole in the inner circle of the disc C, opposite 3 in the 5th section of the raised circle A, that is the 3rd figure after the large 4; and now turn round the disc like the ring D. If we now look through the opening F 2 and the opening F,

in C, we will see 87 in the first and 43 in the second. To this sum we have but to add the next mentioned above. Now then take the pin and put it in the small hole of the ring D, opposite 6, after the large 5, on the raised circle A, and then turn round as before directed, to the pointer B; then do the same with the inner circle, putting the pin in the small hole 1, after the large 3. If we now look through the opening G, on the ring, we will see 1, on the roller under. In the opening F 2 we will see 43, and in the opening F, in the disc C, we will see 74, the sum total of the question viz, 14374. This method of calculation can be carried out to any extent, for addition is the basis of multiplication, while by moving the circles to the left, subtraction is performed, and subtraction is the basis of division.

Figure 2, shows how the roller is moved for the thousands. It is thus. The axle of the disc, with its worm I moves a toothed wheel J, secured on raised bearings K L, and secured to the lower plate. The small axle is therefore moved giving motion to the wheel M, which bites into the teeth of a circular rack N, N, and moves round the ring O, which has the circle of figures on it, seen in figure 1, through F 2. This ring O, has also an inclined piece on it, indicated as moving under the pinion on the axle P, of the small figure roller, therefore, every revolution of the ring D, moves the roller round one figure, and it will be seen, that the axle P, has a worm screw Q, on its extremity at S, to move the plate of the minor circle at the extreme right in figure 1. This is for extended calculations.

For want of room we cannot enter into a more extended description of its principle at present. More information about rights, price and the sale of these simple and desirable instruments may be obtained from the inventor, and at some other time we shall refer to this machine again.

### Artificial Quartz.

It is well known that pure silicic acid constitutes one of the most transparent minerals in quartz, the basis of all our glass: Chemists have known for a long time, how to clear silicic acid of any impurities of color, but they have only been able to make an opaque jelly, nothing at all like the quartz. Mr. Ebelman, of France, has discovered the way to make it transparent. He combines the silicic acid, with an ether of silicic acid and alcohol, and then exposes this to a moist atmosphere, where it gradually contracts and hardens, although not so hard as glass. It combines readily with coloring matters, such as chloride of gold, &c.

### Beet Root Sugar.

The Paris Monitor publishes an official report from the Minister of Commerce, relating to a discovery made by a Chemist named Melsens, which if true, will revolutionize the wholesystem of making sugar, both beet root and cane. It is stated that almost the only labor required, is to get the beet root and cane juice ready, when a certain powder is thrown in among the liquor, and the sugar begins to form into crystals perfectly clarified, the sugar produced being of the purest white. We are afraid, that this alleged discovery promises too much, but as the French Government has appointed a Commission to make experiments, we will soon know whether it is a real or only a pretended discovery. If true, it is the greatest discovery of the present century.

### Anecdote.

Forty years ago Fisk and Upham were classmates at Cambridge. At that time it was fashionable for gentlemen to wear their cravats enormously stuffed. Fisk was noted for wearing the largest stuffing of any one in college, and rather careless about its being clean. Fisk called in at Upham's room, one morning and said—"Come, Upham, I'm going over to Boston to-day, will you go along?" "I think," said Upham, "I have no business there to-day. By the way, Fisk, do you have your washing done in Boston?" "No," said Fisk; "what put that into your head?" "Why," said Upham, "I see you have a bundle of dirty clothes around your neck, and I thought, perhaps, you might be taking them over to Boston to have them washed!"