

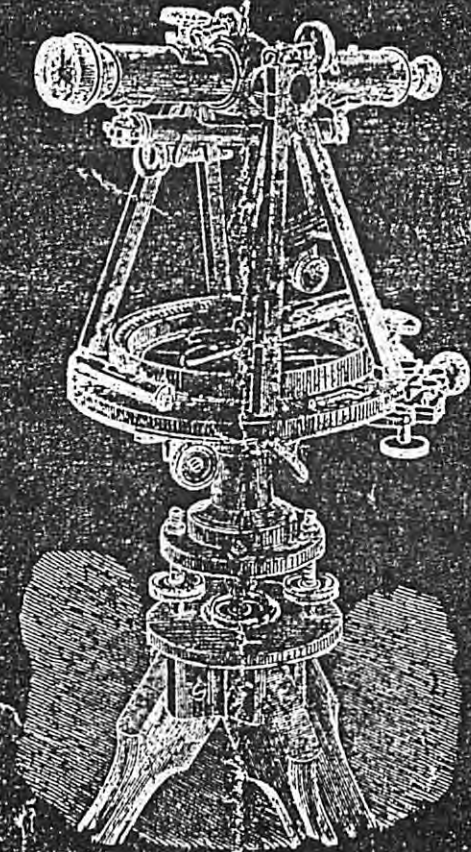
**SILVER MEDALS,**  
FIRST PREMIUM OF LATE EXPOSITION FOR 1874



Our Surveyors' Compasses took the First Premium at the Ohio State Fair held at Cincinnati, September, 1857. We also took the Medal on *Practical, Tracing, Level, Dumpy, Level, and Surveyor's Compass*, at the Fair at *the Ohio State Exposition* held in this city which ended 5th October 1858, after the most successful and meritorious competition judged. We were awarded separate Medals for a *Treadbitte* and *Surveyor's Compass* at the Fair at Cincinnati, September, 1859.

ESTABLISHED IN 1853.

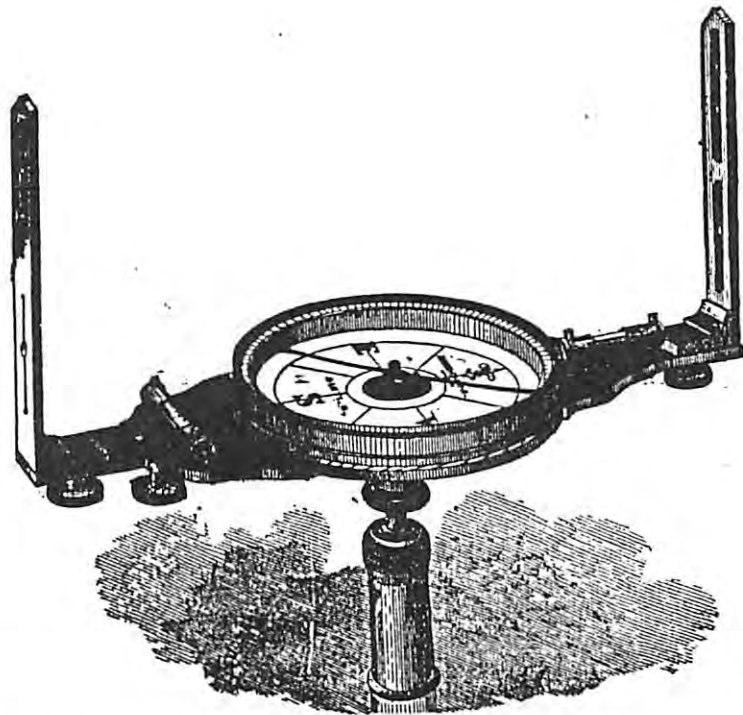
**MATHEMATICAL INSTRUMENTS,**  
*Manufactured and Sold by*  
**T. F. RANDOLPH,**



No. 67 West Sixth St.,  
BETWEEN VINE AND WALNUT STREETS,  
CINCINNATI, OHIO.

T. F. RANDOLPH,  
**MATHEMATICAL INSTRUMENTS.**

ESTABLISHED 1853.



PLAIN COMPASS.

**THE VERNIER COMPASS.**

This instrument has the same adjustments as the Plain Compass, and is made the same with the addition of the vernier plate, with clamp and pinion movement to turn the vernier plate. This vernier reads to minutes, and is for reading the variation of the magnetic meridian from the true meridian. The Vernier Compass is almost exclusively used by surveyors at the present time.

*Rule for Reading the Vernier.*—This Rule will apply to all our Verniers. Read the degrees from the zero on the circle in the direction of the graduations up to the line next preceding the zero line on the vernier, this is the reading of degrees; look along the vernier, in the same direction from the zero of the circle, until a dividing line is found to coincide with a line of the circle, the numbers on the vernier will give the minutes, the minutes added to the degrees will be the reading of the instrument.

**PRICES OF PRINCIPAL INSTRUMENTS.**

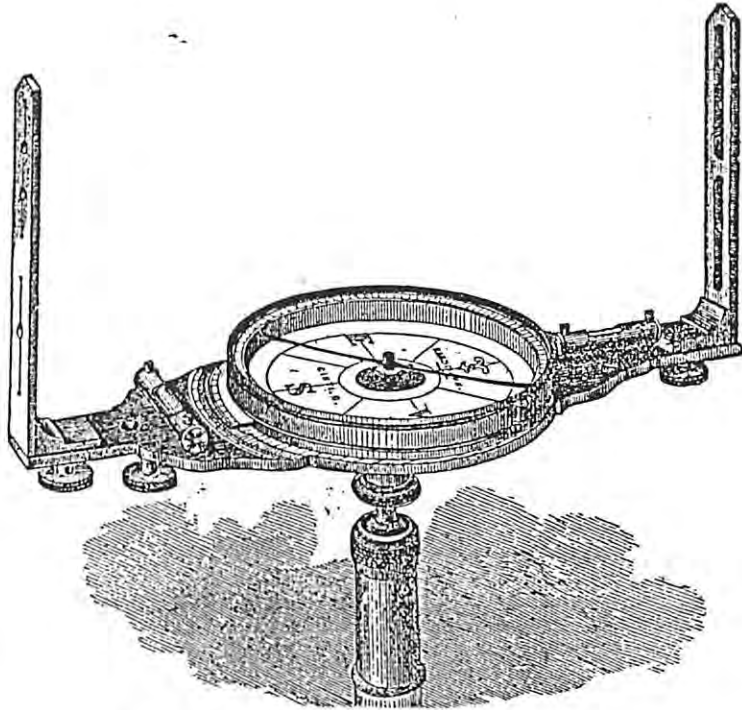
Plain Compass, 6-inch Needle, 15 $\frac{1}{2}$ -inch Plate, Brass Cover, 2 Ground Spirit Levels Adjustable, Out-keeper, strong, well- made box of Walnut .....	\$40 00
Plain Compass, 5-inch Needle, same otherwise as the above ..	35 00
Vernier Compass, 6-inch Needle, the balance same as the 6-inch Plain Compass .....	50 00
Vernier Compass, 5-inch needle .....	45 00
Jacob Staff, with Steel-Pointed Socket .....	2 50
Set of Extra Sliding Sights for Levelling with Compass .....	8 00
Telescope Compass, 6-inch Needle, with Jacob Staff .....	95 00
“ “ 6-inch Needle with Tripod, with Ball for Levelling .....	100 00
With Levelling Screw and Clamp as represented by cut.....	110 00
Y Levels 18-inch Telescope .....	130 00
Transit, as described, Graduated on Sheet Silver, and on the best Engine in the country, strong box .....	190 00
Theodolite, same as above .....	230 00
Graduated Brass \$20 less.	
Either above with Variation vernier, cost each .....	20 00
(Theodolites, Transits, and Levels, we generally Bronze or Black, as the rays of the sun on the instruments do not af- fect the eyes as much as bright instruments. Engineers gen- erally prefer them on the above account. Also face of Com- pass dial.)	
12-foot Sliding Levelling Rod, to read to 1-1000th of a foot, com- plete with Sliding Target .....	15 00
Flag Poles, 8 or 10 ft. long,—steel-pointed socket, well painted Red and White, each .....	Ash \$3 50, Pine, 3 00

*For further Price List, see pages 19 to 24.*



T. F. RANDOLPH,  
**M**ATHEMATICAL **I**NSTRUMENTS.

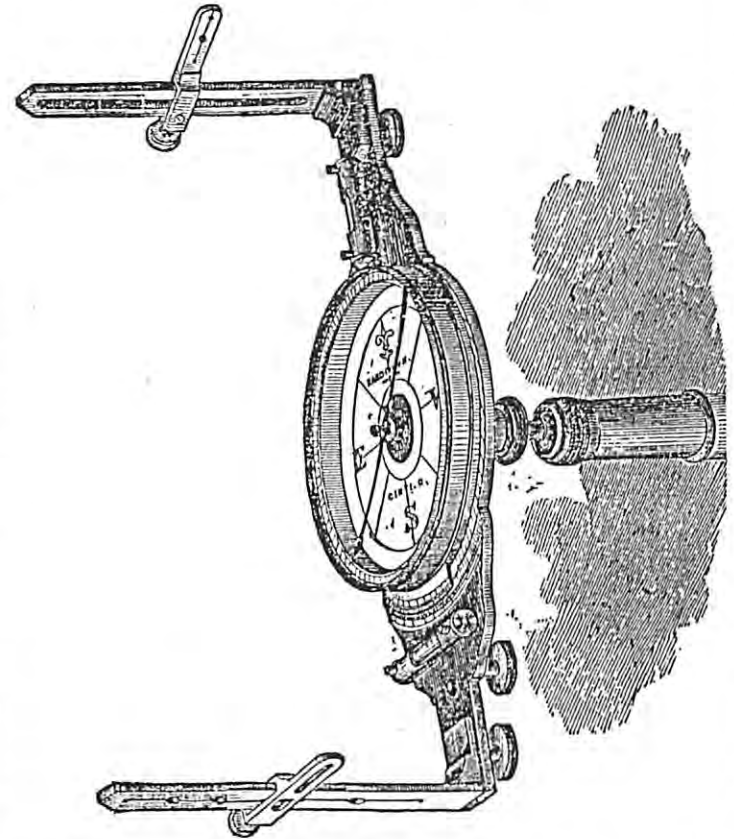
ESTABLISHED 1853.



VERNIER COMPASS.

T. F. RANDOLPH,  
**M**athematical **I**nstruments,

ESTABLISHED 1853.



COMPASS WITH LEVELING SIGHTS,

Which are moveable up and down on the opposite sight of the Instrument, one of which is graduated on its outer face 10 deg. each way from center or zero. With the adjustable and nicely ground levels, quite good leveling can be done for many purposes.