## 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 p lid power of the gas while economizing the hydrocarton. The appliance may be made of any size and shape, and be profit ably 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 gutere, suspended and held out from the latter by springs, $K$. Above this cylinder is a truncated cone, II, which opens alove just below the discharge tule, $C$.
The carburetting liquid is poured into pipe, M, the orifice, 0 , being previously opened. It then flows into the annular trough, $\mathbf{N}$, and filters through plate, $G$, into the packed material. The gas is admitted through the piper, L, under cy linder, $I$, 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 hy-drocarlon vapor.
This invention was patented Nor: 3, 1874, through the Scientific American Patent Agency, to Messrs. H. Vcmaers and G. H. Judy, of Cumberland, Md.

THE TOMPEINS UPRIGHT ROTARY ENITTING 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-re modeled, 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 simpli city, and at the same time beauty, of design we refer the reader to the annexed engrav ing, in connection with the following detailed description

The table is of iron, paneled; the shaft bearings Iong 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 anns, which enables the attendant to reach the burr adjuster without the necessity of cut. ting a hole in the cloth. The cap screws are turned out of solich seamless iron.
The slotted circle which supports the feed stands is firmaly bolted, and allows the attendant to nicely adjust his stands to any sized cylinder. The bedplate and tube arc 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 of the cylinder with needles in their places. The sinker and
presser wheel stands have beea made beavier, and an excellent stop motion is provided, which does not allow the needles to load up. By means of a new inside plate and lourr ad. depth, wher burs is set for angle, radial position, and may be raised or lowered to a nicetr without losing the other prositions. For this purpose a twos sizerl double-threaded ste screw is employed, cut right and loft hand, and so placed as to be regulated from under the crlinder without cutting the cloth, and so connected as to latere no lost motion in its thread; it is so cut that the burr maty be varied or depressed any number of hundredtlis of an inch.
The take-up is a light irou frame, und 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, whichgives tothe taking motion an ever changing movement, which, contrary to tho cam, tends to keep the cylinder true and steudy. The emory rolls are not geared together, but are so placed as to get the stuve result. The swing rod iss suared at each end wherr it enters the sustaining arms to erpualize 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 lousen thi cloth is instant in its effect. In changing from a slecyerer iader to body size, a new take-up is not required.

1 machine or table complete has two eylinders or herads, each heall generally knits four threads at once, and cacl thread, or the machinery necessary ti) kinit it, is called a feeil The: machines are finished ready to belt except the nerdras The same table does nicely for a sinetle 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; tota hight over all is about 9 feet; weight, all told, is 1,340 lls The neeelles used are the spring beard, and, for convenience preparatory to putting them in the cyinder, are phaced in a mold in pairs, and leaded ly having a composition, resemls ling solder, poured around the:m while so held. The gage is determined by measuring the needles, and counting the leatis when :set in the cylinder. For instumee, 14 gage has 14 leads, or 28 needles in 3 inchess in length, measured on the circum frence. To change from pain the rib reguires only four new presser burrs. In regard to the proper speed of the needles, for the different sized cylinders, needles, and yarn, some be lieve a quick speed to lee best, and ot heres consider it police to use more mathinery and run it more slowly.
As examples of the capabilities of the machine, the namufacturer informs us that a single: cylinder apmaratus of $2 ?$ inches dlameter, 20 gage, 4 feeris, knitting common hosiery yarn, cotton and wool mixed, rumning 45 revolutions, has 920 needles, thus making 165,600 stitche; per minute. 16 inch cylinder, 20 gage, 4 feeds cotton varn, is running r9 revolutions, and making 212,352 stitches per minute; the same cylinder has been run as high as.8:5 revolutions on the same yarn, at which speed it made, per minute, 228,480 stitches. Another cylinder, 13 inch, 30 gage cotton yarn, is running 38 revolutions, has 1,193 needles and is making 181,374 stitches per minute. C!sually an 18 inch cylinder, 15 gage, is run 45 revolutions, and a table of 2 heads, which turns off, per day of 11 hour.‘; 160 ll si. 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 shatt will give 4.5 revolutionso the cylinder. The receiving pulley is 10 inches in diameter and is made for a $2 \frac{1}{2}$ inch belt.

For further partirulars address the manafacturer, Mr. (• 'Tompkins, 'l'ros, N. Y.
' 0 move a tight glass stopper, hold the neck of the bottle to a tlame, or take two turns of a string and seesuw it. The heat ongendered expands the neck of the bottle before the ex


THE TOMPKINS UPRIGHT ROTARY KNITTING MACHINE.

## A NEW ELECTRO-MAGNETIC MOTOR.I

The novel electro-magnetic engine illustrated in the annexed diagram is adapted for driving sewing machines or other light apparatus. The inventorclaimstlat it is so constructed hat 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 rapidy.
'Fhe armatures, 1 , are sucured to the rim of wheel, (', which rotates the shaft, B, from which motion is inparted to

the machinery to be dxiven by the pulley, E. F are the magnets, fromeach of which a wire, $f^{\prime}$, leads to a clamp, (i (1) which a wire connecting with the battery is secured, The other battery wire is fustened to clamp, II, so that the frame A, forms part of the circuit.
From each magnet a wire leads to adjustable holts, I, which are arranged in an arched slotted plate, J. These boltscarry springs, which in turn support wheels, 1 , 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 circuitwill 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 $\mathbb{C}$, and arr :o specured 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 Americam Patent Agency, Nov. 17, 1874, to Mr. ('. J. B. Gaume, of Brooklyn, $\therefore$. V.

## Making Cotree.

Les Couseries Scientifiqurs state.; that M. Doyen has been investigating this subjert, and has proposed the follwiving mothod, which is simple and can be maly tried b, 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 hoil, and kent boiling for ten minutes. 'Ihen 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 mar, 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 journer, as by an army on the march, M. Doyen has the rousted 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.

