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RAIL-ROAD NEWS.

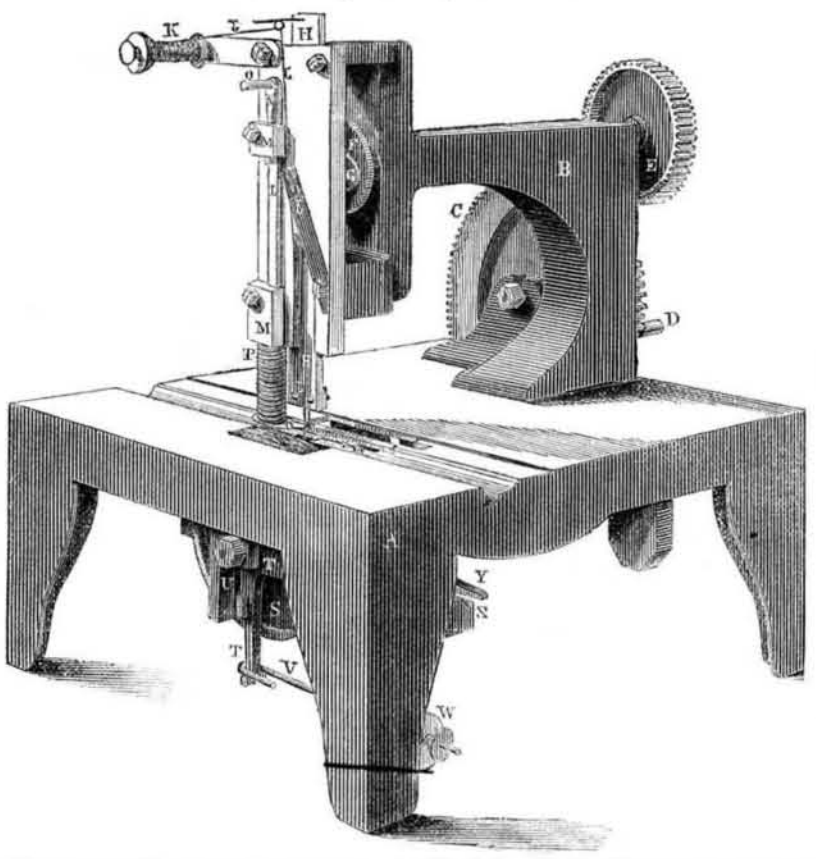
Railroads in Europe.

We have rather been consoling ourselves with the idea that our recent railroad enterprise was greater than that of all other nations together. This seems to be a mistake, for the Continent of Europe, mixed up with despotic governments, appears to be as truly alive to the importance of railroad communication, as the most go ahead of all our States. The London Times has recently been publishing statistics of the progress of the different countries, which exhibit these results :—Belgium has 532 miles of railways, 353 of which have been constructed and worked by the State, the remainder by different private companies. The expense of constructing the whole has been £9,576,000, or £18,000 per mile. The annual expenses are 63 per cent. of the receipts, and the profits three and a half per. cent. on the capital. In France there are 1,818 miles of railway under traffic, 1,178 miles in progress, and 577 miles projected. The cost of construction per mile has been £26,832, and the whole expenditure requisite for the completion of the 3,573 miles is estimated at £95,870,735. The average annual net profit on the capital employed does not exceed two and seven-tenths per cent.

In Germany there are 5,342 miles of railway in actual operation, 700 in progress, and 2,414 miles projected. Of the railways in operation, 1,812 miles were within the Prussian territories, and 771 miles in the Dutch Netherlands, the Danish Duchies, and the ex-German Austrian provinces, and therefore only 4,571 miles can be considered as strictly within the Germanic confederation. Two-fifths of these 4,571 miles were constructed and worked by the State, the remainder by private companies. Those in Prussia, however, are all the result of private enterprise. The expense of construction of the 5,342 miles is estimated at £12,500 per mile, being single track only. The working expenses are about fifty per cent. of the receipts, and the net profits are nearly three per cent. In Russia a railway from Warsaw to Cracow, 168 miles in length, is in operation; one connecting Warsaw with St. Petersburg, 683 miles in length; and one of about 400 miles, from St. Petersburg to Moscow, is in progress. A railway for goods from the Wolga to the Don, 105 miles in length, is also contemplated. In Southern Russia a line of railway between Kief and Odessa has been surveyed. In Italy no extensive system of railway has yet been executed. A few lines, diverging from the principal cities, such as Naples, Milan, Venice, Leghorn, and Florence, are alone in operation. In the kingdoms of Sardinia, Spain, and Portugal, railways are only in prospective.

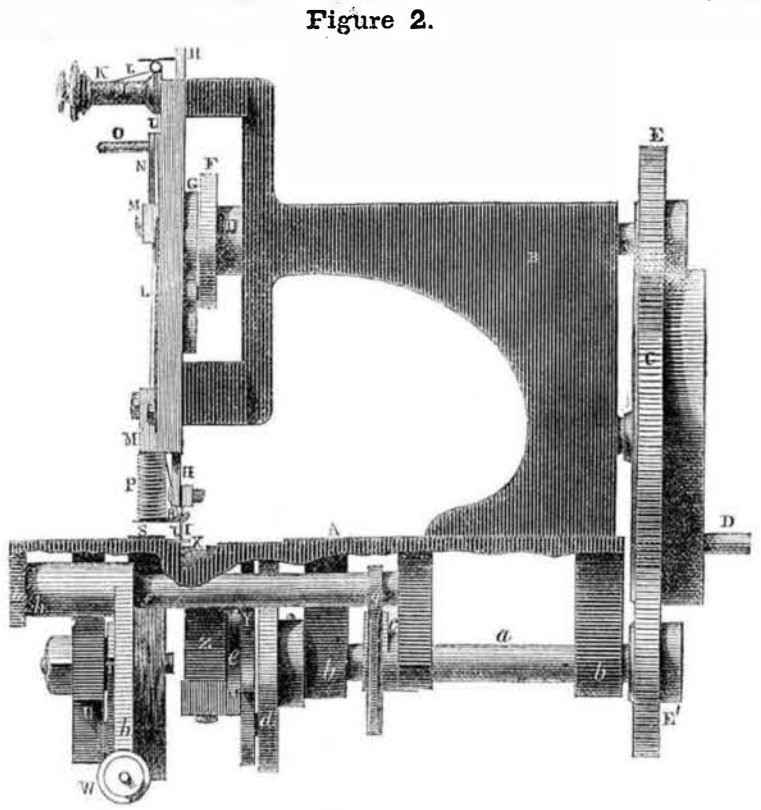
By multiplying £1 by $4,85 we can arrive at the cost per mile of some of these roads. It will be observed that the French lines—the highest—cost $130,135,20 per mile, or nearly three times as much as those of Massachusetts, the cost of which averages $43,781,00, or about £9,000. If the European lines pay at such an enormost cost, need we be afraid?

SINGER'S SEWING MACHINE.---Fig. 1.



The accompanying engravings represent a perspective view, figure 1, and a side elevation, figure 2, of Isaac M. Singer's Sewing Machine, which was patented on the 12th of last August. A is the frame, made of cast-iron, and B is a cast-iron standard to support part of the working machinery. C is a large driving wheel, worked by the handle, D. E is a small second wheel, driven by C, and works the shaft that vibrates the needle; E′ is another wheel to work the shuttle shaft, *a*, hung in the bearing straps, *b b*, fig. 2. F is a round plate on the revolving shaft of E; it has a small roller stud on its inner face fitting into a plate, G, slotted of a heart-shape, to answer the purpose of a cam. This plate, G, is secured to the vibrating arm, H, to which the needle, I, is fastened. The needle performs three strokes up and down during one revolution of the large wheel, C. The thread, J, of the needle is supplied by a bobbin, K, and goes through an eye in the needle, near its point. The cloth is laid flat on the table on the top of a small rough-faced roller, S, with the edge to be sewn under the needle. The cloth is held down by a pad, R, acted upon by a coiled spring, P;

Figure 2.



this pad is raised by a pin, O, and kept fixed by a catch bar, N, which presses against a shoulder piece, M. There is another shoulder piece, M, to secure the arm, L, of the pad, R in its place. When the cloth is laid on the table, on the wheel, S, the catch, N, is thrown out, and the pad, R, is pressed on the cloth by the spring, P, and is retained firmly in its place but still allowed to be carried forward as it is stitched. The way in which the stitch is performed is by two threads, one supplied with a shuttle, X, the other by the needle, I. Without two threads, no good stitch has yet been made by any sewing machine. X is the shuttle carrying a thread which passes from a pirn inside through a small eye on the side next the needle. Now, to form the stitch, which is just like the lock or link of a chain, the thread in the needle, after having passed through the cloth, opens, and the shuttle passes through this loop, therefore, when the needle is drawn back, and the shuttle also to the end of its raceway, the two threads are drawn tight, forming a link drawn on the cloth, and thus link after link of these threads form the seam. The drawing of the threads tight, and the forming of the loop on the end of the needle for the shuttle is an essential feature to the successful working of these sewing machines. For this purpose the shuttle, X, has a motion to coincide with that of the needle, I, and it is imparted by the same devices, *d*, fig. 2, being like plate, F, and Y like cam G, only the shuttle runs horizontally at right angles to the needle; *e*, fig. 2, is the shuttle arm, and Z is the guide or raceway, in which it runs. Thus the motions of the needle and shuttle are explained. The other lettered devices not explained are those belonging to the cloth-feeding motion. The roller, S, that moves the cloth has a rough face, and rotates, but moves round slowly, only making its movements forward the length of a stitch for every stitch taken; this is done by catches or pallets, a well known [illegible]. These pallets are vibrated by a rocking shaft, *f*, having a bar, *g*, on it, which is moved by a cam, *c*, on the shaft, *a*. To the small rocking shaft, *f*, there is secured a suspended lever, *h*, having a collar, *h* surrounding said shaft, near its bearing end, *i*. This lever has a hook, V, on its lower end, to which is affixed a setting screw, W. The hook, V, catches on the hand of an arm, T, which has pallets or catches in a box, that catch into notches on the shaft of the feed wheel, S; every time, therefore, the lever, *h*, is vibrated, the feed wheel, S, moves the cloth the exact length of a stitch forward; the set screw, W, is for regulating the length of feeding the cloth forward to make short or long stitches.

This machine does good work. The patent claim will be found on page 390, Vol. 6, Sci. Am. The agent of this machine is W. H. Shepard, No. 256 Broadway this city.

Things to be Invented.

Among the things that are wanted by every body is a substitute for pen and ink. It seems that a single instrument ought to perform the function, and that fluid ink may be dispensed with. Cannot some substance be found, simple or compound, that will make an indelible mark upon paper, being hard enough also to hold a fine point? Or cannot paper be so prepared, without great addition of expense, as to aid the purpose?

The Christian Hat.—The improvements of the age have reached almost every thing except the abominable flower-pot hat, that so much needs the kindly attention of reformers. We are glad to notice that attention is being directed by some of our public journals to the unreasonableness of a stiff and perspiration-proof covering for the head. The flower-pot hat cannot pretend to beauty; it is certainly uncomfortable and unhealthy. Why then shall we not seek a substitute? The hat should be very light and porous, and by all means soft or elastic; and if any article of our dress calls for especial ornament, the covering of the head speaks most loudly for something to set off the front that slightly distinguishes one man from another. The Turban is probably most susceptible of such modifications as would be most easily adjusted to the purposes required; and we think some such change of the head-dress would require little urgency to get into general favor.