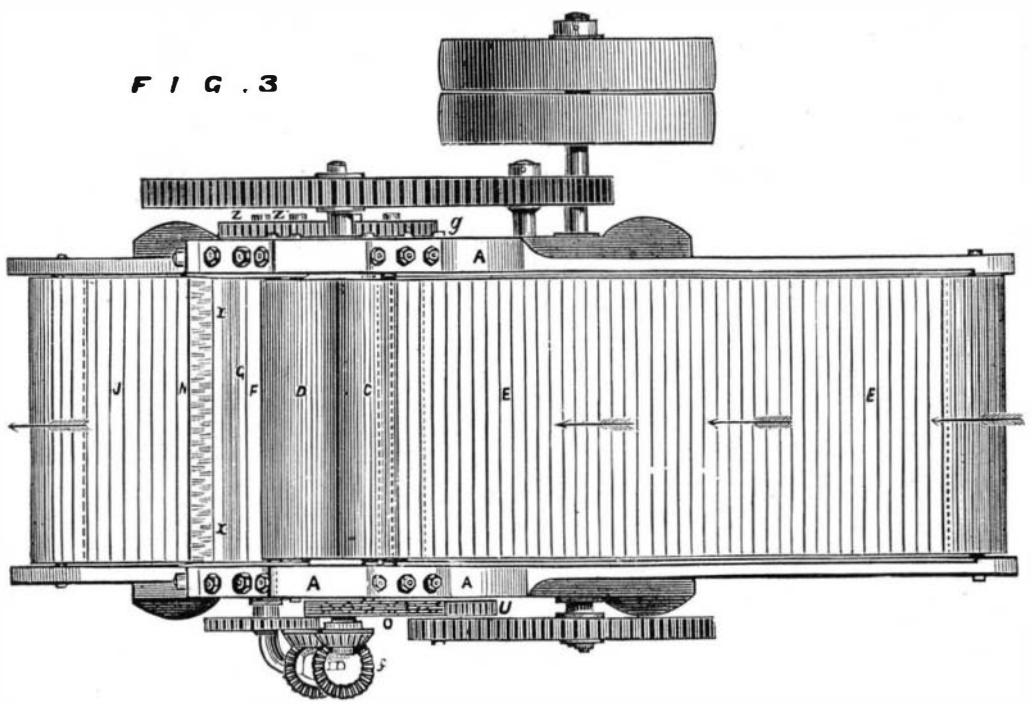
## MACHINE FOR PREPARING RAMIE FIBER.

We have already called attention to the large reward of $24,000 offered by the British Government to the inventor of a successful machine for preparing the fiber of the rhea plant or ramie. In 1870 a like reward was offered, with the same object. Thirty-two competitors entered, but only one appeared for trial at Saharanpur, India, in August, 1872. This was Mr. John Greig, who received an award of $7,500, and of whose machine we extract the annexed engravings from *The Engineer*.

The stalks of rhea or China grass to be operated upon are in the first place spread on the traveling platform or table, E, and as this is traversed the stalks are caught between the fluted rollers, B, C, and D, where their cores or pith are broken and the outer shell or skin is also broken up. The fibers then pass down between the roller, B, and the pressure roller, F, as shown at Fig. 1, and are thence conducted between the revolving drums or rollers, G, and by means of the knives or scrapers, *x*, attached thereto, the short pieces of pith which have been broken by the action of the fluted rollers, B, C, and D, are separated and thrashed away, and at the same time the skin of the grass is divested of the mucilaginous and vegetable matters adhering thereto. As the ribbons or strips of fibers pass from contact with the scrapers, *x*, they become suspended vertically and are blown between the pressure roller, I, and the traveling table, J, by means of the revolving brush or fan, H. When the roots or thicker ends of the stalks of the fiber have passed between the fluted rollers, B, C, and D, they fall downward by their own weight, and being suspended by the portions of the fibers held between the pressure roller, I, and table, J, they come in contact with the lower set of revolving scrapers, *r*, attached to the drums or rollers, M, by which the fibers of the roots or thicker ends of the stalks are divested of the pieces of pith and adhering mucilaginous matters, and the now cleansed fiber is drawn upward by the friction between the pressure roller, I, and the traveling table, J, by which it is conducted away from the machine. The whole length of the fiber it was intended should be cleaned at one operation, and in order to still further cleanse the fiber while it is being operated upon, a tank, *v*, is placed at the top of the framings, A A, as shown at Figs. 1 and 2. This tank is provided with a cock, *w*, and perforated rose, *z*, extending across the upper part of the machine, by means of which water may be discharged on the rhea fiber being operated upon. In order to prevent the vegetable and mucilaginous matters from adhering to the scrapers, *x* and *r*, while they are removing the different substances from the fibers under treatment, the scrapers during their revolution are caused to come in contact with the brushes, N, $N^1$, and $N^2$, and are thereby kept free from those substances.

The machine was designed for working upon green stems, and the speeds of the principal parts are: First motions, revolutions per minute, $a$=65; fluted roller, $\frac{1}{6}a$=10·83; scraping cylinders, $8a$=520; blower cylinders, $8a$=520.

The traveling webs of both feed and delivery have a speed of 21·67 feet per minute. The weight of the machine is 30 cwt. The machine did not succeed in turning out fiber clean and fit for market in one operation, and a scutcher of ordinary construction was attached, which removed the small portions of stalk and green bark not removed by the machine. In working, the machine broke up the stems without injuring the fiber, and the action of the fluted rollers was considered good, but that of the scrapers was defective, especially when the supply of water was deficient.

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The more freely this was supplied the better the fiber was turned out, and considerably more than 40 gallons per hour was found to be necessary. The inventors intended that the curves of the fluted rollers and the blades of the cylinders should be so accurately struck that the clearance should be barely the thickness of the fiber which should intervene, but as this is only about $\frac{1}{200}$th of an inch, it may be imagined that this was not realized. The blower was also found to be inefficient in directing the lower end of the fiber as it fell from the upper rollers into the second rollers, so that the fiber became entangled instead of being kept straight. The separation of the bark and woody stem was, moreover, not efficiently effected. The cost of preparation was found to be nearly £35 instead of the stipulated £15.

### Photo-Electricity of Fluorspar.

M. Hankel, at the Saxon Academy of Sciences, recently described the results of some experiments he had made on the electric action of light on crystals of fluorspar. After exposure to sunlight, the center of a face of the crystal is found to have a marked negative potential, while the potential of the sides of the face is much less strong and sometimes positive. On sifting the sunlight through colored glasses, a layer of water, or a solution of alum or sulphate of quinine, it was found that the chemical rays are the most active. A too strong concentration of light on the face of the crystal destroyed its sensibility to the further action of light. An exposure of the crystal to a temperature of 95° produced the lowest positive potentials at all points of the crystal while it was cooling.

### A Novelty in Washstands.

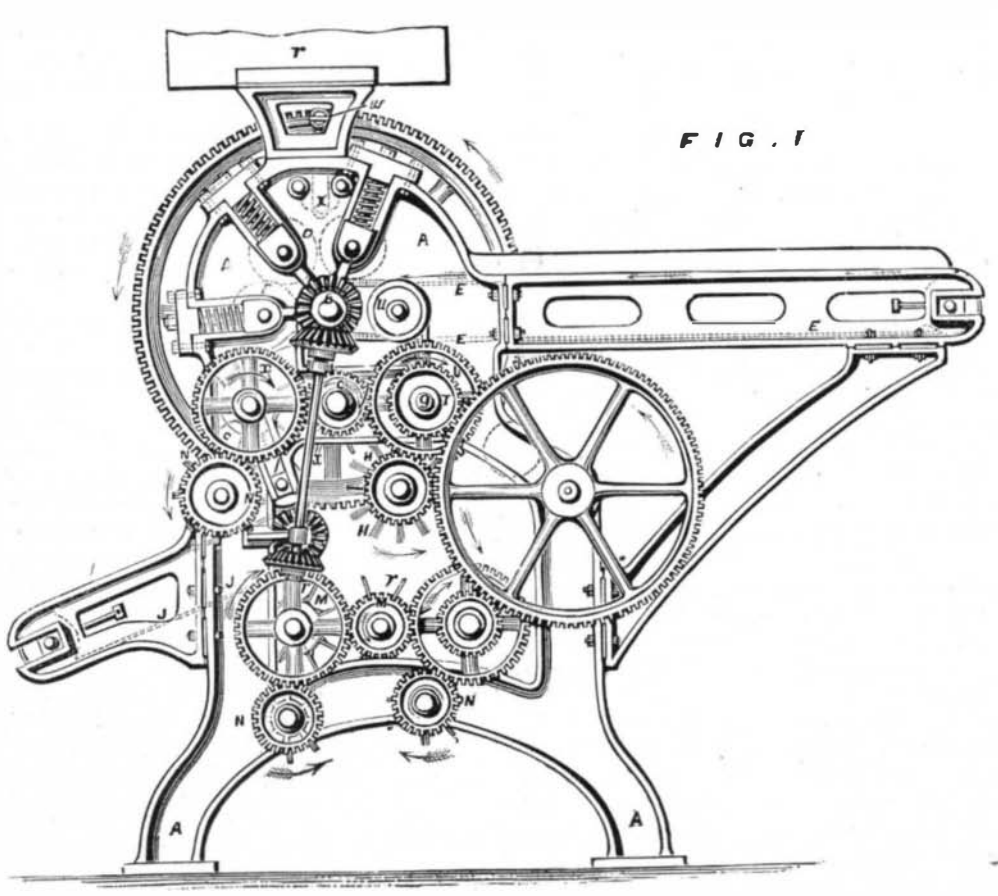
We were recently shown by Mr. N. O. Bond, the inventor, an excellent arrangement of washstand designed for country houses, aboard steamers, and for other localities where the time-honored ewer and basin are used.

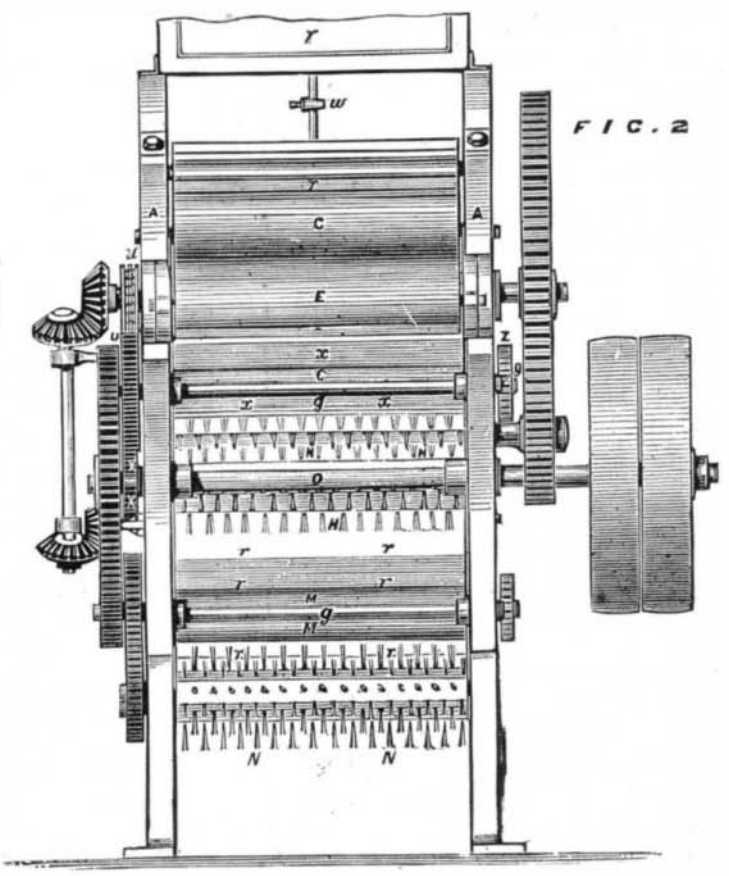
Mr. Bond constructs basin, slab, and water receptacle of his stand all in one piece and of marbleized pottery. The water reservoir is under the slab at the right and communicates with the basin on the left, so that by simply pressing a button near the latter a spring valve is lowered and the water rises in it from an aperture near its bottom. Pressure on another button opens another valve, and the water runs out at the same orifice at which it entered. The valve seats and the conduits are all made in one piece with the rest, and the valves are merely conical pieces of rubber. The reservoir holds four or five times as much water as the ordinary ewer, and hence when once filled it contains a supply for some days. The slab, basin, etc., are mounted on an ordinary washstand casing, which may be as ornamental as desired.

Mr. Bond has patented this device both in the United States and in many foreign countries.

### New Illuminating Rocket.

Some experiments, leading to highly favorable reports, have lately been made in the German and Austro-Hungarian artillery service, on a new illuminating star rocket. The pot, which is very small, contains 57 illuminating stars of magnesium, and 72 others smaller. The fuse is generally arranged for eight seconds, so as to project the stars when the rocket has gone 1,100 metres; the stars then burn while falling, till they are about 5m. from the ground; the rocket weighs 11·7 kil. To illuminate an object continuously a series of the rockets are fired an intervals of six to eight seconds, for which purpose two rocket stands are placed about 10m. apart, and directed to the same point; when one rocket is lit the man goes to the other and lights it. The luminous effect of these rockets is said to be quite equal to that of daylight.

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