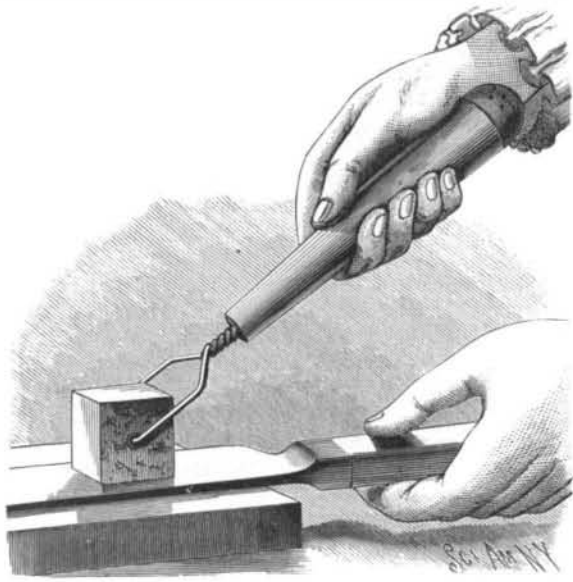


IMPROVED KNIFE SCOURER.

The engraving represents a device, recently patented by Mr. Charles A. Bryant, of Wakefield, Mass., for scouring and cleaning knives, cutlery, and other articles. The hollow handle is closed at the bottom, and is provided at its upper end with an apertured cap. In the lower end of the handle the stem of a wire frame is secured, on the cross piece of which a block of cork or rubber is hung. The cleaning or polishing powder is held in the hollow handle. A quantity of this powder is sprinkled from the cap upon the article to be cleaned, and is rubbed on the article by means of the block. The handle can be held at any desired angle to the blade, thus enabling a greater pressure to be exerted on the

**BRYANT'S IMPROVED KNIFE SCOURER.**

block than when it is held securely on the lower end of the handle. All four faces of the block can be used successively.

THE REMINGTON HORSE POWER FIRE ENGINE.

The accompanying illustration represents a fire engine that combines the merits of both the hand and steam apparatus. It is so planned as to be light and simple in construction while permitting great strength in the working parts, which are disposed so as to utilize all the power and yet be as free from wear as possible. It is mounted on four wheels for transportation, and may be drawn by men or horses. It is made entirely of metal, with the exception of the levers, and weighs about 3,000 pounds. It is a sweep power, the driving wheel being placed horizontally on top, and being furnished with eight sockets for levers, all of which may be used when it is necessary to work by men, and one or two when horses are available. There are three double acting pumps, driven by pinions which mesh into teeth on the driving wheel, and so arranged that their combined action produces a continuous pressure and even flow of water. The pump cylinders are $5\frac{1}{4}$ inches in diameter, with a stroke of 8 inches, and have a capacity of 200 gallons per minute. The horses travel in a convenient circle, at the ordinary walk of a work team, the draught being about the same as in plowing. All wearing surfaces exposed to the action of friction and water are made of hardened polished brass, so that neglect will not injure them, and the engine will always be ready for instant use. When in operation the engine is held in position by iron braces on each side, fastened to the ground by steel pins.

When operated by one pair of horses, going at a speed that can easily be maintained, it will force a stream from 115 to 160 feet horizontally through a $\frac{7}{8}$ inch nozzle, or two streams through $\frac{3}{4}$ inch nozzles nearly the same distance. The engine can be worked by men in an alleyway six feet wide, as a motion of two or three feet forward and backward will force a stream through the hose nearly as well as a continuous motion.

The engine is especially designed for suburbs of cities, towns, factories, and isolated residences, and is successfully used for pumping out pits and mines and elevating water.

Further particulars can be obtained by addressing the manufacturers, the Remington Agricultural Company, of Iliou, N. Y., or 118 Chambers Street, New York city.

Cold rain water and soap will remove machine grease from washing fabrics.

New York Department of Public Works.

The report of the commissioner of this department for 1883 has just been issued. The rainfall in the Croton watershed was $42\frac{4}{10}$ inches, which is $4\frac{3}{4}$ inches less than the average for the past ten years. There are now more than 547 miles of pipes, 5,743 stop cocks, and 7,152 fire hydrants in the distributing system. Out of 25,201 inspections made last year, there were reported 1,770 cases of leaks from defective plumbing, and 1,614 places where water was wasted between midnight and six o'clock in the morning, at the rate of from one to five gallons per minute. During the year 2,195 meters were placed, making a total of 9,012 in use.

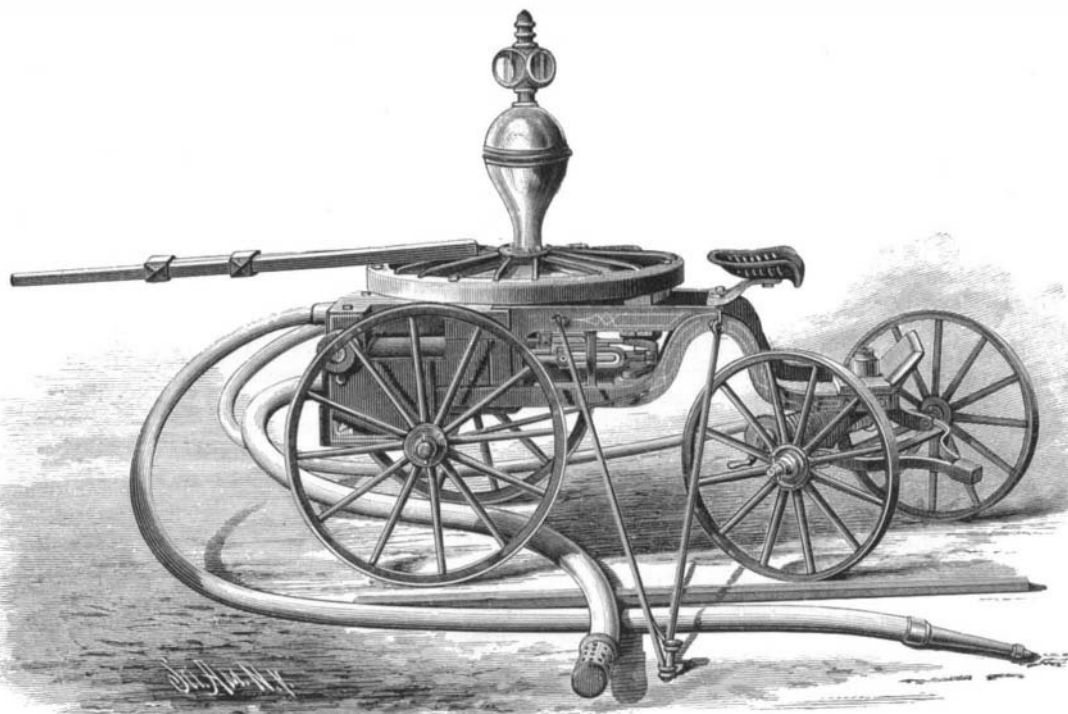
The present area of paved streets south of Harlem River is 7,457,860 square yards, and their length is $357\frac{4}{10}$ miles. The present extent of underground structures in the streets south of Harlem River is as follows: Water pipes, 547 miles; sewers, 398 miles; gas pipes, 857 miles; steam pipes, 16 miles; electric wires, 17 miles; telegraph wires, $3\frac{5}{10}$ miles; pneumatic tubes, $\frac{3}{4}$ of a mile, making a total of 1,839 miles. At the close of the year there were 24,412 gas lamps and 128 electric lights in use in the streets and parks of the city. The total revenue collected by the department was \$2,029,335.74, of which \$1,869,518.96 was from Croton water rents and permits.

Cable Railroads in New York.

It has been decided by the commission appointed to employ the system of cable propulsion to surface railroads in New York city. The *Herald* prints an interview with General Viele, who examined the system in use in Chicago, and he expressed himself as satisfied with its practicability, stating that there were no defects, either apparent or real, to be discovered in the service.

A correspondent of the same paper, however, expresses a doubt whether the system as used in Chicago would be equally efficient in New York, and in view of the importance of the question, his views demand consideration. His first objection is raised against the speed of the cable, which cannot be graduated to necessary conditions of street traffic, but must move at the speed established by the machinery at the source of power. In case of delay no lost time can be made up by the leading car, since all travel at the same speed; hence, in streets given over to other traffic which might cause delay, rapid transit is out of the question. Besides this, the movement being entirely dependent upon one source of power—the traveling cable—any mishap or derangement would cause the entire suspension of traffic.

Objection is also raised to the trouble occasioned by curves and switches, which up to the present time has not been entirely obviated even in Chicago. The construction of the roadbed and cableway also deserves notice. In the Chicago system a trench has been dug about four feet deep and nearly as wide at the top, which is continuous between each pair of rails or tracks, the inner surface laid in broken stone and cement, in which are placed the iron yokes,

**THE REMINGTON HORSE POWER FIRE ENGINE.**

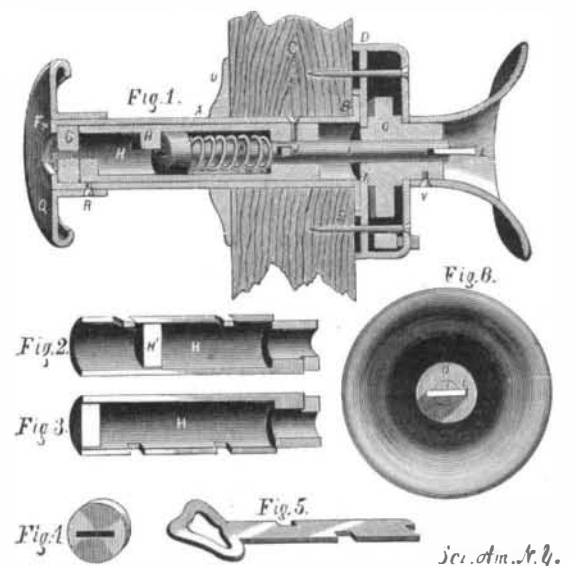
frames, and wheels upon which the rope moves. This permanent trench—it is, in fact, an auxiliary sewer—has manholes at frequent intervals, and must be accessible at all times for purposes of inspection, lubrication, and repair of rope and supports, and is always open by its slotway to the surface. This arrangement is possible on a street as wide as State Street, Chicago, which is very wide, but it is impossible with the complicated underground conditions of the narrow streets of New York. During its construction it obstructs the street seriously, and permanently occupies space needed for other important uses.

That there is still room for many improvements, the above amply shows, and the adoption in any city of a system which does not provide for all contingencies and smooth working, would be a costly and unsuccessful undertaking.

IMPROVED LOCK AND LATCH.

The engravings represent an invention recently patented by Mr. H. H. Freeman, of Milton, Ontario, Canada. The spindle, A, is hollow, circular in form, and has a flange, B, which rests against the face of the door when the spindle is passed into the bore, in which it fits loosely for axial rotation. The outer end of the spindle is apertured to leave the annular shoulder, F, against which the loose revolving key plate, G, may rest. The casing, H, is made in two parts—shown in Figs. 2 and 3—and may be provided with any suitable number and form of wards for the flat key.

In one end of the casing, arranged diametrically opposite each other, are two notches, one of which is deeper than the

**FREEMAN'S IMPROVED LOCK AND LATCH.**

other. On the side edges of the two parts are formed lugs and notches for the purpose of keeping the wards and end notches in proper relative position with each other when the casing is slipped into the spindle, A. The casing is held to the spindle by a screw. The bar, I, is formed with a head slotted to receive the end of the key, and also has a projecting pin, J, to engage the end notches of the casing, and a bit, L, at the inner end. The bit has side shoulders for engaging notches, formed in the hub, O, which extend through the hub to allow the bit to pass through in adjusting the lock to the door. A spring on the bar, I, acts against the head of the bar and shoulders on the casing, to throw the bar out in order to keep the pin, J, and bit, L, engaged with their respective notches; when the pin is in the deep notch the bit will engage with the notch in the hub, but when the pin is in the shallow notch the bit will be disengaged. The knob, Q, spindle, casing, and bar turn together axially. The inside knob is fixed to the hub by a screw so that the door may always be unlocked from the inside. As shown in Fig. 1, the stud, J, rests in the deep notch of the casing, and the bit, L, is engaged with the hub, so that the latch bolt may be thrown out to open the door by turning the knob, Q. To disconnect the hub from the knob, Q, from the inside the bit, L, is drawn out until the stud, J, is free from the casing, which is then turned one-half a revolution, and the stud allowed to drop into the shallow notch. The hub cannot then be moved, as the bit, L, is free from the knob.

Imitation Crystallized Tin Plates.

"To produce a fine imitation of crystallization," writes M. F. Carpenter, to the *Artisan*, of Chicago, "place a sheet of tin plate upon a smooth, level surface; sprinkle tartaric acid over the sheet, and with a clean cotton cloth wet in clean water rub long enough to cause the moisture from the cloth to adhere to the plate; immediately drop muriatic acid, which has been diluted with one-third water, over the plate, watching it carefully; as soon as the crystals have formed to a proper shade, wash off with clean water. The work can dry in the shade, without heating, and can be stained or varnished to please the taste. Avoid inhaling the fumes while using the acids. The above plate made up into ware and placed side by side with the genuine crystallized work will sell fifty per cent faster. At least I find that the case in my shop."

ASTORIA, Oregon, has 7,000 population in the fishing season, and 4,000 the rest of the year. She has a dozen canning establishments.