

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

VOLUME X.]

NEW-YORK, AUGUST 11, 1855.

[NUMBER 48.

Scientific American,
PUBLISHED WEEKLY
At 123 Fulton Street, N. Y. (Sun Buildings.)
BY MUNN & COMPANY.
O. D. MUNN, S. H. WALES, A. E. BRACH.

Agents:
Federhen & Co., Boston. Dexter & Bro., New York
A. Winch, Philadelphia. E. E. Fuller, Halifax, N.S.
A. G. Courtenay, Charleston. S. W. Pease, Cincinnati, O.
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Responsible Agents may also be found in all the principal cities and towns in the United States.
Single copies of the paper are on sale at all the periodical stores in this city, Brooklyn, and Jersey City.
TERMS—\$2 a year.—\$1 in advance and the remainder in six months.

Rail Road Economy.

The New York and Erie Rail Road have adopted a system of keeping a separate account with each locomotive on the road, embracing No. of engine; miles run; cost for Engineer and Fireman; gallons of oil used; miles run to one pint of oil; pounds of waste used; pounds of tallow used; cost for oil, waste and tallow; cost per mile run for oil, waste and tallow; cost for repairs of engines; cost per mile run for repairs of engines; cords of fuel used; cost of fuel; cost per mile run for fuel; total cost; total cost per mile run; tons useful load carried one mile; cost of useful load per mile per ton; tons of useful load and dead weight carried one mile.

A report of the operations of the Road for the month of May have been issued by its diligent Superintendent, D. C. McCallum, Esq., which contains the following interesting statistics:

	Cents.
Cost per mile run, Engineers and Firemen	5 3-8
Cost per mile run, oil, waste and tallow	1 3-8
Cost per mile run, repairs of engines	6 7-10
Cost per mile run, fuel	10 9-10
Total cost per mile run	24 3-8
Miles run to one cord of wood	14 5-8
Miles run to one cord of wood	29 3-10
Average cost of wood, cord	\$3 19

There is appended to the document a comparative statement, showing the results of working several engines on the different divisions. The name of the engineer, the number and kind of his locomotive are given, in order to excite a laudable ambition.

COST OF FUEL.—The following is a table showing the cost of fuel on this Rail Road for the first five months of the year:

Month	Miles run.	Cost of fuel in cts and mills.	Cost pr. m. run in cts and mills.
January	299,797	\$50,984 57	17.4
February	259,234	47,094 17	18.1
March	277,501	45,780 55	15.9
April	237,845	34,477 84	14.5
May	247,273	27,858 89	11.3

This shows a most important saving in fuel—a third and one mill per mile, and affords evidence of an able, vigilant superintendence.

COST OF OIL ON THE CENTRAL RAIL ROAD.—The same system of monthly accounts, we have been informed, has also been adopted on the New York Central Railroad. We have the returns of the cost of oil on two of the Divisions of this Rail Road for the month of May last. They are as follows:

Divisions	Miles run.	Pints oil used.	Mis. run to 1 pint oil.
Syracuse and Utica	39,265	3,266	12
Syracuse and Rochester	73,659	5,304	13 1-2
Total	112,924	9,070	12 1-2

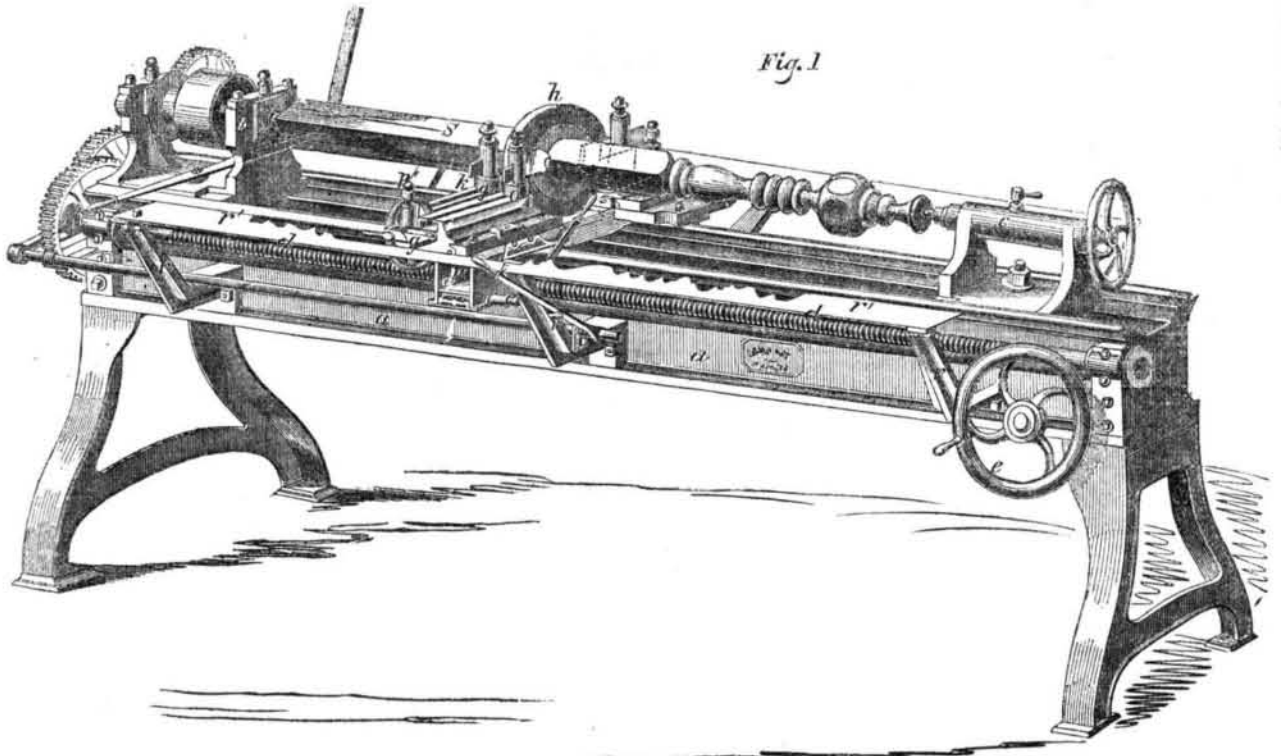
These returns are for 18 locomotives on the Syracuse and Utica section, and 31 on the Rochester and Syracuse division. This will afford our readers some idea of the vast amount annually expended for lubricating materials on Rail Roads. There is plenty of room for new and useful improvements in this direction.

Tennessee Copper Ore in England.

The Tennessee Copper mines have sold 2000 tons of ore in Liverpool since March last. The lowest price was £20, 12s, 6d, and the highest £37, 10s. per ton. The prospects of the Tennessee mines are stated to be good, the yellow sulphuret ore being in great demand in England.

Business is fast reviving throughout our manufacturing districts; the prospects for a brisk Fall trade are good.

SELF-ACTING LATHE FOR TURNING ORNAMENTAL WORK.



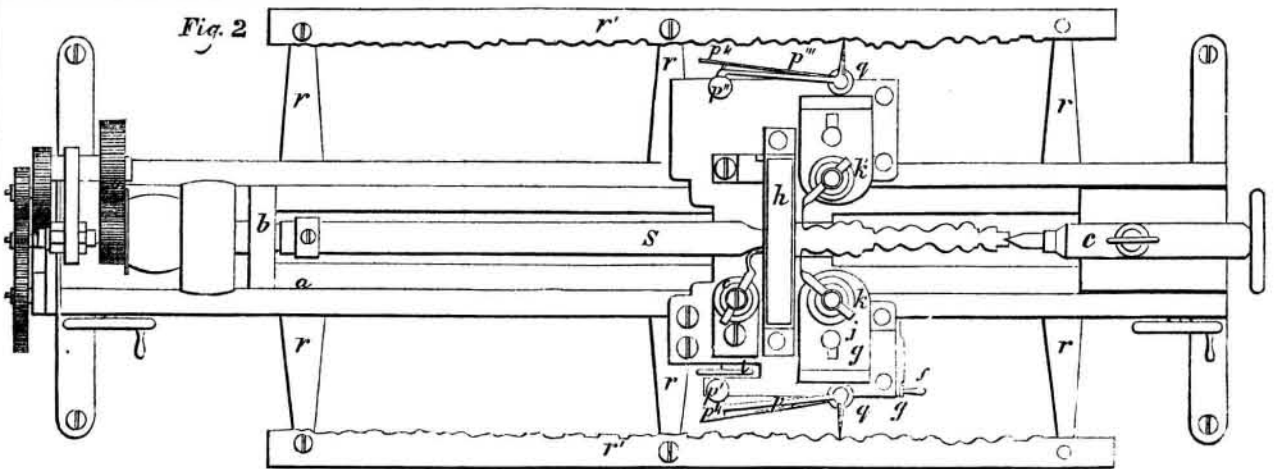
These engravings illustrate an improvement in self-acting lathes for turning such ornamental work as pianoforte and table legs, bed posts, &c., from patterns, for which a patent was granted to Albin Warth, on the 10th of last October.

Figure 1 is a perspective view, and fig. 2 is a bird's-eye or top view.

a is the frame of the lathe; *b* is the head stock; *c* the back puppet; *d* the feed screw to move the slide rest, *g*, and *d'* is its clamp; *h* is a ring support; *k k'* are finishing tools. *o* is a roughing hooked tool; *p p''* are guide levers, and *l* an adjusting screw; *r' r'* are guide patterns; *p' p''* are the guide lever fulcrums. *p'* is a spring on the guide lever; *q q* are tracer guide points following the configuration of the patterns to guide the tools, *k k'*. *r r* are supports for the guide pattern. A stick is now in

the lathe, part of which is turned; *S* is the unfinished part of it. The roughing tool, *a*, the finishing tools, *k k'*, the guide traces, *q q*, and their levers and fulcrums, together with the clutch, *d'*, and lever all belong to the slide rest, *g*. The screw, *d*, moves the slide rest in the usual way, by cogged gearing at the one end of the lathe. The clutch, *d'*, is for gearing the slide rest with the screw, *d*, by means of a spring lever, *t*, fig. 1 (*f* fig. 2). By throwing the spring lever, *t*, outwards, the clamp, *d'*, clutches screw *d*, and the slide rest with its various appurtenances (as now shown) advances. By throwing the lever, *t*, inwards, the clamp is released from the feeding screw, *d*, and the slide rest stops. Previous to putting in the stick of wood to be turned, the slide rest is brought up to the right hand end of the lathe until the center screw of puppet, *c*, passes

through the opening in the ring, *h*. The stick, *S*, is then secured between the head stock, *b*, and the puppet screw, *c*, in the usual way. The hooked tool, *a*, fig. 2, is then set to cut away the stick in front of ring *h*, to such a size as will allow it (the stick) to pass through the opening in *A*. Motion having been given to the mandril of the head stock on which is a pulley operated by a band, the stick, *S*, rotates, and the slide rest advances. The tools, *k k'* then cut the pattern on the stick, as shown by the guide tracers, *q q*, pressing against the back heads of said tool stocks, which are hollowed on the under side, and are fitted with springs which have their tension against the tracers. The tool stock of the finishing cutters, *k k'*, are allowed to slide in and out towards the stick on guide pins, *j*, which work in slots. The tracer guides, *q q*, as they are moved on the



face of the pattern guides, *r' r'*, have each a friction roller pressing on the back of the tool stocks of the finishing cutters, thus making them trace and cut the pattern on the stick. The tracers, *q q*, are also attached to the spring levers, *p p''*, and they can be raised so as to elevate the tracer guide points above the pattern, *r' r'*, and not touch them. The slide is reversed quickly in the common way. It will be observed that the tool stocks have a transverse motion outward and inward by the tracers, so as to make them act on the stick, and be governed by the configuration of the guide plates, *r' r'*. The ring, *h*, supports the stick in the lathe as the slide rest is moved along, and prevents the stick springing. Ev-

ery new pattern, to be sure, requires new guide plates, but an endless variety of these can cheaply and easily be made and kept, so as to turn out a great variety of such ornamental turning. When it is desired to leave any portion of the stick square, as in fig. 1, a ring plate with a square opening is substituted.—Various ring plates may be used. In consequence of the guide spring levers, *p p''*, having fulcrums at *p'* and *p''*, the cutters are kept perfectly free from jarring or vibration, so that the very finest and most delicate work may be produced in this lathe with ease and precision. This invention is one of the most ingenious and important improvements in its line that has been patented for a long time. Its opera-

tions are truly remarkable. We saw it at work not long since, when it was employed in producing table legs. All that the attendant had to do was to place the rough sticks between the centers, and in a second or so they were transferred into table legs, turned with the most beautiful configurations, and the work wholly finished,—no sand-papering or re-touching to be done afterwards. It may be used for producing every conceivable variety of ornamental or plain turning, and may be relied upon for perfection in its results. The machines are substantial, easily managed, and not costly.—Apply to Richard E. Dibble, General Agent, No. 360 Broadway, New York, for further information.