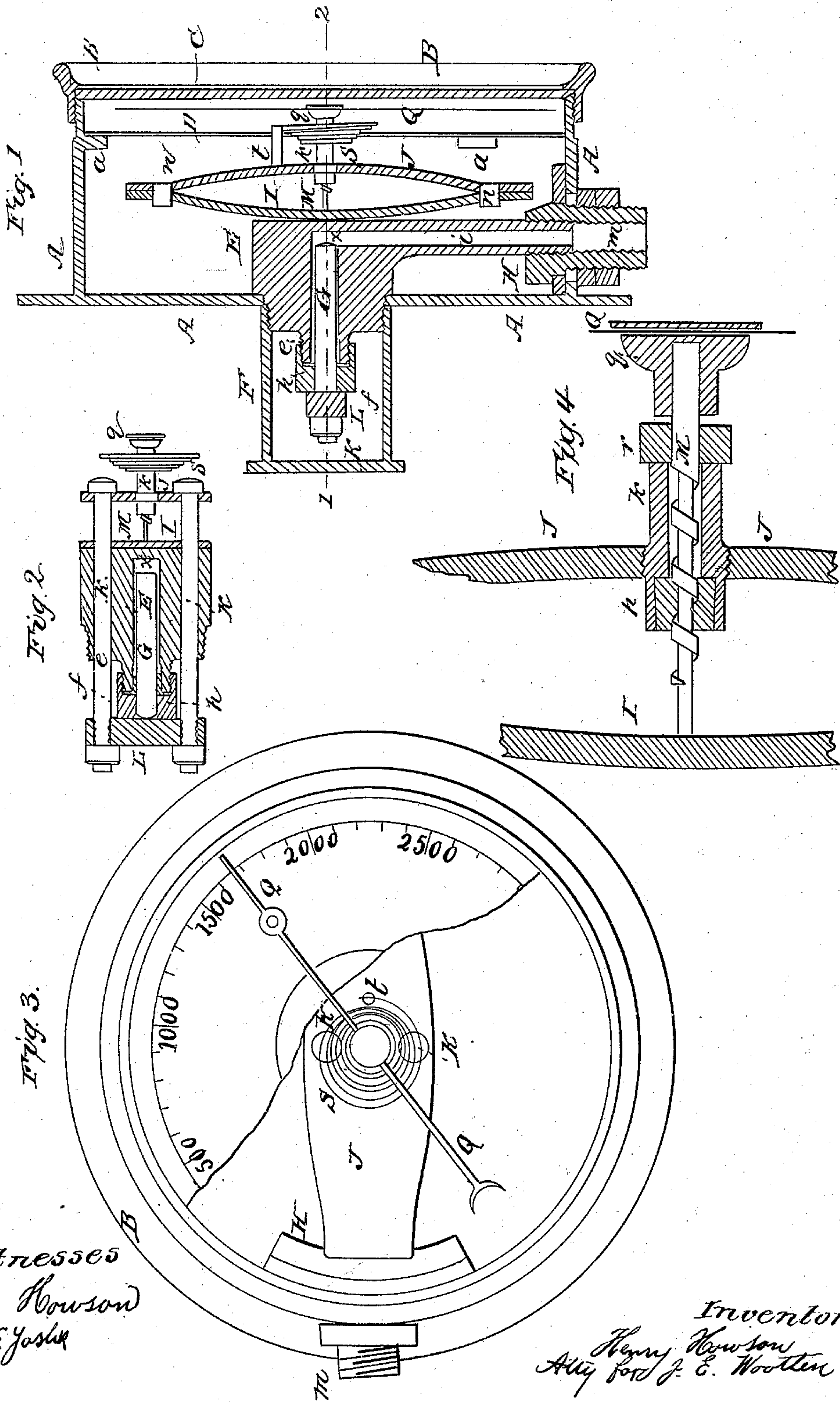


J. E. WOOTTEN.  
Pressure Gage.

No. 32,329.

Patented May 14, 1861.



Witnesses  
Chas. Howson  
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# UNITED STATES PATENT OFFICE.

JOHN E. WOOTTEN, OF PHILADELPHIA, PENNSYLVANIA.

## HYDROSTATIC-PRESSURE INDICATOR.

Specification of Letters Patent No. 32,329, dated May 14, 1861.

*To all whom it may concern:*

Be it known that I, J. E. WOOTTEN, of Philadelphia, Pennsylvania, have invented a new and Improved Hydrostatic-Pressure Indicator; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to an instrument to be applied to a hydrostatic press, for the purpose of ascertaining the pressure to which the ram of the press is subjected, and my invention consists of a ram operating through a permanent self tightening packing and in a cylindrical opening in a block of any appropriate shape for forming a communication between the said opening and the space beneath the ram of a hydrostatic press the whole being combined with an elliptical or other suitable spring, a pointer, or graduated index plate, and suitable appliances for transmitting the motion of the spring to the pointer, substantially in the manner described hereinafter so as to form an instrument whereby the exact amount of pressure on the ram of a hydrostatic press can be ascertained.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawing which forms a part of this specification, Figure 1 is a sectional view of my improved hydrostatic pressure indicator, Fig. 2 a transverse section of part of the indicator on the line 1 2 Fig. 1, Fig. 3 a plan view with a portion of the dial removed, and Fig. 4 a detached sectional view of part of the indicator drawn to an enlarged scale.

Similar letters refer to similar parts throughout the several views.

A is the exterior casing of the indicator and is in the present instance made in the form of a cylindrical box closed at the back and furnished in front with an annular screw cap B, between which and the front edge of the casing is secured a circular plate C of glass, a dial plate D being secured to lugs *a a* cast to the interior of the casing. Through the back of this casing projects the screwed portion of the block E which is confined to its place by a hollow cover F the latter having an internal screw adapted to the screwed portion of the block and bearing against the back of the case.

G is the ram of the indicator arranged to fit in a cylindrical opening *x* formed in the block E and passing through a cap or follower *f* which screws onto the projection *e* of the block so as to inclose and confine a ring *h* which embraces the ram G and which is so formed as to be self packing under the pressure of water to which the ram has to be subjected.

The block E has a hollow branch *i* the interior of which communicates with the opening *x* for the reception of the ram G, the end of this branch screwing into a plate H which is secured to the interior of the casing and which has a hollow cylindrical projection *m* passing through the said casing, screw threads being cut both on the inside and outside of this projection so as to afford facilities for the attachment of the pipe which communicates with the interior of the cylinder of the hydrostatic press the pressure of water in which the instrument is designed to indicate.

I and J are two plates of an elliptical spring of brass or other suitable metal connected together at the opposite ends by pins *n n* secured to the plate J and passing through slightly elongated openings in the plate I. Through the two plates of the spring pass the two rods or bolts K and K', the heads of which bear against the plate J of the elliptical spring, the rods passing through and being guided by openings in the block E as seen in Fig. 2. The outer screwed ends of the bolts pass through a yoke L and are furnished with suitable nuts. Against this yoke bears the end of the ram G.

To the plate J of the elliptical spring, at a point midway between its opposite ends, is screwed a hub K through which passes a spindle M, the latter having a coarse screw thread adapted to a nut *p* in the said hub *k* and to the outer end of the spindle is fitted the central hub *q* of the pointer between which hub and the hub *k* a collar *r* is secured to the spindle, the inner end of the coiled spring S being attached to this collar and the outer end to a pin *t* projecting from the spring J, this coiled spring tending to turn the spindle so that its inner end will always bear against the plate I of the elliptical spring.

In graduating the dial plate the first thing to be ascertained is the zero or starting point which the pointer itself will determine when the coiled spring S has been



properly adjusted and all pressure is removed from the plates I and J of the elliptical spring. This point having been marked on the dial the next step to take will be to

5 determine what position the pointer will assume when a given weight is applied to compress the plates I and J, or in other words when a given number of pounds pressure per square inch is exerted on the ram of

10 the hydrostatic press, the same pressure per square inch being exerted on the ram G and consequently on the plates of the spring. Supposing for instance that such a point on the dial has to be marked as will indicate a

15 pressure of five hundred pounds per square inch on the ram of the press when the pointer coincides with that mark. The area of the ram G having been ascertained to be, say one twentieth of a square inch, a pres-

20 sure of five hundred pounds per square inch on the ram of the press would be equivalent to a pressure of twenty-five pounds per square inch on the ram G, so that by suspending a weight of 25 lbs. to the rods

25 K and K' the plates I and J would be compressed to a given distance representing the suspending weight, and this movement of the plates of the spring would through the action of the nut on the coarse threaded

30 screw of the spindle M cause the latter and with it the pointer to turn to a given position indicating the pressure of five hundred pounds per square inch on the ram of the press. After marking this point on the dial

35 an additional weight of, say twenty five pounds, may be applied to compress the spring, when the end of the pointer will move to a position on the dial indicating that the pressure on the ram of the press

40 amounts to one thousand pounds per square

inch. This point having been marked on the dial additional weights may be added and additional points marked on the dial until it is properly graduated.

Having now fully described the construction and operation of my invention, I wish it to be understood that I do not claim of itself, the ram G with its self tightening packing, nor do I claim transmitting the movement of the spring to the pointer by means of

45 the screwed spindle M and spring S as a similar device is described in my patent for a steam gage granted Novr. 17th, 1857, disclaiming also the use of the above described instrument as a steam gage in view of the

50 patent granted to Moses M. Young Jany. 19th, 1858.

I claim as my invention and desire to secure by Letters Patent,

The ram G, the cylindrical opening  $\alpha$  in

60 the block E, and the permanent self tightening packing  $h$  when the said block is of an appropriate shape for forming a communication between the said opening  $\alpha$  and the space beneath the ram of a hydrostatic

65 press, and when the whole is combined with an elliptical or other suitable spring, the pointer Q graduated index plate D, and the devices herein described or their equivalents for transmitting the motion of the spring to

70 the pointer, substantially in the manner and for the purpose herein set forth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

J. E. WOOTTEN.

Witnesses:

HENRY HOWSON,  
JOHN WHITE.