

FULCRUM

Edition 71 **May 2026**

Fulcrum is a newsletter for people interested in the history of weighing and measuring. It is published in February, May, August and November. Contributions are always welcome and can be sent to editor, John Knights

Slake Your Thirst for History Quickly, with Chalk, Lime and some Spirit!

(Preserved Weighing & Measuring Instruments at AmberleyIndustrial Museum, West Sussex, UK) By Mike Sharpe, Ashford, Kent

The open-air museum at Amberley near Arundel in the South Downs National Park is quite a place.

Developed since the 1980s as a site for conservation of local industrial heritage, it was originally a complex of working chalk pits and limekilns for 150 years before that – full details on https://www.amberleymuseum.co.uk/about-us/our-history



Figure 1: Weighbridge plate near entrance and loading dock



My interest was caught by the original 20-ton Avery weighbridge still *in situ*, used to weigh road lorries in and out up until the 1970's. Such artefacts are rarely kept from destruction. This one has been beautifully maintained, and now sits tucked away in a

Figure 2 : Steelyard headwork in situ and well-maintained

meeting room converted from the site's main office buildings, but it is occasionally accessible

The 27-acre site has been populated with buildings and objects from the industrial heritage of Sussex and neighbouring counties. It has static displays, working industrial railway lines, distinctive buildings and structures, and even a bus service with its own depot.

.An 1842 tannery building, strikingly constructed in cast iron and moved bodily here from Horsham, has been sponsored and fitted out by the Worshipful Company of Paviors, a national UK body. Making sound roads with good-quality materials requires laboratory testing of roadstone samples. Hence there is a Stanton Instruments fine balance on display – although it looks 'sub-optimally' cared-for



Figure 3 : A delicate balance in the 'Paviors Museum of Roadmaking' building

Similarly, the bus garage was brought from elsewhere, incorporating components from a number of sources. It sits in the guise of a Southdown Motor Services garage and office. Tucked away is a fine example of machinery from the early days of British motoring – a Hammond 2-Gallon hand-pumped petroleum spirit dispenser, with transparent glass containers to show you how much you were getting.



Figure 4 : How Motor Spirit (petrol) was once dispensed

Figure 4: How motor spirit was once dispensed

By chance (or misguided scholarship) I've retained some obscure 20th-century textbooks in which the design of the Hammond 'Twin Container' was legally approved for trade – under Board of Trade Weights and Measures Notice number 552. It helps to illuminate what the various bits of the extant item were for – and gives a glimpse into a lost world of engineering now eclipsed by modern technology.

HAMMOND PUMP & EQUIPMENT CO., LTD.

Notice No. 552

Head Unit of 1 Gallon Twin Container Instrument

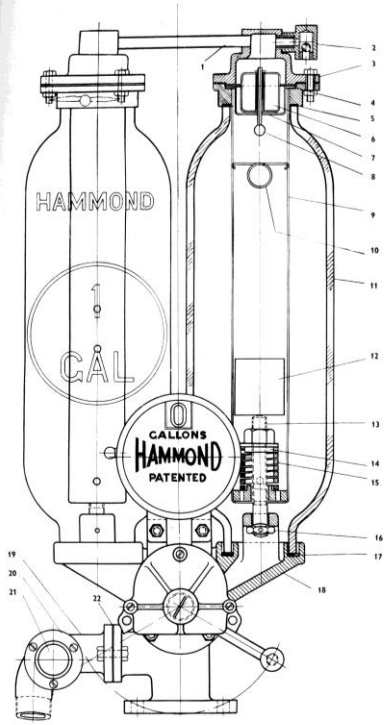


Fig. 1

1. Transfer tube.
2. Snifter valve.
3. Float chamber cap.
4. Float chamber cap joint.
5. Top cylinder joint.
6. Float.
7. Float case.
8. Float spindle.
9. Calibration chamber.
10. Calibration block spring.
11. Glass containers.
12. Calibration blocks — removable for adjustment.
13. Cylinder bolts.
14. Cylinder spring washer.
15. Cylinder bolt springs.
16. Nut for cylinder bolt.
17. Bottom cylinder joint.
18. Main body.
19. Discharge elbow.
20. Elbow window frame.
21. Sight glass.
22. Discharge elbow joint.

Further illustration overleaf



Weigh out

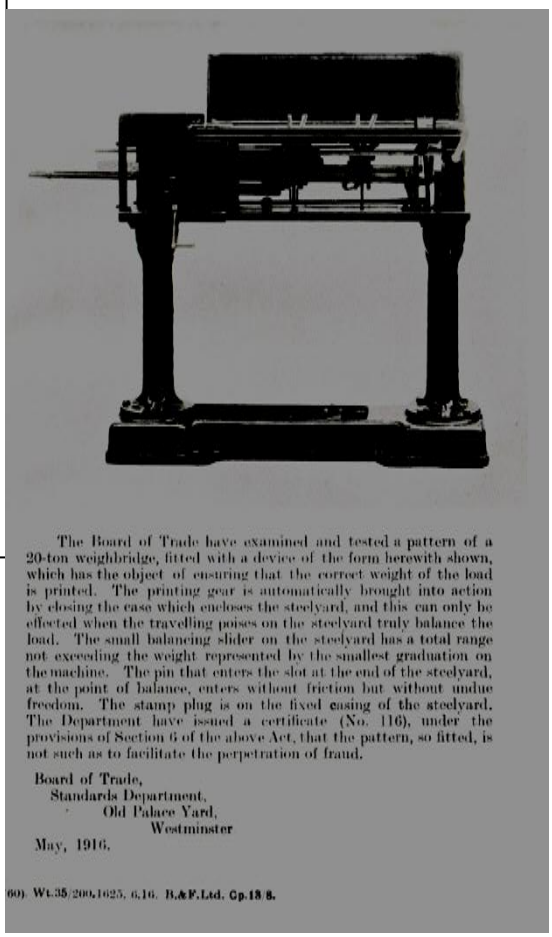
When I retired, my fellow heads of service, from the former Humberside area presented me with a rather novel memento of my somewhat chequered career. Not for me the antique clock or even the 1 gallon chekpump measure engraved with a dubious précis of my life's work, but rather I received a rather elaborate 'Public Weighman's' certificate. These were normally rather insignificant pieces of paper which bestowed upon the recipient the right to weigh items for a fee and issue a weigh ticket to the customer. The ability expected of the weigh man or (weigh person) varied on the nature of the weighing machine. If it was not furnished with a printing device, the operator would have to demonstrate the ability to calculate the net weight of the load by subtracting the tare weight from the gross. Most machines by this time had printers and did all the calculations for you so the onus upon the operator was somewhat less.

The certificate was somewhat ironic given that I was, and still am a bit of an arithmetic idiot who is intimidated by numbers. Nevertheless I was happy to receive my

elaborately designed and framed certificate even if I did inwardly realise I would have made a useless public weigh man.

Mike's article features an Avery steelyard weighbridge, which is interesting in that it is a very early example of a machine fitted with a ticket printing mechanism. There were two types of ticket printer on steelyards, one having the printing slot on the major poise and the other having all the printing mechanism located in the pillar of the machine. These devices did not perform the calculations so the operator had to be vaguely numerate.

Right, we have a design for a ticket printing steelyard. Unfortunately, the notice offers no adequate description of the mechanism and I have no idea how it works

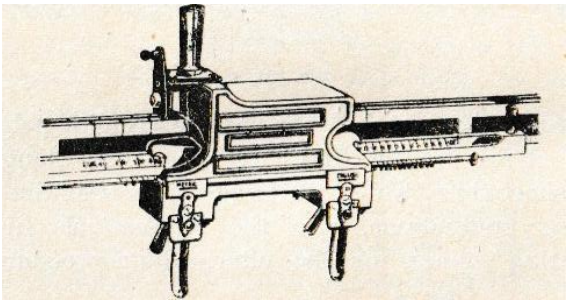


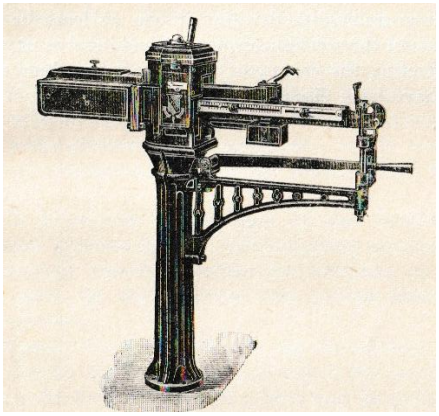
The Board of Trade have examined and tested a pattern of a 20-ton weighbridge, fitted with a device of the form herewith shown, which has the object of ensuring that the correct weight of the load is printed. The printing gear is automatically brought into action by closing the case which encloses the steelyard, and this can only be effected when the travelling poises on the steelyard truly balance the load. The small balancing slider on the steelyard has a total range not exceeding the weight represented by the smallest graduation on the machine. The pin that enters the slot at the end of the steelyard, at the point of balance, enters without friction but without undue freedom. The stamp plug is on the fixed casing of the steelyard. The Department have issued a certificate (No. 116), under the provisions of Section 6 of the above Act, that the pattern, so fitted, is not such as to facilitate the perpetration of fraud.

Board of Trade,
Standards Department,
Old Palace Yard,
Westminster
May, 1916.

60). Wt.35/200,1025. 6.16. B.&F.Ltd. Cp.13/8.

The first type is illustrated below. The underside of the steelyard has a metal strip affixed, on which are embossed numbers, corresponding to the ton values on the notched part of the steelyard. The minor poise, normally a block, running along a graduated scale, takes the form of a graduated bar that slides through the major poise. When the bar is in the correct position and equilibrium is achieved, numbers embossed under the bar present the corresponding weight values in tons, hundredweights and quarters so they can be included on the ticket. The ticket is a strip of card which goes into a slot on the major poise. The handle underneath the poise is operated and the card is squeezed against the series of embossed digits so that the indications are indented into the card. The card has boxes marked on it designated tons, hundredweights and quarters the appropriate numbers fit into the right box to provide a comprehensive reading. The ticket slot could be moved so that the gross and tare weights were recorded in the correct set of boxes.





The second type of ticket printing steelyard device. Here the printing takes place in the pillar of the machine. There are toothed racks attached to the sliding poises which engage with pinions in the pillar. These rotate as the poises move and present the correct numbers to the ticket placed in the slot





FOR OFFICIAL USE.

(602)

WEIGHTS AND MEASURES ACT, 1904.

NOTICE OF EXAMINATION OF PATTERN No. 602.

Submitted by MESSRS. LIQUID MEASUREMENTS, Ltd., Hammond Works, Victoria Road, North Acton, N.W.10.

The Board of Trade have examined and tested, with reference to the material of which and the principle on which it is constructed, a pattern of a liquid measuring instrument for delivering in quantities of 5, 4, 3, 2, 1 and ½ gallons of the form shown herein, which has been submitted to the Department under the provisions of Section 6 of the above Act, and have issued a Certificate No. 498 dated 13th February, 1930, that the pattern is not such as to facilitate the perpetration of fraud when used for the measurement of petrol and other liquids of low viscosity.

Board of Trade,
Standards Department,
Old Palace Yard,
Westminster, S.W.1.
July, 1930.

Sub-divided

Mike's article also features a Hammond Twin Container petrol dispenser used to refuel vehicles. These were one approach adopted in the 1920's to petrol dispensing although in the UK we tended to prefer piston pumps which delivered fuel more quickly but which lacked the reassurance of visibility as the whole operation was completely invisible to the customer. The twin containers were popular on the continent, especially in France and models by Companies such as Hardoll found their way into the UK.

In the USA they tended to use the Sub-Divided container and some of these did find their way into the UK. Messrs Hammond, who made the Twin, pictured above also made Sub- Divided models and one of these is pictured. This 5 gallon pump stood for many years at a road junction in rural Lincolnshire. It had clearly dispensed fuel at some time before WW2 and continued to stand beside the road years after the petrol station had departed.

Swinging

There was a time when 'roadside petrol pumps' accurately described the deployment of fuel dispensing equipment.

Early pumps were installed at the edge of the footway and the serving hose would be casually draped over the pavement with pedestrians being obliged to step over or duck under the obstructing pipe. Occasionally there would be some kind of rudimentary forecourt where vehicles could pull off the highway and fill up on private property but even up until the 1960's this was not a given.

Local Authorities who administered the legislation controlling the storage and dispensing of petrol were, for the most part, little concerned or troubled by the latent dangers of inadequate safety in petrol storage.

Over the years however some realisation began to dawn and we saw the coming of the 'swing arm' pump as an advancement in safety. The pump was installed at the rear of the footway but the delivery hose, no longer, draped over the pavement.

Instead, the dispensing nozzle and flexible delivery hose were connected to the pump via an array of rigid pipes that were hinged so that the fuel was delivered over the head of the customer. This arrangement worked moderately well but the various articulated joints in the pipes were prone to leakage which would result in short measure for the customer and a petrol soaked hat for the inspector.

As time passed, petrol stations changed and moved onto proper forecourts. The swing arm joined the list of redundant equipment and vanished from the land.

However, at time of writing one set of swing arm pumps remains, said to be the last ones in the land. They can be found on the forecourt of Messrs Storr in the High Street of Wainfleet, a small town in Lincolnshire. The petrol station is a peculiar anachronism in that customers are still served by the proprietor and the two pumps are still able to deliver over the pavement by means of the swing arms. Quite how this premise has escaped the strictures of the County Council and managed to retain its old world air is not quite clear. Presumably at some stage a little common sense and humanity was exercised.




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DIESEL PER LITRE
149·9
ATTENDED SERVICE