

IMPROVED PAPER CUTTING AND WINDING MACHINE.

Our engraving illustrates an improved machine for cutting roll paper, such as is used in telegraphy, for rolling ribbons for hat bindings, etc.

The machine, although quite simple in its construction, is capable of performing a large amount of work. The roll of paper to be cut into strips is placed on a shaft at the rear of the machine, and is passed alternately over and under the rolls in the pivoted frame at the top of the machine, thence between circular shears to the shaft that receives the strips. This shaft is rotated by power received through the belt, and the circular shears are turned by the paper itself, which passes between elastic rollers on the shear shaft. Tension is given the paper by a friction brake on the shaft which holds the paper supply. The rollers in the pivoted frame smooth and stretch the paper, and the shears make a clean cut without danger of tearing the paper. The machine will cut paper strips of any desired width and wind them in solid coils, and it may be adapted to paper of any thickness from the finest tissue to cardboard.

The manufacturers inform us that only one attendant is required, and that the expenditure of less than one horse power will cut into strips of any desired width at least 4,000 lbs. of paper in ten hours and wind it perfectly. The machine might be easily combined with a paper machine so as to cut and wind the paper as it comes from the calender without the necessity of rewinding, in fact it seems a very important adjunct to paper machines designed to manufacture paper in rolls.

This machine was recently patented by Mr. Ignatz Frank, and is manufactured by the Cutting and Winding Machine Company, No. 124 Baxter street, New York city, Mr. George W. Gilbert, Secretary.

NEW CUT-OFF FOR STEAM ENGINES.

We give herewith an engraving of an engine provided with an improved cut-off recently patented by Mr. George H. Cobb, of Palmer, Mass. In this engine a single slide valve is operated by the joint action of two eccentrics, one of which is secured to the main shaft, while the other moves freely in a longitudinal direction upon the governor shaft, but is prevented from turning thereon by a slot in the eccentric and a feather in the shaft.

The cam or eccentric on the governor shaft is graduated, so that its center varies in position at every point in its width, the eccentricity passing around from one side of the shaft to the other. The governor acts upon the movable eccentric and varies its position according to the speed of the engine.

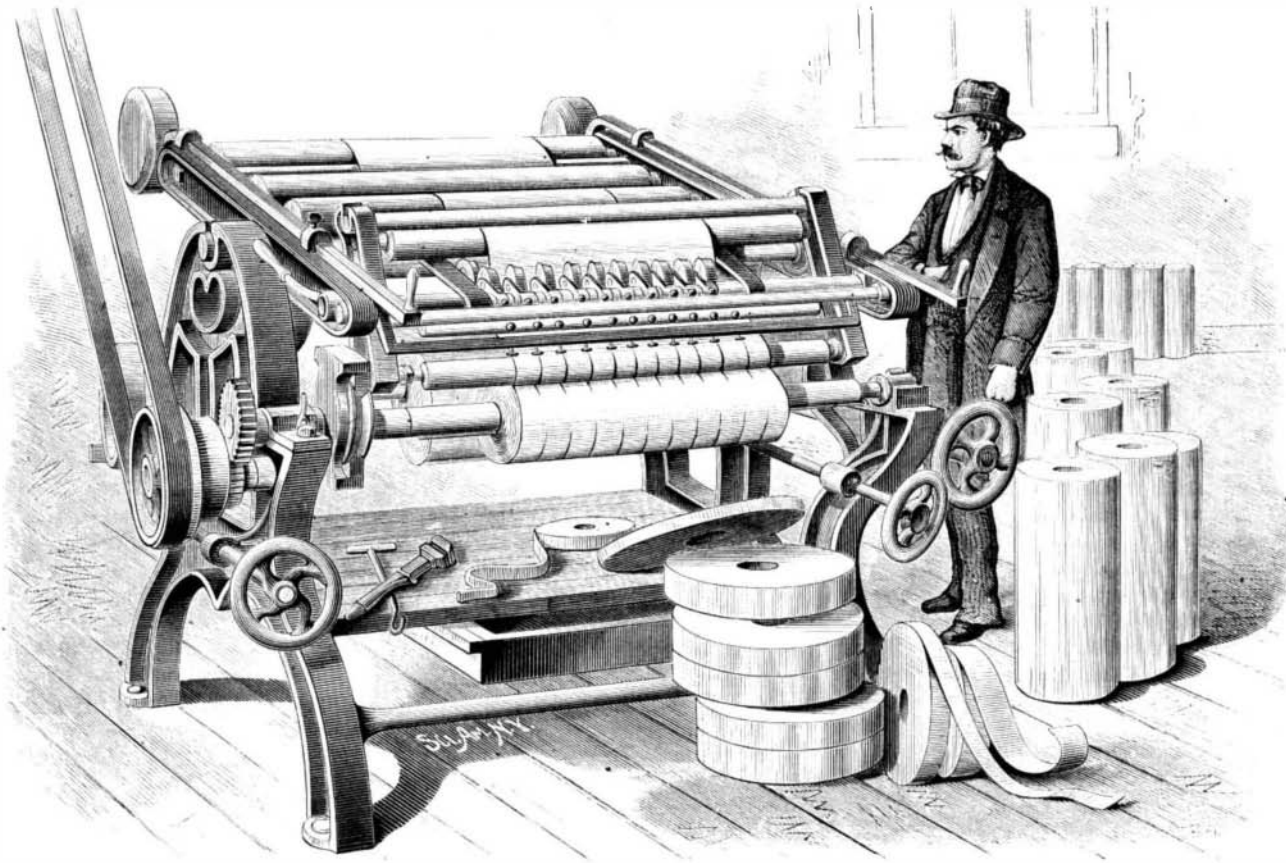
The straps of the two eccentrics are connected with a link or lever, which is fulcrumed on the lever that operates the slide valve of the engine, and the governor takes its motion from the main shaft through miter gearing.

It is a very simple matter to adjust the cut-off to the speed of the engine, the adjustment depending on the relation of the governor arms with the movable eccentric. This device appears practical; it certainly is very simple, and

possesses the advantage of being applicable to engines already in use.

The Nobility of Science.

And as to nobleness of character, how can one accuse science of striking at it when he sees the minds that science forms, the unselfishness, the absolute devotion to life work that she inspires and sustains? With the saints, the heroes, the great men of all ages we may fearlessly compare our men of scientific minds, given solely to the research of truth, indifferent to fortune, often proud of their poverty, smiling at the honors they are offered, as careless of flattery as of obloquy, sure of the worth of that they are doing, and hap-



FRANK'S PAPER CUTTING AND WINDING MACHINE.

py because they possess truth. Great, I grant it, are the joys which a firm belief in things divine confers, but these the inward happiness of the wise equals, for he feels that he toils at an eternal work and belongs to the company of those of whom it is said, "Their works do follow them."—*Renan's Inaugural Address.*

OYSTERS in China are frequently dried for use instead of being eaten fresh. They are taken from the shells, plunged for an instant into boiling water, and then exposed to the rays of the sun until every particle of moisture has evaporated, when it is said they will keep for a length of time, while preserving the full delicacy of their flavor. The finest and fattest bivalves, bred on the leaves and cuttings of the bamboo, are chosen for this process, those taken from the natural beds being inferior in quality, and not sufficiently plump for the operation.

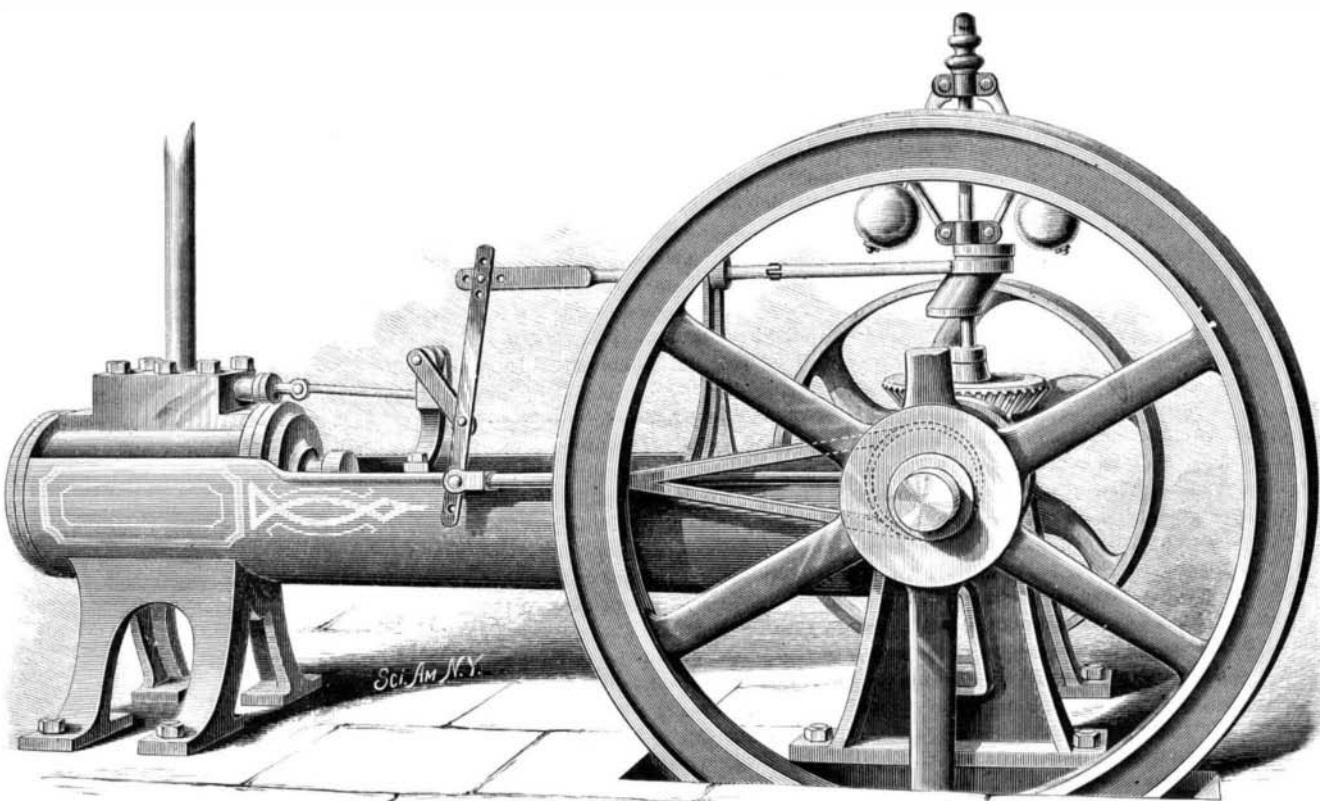
Wooden Pendulums.

An interesting discussion recently took place at a meeting of London clock makers on compensation pendulums. The general judgment seemed to be in favor of plain wooden pendulums for all sorts of timepieces. One speaker said that wooden pendulum rods were generally in use for turret and church clocks, and also in regulators. Another concurred in that statement, and he thought that if wooden pendulums were good for church clocks, they might usefully be adopted for bracket clocks. He had accordingly altered a very old family clock of that description, and of the best London make, by substituting a wooden for a brass pendulum, with very decided advantage. It might possibly be worth while to make a similar alteration generally; brass, being a cheaper and a prettier material, having probably been used by the makers of bracket clocks without consideration. A third maker never used anything but wood, when he could help it, for railway, church, or turret clocks. Another speaker considered that one of the advantages in the use of wood for pendulums might be that, in a fall of temperature, when the rod would be shortened, the hygroscopic property of the wood would come into play, which would tend to lengthen it, and so cause a natural compensation by the thermometric and hygroscopic properties of the wood acting in opposite directions. In some climates that certainly might be the case, though in others they would work together, when the effect would be to increase

the error. It was stated that a wooden pendulum with a leaden bob had been affixed to a regulator clock in one of the leading shops, and was keeping excellent time. It was a very simple form of pendulum, and might be made very economically. Further testimony was borne to that form of pendulum. Dr. Mann had used one in Natal, which was simply a rod of varnished wood supporting a cylindrical bob of lead. It was, of course, subjected there to great and rapid changes in the atmospheric pressure and to diversities of heat, but it worked excellently for many years. Subsequently it was replaced by one of Frodsham's best steel pendulums, and though there was some improvement, it was much slighter than might have been expected. In short, it was about as good a pendulum as could be conceived.

A Curious Property of Heat.

Mr. C. J. Henderson has been conducting some experiments lately in Edinburgh with a view to finding out what is the most economical way of heating a public hall, and has decided that the best results are to be obtained by using an accumulator or stove-room, where the heat, generated by any means whatsoever, is collected, and from which it is discharged through one opening about three or four feet square and seven or eight feet from the floor. The experiments unexpectedly exhibited with what instantaneousness and equality heat is transmitted through space independent of the direction in which the entering heated air is moving; for thermometers were placed at the same height on each of the four



COBB'S IMPROVED CUT-OFF.