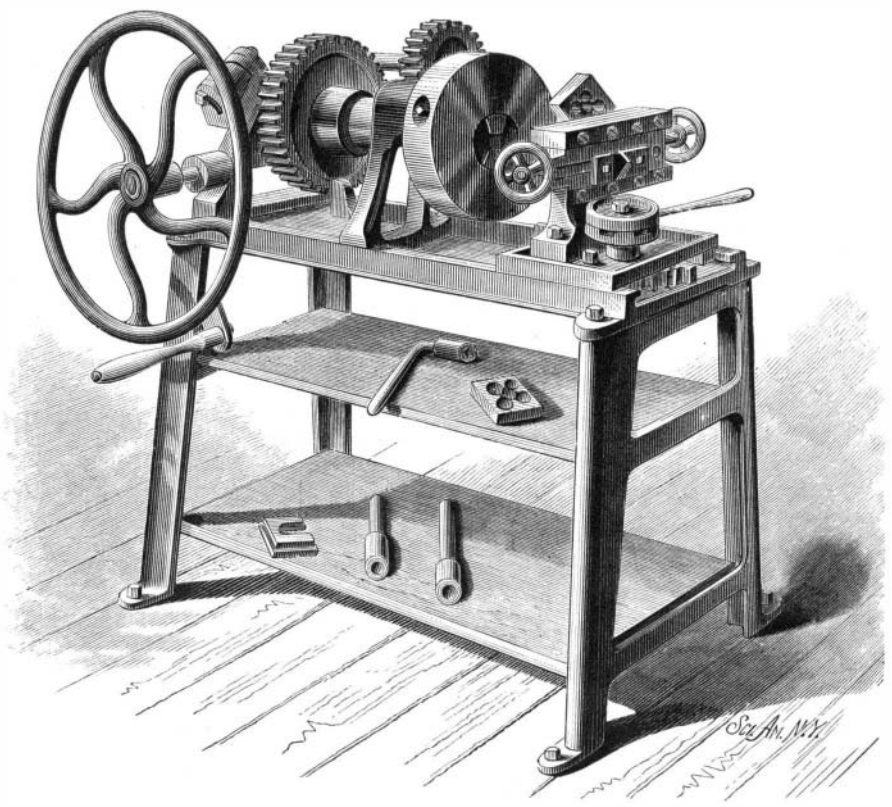
NEW PIPE CUTTING AND THREADING MACHINE.

The annexed engraving represents a compact, portable, and low priced machine more especially designed for cutting and threading pipe, but which may be used to good advantage in jobbing shops for cutting off round iron and for threading bolts and tapping nuts where the attachments for this kind of work are applied. The machine is contrived so that the speed, and consequently the leverage, may be changed to adapt it to light or heavy work. There are three changes of speed. the fast speed cuts one fourth, three eighths, and one half inch; the next three quarters, one, and one and a quarter inch; and the slowest speed one and a half and two inches. These changes in speed are readily made by means of a lever at the front of the machine.

The cutting and threading is done by stationary cutters and dies, while the pipe is held and revolved by a concentric chuck on the hollow mandrel of the machine. We are informed that this chuck is one of the best of its kind for gripping pipe and bars of iron. At the back end of the mandrel there is a universal chuck for centering and supporting the pipe, thus doing away with extra guides or supports. The die head has a cutting-off tool slide and self-centering jaws for steadying the pipe while it is cut off. The die starter consists of a pinion working in a rack at the bottom of the die head; the pinion being provided with a long lever which renders the operation of starting easy.

The manufacturers inform us that as the pipe revolves and the dies remain stationary only straight threads can be cut.

The machine shown in the engraving is arranged for hand power; but it is a very simple matter to apply the pulleys and arrange it to operate by means of a belt when desirable. This machine was recently patented and is manufactured by D. Saunders' Sons, Yonkers, N. Y.



SAUNDER'S SONS' PIPE CUTTING AND THREADING MACHINE.

A NEW CONDENSER.

The condenser, as it was constructed by James Watt, consisted of a closed compartment (the condenser proper) and of the air or condenser pump. It is built in nearly the same manner now, the difference being that the condenser and the air pump are very often not separated but connected as one.

The object of the air pump is to remove air and the water of condensation from the condenser. The warm water that results from the mixture of cold water and steam would soon fill the condenser and stop its operation but for the action of the air pump. A certain quantity of power is necessary for the operation of the pump, and this in the ordinary condenser must be furnished by the engine.

Brossard's condenser, which is shown in the engraving, does not require an air pump, and consequently does not consume any of the power of the engine. It is, in fact, entirely independent of the engine. To operate this condenser, cold water, flowing down a height of from 20 inches to 32 feet, creating a corresponding vacuum, is only necessary.

Fig. 1 is a perspective view of the apparatus. Fig. 2 is a vertical section.

The construction can be seen from the engravings. A is the pipe through which the waste steam from the cylinder passes into the condenser. To set the apparatus in operation the cock, *b*, is opened, then water will flow over the disk, *e*, into the chamber, *f*, of the condenser, whence it flows through the pipe, *g*. In the pipe, *g*, the water tends to attain a velocity proportional to the height through which it falls, but if the cock, *b*, is set so that less water can enter *e* than can flow through *g*, then the water in *g* flows slower. This produces a vacuum in the condenser, *f*. If the steam is allowed to enter the condenser it will be drawn into the vacuum, *f*, and will be condensed there by the cold walls of the condenser funnel, and by being mixed with cold water. The water of condensation also flows off through the pipe, *g*. The water that passes through the pipe, *g*, forms a liquid funnel at *i*, into which the air that may have remained in the condenser is drawn.

As soon as the apparatus is in operation the cock, *b*, is closed, so that the water does not flow from the reservoir, *h*, but is drawn by suction from the reservoir, *k*. The best results are attained if the water is cold and quantity small.

To measure the effect of the apparatus we can assume that 39·37 inches of height through which the water falls, is equal to 2·75 inches of quicksilver. If the vacuum is proportional to 29·8 inches of quicksilver, the rarefaction with this condenser will be proportional to 27·5 of quicksilver if the height is 32 feet. The least effect is produced with a height of 20 inches, and the vacuum is then proportional to 1·37 inch of quicksilver.—*Schweizerisches Gewerbeblatt.*

FIG. 1.

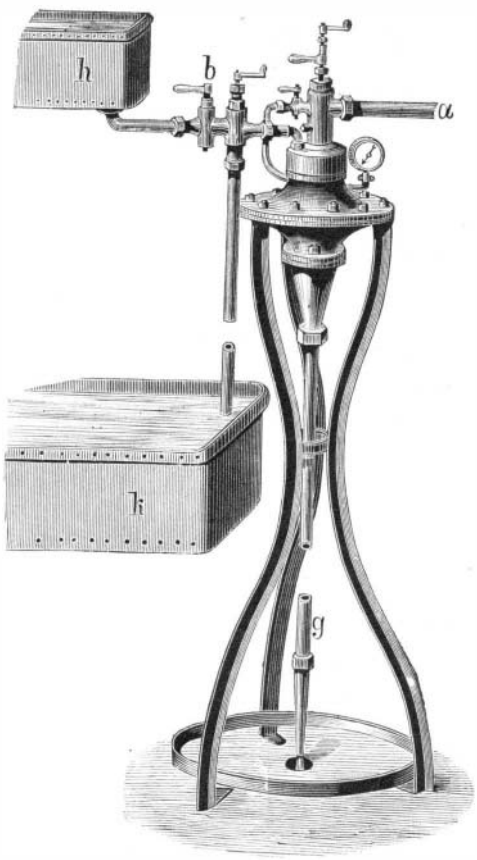
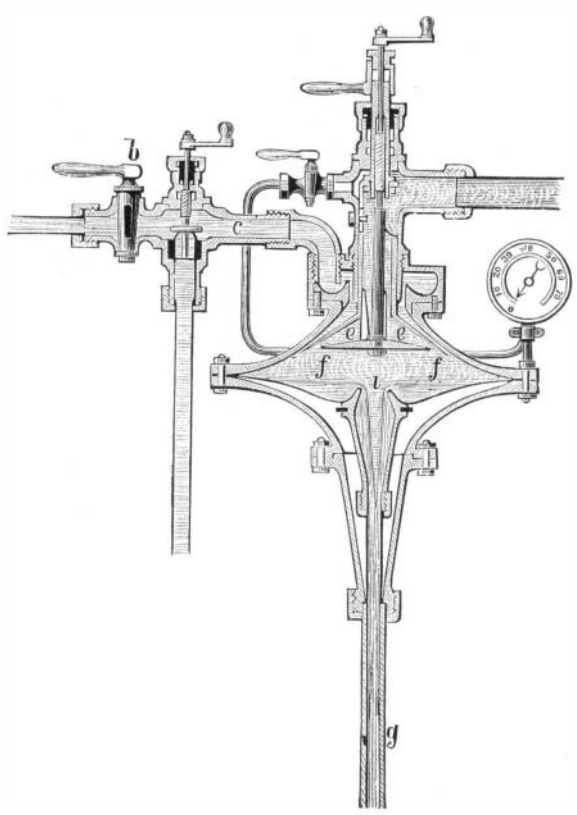


FIG. 2.



BROSSARD'S CONDENSER.

A New Cigar Ship.

A London paper reports that Mr. Winans, of Baltimore, is building in the Clyde a monster cigar ship at a cost of close on $1,000,000. She is to be of 4,000 or 5,000 tons burden, and it is believed by her owner that she will be able to cross the Atlantic in five days. This will be the third vessel of the same type that Mr. Winans has built. The other two are much smaller and are well known to all who frequent the Solent in the summer.

BABBITT METAL.—By weight 4 parts copper, 8 parts antimony, 96 parts tin.

The Lesson of Asa Packer's Life.

Between the young mechanic from Connecticut who wandered into the Susquehanna Valley on a winter morning fifty-six years ago, with his knapsack and kit of tools, seeking work, and the distinguished citizen whose death the whole commonwealth mourns to-day, there is more than the space of half a century—there is the whole span of American possibilities; there is the whole story of an American fortune, and of the success which was due to thrift, patience, foresight, and, above all, character. The story of Judge Packer's life is better than a romance. Opportunity of no common order was his, it is true; but how many other striplings of Yankee or Pennsylvania growth who were on the road he traveled by, had the discernment to see the opportunity in the first place, the frugality and hard endurance to grasp and hold it, and the rugged truth of character that induced men to hold fast by him when disasters were threatened that overthrew lesser or less steadfast men? There is a practical value in this career, ending as it did in the possession and dispensing of a colossal fortune, that ought to send all doctrinaire theorists on the labor question to the right about. Here was a young fellow, unfriended, except by the skill of his hands as a workman, who came into the Lehigh Valley and conquered it; subdued its rugged mountain sides and its narrow river bed; laid bare its wedged in and countless wealth, and dispensed prosperity to his fellow citizens. More than this, the opposition and narrowness which he encountered in dealing with other men who stood on the level of labor he started from, was the means of turning his attention to his great educational work. The problem of the "strike," which confronts the best minds of capitalists and laboring men to-day with its costly and menacing possibilities, was the corner stone of Lehigh University. Long shall the story be remembered of that scene on the river when the striking boatmen of the Lehigh canal with their boats were collected on the pool of the Lehigh river, above the dam at Easton, with all the uncontrolled passion and disorderly excesses that accompanied the "strike" in the coal regions. Judge Packer, himself a boatman of a few years back, in the full confidence of his kindly feelings and his knowledge of their thoughts and needs, went to them for a friendly talk on the situation. He had no fear of his life in meeting this excited crowd, although from personal experience he knew the temper of these turbulent men. They would not listen to him, but seized him and flung him into the river. Some men would have accounted it a lifelong grudge and an added reason for severity in pursuing the mob leaders to punishment for this outrage. But the perfect temper of Judge Packer viewed this "mob baptism" differently. It was an outburst of passionate ignorance, he reasoned, and his answer to the outrage was a great Free School. It would take a generation to disperse the ignorance, but the rising generation should have the benefit of all that free tuition and the wise disposal of his wealth should give it.—*Philadelphia Public Ledger May* 19.

The Ship Constitution.

The old frigate Constitution, now at Brooklyn, unloading exhibits returned from the Paris Exhibition, had her keel laid in 1794, and was launched three years later. She bombarded Tripoli in 1804, and in 1812 she captured the Guerriere, Wasp, and other vessels. It is said by naval officers that not a particle of the original wood is now in the old frigate, except the mizzentopsail bits.

NEW COLORS.—Reinhold Hoffmann treats blue, green, or so-called white ultramarine at an elevated temperature, and with access of air with acids, or with salts which give off acids when heated. He thus obtains purple-red or violet color, which, on treatment in the same manner, become red.