

IMPROVED ROTARY FORCE PUMP.

The accompanying engravings represent a new rotary force pump, which is simple in construction, having each part so adjusted as to combine ease of operation with durability and power. It is manufactured entirely of metal, thus being available for pumping hot or cold fluids, and for use in distilleries, breweries, factories, etc., while, for ordinary family use, it may be applied to the forcing of water to any desired elevation. As the pump is essentially a force pump, from the power generated in its use, it offers a cheap system of fire protection in villages and cities having no regular system of water works. It is claimed to be capable of throwing a steady stream of water, from 60 to 80 feet, with ease. Its availability as a lawn and garden pump will be evident.

Figs. 1 and 2, in the engraving, show a small sized indoor pump for kitchen, shop, or factory use; it has a one inch discharge pipe, and is capable of raising from twenty to thirty gallons per minute. Fig. 2 has the same capacity, but is arranged so as to be placed below the ground a sufficient distance to insure safety against injury or inconvenience from frost. It is operated by means of bevel gearing at the top of the iron standard. The details of interior construction are clearly exhibited in the engravings.

For further particulars address Messrs. D. E. Saltonstall & Co., Toledo, Ohio. Patented by Alonzo Noteman, January 29, 1878.

Meat and Beer for Europe.

American beer for Germany is the latest addition to our export trade. The exportation of meat shows the same upward tendency manifested by all other American products sold on a large scale for European consumption. The quantity of American meat landed at Liverpool the third week in April was the largest up to that time, and the individual consignments in many cases exceeded any previous ones. The total receipts for the week were 9,686 quarters of beef, 3,004 carcasses of mutton, 400 hogs, 450 live oxen, and 40 horses.

IMPROVED GEARED FRICTION SHAPER.

The illustration herewith presented represents an improved geared friction shaper, manufactured by the Hendey Machine Company, Wolcottville, Conn. It embodies many new principles which are of considerable merit. Change of motion is accomplished by means of a friction clutch, which is both prompt and powerful in its action. Motion is obtained by means of open and crossed belts running upon loose pulleys on the driving or first pinion shaft, a train of gearing being employed to drive the head bar. By the use of the shifter dogs on the head bar, the length of stroke (24 inches) may be varied without stopping the machine, thus rendering adjustment easy and rapid.

Between the journal bearing of the shaft and the inner pulley is a collar having a short spiral slot. By means of the shifter dogs and a rod connected to the collar, it receives a slight oscillating motion, which is changed to a longitudinal one by the spiral slot and a stud working therein, causing each pulley in turn to become fixed to the shaft and impart motion thereto. As the lateral motion necessary to release one pulley and engage the other is not more than one thirty-second of an inch, it is apparent that the reversal of motion is instantaneous. The simplicity of the device by which these machines are operated, and its low liability to any wear which could impair its action, will generally recommend it. A greater length of stroke is possible by the use of the rack. The speed of the cutting tool is always the same, regardless of stroke. The machine has a cone of two steps, to be used for planing steel, cast iron, or brass, etc.

The invention has been in use about six years by many well known firms. Patented January 20, 1874. For further particulars address the Hendey Machine Company, sole manufacturers, Wolcottville, Conn.

Electrolytic Decomposition of Water.

M. Bouvet has recently determined experimentally that the decomposition of water by the electric current is independent of the pressure. He has succeeded up to 154 atmospheres, and proposes to continue experiments up to 3,000 atmospheres. The expenditure of electricity is the same under all pressures to decompose a determinate weight of liquid.

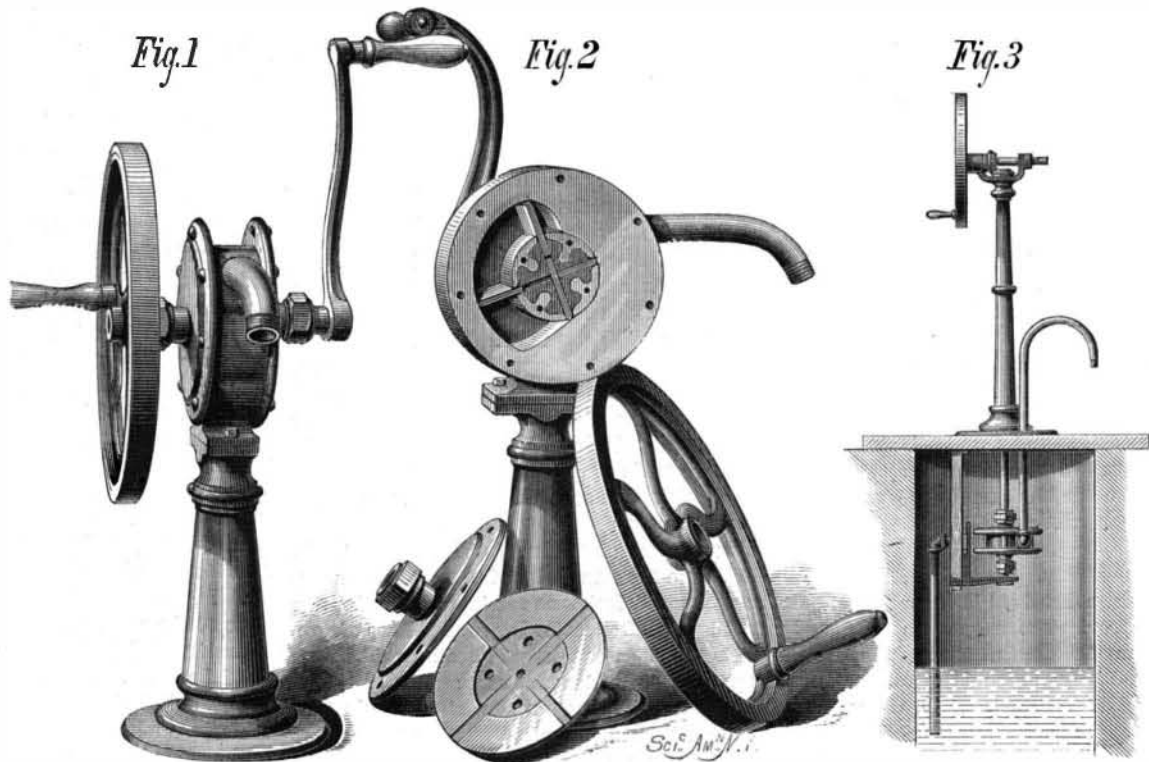
Stammering for a Purpose.

The recruiting law of France exempts stammerers from military duty. Of 2,086,826 conscripts examined between 1850 and 1869, there were 13,215 exemptions on account of this defect. The proportion of persons so affected in France is estimated to be 125 per 100,000. The defect is more common in the south than in the north, the difference being attributed to the greater attention paid in the north to primary education and the training of children to read and speak correctly.

The minister of public instruction recommends the abolition of exemption from military service for stammering,

French Workingmen.

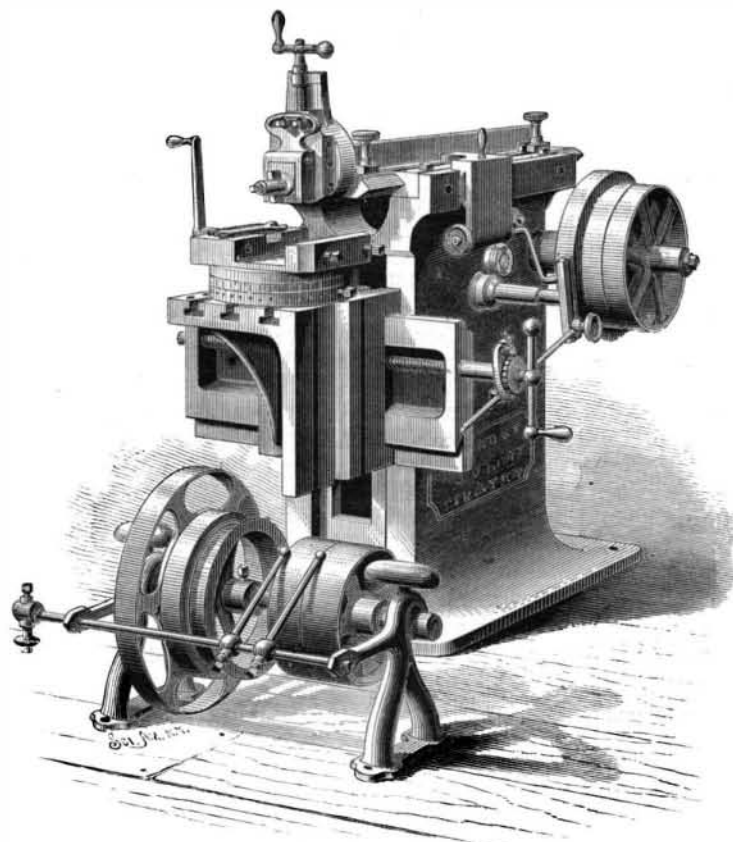
Mr. Smalley, the well known foreign correspondent, does not entertain a very high opinion of French workingmen. The day begins for them nominally at six o'clock, but it is usually half an hour later before they arrive upon the scene of their labors. The first thing they do is to sit down on some convenient stone or bench and have a talk. Pipes come out and are leisurely lighted, and tobacco is a great promoter of conversation. Presently a comrade arrives with a newspaper, which he unfolds and reads aloud, the performance being much enlivened and protracted by continual comment, and followed by a general discussion by the company. All this may last an hour, at the end of which coats are laid aside and the blouse put on, and tools are picked up, and a good stroke of work is done till breakfast. It is the late French breakfast which is responsible for a good part of their dawdling. Breakfast is a solemnity with all classes; with the laboring man scarcely less than with his betters, if betters he have. Perhaps he goes to a café for it, perhaps it comes out of a handkerchief, and is eaten on the thumb; in either case the ceremony is begun, and carried on, and concluded with every circumstance of leisurely deliberation. There is at least as much talk as eating, for the Frenchman is temperate in diet and drink, and takes an hour to dispose of a meal which an Englishman would dispatch in five minutes, asking for more as soon as it was devoured. Then another pipe and more talk; then a stroll back to work; then a discussion how it should be done; in all which the men employed in the vicinity polite-

**NOTEMAN'S IMPROVED ROTARY FORCE PUMP.**

ly take part. This is brotherly, but when it is a question of speed the Frenchman is all abroad. Watching, with a friend, the performances at the Trocadero, where things were more behindhand than elsewhere, and where the need was most urgent, Mr. Smalley saw no indication of haste or anything like zealous activity. "I am not the least overstating," he writes, "when I say that neither of us saw a single man who was working hard, or who kept his tools in his hand for five minutes at a time."

Razor Grinding Machinery Wanted.

The only article in the cutlery line in which American manufacturers are unable to compete with the English is razors. This from no lack of skill or steel, but simply because manual labor is too costly with us. There is no machinery with which a razor can be ground fine enough; and it is impossible for our manufacturers to give so much time

**THE MANVILLE PATENT SHAPER.**

to their grinding as England does. With the required machinery, however, the field would be open to us. Here is a chance for labor saving machinery to extend the scope of our industries, as it has in so many other instances. The needed machinery will make work in a line from which we are now entirely shut out. Our inventors should look to it.

THE PARIS EXHIBITION BUILDING AT THE TROCADERO.

Continuing our series of illustrations of the Paris Exhibition, we present this week a view (see next page), taken from the Place du Roi de Rome, by an artist of the *Illustrated London News*, of the palatial building at the Trocadero, on the right bank of the Seine, which is connected by the Pont de Jena with the main Exhibition Buildings in the Champ de Mars, on the left bank of that river. The mount or rising ground of the Trocadero obtained its name and fame, as a public monument, from the victory of a French military force, in 1823, employed to capture the Spanish fort of the Trocadero in the harbor of Cadiz, for the suppression of a political revolt in the kingdom of Spain. This Palace of the Trocadero was used for the opening ceremony of the Exhibition, and is intended for a series of grand orchestral concerts and other public entertainments, culminating in the official ceremony of distributing the prizes, at a future period of this season. The architects of this stately edifice are Messrs. Davioud and Bourdais. The general style of the building is a modification of the arabesque; its form is semi-circular, accompanied by two spacious wings; proceeding from these are half-circular galleries, forming, as it were, the sides of an immense horseshoe as large as the Trocadero itself, and inclosing the whole of the park. From the center of this half-circle springs the rotunda, with its domed roof surmounted by a winged Genius, flanked by two lofty minarets, and encircled by two tiers of galleries, giving access to every part of the internal amphitheater, and forming a covered promenade looking out upon the wonderful panorama of Paris and its environs, Meudon, Sèvres, and Clermont. The architects have succeeded in combining lightness with strength.

All the iron framework of the buildings is covered with materials of different colors, placed one over another, and is further enlivened with bright colored panels of enameled clay.

A "ONEMAN POWER" is the raising 70 lbs. 1 foot high in a second for 10 hours a day.