The Whirler

By Neil Searle

A recent TradeMe auction featured an unusual looking drill/type tool that lasted for two listings. It was fortunate that Sean McConnell and I knew more or less what it was. The image of the tool on TradeMe was shown inverted as I imagine the seller thought that was how it should be. No one appeared to know the tools application and Sean managed to snag the tool in the last few minutes with no other bidders.

Fig. 1. "The Whirler" Made by A. W. Penrose & Co., Ltd, London.

A hand whirler machine, often referred to as a hand-cranked whirler, is a tool used in photographic darkrooms to facilitate the development of prints.

The primary function of a hand whirler is to mix developer, stop bath, and fixer solutions uniformly. This ensures that the chemicals work effectively during the photographic printing process. The hand whirler is used to agitate the photographic paper during the development process. Proper agitation is crucial in distributing the chemicals evenly over the surface of the paper, which helps in achieving consistent development and prevents uneven exposure or spots. The machine typically consists of a container or tank that holds the chemicals. The paper is placed in this tank. As the machine operates, it gently rotates the paper, keeping it submerged while ensuring that the developer reaches all parts of the print.

Penrose & Co. was a British printing and publishing company known for its annual publication, Penrose's Annual: the Process Year Book and Review of the Graphic Arts, which documented advancements in printing technology, particularly the halftone process. The halftone process, a method of reproducing continuous-tone images (like photographs) in print, involves breaking down the image into tiny dots of varying sizes. These dots, when printed, create the illusion of continuous tones due to the limitations of human vision.

In a photograph, or in a black and white drawing, the shades of colour between light and shadow are termed “half-tones” and it is only possible to reproduce these half-tones in relief blocks for letterpress printing by means of a graduated grain, or by fine lines, or by tiny dots of varying size.

A.W. Penrose was a supplier of printing, engraving and photographic chemicals and consumables; camera manufacturer; established as a 'Process Chemicals Stores' in 1893 by Arthur William Penrose in Clerkenwell, as an offshoot of a pharmaceuticals business established in the 1830s; moved to Farringdon Road in 1901; incorporated as limited company in 1905; acquired by Hunter & Co in 1927 to became Hunter Penrose.

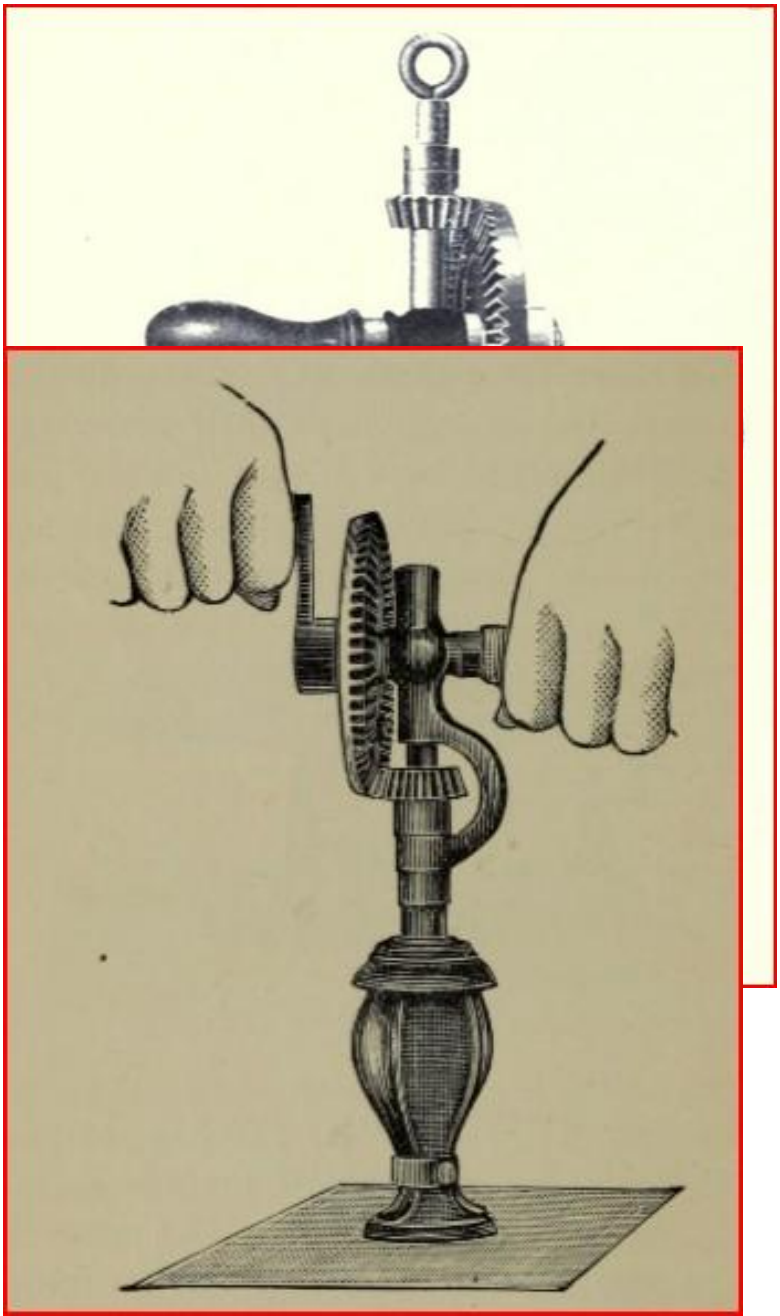

Fig. 2. The first piece of apparatus to be considered in the printer's dark room is the whirler, which is used for forming an even coating of the sensitive solution on the metal plate. Many printers have got their own ideas about whirlers, and favour some particular make-shift of their own, but there are two or three patterns on the market which have become standardised.

Sean made the observation, “*Not surprisingly the rubber bulb is hardened and superficially cracked, but overall it could be worse for rubber that's probably over a century old. “*

“The lip of the bulb is marked Hunter-Penrose Limited London.” This dates Sean’s rubber plate holder to 1927 onwards. The gear mechanism is older, more like early 1900s. Additional information about the rubber bulb in Fig.9.

Fig. 3. 1895 publication, "The Half-Tone Process" by Julius Verfasser. An early example of the whirler without the eyelet and with a single pinion to the gear……. They claim that this whirler can be easily held in the hand and the whirling done in the sink with the plate facing downwards.

A further edition in 1904 shows the whirler having progressed to include the eyelet although still only having a single pinion on the main shaft.

The most popular is the pneumatic whirler; introduced by Penrose and Co. *Fig. 67* shows the construction very clearly. The end attached to the plate is an India rubber bulb with a mouth applying suction to the plate. The whole apparatus is very light, and can easily be held in the hand whilst the whirling is done in the sink or the whirling tub, with the plate face downwards. In this way the splashes are retained in the sink, and dust is avoided. Also owing to the damp surroundings, the whirling can be completed over a stove, so as to dry the plate at the same time.

This whirler cannot be safely trusted for plates over 12 x 10, but the same makers have recently introduced another whirler, (**Fig. 3.)** extending the same principle, for larger plates. Instead of depending on the pressure of the bulb for creating the vacuum between the plate and the sucker, a small brass pump is provided, very similar to a bicycle pump. The sucker is much larger, and will carry a plate 24in. square or over

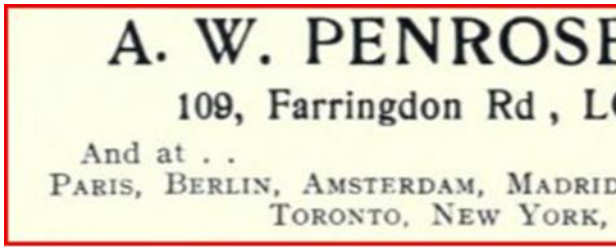

Fig. 4. Showing the straight solid bar option. In some climates where rubber perishes very rapidly these forms of whirler are unsuitable, but

the rubber may be replaced by a straight bar with two screw clamped clips sliding on it to hold the plate. It is also possible to have two springy pieces of wood or metal springs arranged to form a clamp when pressed open, and the plate inserted between.

(Fig. 68)

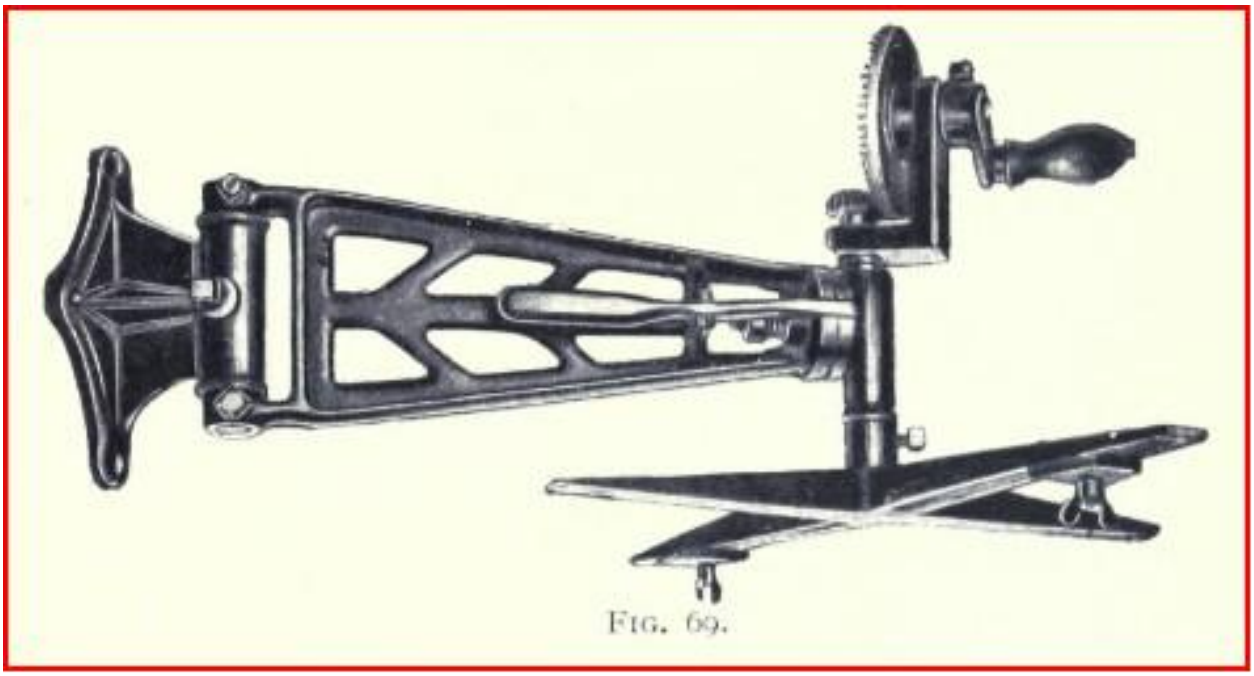

FIG. 69.

Fig. 5. The Levy whirler (*fig. 69*) is a very good fixture for large plates. It is attached to the end of a swinging bracket, with the other end fixed to the wall. The whirling portion is pivoted on a horizontal axis, so that the plate can be face up for coating, and then turned face down for whirling. This form of whirler can be fixed over a tub, as already described, and the swinging arm permits it to be swung from the tub over a stove for drying off.

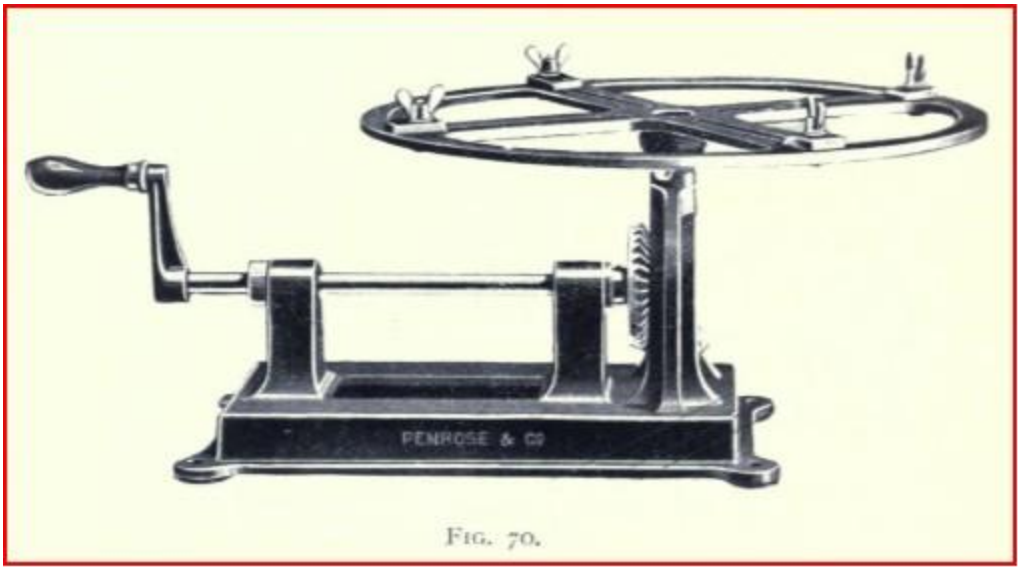

FIG. 70.

Fig. 6. The turntable whirler (*fig. 70*) embodies a very good principle, but its disadvantages are that as the plate has to be whirled face upwards it is liable to attract dust ; further, that unless there is a guard round it there is a great deal of splashing about the room and upon the operator ; also the plate cannot be quickly detached. Its chief advantage is for large and heavy plates and for lithographic stones when the latter are used for direct half-tone printing. When fitted inside of a circular iron box with a trough round to catch the surplus solution, a small stove inside to dry the plate whilst being whirled and a glass lid to keep out the dust, this form of whirler becomes very efficient, and the author has seen such whirlers capable of taking a plate up to 6oX4oin.

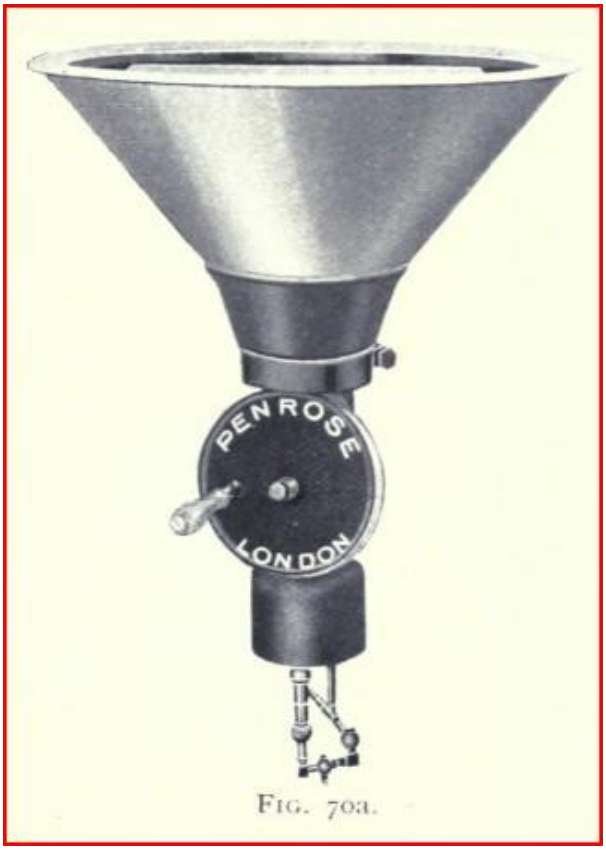

FIG. 70a.

Fig. 7. The most ingenious whirler of all is Penrose's patent cone whirler (*fig. 7oa*). The plate is dropped into the cone horizontally, and touches with its corners the inside of the cone. The centrifugal force holds the plate firmly in its place without any clamps. All splashes are retained in the cone, and dust can be kept out with a lid. The spindle of the whirler is a hollow shaft with a Bunsen burner at the bottom, so that the heat rises into the cone and dries the plate. Most other whirlers in use are modifications of one or other of these principles, and need not be particularly described.

Later in 1925, hand whirlers were superseded by “The Penrose Empire Electric Whirler” from the A. W. Penrose & Co., Ltd, London.

FIG. 50.

Fig. 8. PLATEHOLDERS. A pneumatic plate holder (*fig. 50*), which attaches itself to the plate by suction, is a useful article. It should be of solid red rubber, as this form is most durable and powerful. For larger plates various contrivances are used for supporting the plate. The simplest, and probably the most effective, is a stone jar with an India rubber ball in the mouth of it, the ball being chosen too large to be pressed in. The plate can be rested on this and swivelled about in any direction. One of these arrangements can stand in the sink for developing, and another on the bench for collodionizing.

Penrose made many tools and machines, one of these was the Shooting Board shown below.

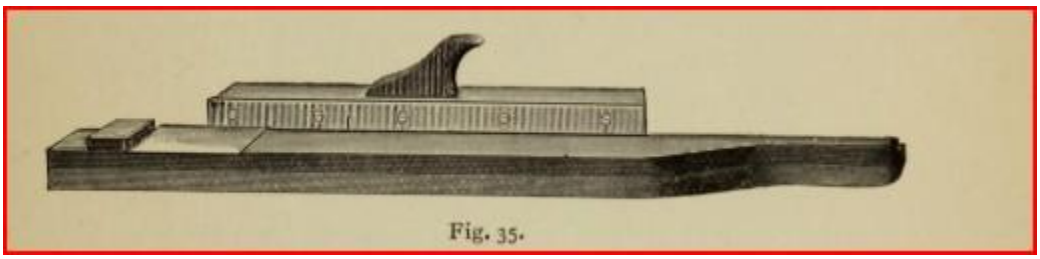

Fig. 35.

Fig. 9. The 1895 publication showing an early Shoot Board "*Upon the bench we shall require the shoot board (fig. 35) for planing up the edges of the zinc blocks, and for rebating the edges of the plates so as to sink the nail heads below the surface"*

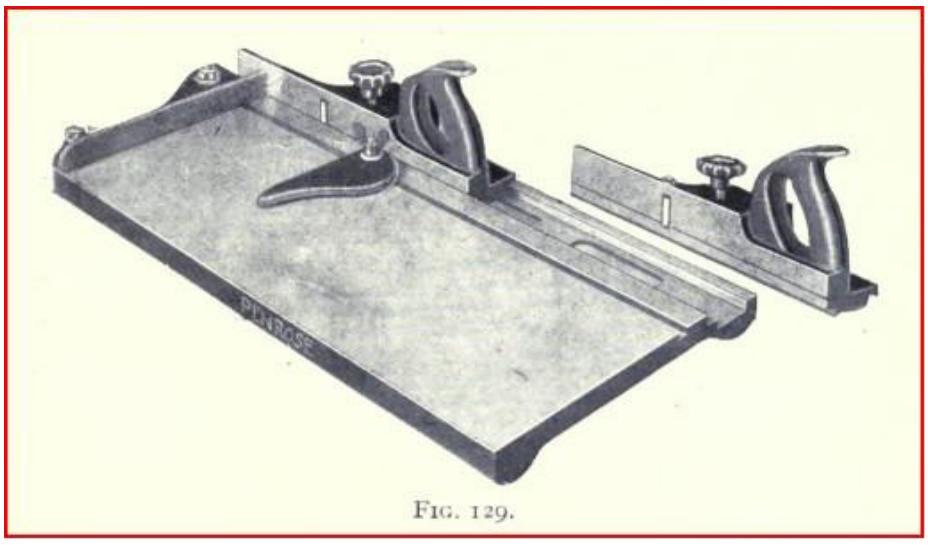

FIG. 129.

Fig. 9a. The shoot plane is an indispensable tool in small establishments where a beveller and trimmer are not warranted. *Fig. 129* shows the usual form. It consists of an iron bed-plate with a channel at the side, in which an iron plane works to and fro. One plane is provided for trimming the edges of the wood blocks, and the other for bevelling the edges of the plates, so as to permit the nail heads to lie below the surface.

A.W. Penrose also manufactured a floor standing routing machine and treadle circular saw specifically designed for this industry.

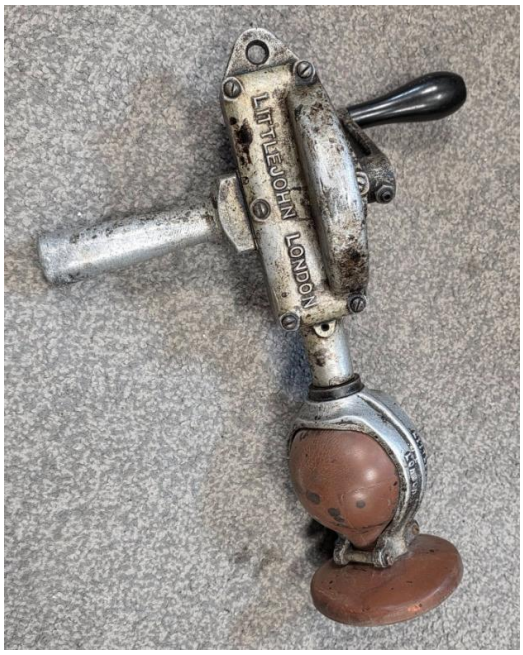

Fig. 10. Another version of the Whirler. Suppliers of photographic chemicals, printing equipment and consumables; A W Penrose & Co acquired by Hunter & Co in 1927 to became Hunter Penrose; early 1960s purchased competitors S R Littlejohn to become Hunter Penrose Littlejohn.

Fig. 11. Sidney R. Littlejohn . Manufacturers of equipment for the graphic arts industry.

Ref: Freepatentsonline.com. THE HALF-TONE PROCESS. A PRACTICAL MANUAL OF PHOTO-ENGRAVING IN HALF-TONE ON ZINC, COPPER, AND BRASS WITH CHAPTERS ON THREE-COLOUR WORK AND PHOTO-LITHOGRAPHY FOR OFFSET PRINTING. BY JULIUS VEKFASSER.