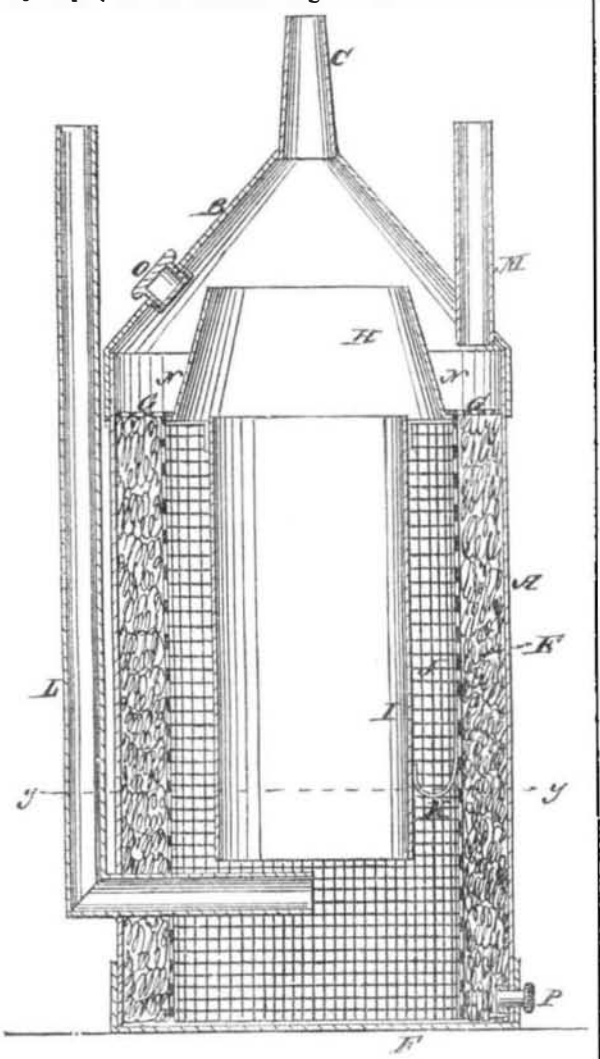
A NEW GAS CARBURETTER.

The novel features in the device represented in the annexed diagram consist in arrangements whereby a part of the gas is allowed to pass through fibrous material saturated with a carburetting liquid. This increases the illuminating power of the gas while economizing the hydrocarbon. The appliance may be made of any size and shape, and be profitably employed, it is claimed, in gas works.



The fibrous substance is packed in the space between the outer casing, A, and an inner wire cloth cylinder, the annular chamber between being covered with a perforated plate, G. L is a central cylinder within the wire gauze, suspended and held out from the latter by springs, K. Above this cylinder is a truncated cone, H, which opens above just below the discharge tube, C.

The carburetting liquid is poured into pipe, M, the orifice, O, being previously opened. It then flows into the annular trough, N, and filters through plate, G, into the packed material. The gas is admitted through the pipe, L, under cylinder, I, a portion rising through said cylinder and combining in the upper part of the apparatus with another portion which passes up through the saturated substance and thus absorbs the hydrocarbon vapor.

This invention was patented Nov. 3, 1874, through the Scientific American Patent Agency, to Messrs. H. Venners and G. H. Judy, of Cumberland, Md.

THE TOMPKINS UPRIGHT ROTARY KNITTING MACHINE.

The claims which this machine has upon present public favor cannot be more forcibly pointed out than in stating at the outset that it is a standard apparatus—if we may so term one which has been in successful use for nearly twenty years—remodeled, made from entirely new patterns, and provided with all the improvements which its long trial has suggested to the original patentee. For an idea of its simplicity, and at the same time beauty, of design, we refer the reader to the annexed engraving, in connection with the following detailed description:

The table is of iron, paneled; the shaft bearings long and well Babbitted, and the counter pulleys are large in diameter and narrow faced, so as to allow of ready shifting of the belt by the stop motion.

The cylinder has a long, large bearing, and the principal wear is at the lower end of the hub. The metal is thick where the cap screw enters, and there are three arms, which enables the attendant to reach the burr adjuster without the necessity of cutting a hole in the cloth. The cap screws are turned out of solid seamless iron.

The slotted circle which supports the feed stands is firmly bolted, and allows the attendant to nicely adjust his stands to any sized cylinder. The bedplate and tube are cast together, instead of separate, securing perfect rigidity. The center shaft is held up to its place by a single set screw, which, when loosened, allows the shaft to drop down, and so gives room without disturbing the take-up to take off the cylinder with needles in their places. The sinker and presser wheel stands have been made heavier, and an excellent stop motion is provided, which does not allow the needles to load up. By means of a new inside plate and burr adjuster, after the burr is set for angle, radial position, and depth, which can be done before the cloth is put on, the burr may be raised or lowered to a nicety without losing the other positions. For this purpose a two sized double-threaded set screw is employed, cut right and left hand, and so placed as to be regulated from under the cylinder without cutting the cloth, and so connected as to have no lost motion in its thread; it is so cut that the burr may be varied or depressed any number of hundredths of an inch.

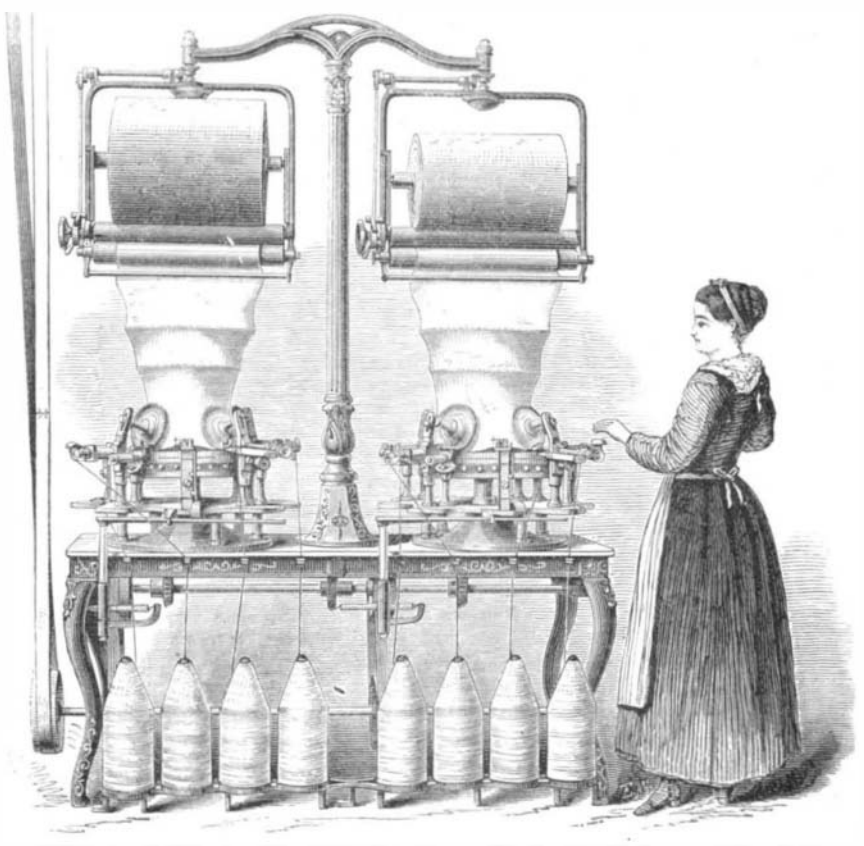
The take-up is a light iron frame, and hangs and turns on a hardened steel step, so shaped as to form of itself a self oiler. It is driven by a gear motion instead of the usual cam; said gear has a hunting tooth, which gives to the taking motion an ever changing movement, which, contrary to the cam, tends to keep the cylinder true and steady. The emery rolls are not geared together, but are so placed as to get the same result. The swing rod is squared at each end where it enters the sustaining arms to equalize the strain on the cloth, in case one of the long spiral springs is drawn out more than its mate. The arrangement to raise the dogs and loosen the cloth is instant in its effect. In changing from a sleeve cylinder to body size, a new take-up is not required.

A machine or table complete has two cylinders or heads, each head generally knits four threads at once, and each thread, or the machinery necessary to knit it, is called a feed. The machines are finished ready to belt except the needles. The same table does nicely for a single cylinder. One girl can attend to six cylinders. The table occupies a space of 6 feet 6 inches in length by 2 feet 4 inches in width; total hight over all is about 9 feet; weight, all told, is 1,340 lbs.

The needles used are the spring beard, and, for convenience, preparatory to putting them in the cylinder, are placed in a mold in pairs, and leaded by having a composition, resembling solder, poured around them while so held. The gage is determined by measuring the needles, and counting the leads when set in the cylinder. For instance, 14 gage has 14 leads, or 28 needles in 3 inches in length, measured on the circumference. To change from plain to rib requires only four new presser burrs. In regard to the proper speed of the needles for the different sized cylinders, needles, and yarn, some believe a quick speed to be best, and others consider it policy to use more machinery and run it more slowly.

As examples of the capabilities of the machine, the manufacturer informs us that a single cylinder apparatus of 22 inches diameter, 20 gage, 4 feeds, knitting common hosiery yarn, cotton and wool mixed, running 45 revolutions, has 920 needles, thus making 165,600 stitches per minute. A 16 inch cylinder, 20 gage, 4 feeds cotton yarn, is running 79 revolutions, and making 212,352 stitches per minute; the same cylinder has been run as high as 85 revolutions on the same yarn, at which speed it made, per minute, 228,480 stitches. Another cylinder, 19 inch, 30 gage cotton yarn, is running 38 revolutions, has 1,193 needles and is making 181,374 stitches per minute. Usually an 18 inch cylinder, 15 gage, is run 45 revolutions, and a table of 2 heads, which turns off, per day of 11 hours, 160 lbs. of knit cloth, averaging 15 dozen goods, exclusive of waste, is considered as doing fair. The machine is so geared within itself that 113 revolutions of the receiving shaft will give 45 revolutions of the cylinder. The receiving pulley is 10 inches in diameter, and is made for a 2½ inch belt.

For further particulars address the manufacturer, Mr. C. Tompkins, Troy, N. Y.



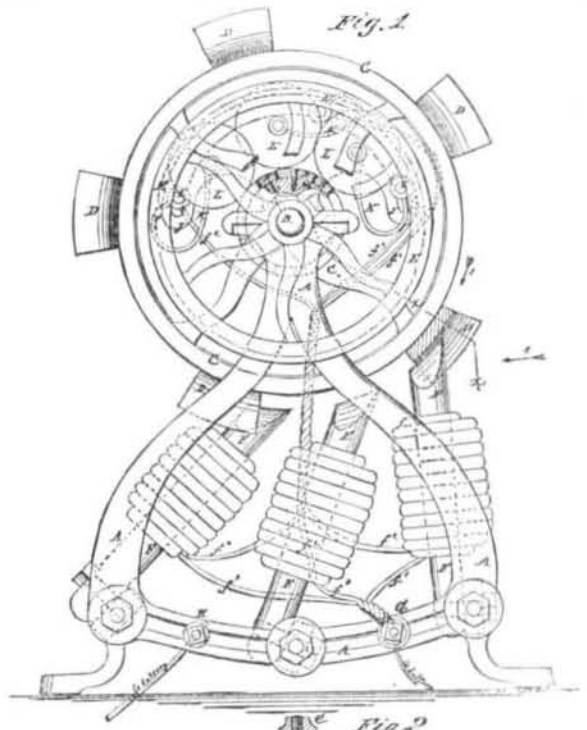
THE TOMPKINS UPRIGHT ROTARY KNITTING MACHINE.

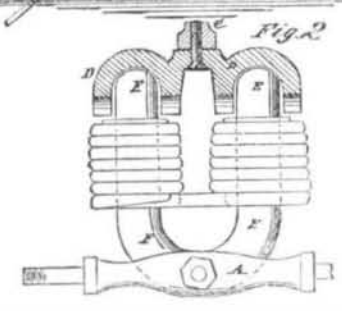
To move a tight glass stopper, hold the neck of the bottle to a flame, or take two turns of a string and seesaw it. The heat engendered expands the neck of the bottle before the expansion reaches the stopper.

A NEW ELECTRO-MAGNETIC MOTOR.

The novel electro-magnetic engine illustrated in the annexed diagram is adapted for driving sewing machines or other light apparatus. The inventor claims that it is so constructed that the magnets and armatures are held in contact for a sufficiently long time for the magnets to exert their full power between the opening and closing of the circuit, even when the armature wheel is revolving rapidly.

The armatures, D, are secured to the rim of wheel, C, which rotates the shaft, B, from which motion is imparted to





the machinery to be driven by the pulley, E. F are the magnets, from each of which a wire, f', leads to a clamp, G, to which a wire connecting with the battery is secured. The other battery wire is fastened to clamp, H, so that the frame, A, forms part of the circuit.

From each magnet a wire leads to adjustable bolts, I, which are arranged in an arched slotted plate, J. These bolts carry springs, which in turn support wheels, L, the peripheries of which are in contact with the rim of the wooden disk, M, on shaft, B. The edge of this disk is covered with wide and narrow strips of metal, ranged alternately and insulated from each other, which strips are connected by wires with shaft, B, so that when one of the wheels, L, passes upon the narrow pieces the circuit will be closed; or when a wheel reaches a wide strip, the circuit will be broken.

The parts already described are also so arranged that the circuit will be closed as each armature passes upon each magnet, and will be broken when the reverse takes place. The armatures are made in the form of a double U, and are so secured to the wheel as to overlay the sides of the rounded ends of the magnets. The magnetic force on all sides of the poles, it is claimed, is thus utilized.

Patented through the Scientific American Patent Agency, Nov. 17, 1874, to Mr. C. J. B. Gaume, of Brooklyn, N. Y.

Making Coffee.

Les Causeries Scientifiques states that M. Doyen has been investigating this subject, and has proposed the following method, which is simple and can be easily tried by any housekeeper:

He uses 15 grammes (about half an ounce avoirdupois) for two cups. The berries are to be powdered just before they are used. Three fourths of the powder is thrown into cold water, which is made to boil, and kept boiling for ten minutes. Then the remaining fourth of the powder is cast in; the pot is removed from the fire, covered up, and allowed to remain five minutes. The liquid is now ready; but it may, if desired, be passed through linen. So prepared it is brownish, not black, and slightly turbid from the fatty matter, of which coffee contains 12 per cent. When coffee has to be carried on a journey, as by an army on the march, M. Doyen has the roasted berries ground into an impalpable powder, which is then slightly moistened, combined with twice its weight of sugar, and pressed into tablets like chocolate. These are dried and wrapped in tinfoil, and the coffee ration thus prepared may be used very speedily; for if cast into boiling water, the coffee is ready. Precious time and the necessity of having coffee mills is thus saved.