

A Different John Davis Anemometer

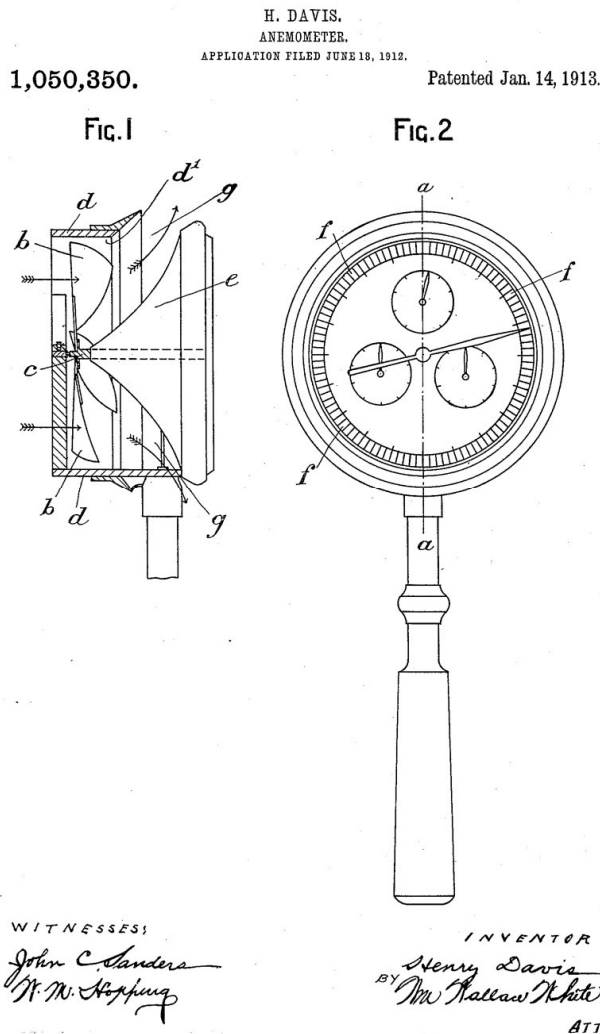
by Dave Johnson

Mechanical anemometers are an instrument used to determine the volume of air entering or exiting mine workings. They were invented by Benjamin Biram, house steward to the Earl Fitzwilliam, of Wentworth Woodhouse, owner of numerous collieries in South Yorkshire, England, in 1842, with a patent being granted in 1844. It was in his capacity as mine manager that Biram saw the need for a device to measure air flow.

At Lower Elsecar Colliery a methane explosion in 1852 resulted in the death of 12 miners and injury to 10 others. In response to this explosion, Benjamin Biram, who managed the mine for the Earl Fitzwilliam, fitted the first underground fan to improve ventilation.

An inquiry found that the explosion had been caused by reckless behavior of the miners; a ventilation door had been propped open which resulted in methane

accumulating and some miners using unguarded safety lamps. Biram was criticized by the inquiry for absence of printed rules in the colliery, inadequate maintenance of the lamps and poor supervision of the workforce but the judge did praise the ventilation arrangements in the mine which prevented

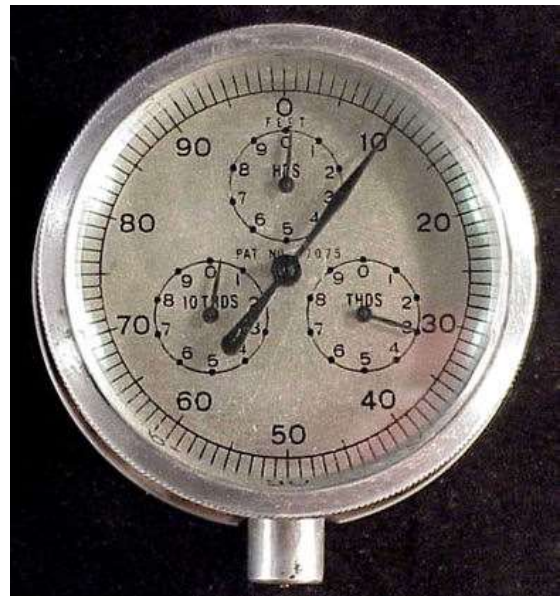




After receiving his patent, Biram approached John Davis with his instrument. In 1845, John Davis announced the first production of Benjamin Biram's newly patented anemometer. With this Davis became the first commercial manufacturer of anemometers for mine use.

The formula used most often in mine ventilation using an anemometer was $q=av$, in which q equals the number of feet of air per minute, a equals the area of the airway in square feet and v equals velocity of air current in feet per minute. Anemometers, as used in mines, were predominantly produced in two styles, the Biram-style which have the dials and vanes on the same plane and the offset-style which has the dials perpendicular to the vanes.

Recently I came across a type of anemometer unlike any I have seen before. It is unlike the traditional Biram-style or the offset-style. Best of all it has the manufacturer's name, patent number and patent date prominently displayed on the outer frame. The manufacturer is John Davis & Son Derby Ltd. It has a patent date of January 14, 1913 and Patent Number 1050350.



Unlike anemometers with “return to zero levers”, this instrument has a knurled wheel that turns the dials and has a hinged brass cover over the wheel. The majority of this instrument is aluminum with brass screws, brass rivets holding the vanes to the arms, brass cover on the dial wheel and a copper cone behind the dial face. The carrying case is aluminum with brass fittings. The instrument is 3 1/2” in diameter and 2 1/8” high. The dial glass is very thick with a beveled edge. A handle screws into the threads at the base of the face.



When John Davis died in 1873, at the age of 63, his son Henry took over the business keeping its name John Davis & Son, expanding the product line and eventually moving its workshop facility in 1875 to All Saints Works, Amen Alley in Derby. Miners’ safety lamps manufactured and listed in a Davis catalog from 1887 include a Clanny, Bonneted Clanny with Stoke’s Shut-off, Mueseler and Marsaut. The firm was active in overseas markets with agents in Australia, Canada, China, Japan and South Africa.





In 1900 Henry's brother, Herbert, was given a 4-year contract to sell the company's products in the US through a branch office in Baltimore, Maryland. The U.S. branch office was so successful, that in 1912, Herbert Davis resigned and formed his own company, Davis Instruments of Baltimore, that continued to manufacture many Davis Derby products, including anemometers, Davis instruments is still in business today. Herbert Davis was succeeded by his son Alfred who died in the late 1960s.

This is a unique instrument for the mining collector and I was happy to add it to my collection. Interestingly when researching this piece I came across photos of it on the Goodwill auction website where it sold for \$51 in December of 2011. I know that it is the same piece because of the name scratched on the inside of the carrying case lid that can be seen in the Goodwill auction photos. It was subsequently offered on ebay, where I purchased it.