

**Combined Scissors, Button Hole Cutter, and Tracer.**

Our engraving illustrates a very simple, and, we think, useful combination of tools to form a single implement, which adds much to the convenience of the ordinary scissors, while it but very slightly increases their cost.

It is, as our heading implies, a combined scissors, button hole cutter, and tracer for patterns, the operation of which will be readily understood, from the engraving, by our lady readers.

The tracer, A, is a toothed marking wheel pivoted to the thumb piece of the scissors. The button hole cutter is a pointed blade, B, which is fastened to the upper branch of the scissors, and which plays through a slot in the lower branch, at C, and passes into a slot in a metallic sheath, D. The edge, of the cloth in which it is desired to cut the button holes, is supported by this sheath, and the size of the holes is regulated by the thumb nut, E, which, turning in a slot in the upper branch and working on a thread cut upon the shank of the buttonhole cutter, raises it or lowers it, so that it passes more or less into the sheath as the branches of the scissors are brought together.

The button holes are thus cut with great facility and accuracy.

Patented by E. A. Franklin, through the Scientific American Patent Agency, February 27, 1872. Address the patentee, as above, or B. R. Franklin (till the 15th of March), at the Merchants' Hotel, Courtlandt street, New York. The latter wishes to negotiate with manufacturers for making the article, or will dispose of rights.

**Model Railway Foundry.**

The *Aurora Beacon* says that the new foundry of the Chicago, Burlington & Quincy Railway Company, in Aurora, Ill., is 180 by 190 feet. One wing is reserved exclusively for casting car wheels. The cupola which supplies the molten iron for this purpose is of the capacity of seventeen tons, and the full force is enabled to turn out sixty car wheels per day. This floor is supplied with four monster cranes, which pick up the wheels from the flasks while still at a red heat, and, passing them along from one to the other, convey them to the annealing room. Here are twelve immense pits, of great depth and walled with brick, into which the wheels are lowered one by one to undergo the annealing process. Nearly the entire eastern floor is appropriated to general casting purposes, supplied with another cupola, of the same dimensions and mammoth cranes for handling the ponderous castings produced. Another wing contains the carpenter shop for the repair of patterns, flasks, etc., and the cleaning room, which is furnished with two immense "tumblers" to facilitate that operation. The engine room, in charge of Mr. Keyes, is a model of order and neatness. The machinery of this room was put up under the direct supervision of C. F. Jauriet, Esq., Superintendent of Machinery of the road, and Mr. Prindle, Master Mechanic, a sufficient guarantee that the nearest possible approach to perfection has been attained. All the iron and coal is elevated to the furnaces by steam, instead of the old system of tramways; and one of the celebrated Root blowers furnishes the blast for the cupolas. So perfect is the working of every portion of the machinery that with the eyes averted one will fail to detect the slightest noise, or to dream that a powerful engine, massive wheels, and numerous pulleys are in full operation within a few feet of him.

**Improved Clothes Rack.**

The clothes rack shown in the accompanying engraving is a very neat and handy device, cheap, and easily applied to use. It occupies no floor space, and when not in use can be arranged to occupy but very little space on the wall to which it is attached.

A wall piece is constructed of a back rail, A, and a front one, B. The back rail, A, has a projecting flange, under which the rear ends of the clothes bars, C, bear while they rest in notches cut in the front rail, as shown. The clothes bars have each a short dowel pin extending upward from the rear end, which engages with a hole bored partly through the projecting flange of the rail, A. This prevents their swinging laterally. At the front end of each clothes bar there are two pins placed at a suitable distance from each other, on opposite sides of the bar. The bars, when not in use, may be taken out and, by the two pins described, may be suspended vertically from the wall piece.

The rack, as a whole, may be suspended in any suitable manner from the wall.

Patented, December 19, 1871, by J. & D. Miller, of Marietta, Ohio. For further particulars, address them as above.

**Expert Testimony.**

There was a fresh example of the worthlessness of expert testimony during a recent trial for forgery at Taunton. A couple of experts disposed of the prisoner at the bar very

summarily. When Mr. Henry D. Hyde, of Boston, his counsel, handed the smartest expert four old envelopes and asked him if he could tell whose handwriting was on them, the witness, after taking time to examine them, said that "the superscriptions on the envelopes were all in the same handwriting, and all written by the man who forged the check." Mr. Hyde at once took the stand, and taking the envelopes, said, "This one was written by the clerk of the Boston Water Power Company, this one by a friend of mine in

gearing is protected by a shield, so that neither the cloth nor the dress of the operator can get caught in it. A spring is used merely to balance the weight of the bar and render the power necessary to be applied to the winch more uniform. The speed of the needle is by this means more than doubled, with an expenditure of less labor than before, the exertion required to move the fore arm in the former machine being the principal source of the expenditure of power. A much slower motion of the wrist—while the fore arm is comparatively motionless—now produces more than double the useful effect, and greatly increases the utility of the machine.

No change has been made in the feed, or in the stitch (loop stitch) and the cost of the machine is not increased by the improvement. We have never seen a sewing machine that will work with so little expenditure of power as this. It is self feeding, the stitch may be made long or short, it will hem and tuck, and it sews with facility through a number of thicknesses of muslin.

For further particulars, address W. S. Barlow, President Beckwith Sewing Machine Co., 26 West Broadway, New York.

**Power of the Waves.**

The tremendous force of the sea was exemplified on a recent passage of the steamship *Helvetia*, from London to New York. At midnight a mountainous wave struck the ship from the starboard side. The captain at the time was standing on the bridge giving orders. The wave caught him with full force, and would have washed him into the sea had he not grasped a funnel stay. After

the wave had passed, the captain found himself dangling in mid air, twenty feet from the deck. He held on until rescued. The storm continued with relentless fury for six days, when another monstrous wave was shipped. It carried away two life boats, made a complete wreck of the larboard side of the bridge, destroyed all the ventilators on deck, and tore a hole eight feet in length by two feet in breadth in the smoke stack. Through the aperture thus made, an avalanche of water was precipitated into the engine room. The fires were all extinguished, and for two hours the vessel lay helplessly battling with the waves. After almost superhuman efforts, the rent in the funnel was patched up, the fires were again kindled, and the engines resumed operations.

**Durable Sensitive Paper in Photography.**

Sensitized albumen paper may be preserved good and white for many days, if placed between heavy paper—that used for copperplate printing—provided the paper is first saturated with a solution (1 to 5) of carbonate of soda, and dried.

Another method, highly spoken of and long practiced by Dr. Vogel, is to wash the paper after sensitizing. This paper requires ammonia fuming when used.

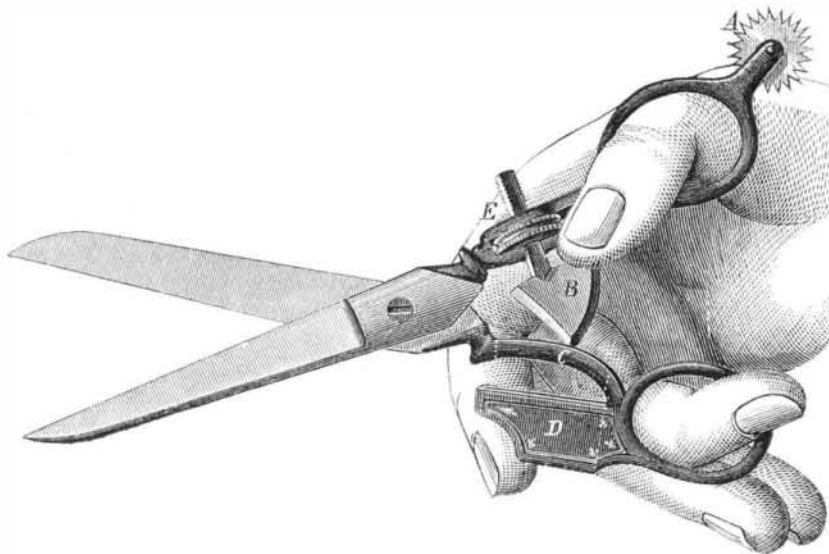
The same author states that paper sensitized in a bath composed of 12 parts of water, 1 part of nitrate of silver, and 1 part of citric acid, keeps perfectly white for six weeks, will print as rapidly as ordinary silvered paper, and requires no fuming.

In the last volume of the *SCIENTIFIC AMERICAN*, we published a formula for citric acid paper, as presented to the Berlin Photographic Society, consisting of 6 ounces of water and 1 ounce each of nitrate of silver and citric acid. One of our correspondents who tried the formula, stated that it gave him red pictures, and that discouraged him from its further use.

**Traveling Stones.**

Many of our readers have doubtless heard of the famous traveling stone of Australia. Similar curiosities have recently been found in Nevada, which are described as almost perfectly round, the majority of them as large as a walnut, and of an irony nature. When distributed about upon the floor, table, or other level surface, within two or three feet of each other, they immediately began traveling toward a common center, and there huddled up in a bunch like a lot of eggs in a nest. A single stone, removed to the distance of three and a half feet, upon being released, at once started off, with wonderful and somewhat comical celerity, to join its fellows; taken away four or five feet, it remained motionless. They are found in a region that is comparatively level, and is nothing but bare rock. Scattered over this barren region are little basins, from a foot to a rod in diameter, and it is in the bottom of these that the rolling stones are found. They are from the size of a pea to five or six inches in diameter. The cause of these stones rolling together is doubtless to be found in the material of which they are composed, which appears to be loadstone or magnetic iron ore. "Rolling stones gather no moss."

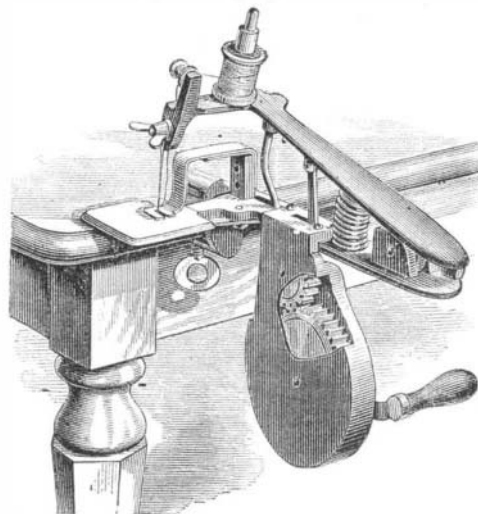
GREAT BRITAIN uses 20,000,000 tons of coal per annum for power, and thereby adds an equivalent of 133,000,000 of working men to her population without having to feed or clothe them or care for their families.

**COMBINED SCISSORS, BUTTON HOLE CUTTER, AND TRACER.**

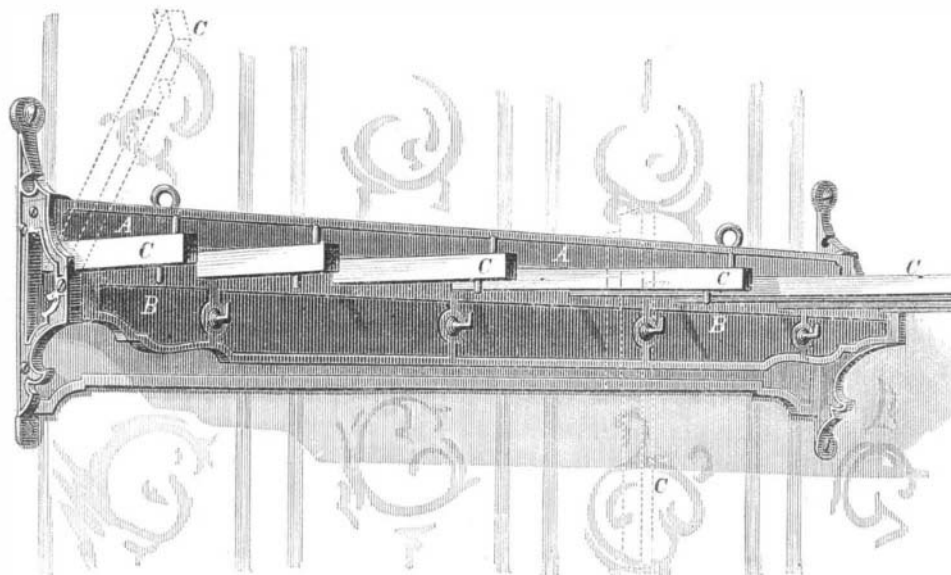
New York, the third is my own hand writing, and the fourth is the prisoner's," substantiating his statement by producing the letters received in some of the envelopes.—*Springfield Republican*.

**THE BECKWITH IMPROVED SEWING MACHINE.**

Our readers will remember our illustration of a ten dollar sewing machine, published on page 70, current volume. They



will also recollect that the needle, in the machine referred to, was carried by a bar, the downward motion of which was produced by the hand through the agency of a wire and thumb-ring, while the upward movement was made by a coiled spring. This arrangement, while it answered the purpose very well, had two defects; first, that it required some practice to acquire the motion of the wrist, necessary to impel the machine properly and make it do uniform work, and secondly, that the speed was limited to the speed at

**MILLER'S IMPROVED CLOTHES RACK.**

which it is possible to move the wrist with regularity and without fatigue.

Both these defects are removed by the improvement here-with illustrated, which consists in the attachment of a strong toothed wheel impelled by a winch, which wheel meshes into an equally substantial pinion, the pinion being also a crank wheel connected to the needle arm by a short pitman. This