New Inventions.

Substitute for Black Lead.

R. Hicks, of London, has recently invented a composition which is an excellent substitute for the black lead of commerce, either for crucibles or pencils. The following is the method of manufacture :—

Mix together eight parts of black schist, eight parts of the carburet of iron, five parts of plumbago of commerce, one part of soda, and one part of lampblack, the whole of these ingredients having been reduced to a fine powder and sifted.

When the composition is to be used in making crucibles, furnaces, and stoves, instead of black lead, take eight parts of black schist, two parts of the carburet of iron, two parts of plumbago of commerce—all in the state of powder—and mix them together, and proceed as if black lead were being used in lieu of the composition, in the ordinary method of manufacturing such like commodities.

When the composition is used in lieu of black lead in making pencils, it is formed as follows:—Take two parts of black schist, two parts of the carburet of iron, and eight parts the plumbago of commerce, all of which have been previously reduced to a fine powder, and mix them thoroughly together with a small quantity of water (say 1-14th part of water), and then put the mixture thus made into a strong metallic mold, and subject it to considerable pressure in a hydraulic press, or otherwise. The composition, by this means, is consolidated into a block, resembling a piece of solid metal; it is afterwards sawed into slabs of a proper size for making pencils, and baked in a kiln or oven, heated gradually and sufficiently, and retained there long enough to harden to any degree required. This part of the process is well known to the to the manufacturers of black lead for pencils.

Rope-Serving Machine.

Seamen spend much of their leisure time, and riggers work pretty hard, in covering a cable of rope with spun-yarn, and this is called "serving" rope. Sometimes a thinner cord than the strands of which a rope is composed is run spirally round the rope in the recess bet ween the strands, and the process of doing this is called "worming." Again the rope is occasionally covered with strips of canvas dipped in tar before being "served" and this is called "parceling." The standing rigging of ships is generally covered in this manner to protect it from dampness and keep the strain on the masts equal and unchanging. The subject of our illustration is a machine for this purpose, which will perform the work well and with great rapidity; it was invented by P. McLaughlin, of Rockport, Me., and patented May 18, 1858. We will first describe the method of "worming."

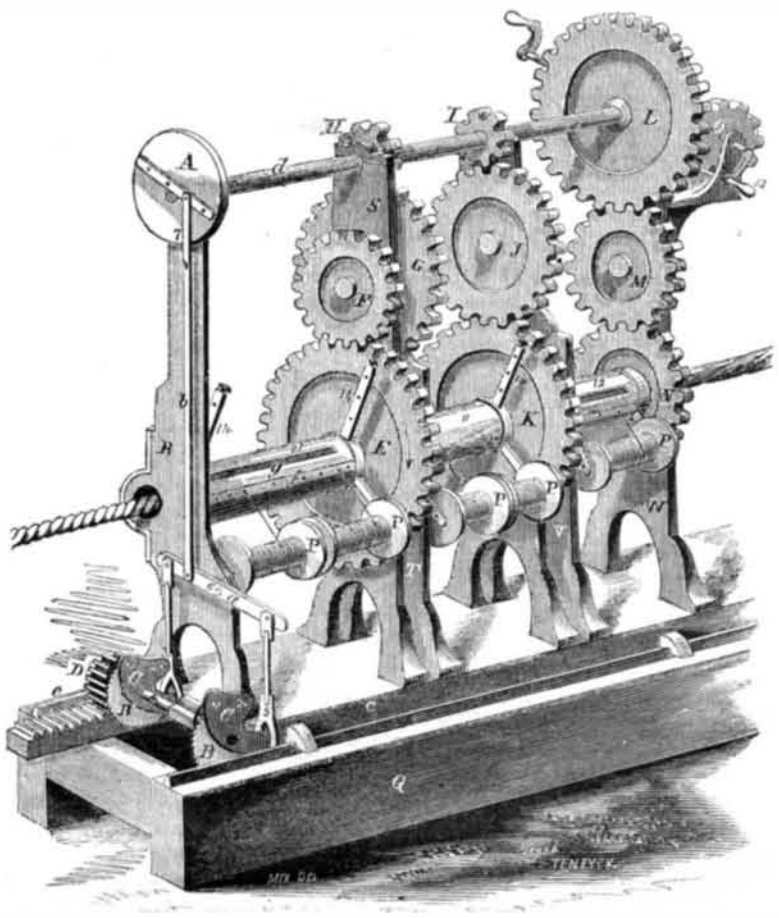
The mallet, 01, has a hollow shaft through which the rope passes, the shaft being secured to the posts, R S, and it has secured to it the cogged wheel, E, that gears with F attached to G. G is moved by H upon the shaft, *d*. From 01 project stanchions, 14, to hold the spools, P, of spun-yarn, which is led through the holes in the bar, *f*, and thence through a "set" that fits into the slot, *g*, it then passes out of the mallet and is fastened to the rope between the posts, S and T, each yarn in its proper lay. As the carriage progresses, the wheel, E, is turned in the direction of the arrow, and the mallet, 01, is carried round the rope and the yarns are laid in their several strands in a regular manner and the rope is "wormed." The "worming" can be laid in tight or slack by screws on the axles of P to cause them to turn either hard or easy as the case may be.

The "parceling" is next performed. Between the uprights, T and V, a mallet, 11, is placed, the hollow shaft of which has its bearings in these uprights and carries the cog-wheel, K, that gears with J, receiving motion by I from the shaft, *d*. The mallet, 11 has a slot in it, through which it receives the "parceling" from a spool. The "parceling" is put on the rope properly by passing over and under diagonal bars at the side of the slot, and as the carriage progresses the rope is "parceled" either tight or slack and with a greater or smaller lap as desired.

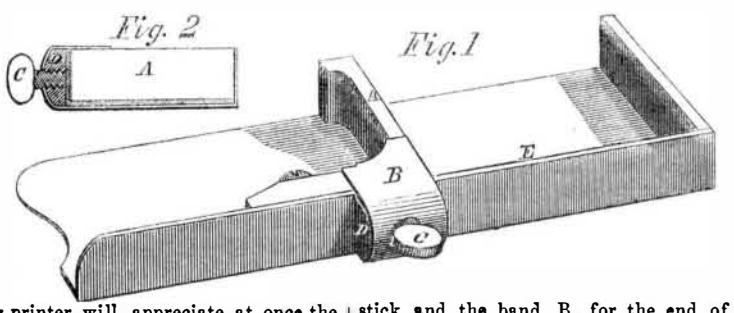
The rope is next "served" by a mallet, 12, that is secured between the uprights, V and W, and that carries the gear wheel, N, which is operated from L on *d* by the wheel, M, and with the exception of a difference of speed, the whole arrangement is the same as for "worming." The machine can be operated by bevel gear, O, and handle, 13, or by power as desired. The speed of the machine along the rope is regulated by the wheel, A, on the end of *d*; a bar, *b*, is attached to A by a pivot, 7, and as that is moved further from or nearer to the center of A, the stroke of the rocker, 6, and bars, 5, 5, will be lengthened or shortened and the number of ratchet teeth on the wheel, B, taken by the ratchets, C, will be correspondingly altered, and the progress of the driving cog, D, upon the stationary rack accelerated or retarded. The machine moves on guides, *e*, on the ways, Q. The three separate and distinct operations are here performed consecutively, and with a regularity and speed unattainable by hand.

The inventor desires to dispose of the patent and any further information can be obtained by addressing him as above.

McLAUGHLIN'S MACHINE FOR SERVING ROPE.



CALHOUN'S COMPOSING STICK.



Every printer will appreciate at once the merits of the invention that is the subject of this illustration; and as none but printers are likely to be interested, we will at once proceed to desoribe it.

Fig. 1 is a perspective view, and Fig. 2 a section of the invention. Alexander Calhoun, of Hartford, Conn., is the inventor.

The general construction of this composing stick frame is of the well known and customary form, and of various sizes. The sliding knee bracket, A, is also of similar shape to a variety of others. The improvement is in the application of the sliding band, B, which passes from the front part of the bracket, A, under the bottom and up the back, and folds over the top edge of the frame, the whole forming one combined freely-sliding guide and knee bracket, regulated and adjusted by the thumb screw, C, in the back. A plate or gib, D, is placed between the back of the stick and the band, B, for the end of the thumb screw, C, to press on in tightening and adjusting the bracket, allowing the whole to work and slide easily and frely.

The utility of the invention consists in the remedy for the imperfections of the usual sliding knee bracket, which has always been a source of annoyance to good printers, viz., when the space is filled with the type, the pressure of the increasing upper lines causes the bracket to spring back out of a right angle, making the last lines "set," continually increasing a trifle longer than the first ones, by the yielding and spring of the thin bottom of the frame edge, E, thus making it impossible for a printer to make good work and square.

The band, B, by passing up and lapping over the top edge, in the manner shown and described, is an effectual bar to the upper part of the bracket, A, from springing back out of a right angle, and with no detriment whatever to the sliding, but rather an improvement. Another benefit also arising out of this method is that the frame, E, may be lighter and thinner—an essential consideration to printers on long work, and at all times.

The patent is dated August 31, 1858, and any further information can be had from the sole agent, E. R. Webb, dealer in printers' materials, corner of Dutch and Fulton streets, New York.

The Aneroid Barometer.

The mercurial barometer must be, at least, 33 inches long, and this is, as every one can perceive, a great inconvenience, and moreover it must always be kept perfectly upright and motionless, besides which it is often open to certain objections only appreciated by persons who make regular observations. The professor of the ærostatical school at Meudon near Paris—M. Conté—feeling that some more simple and compact form was wanted, invented the aneroid barometer, which is a small metallic case from which the air has been withdrawn and which is kept at a proper state of distension by springs inside. As the atmosphere becomes lighter or denser the size of the box differs, and this difference is indicated by a hand upon a dial-plate. This special kind of aneroid barometer has given way to improved forms, and although we believe that the Smithsonian Institution does not approve of them, yet there is a great number of excellent observers who state that they are quite as reliable as the old mercurial barometers. E. Kendall, of Great Barrington, Mass., manufactures a very neat little aneroid, three inches in diameter and one and a half deep, It is perfectly reliable, and can be depended on in situations where the mercurial would be useless, and, moreover, they are very cheap, the price being only $10. We have great pleasure in publishing this article as we wish to see them in more general use than they are at present.

Church Heated with Gas.

A church in Dundee, Scotland, is heated by gas, and the application, it is stated, gives great satisfaction. Several jets of gas are enclosed in copper boxes, situated in different parts of the church, and when ignited, the metal radiates and reflects the heat in the same manner as a common stove. This method of heating churches is very convenient and cleanly, but not economical, we think, except where gas is furnished at a very low rate. We understand that its price in Dundee is not half so much as it is in New York. For heating buildings and cooking, gas would be a grand desideratum in all cities. In Pittsburg Pa., where it is furnished so cheap, we think it ought to be adapted generally for such purposes.

American Agricultural Implements Abroad.

At a late Smithfield Club Show of agricultural implements in England, Messrs. Burgess & Key exhibited one of Allen's American reapers, which was much admired. It had been thoroughly tested during the last season, having cut 183 acres of grass and 20 acres of clover at the rate of an acre per hour, and did its work much better than could have been performed with a scythe.

The term of the present Congress expired on the 4th inst., without taking action upon the patent bill reported at the last session. We publish this fact with some humiliation, but it is nothing more than we expected. The trouble is, our Patent Committees are not properly constituted.

A waterproof packing paper has just been brought into use in England. It consists of common paper covered with a very thin coat of gutta percha, this substance is dissolved in turpentine, then put on the paper in a liquid form with rollers.