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## Rail-Road News.

### German Railroads.

Germany began to experience the luxury and benefit of fast and comfortable riding in the year 1848, by constructing the railroad, of which eighty miles (more than 360 English miles), were completed in that year. At the beginning of 1850, there had been added 840 German miles more to the length, so that there were then more than four thousand English miles of railroad opened for passengers in that country. Add to these both tracks of the Maine Weser line, from Cassel to Frankfort, we have nearly fifty English miles farther. Of the aggregate, over fifteen hundred miles belong to the different governments.

Prussia owns an extent of three hundred and forty German miles; Austria, one hundred and eighty-seven; Bavaria, eighty-two and a half; Saxony, fifty-five and a half; Hanover, forty-eight; Baden, fifty-two; Electorate of Hesse, thirty-three; Wurtemberg, twenty-five; Mecklenburg Schwerin, nineteen; Anhalt, twelve; Brunswick, eleven and a half; Saxe Weimar, ten.

The Wurtemberg Railroads, and the Budweis-Linz-Gmunder horse line, are quite isolated. The upper Rhenish Railroad system, which comprehends the Baden government line, the Maine Neckar line, the Palatinate Ludwig's line, the Taunus line, and the lines from Frankfort to Offenbach, Hanau, and Friedburg, is separated from the large North German system of roads by the unbuild portion between Friedburg and Marburg, as the Bavarian lines are separated by the tract from Plauen to Reichenbach, and the Austrian southern line by the tract from Gloggnitz to Muerrzuschlag, (over the Sommering.) Forty-one joint stock companies own the private lines, and their funds amount to one hundred and fifty-eight and a half million thalers. To this other loans should be added, of sixty-two and a half millions.

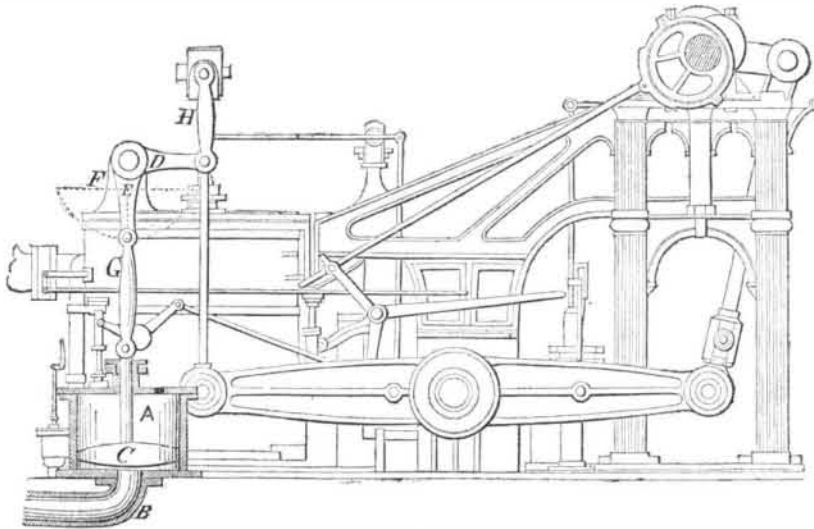
### Railroad Law in Ohio.

An act has recently been passed in Ohio, authorizing two or more railroad companies, whose roads run in a continuous line, to be merged into one, and authorizing any railroad company to assist another by subscribing to its stock.

The Alexandria Gazette states that the work on the Orange and Alexandria R.R. is in a very prosperous condition. The work of laying the rails in the city is to be commenced forthwith. Two thousand men are at present said to be employed on the Lynchburgh and Tennessee Railroad, and the first 61 miles are expected to be opened during the present year.

The Toledo Blade states that the Lake is gradually falling to its minimum level—an event that occurs every 10 or 14 years.

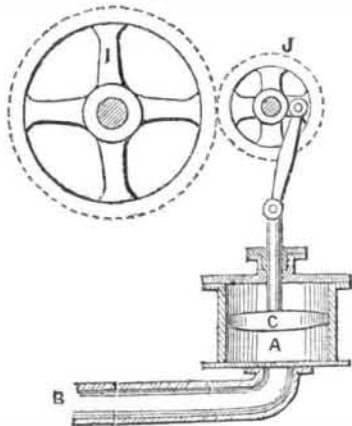
## GREGORY'S ENGINE POWER-REGULATOR.---Fig. 1.



This novel device is the invention of Mr. Alfred Gregory, of Brooklyn, N. Y., who has taken measures to secure a patent for the same. Of its practical utility and highly important advantages we feel convinced, and our opinion coincides with that of several well-known engineers, among whom are Messrs. Stillman, Allen & Co., of the Novelty Works, in this city, whose written acknowledgment of its merits we have seen.

The object of the invention is to render more generally available, both in marine and land engines, a large expansion of the steam, which may, by the adoption of this plan (applicable at a small cost to engines now in use) be "cut-off" much earlier in the "stroke" than is, by the present means, practicable. The economy in fuel which ensues by cutting off steam in the cylinder, has long been established, which economy is still greater when steam of "high pressure" is employed, and is dependent upon the period of "cut-off," even with "low pressure," in the following proportions,—steam stopped at one half of the stroke has its performance multiplied one and three quarter times; at one quarter of the

FIG. 2.



stroke, two and a half times; at one eighth, three and a quarter times, nearly. Thus we see the great advantages attendant upon thus working the steam, especially in ocean navigation, where a reduction in the necessary amount of fuel entails not only a diminution of expenditure, but a yet greater economy in the additional stowage room applicable to freight, as well as accomplishing that most important result—the adaptation of steam power to long voyages. In few instances, only, by the means in present use, can any considerable amount of expansion be adopted, as the variability in the actual propelling force of the piston produces a want of uniformity in the velocity which even the fly-wheel (where

admissible) is very limited in regulating: to equalize, modify, or regulate this difference, and to obtain the advantages derivable from a greater degree of expansion, is the design of the invention under notice, which is done by taking off force from the propelling power of the piston at the early part of its stroke, when the steam is full on, or strong, by means of a "drag," which returns the force consumed, or operates as an "auxiliary" during the remainder of the stroke, when the steam, by expansion, has become weak. The apparatus for effecting this desideratum is very simple, and, with a little study, will be readily understood by reference to the annexed engravings, which we shall now proceed to describe.

Fig. 1 represents a Marine Steam Engine with the Power Regulator attached. Figure 2 is a detached view of the Regulator, operated for the purpose of illustrating its action, in a somewhat different manner.

In figure 1, A is a cylinder of small diameter, to the bottom of which is fixed a pipe, B, freely communicating with the steam in the boiler. C is a piston working in the cylinder, A, and which moves once up and once down, while the engine travels once either way; the steam acts only on the under face of the piston, C, which may have a vacuum above it, or be exposed to the atmosphere. D and E are arms forming a bell crank secured to a shaft vibrating in its bearing, F; and G is a connecting rod attaching the arm, E, to the rod of the piston, C. H is a similar rod connecting the arm, D, to a branch from the rod of the engine piston. These several parts or portions of them may be repeated on the other side of the engine by way of obviating lateral or uneven strain. In fig. 2, the Regulator is driven by wheels in lieu of the bell crank and connecting rods, the wheel, I being keyed on the main or engine shaft and driving the regulator by gearing into the pinion or wheel, J, of half the diameter of I, which will cause it to run two to one, and thus the piston, C, will make two strokes for one stroke of the engine piston, which is also the case in fig. 1, as will be perceived by reference to the travel of the arm, E, indicated by dotted lines or arc; and in the operation of the apparatus it will be seen, that the piston, C, is forced down against the pressure of steam under it during the travel of the engine piston either way until it reaches the middle of its cylinder, thus acting as a drag when the steam at the early part or half, of the single stroke is strong; and as the steam, by expansion becomes weak during the travel of the remaining half of the engine piston's stroke, the piston, C, in being worked upwards, is aided by the same pressure of steam

under it which had to be encountered in the descent, and thus, in the ascent, serves as an auxiliary in counteracting the deficiency of the propelling power of the engine piston, caused by expansion. The changes thus produced, being gradual, by the difference of leverage during motion, which gradual effects are in unison with the regularly diminishing strength, by expansion of the steam, (the forces of the drag and auxiliary being greatest at the two points requiring their strongest effects). The piston, C, in performing two strokes for one stroke of the engine piston, will have completed its descent or operation as a drag, when the engine piston is half way of its cylinder, either way, as shown in fig. 1: and during the finishing part stroke of the engine, the piston, C, in rising, will serve as an auxiliary, gradually increasing in strength by the difference of leverage, as the steam in the engine cylinder is growing weaker. It will be perceived that no steam is allowed to escape from under the piston, C, consequently no power is consumed except the slight friction to work it, the regulator not discharging steam each stroke (nor at any period) as is the case with the engine piston—the steam under the piston, C, and in the cylinder, A, always freely communicating with the boiler. The piston, C, requires to be but of small dimensions, as it is constantly acted upon by the "full" or extreme pressure of the steam; and any fluctuation of the pressure in the boiler affecting the power of the engine, will be proportionally felt in the force of the Regulator, which, in its action, thus serves to admit of a large degree of expansion being worked without affecting uniformity in velocity, through its tendency to equalize the propelling force or modify the attendant variation.

The Regulator may be operated by the engine in various ways, to suit circumstances, or according to the judgment of the engineer. Further particulars, future terms, &c., may be had by addressing the inventor, at this office

### To Dye Hair Black Instantaneously.

Dissolve about an ounce of the nitrate of silver in a half-pint vial; then, in another vial of the same size, filled with ether, put some phosphorous (about half an ounce.) Apply the nitrate of silver to the whiskers with a sponge, and after it is on about five minutes, apply the phosphoric ether solution in the same way, and the red or light whiskers become black, as fast as you can say "Jack Robison." The hair should then be washed. It is not safe, however, to tamper with the nitrate of silver. It should never be used to color the head black; far better to have the locks frosted than colored, if health is of any consequence to the individual man. We have had some enquiries about the way to dye the hair black within the past week. The above will give them all the [information they want]. The phosphorous may be dispensed with, but the color will not be formed so fast by the silver alone. The nitrate of silver is the basis of all the perfumers' hair dyes. The phosphorous gives out no very pleasant smell, but the silver has a very pleasant odor.

FACT IN ORNITHOLOGY.—The quills of the feathers of birds are air-vessels, which can be emptied and filled at pleasure. The gannet or solan goose is a beautiful instance of this wonderful provision; it lives on fish and passes the greater portion of its time either in the air or on the water; even in the most tempestuous weather it may be seen floating on the wildest waves. It can even force air between its skin and body to such a degree that it becomes nearly as light and buoyant as a bladder.