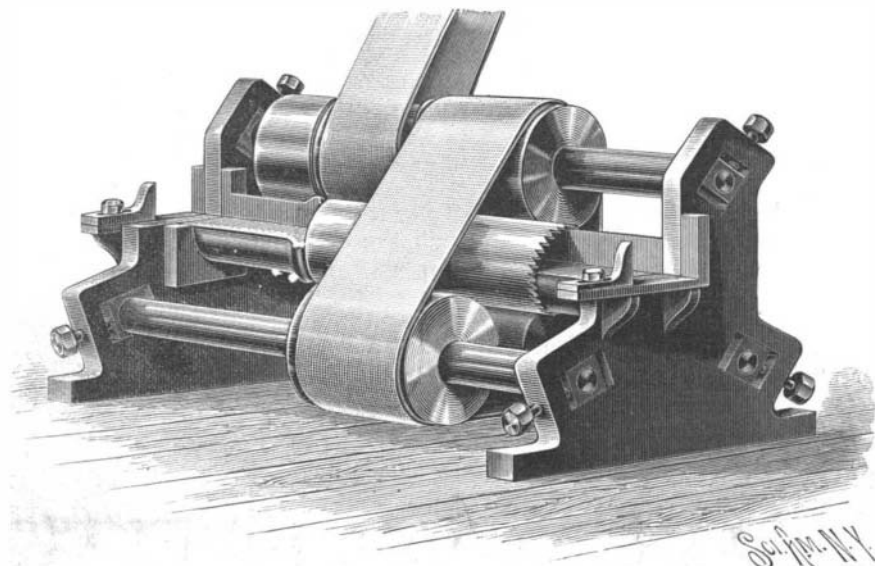


#### A MACHINE FOR SAWING MOULDING STRIPS.

With the machine shown in the illustration a piece of lumber may be cut into two strips at one operation, preventing any waste of material, one of the strips having a cove and the other being quarter round. A patent has been granted for the improvement to W. V. Long, of Leesville, Ohio. Upon a fixed spindle having a lengthwise recess is a revoluble cylinder with sawteeth at its front edge, the cylinder rotating freely on the spindle and its rear end abutting against a shoulder on the spindle. The cylinder is rotated by three rollers engaging its peripheral surface, the rollers being made of rubber or similar material



LONG'S MACHINE FOR SAWING MOULDINGS.

and journaled in adjustable bearings, and being connected with each other by a belt, the shaft of one of the rollers having fast and loose pulleys, and receiving power from other machinery. On the standards of the frame are guideways, and when the saw cylinder is rotated and a bar of wood is pushed through the guideways along the lengthwise recess of the spindle against the saw teeth, one corner passes inside the cylinder, the wood being thus cut into two strips.

#### AN EIGHTEENTH CENTURY PROJECT FOR A HUGE CANNON.

The engraving that we reproduce is made from a very rare print of the last century, and is certainly Dutch, as shown by its peculiar aspect and the manner in which it is engraved.

The following is the quaint legend that interprets the letters and figures engraved upon the print:

A. He who causes the machine to move. B. The two gunners. C. The assistant mechanic who serves to control the front wheels in order to keep the cannon in balance and to apply the match to it. 1. The framing of the entire machine. 2. Large powder magazine and piece of artillery. 3. The gun. 4. Priming pan that closes and opens of itself. 5. An endless screw that serves to direct all. 6. Cart-ridge chest. 7. Disk of the traces that steer the front wheels.

We publish this engraving of a large cannon as a matter of curiosity. We have consulted specialists and men posted on history in regard to it, but no one has been able to give us any information. We may recall the fact that much attention was paid to cannon in the last century, and that in the first part of this century lived the celebrated mathematician Robin, a great mathematician and physicist, who set forth the first principles of modern artillery.—La Nature.

#### Breaking of an Axle Inside the Wheel.

In February of this year a North London train on the Great Northern main line met with an accident at Wood Green station which was caused by the leading axle of the engine breaking off inside of the wheel fit of the right hand wheel. The train did not leave the rails immediately, but upon striking the corner of one of the platforms it was turned over upon its left side, killing the engineer and fireman. The engine was running backward with the coal bunker ahead. It was an eight-wheel tank passenger type, with a bogie under the front end, which in this case was the trailing

end of the engine. In the official report upon the accident Lieut.-Col. Yorke attributed the accident to an old fracture which previously existed, and when the engine turned over, the left hand leading axle was broken short off close to the wheel, which was thought to be the effect and not the cause of the accident. The axle was of steel and 25½ years old, having run 578,020 miles. It had been under more than one engine and had been placed under the last one in November, 1887. In 1889 the wheels were retired; in October, 1894, the engine was shopped for tire turning and repairs, and at this time the axles were examined without the discovery of any flaws. The method of examination of

axles by the inspector in charge of this work is given in the report. It consists in carefully cleaning the axle and placing it in a lathe and, after it has been exposed to the vibration produced by the tire turning, the surface of the axle is closely examined for flaws with a magnifying glass. The axle is also subjected to a shock by hammer or otherwise in order to force the oil out of any crack which may exist. The report shows that on February 27, the day previous to the accident, the customary examination of the axle was made, but of course could not disclose the existence of this fracture, which was inside of the wheel. The

report also gives the requirements imposed for the acceptance of new axles, which consist of the drop test and in some cases of chemical analysis. The inspector, after examining into the methods for the testing of new axles and examination of old ones, came to the conclusion that there was no means of detecting fractures which occurred within the boss of the wheel. He considered the mileage of the broken axle as being high, but stated that no limit of age, either in years or miles, has ever been laid down for locomotive axles, though it was usual to subject all engines to a special examination after reaching a mileage of 250,000 and after every subsequent 100,000 miles. This examination is carried out on the North London Railway, which also makes an additional examination at every 40,000 to 60,000 miles run.

The average yearly mileage of this axle was 23,000. It was examined in 1887, 1889, 1892, and 1894, or at intervals of from 46,000 to 69,000 miles. The report says that a crystalline appearance of the fracture was found, and it was thought that the previous partial fracture and the complete fracture of February 28 were due to age, combined with a severe frost. The inspector speaks well of the tests for new axles, and was disap-



EIGHTEENTH CENTURY PROJECT FOR A LARGE CANNON.

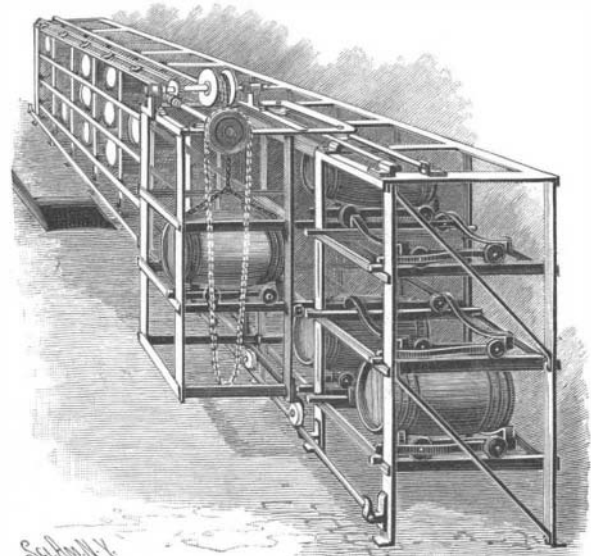
(Reproduction of a Dutch Engraving on a Scale of One-quarter.)

pointed to fail in discovering a method to disclose such fractures as this one. In conclusion the report says: "It has sometimes been suggested that it is desirable to fix a limit of age, either in years or miles, for all locomotive axles, after reaching which, whether they are apparently sound or not, they should be withdrawn from use. But the locomotive superintendents of rail-

way companies have not as yet seen their way to act upon this suggestion. It is right to mention that it is now the custom of all the companies with whom I have been in communication, including the North London Company, to make the wheel seat of every axle slightly larger in diameter than the journal and body. In this way the strongest part of the axle is that inside the wheel, and failure of an axle in the wheel seat is consequently nowadays extremely rare. This modern form of design was not adopted in the axle which led up to the disaster under consideration, and the diameter of the wheel seat was the same as that of the journal and the body."

#### AN IMPROVED CASK STORING RACK.

A rack with which is connected a traveling hoisting apparatus, to facilitate the storage of casks and other articles, is shown in the accompanying illustration, and



PUFFER'S CASK STORING RACK.

forms the subject of a patent issued to William D. Puffer, North Adams, Mass. The framework of the rack forms a series of cells, in each of which are tracks adapted to receive wheeled trucks, a spring arm on the truck having a hook or keeper engaging one of the uprights to lock the truck in proper position in a cell. Along the front of the rack, near the bottom, a rail is secured upon brackets, and upon the top of the rack, near its front edge, are two parallel rails between which travel grooved wheels journaled in a horizontal frame, a cage attached to this frame having also grooved wheels traveling upon the rail near the bottom of the rack, whereby the cage is supported to travel along the front face of the rack. The cage is of a width and height corresponding to a vertical tier of cells in the rack, and in each compartment of the cage are tracks adapted to register with the tracks in the rack cells, spring arms locking the cage in front of any one of the vertical tiers.

A lifting mechanism, actuated by a hand chain passed over a sprocket wheel, forms a part of the cage, and when a cask or article to be elevated is rolled under the cage, the grapples or clamps are lowered and made fast to it, when the article is raised to the desired cell by means of the hand chain. A worm meshing with a worm wheel on the shaft of the lifting drum prevents a reverse movement of the chain, and a car or truck is then moved from a cell in the rack, when the article is lowered upon it, and the truck with its load is moved back into the rack in which the article is to be stored. This storage system is adapted for all shapes of merchandise, the cars being built flat for boxes, and casks or boxes may be readily raised from a cellar through a trap door by the lifting mechanism, the cage being conveniently moved to the front of any tier of cells in the rack for the storing or removing of merchandise.

#### Cranberries in Cholera.

Dr. Goriansky declares that the use of the pure and fresh juice of raw cranberries, given freely, either undiluted or with an equal part of water, is an excellent means of relieving the thirst and vomiting peculiar to cholera. In fifty cases, in which ice and narcotics failed to make the slightest impression, the cranberry juice in small but repeated doses rapidly checked both vomiting and nausea.