

# Scientific American.

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

Vol. 4.

New York, September 15, 1849.

No. 52.

THE  
Scientific American.

THE  
BEST MECHANICAL PAPER IN THE WORLD.  
CIRCULATION 12,000.  
PUBLISHED WEEKLY.  
At 128 Fulton Street, New York (Sun Building,) and  
13 Court Street, Boston, Mass.

By Munn & Company.

The Principal Office being at New York.  
Warlow & Payne, Agents, 89 Chancery Lane, London

TERMS—\$2 a year—\$1 in advance, and  
the remainder in 6 months.

## Poetry.

### THE CHURCH YARD STILE.

BY MISS ELIZA COOK.

I left thee young and gay, Mary,  
When last the thorn was white;  
I went upon my way, Mary,  
And all the world seemed bright;  
For though my love had ne'er been told,  
Yet, yet I saw thy form  
Beside me in the midnight watch,  
Above me, in the storm.  
And many a blissful dream I had,  
That brought thy gentle smile  
Just as it came when last we leaned  
Upon the church-yard stile.

I'm here to seek thee now, Mary,  
As all I love thee best,  
To fondly tell thee now, Mary,  
I've hid thee in my breast;  
I come to yield thee up my heart,  
With hope, and truth and joy,  
And crown with manhood's honest faith  
The feelings of the boy.  
I breathed thy name, but every pulse  
Grew still and cold the while,  
For I was told thou wert asleep,  
Just by the church-yard stile.

My messmates deemed me brave, Mary,  
Upon the sinking ship;  
But the flowers o'er thy grave, Mary,  
Have power to blanch my lip;  
I felt no throb of quailing fear  
Amid the wrecking surf,  
But pale and weak I tremble here,  
Upon the osiered turf,  
I came to meet thy happy ace,  
And woo thy gleesome smile,  
And only find thy resting place  
Close by the church-yard stile.

Oh! years may pass away, Mary,  
And sorrow lose its sting,  
For time is kind, they say, Mary,  
And flies with headlong wing;  
The world may make me old and wise,  
And hope may have new birth,  
And other joys and other ties  
May link me to the earth;  
But memory, living to the last,  
Shall treasure up thy smile,  
That called me back to find thy grave,  
Close to the church-yard stile.

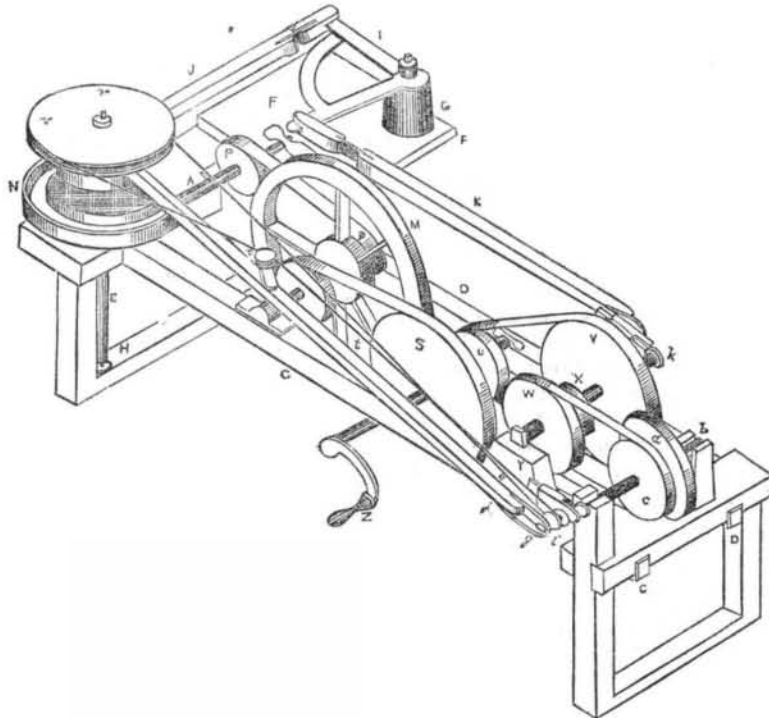
### Dirge at Sea.

Sleep!—we give thee to the wave,  
Red with life-blood from the brave;  
Thou shalt find a noble grave,  
Fare thee well!

Lonely, lonely is thy bed,  
Never there may flower be shed,  
Marble reared,—or brother's head  
Bowed to weep.

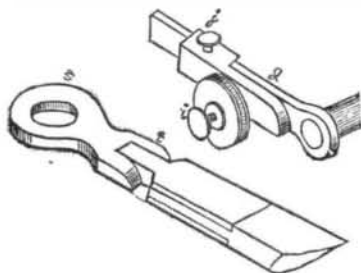
Yet thy record on the sea,  
Borne through battle high and free,  
Long the starry flag shall be.  
Sleep! O sleep!

## MACHINE FOR GRINDING THE MIRRORS OF REFLECTING TELESCOPES.—Figure 1.



There is not a single complicated machine, from which useful hints may not be taken; and from this one much information may be received. It stands upon four legs; there is a cross block, A, at the one end, and there is a similar one at the other end. C D are two longitudinal bars secured at the ends of the cross blocks; F F is a square front, carrying a pillar, G, which is firmly fixed by screws to the cross block; E is a mandril, which tapers gradually to the lower end, where it rests upon a screw, H, made of hard steel. The upper part of this mandril works in a bell metal collar. There is a bell crank, I, attached to the two arms of connecting rods, J K; this bell crank is secured upon a steel arbor, firmly secured to it by a nut. The connecting rods, J K, are double universal jointed; they receive the ends of the bell crank, in cross cuts. M is a fly-wheel. Upon the top of the mandril, E, there is placed a chuck of cast iron, upon which is placed the polishing tool of tin; between the chuck and polisher is a rim, N, of sheet lead, resembling a frying pan;

FIG. 2. AND 3.

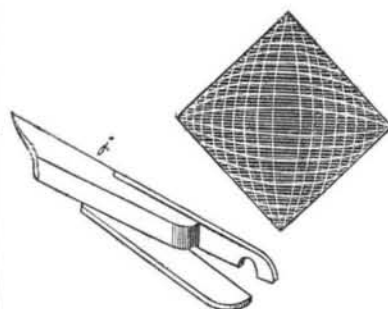


this is to catch the stuff that is given off in polishing to keep all clean. The polisher must be of the right convexity required, being set to do this after it is placed in the chuck. Underneath there is a pulley with a thread cut on its periphery, which is moved by a worm on the axis, which runs from the pulley P, which gives a slow motion to the chuck. The pulley, P, is moved from the axis of the fly wheel, which is driven by a band from the drum, S, of the crank. V is a pulley, on the axis of which are two others, X W, driven by a band from the pulley, U. The axis of V stands above the others on the blocks, Y, (one seen.)

The high leg of the frame is longer than the others, supporting an axis at one end, and a pillar, b, at the other end. On t is ax-

is are two pulleys, d e, to change the band from W c to X d, quickly. Upon the end of this axis there is a strong straight crank, g, which is graduated on its face, an enlarged view of which is seen in fig. 2; h is a square tube with its outer side projecting, on which is a steel stud, i, made to slide over the axis; j is a screw to vary the length of the crank. There is a small pulley on the end of the stud, i, which gives motion to the mirror; to the end of this stud is attached the connecting rod, t, fig. 1, an enlarged section seen in fig. 3, as known by letters. This rod is attached at one end to the back of the mirror. A nearly similar connecting rod is attached to the bell crank on the other side. These connecting rods are attached to the cranks, as represented in the last figure. All mirrors have a back of hard pewter, made of about two-thirds the diameter of the speculum, made thick in the middle and decreasing to the edge. Its receiving surface is turned to fit the back of the mirrors. A screw is secured to the back of the mirror, passing through the centre of the back

FIG. 4. AND 5.



to the centre of the mirror and united with pitch; s, fig. 3, is a brass handle to fit into this screw, by a circular cylinder, and thus this handle is secured to the back of the mirror, and it is also united to the connecting rod, as represented at t.

In fig. 1 r is a screw on the top of the pulley, v, to allow the pulley to be put on and taken off; it keeps the rings below in their proper places, and rotates the mirror, which also receives its compound motion by the connecting rod, like an eccentric mill. Thus, while the polisher rotates the mirror describes curves, as represented in the conic sections of fig. 4. These, at one time, could only be done by hand, but now more accurately by

this machine; for by the way of changing the lengths of the connecting rod, any degree of curvature may be given, and which, as is well known, depends upon the length of stroke. The vertex of a parabola should always be in the centre. In polishing by hand, the heat and uneven pressure of it, has a wonderful effect upon its figure, which no care, scarcely, can prevent. A most excellent powder for polishing specula, is made by grinding red oxide of iron in a porcelain mortar, and then floating off all the fine particles in water; then this is to be mixed in a long tube with gum water and let stand for some time, when the coarser particles will fall, then the upper part is to be decanted off and mixed with more water, and in a few days it deposits a powder, which, when dried, makes a most splendid powder for polishing mirrors. Care is taken in polishing specula, not to get too great a speed, to heat the pitch and distort the polisher. Specula for astronomical telescopes is made of tin and copper, not glass. These sections are enlarged views of some parts for more clear illustration.

### RAILROAD NEWS.

#### Rail Road Convention.

A large convention of those opposed to the New Jersey Rail Road monopoly, was held at Trenton, N. J., on the 5th inst. It was composed of "very respectable gentlemen, who passed a number of very strong resolutions against the injustice and destruction of equal rights of the people by clothing monopolies with such peculiar privileges as the Jersey Rail Road possessed. One Resolution, and the main one in our view, was this:

Resolved, That the passage of a general Rail Road law is essential to the promotion of the interests of the people of the State.

We like to see general principles established, such as the one now generally acknowledged of private property, and then our people know how to proceed without getting new acts passed for the privilege of digging for Kidd's ship, or a ditch or road through the salt marshes.

#### Rochester and Syracuse Rail Road.

A meeting was held last week at Rochester N. Y., for the purpose of taking into consideration the propriety of consolidating into one corporation the Auburn and Rochester Rail Road and the new proposed straight road between Syracuse and Rochester. Both roads should pay. The south one to strike in with the branches of the southern countries, and the straight one for passengers to the east and west.

#### New Jersey Rail Road.

The fare on the rail road between this city and Philadelphia, is reduced from \$4 to \$3. This is so far so good, but we believe that if it was reduced to a dollar less still, it would prove as profitable to the Rail Road, and be of great benefit to the travelling community.

#### The British Colonies.

Our colonies says the London Spectator, are mostly in a state that makes men talk of "separation." Canada murmurs and moves with an insurrection deferred; the West Indies resent the arrogant trifling of the Colonial office, and also cast about for some plan which will render them independent of that office, the Cape colonists talk of resisting the proceedings of the Imperial Executive *vi et armis*; and our colonies beyond the Cape cry out with every sort of grievance.

#### Languages and Learning.

It is curious that some learned dunces, because they can write nonsense in languages that are dead, should despise those that talk sense in languages that are living. "To acquire a few tongues," says a French writer, "is the task of a few years, but to be eloquent in one is the labor of a life."