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### Moss Paper.

In 1825, a Hollander named Van Houten obtained an English patent for a new species of paper or felt made from moss. The process of manufacture is quite simple, and applicable, we presume, to various kinds of mosses growing in this country. The patentee, in his specification, gives the following information:

The material to be employed for this purpose is moss, such as grows upon low heaths and moors in Holland; and which may be found, as the patentee supposed, in many parts of England. This moss is to be gathered, washed, cleaned, and dried, and then cut into short lengths in an engine, such as is employed for cutting tobacco. The cut moss is then to be mixed up in the manner of preparing pulp for making paper, and when so mixed, is to be molded into sheets, in a frame, as paper is molded. The sheets are then to be pressed, in a heap, between blankets, and afterwards hung up to dry upon lines, as paper. When perfectly dry, the sheets are to be again pressed, in order to bring the material into close contact; and they may be considered as fit for use.

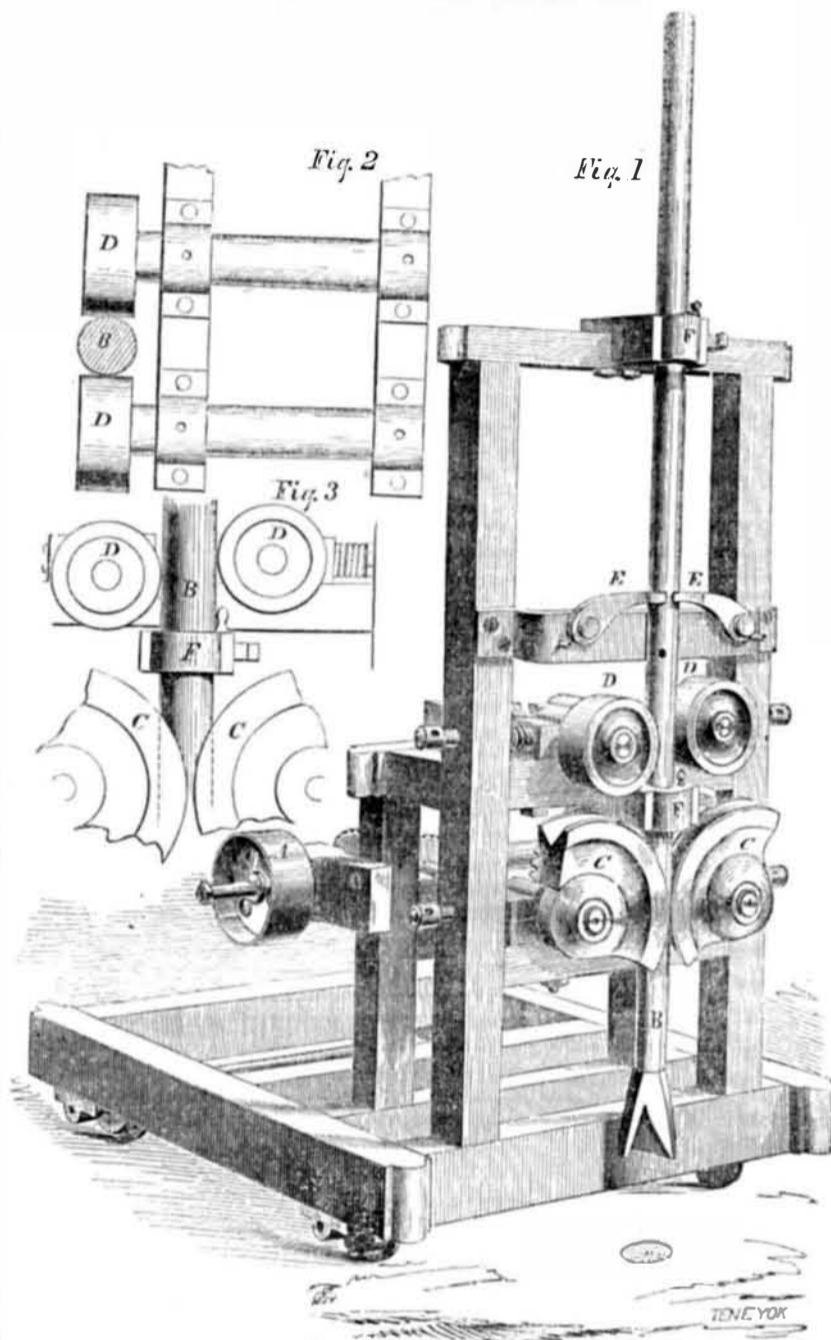
This paper, or felt, was proposed to be employed for sheathing of ships' bottoms, between the wood work and the copper; and also for lining between the thicknesses of planking; and likewise as an infallible preventive against leaking, as, upon the insinuation of water between the joints of the copper or wood work, this felt or paper absorbed the wet as a sponge, and thereby swelling, filled the vacant spaces, and rendered the vessel water tight.

Such a material was employed, for some time, in the Dutch navy, and found perfectly efficacious in keeping the vessel dry; and so extremely durable is moss, that the patentee considered that it would never decay, but would remain sound and effective as long as the wood work of the ship lasts.

### American Spiral Bullets in England.

English papers state that the interior spiral bullet of J. W. Cochran, of this city, described by us in the last volume of the SCIENTIFIC AMERICAN, has been highly approved in England, where the inventor now is, for the purpose of introducing it there. This bullet, having three spiral grooves in its interior chamber, and a very minute passage at the point, receives a whirling motion round its long axis when discharged from a smooth bored fire-arm, and has, therefore, the same direct flight as a ball discharged from a rifle. Numerous plans have heretofore been tried to give bullets such a motion from smooth bored firearms, but they all failed, because they (the bullets) were formed with projecting spirals, and were, therefore, constructed upon wrong principles. The projections met with such a resistance in passing through the air, that their extent of range was greatly reduced. Cochran's bullets are smooth outside and of conical form, so that they offer less resistance to the air than a common rifle bullet. It is stated that he has received orders from the British Government for manufacturing a great number of his shot for cannons.

## GOULDING'S PATENT ROCK DRILL.



The accompanying engravings represent the Rock Drill for which a patent was granted to H. Goulding on the 20th Jan., 1853.

Fig. 1 is a perspective view of the drill. Fig. 2 is a top view, showing the position and bite of the friction rollers which turn the drill; and fig. 3 is a direct front section, showing the position of the clamps which lift the drill, and also that of the two turning rollers, D D.

It consists simply of a drill spindle supported by a proper frame, and raised between and by the action of two grooved wheels or cams, and allowed to drop when at the proper elevation; the drill being turned, as it falls, by the action of two small rollers, set at an angle, and operating as an additional guide to the spindle.

The views presented show a machine for operating a single drill perpendicularly. A is the drive wheel. B is the spindle, with drill attached. C C are the two grooved cams, or part grooved wheels. They are secured on separate shafts, and receive a rotary motion by bevel gearing connected with the shaft of the driving pulley, A. These cams alternately lift and set free the spindle, B, of the drill; D D are two small rollers set at an angle; they press against the spindle of the drill, and thus impart to it a rotary motion (to any required extent) as it falls. E E are two movable clamps, which, when in the position shown, catch the spindle as it is raised, and prevent it from falling; so that successive revolutions

will raise it from a shaft of any depth. These clamps are thrown open during the act of drilling. The drill and spindle, B, can be removed entirely from the machine without disturbing the position of the frame. This is done by confining it to work in the frame by two clasps, F F, which have but to be unlatched to remove the spindle. This is a very convenient arrangement for putting in and taking out the long drill spindle. As the section grooved pulleys, C C, rotate, they lift the drill spindle to the height of their described peripheries, and set it free, when it immediately drops down by its own gravity.

When descending it receives a slight turn from the angular set rollers, D D, and strikes a new spot every stroke, as shown by the star-shaped hole, figure 1, beneath the drill. This is a very simple and unique method of lifting and turning the drill. This drill can also be set to bore horizontally, or at different angles, by a simple appliance in addition to those described. For stone quarries this drill can be so arranged as to operate a series of drills in direct line with each other. It is also adapted for Artesian wells, as it bores accurately and rapidly, and is easily managed. For Artesian wells, where it is sometimes required to pass through strata of earth, clay, and rock, the ordinary scoop and auger-shaped borer generally used for the two former, may be attached to the spindle, B,

and the necessary rotary motion being applied by hand or simple mechanism. Its principal advantage is the accuracy of the work, and the rapidity with which the auger can be withdrawn.

From the testimony of those who have used this drill, and from a close examination into the mechanical construction of the machine, we think most of the difficulties which are experienced in other machines are overcome in this, and we would recommend its trial by those who are wanting a drill for the purposes for which this is adapted.

The patent is owned by a company in Boston, who inform us that a machine calculated for boring holes six inches in diameter, can be worked to bore granite at the rate of twenty-four inches per hour.

Further information may be obtained on application to Nathan Haskins, at the machine works, corner of Haverhill and Traverse sts., Boston, or T. H. Leavitt, Treasurer of the American Rock Drill Co., No. 1 Phoenix Building, corner of Exchange Place and Devonshire sts., Boston.

### Statistics of Cincinnati.

The city of Cincinnati is a prosperous place, as the annual statement of its trade and commerce—by Wm. Smith, Superintendent of the Merchants Exchange—shows. The annual value of its manufactures is \$52,109,374. Its imports annually are valued at \$75,000,000, and its exports at \$60,000,000. There are 600 miles of railway now diverging from the city, and 4000 miles under construction.

The natural site of Cincinnati is very favorable. It is near the center of the rich Ohio Valley; which comprehends an area of 220,000 square miles, and railroads now spread out from it like the spokes of a wheel. Its manufactures are rapidly increasing, and must increase for ages, as it is situated in a great coal and iron district, which has untold millions of wealth reposing beneath its surface.

### To Clean Sponges.

The best sponges imported are received from Smyrna, and from the shores of the islands in the Grecian Archipelago. When imported, they are full of sand, and in this state it is the best way to purchase them; then afterwards to beat out the sand with a stick, and well rinse them in cold spring water. Nothing is better adapted for cleansing the skin than a good sponge; hence surgeons prefer it to any other material. In the regular way of using a sponge with soap for washing, they rapidly become greasy, and are then frequently thrown aside, before half worn out. The peculiar cellular fibrous tissue of sponge enables it to decompose the soap, retaining the grease and oil, which render it slimy; when such is the case, a ley of soda should be prepared, of the strength of half a pound of soda to half a gallon of water, and the sponge placed to soak in it for twenty-four hours; it should then be washed, and well rinsed in spring water, and afterwards in water containing a little muriatic acid (a wine glassful of the acid to half a gallon of water is strong enough.) Finally, again rinse the sponge in plenty of spring water. The best sponge being worth from 40s. to 80s. per pound, renders it fully worth while to keep them clean. If trouble be taken to well rinse a sponge every time after using, the cleansing process will rarely be necessary.

### SEPTIMUS PIESSE.

### A Huge Propeller Screw.

The propeller for the U. S. new steam frigate *Wabash*, was recently cast at the foundry of Messrs. Merrick & Son, Philadelphia, and weighed 11 tons. It is composed of copper and tin—25,000 lbs. of the former, and 2,500 of the latter—the well-known gun metal. It has two blades, has a pitch of 23 feet, and is 17 feet in diameter—the largest propeller in the world.