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PROVISIONAL SPECIFICATION.

Wages and Premium Calculator.

JOHN WILLIAM SMITH, Mechanical Engineer, 16 Otterburn Terrace, Newcastle-on-Tyne, and HENRY DAVIS, Instrument Manufacturer, All Saints Works Derby, do hereby declare the nature of this invention to be as follows:—

5 This claim refers to the application of the principle of the logarithmic scale to the dividing of a given definite sum of money into parts which have given definite relations to one another, or to the whole sum which is to be divided. The proportions may be determined by the ratios of various sums of money, by the ratios of various amounts of time, by fractions, as percentages, or otherwise. The claim refers to a logarithmic scale specially divided and marked
10 so as to represent sums of money, which scale may be either straight, circular, or spiral, and either plane or cylindrical. This scale may be used in connection with two movable indices, or in connection with a second scale, and there may be applied to the scales a cursor in order to facilitate the working. The second scale may be divided in the
15 same manner as the first, that is to say, in terms of money, or it may be divided in terms of time, while there may be added one or more supplementary scales divided as percentages, as fractions, or otherwise, and which may be read by means of fixed or movable indices.

Dated this 8th day of February 1905.

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JOHN WILLIAM SMITH.
HENRY DAVIS.

COMPLETE SPECIFICATION.

Wages and Premium Calculator.

25 We, JOHN WILLIAM SMITH, of 16 Otterburn Terrace, Jesmond, Newcastle-on-Tyne, Mechanical Engineer, and HENRY DAVIS, of All Saints' Works, in the County Borough of Derby, Mathematical Instrument Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

30 This invention relates mainly to a device whereby a sum of money may be divided up amongst a number of workmen or the like in proportion to their time wage. It consists of two similar logarithmic scales placed edge to edge, the divisions having marked against them sums of money of which the divisions represent the logarithms. The scales may be of any desired range, for example
35 from twopence to £20, and they may be mechanically mounted in any suitable way so that one scale may be moved in relation to the other. For example, they may be mounted on a rule with a slide, as in an ordinary slide rule, or they may be mounted on adjacent cylinders or discs. In Figures I and II we show the two scales W and B mounted on the edges of two adjacent wheels 1, 2.

[Price 8d.]



Smith and Davis's Wages and Premium Calculator.

these wheels being rotatably mounted in a suitable stand 3. The two wheels can move independently but there is a certain amount of friction between them. A small desk 4 may be provided for conveniently making notes when using the device.

The use of our invention is best illustrated by an example, and in giving 5 this example we shall refer to Figures III, IV and V, which show successive portions of the scales when set for the given example. Suppose that five men, *a*, *b*, *c*, *d*, and *e*, are working in a gang and their total time wage for doing a particular job amounts to £7 : 0 : 0, but the value of the job amounts to £8 : 15 : 0. The calculator is used to find out what proportion of the 35/- 10 balance each of the five men should have in addition to their time wage, and to accomplish this, £7 : 0 : 0 on the one scale (let us call it the wages scale W) is set opposite £1 : 15 : 0 on the other scale (let us call it the balance scale B) see Figure V and the proportion each man is entitled to is read off on the balance scale opposite that man's time wage on the wages scale. The figures 15 are given below and are shown on Figures III and IV, by the arrows *a*, *b*, *c*, *d* and *e*.

	Wages Scale.	Balance Scale.	
<i>a.</i> - - - -	£ - : 14 : 0.	£ - : 3 : 6.	
<i>b.</i> - - - -	1 : 0 : 0.	5 : 0.	20
<i>c.</i> - - - -	1 : 10 : 0.	7 : 6.	
<i>d.</i> - - - -	1 : 12 : 0.	8 : 0.	
<i>e.</i> - - - -	2 : 4 : 0.	11 : 0.	
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Time wage. - - -	£7 : 0 : 0.	£1 : 15 : 0.	
Balance. - - - -	1 : 15 : 0.		25
	<hr/>		
Total. - - - -	£8 : 15 : 0.		

Or, we may put £7 : 0 : 0 on the wages scale opposite £8 : 15 : 0 on the balance scale and then read opposite each man's time wage on the wages scale the total amount plus balance due to him on the balance scale.

Instead of marking both scales with money we may mark one of them in 30 terms of time and in some premium systems where the smallest item of time required to be calculated is five minutes, it is convenient to read each penny on the money scale as five minutes, and each shilling as an hour, and so dispense with a scale specially divided in terms of time.

Our scale might be made spiral or helical and instead of two scales a single 35 scale might be used in conjunction with two movable indices, and there may be applied to the scales a cursor in order to facilitate the working and reading.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that 40 what we claim is:—

1. A wages and premium calculator consisting of two logarithmic scales marked in terms of money and mounted edge to edge so as to be capable of sliding one with respect to the other, substantially as set forth.

2. A wages and premium calculator consisting of two logarithmic scales 45 marked one in terms of money and the other in terms of time and mounted edge to edge so as to be capable of sliding one with respect to the other, substantially as set forth.

Dated this 8th. day of August 1905.

W. SWINDELL.
Agent for the Applicants. 50

[This Drawing is a reproduction of the Original on a reduced scale.]

