S. MARSCHIK.

WAGE REGISTERING APPARATUS FOR MECHANICAL LOOMS.

APPLICATION FILED SEPT. 30, 1908.

988,957. Patented Apr. 4, 1911.

Fig. 1.

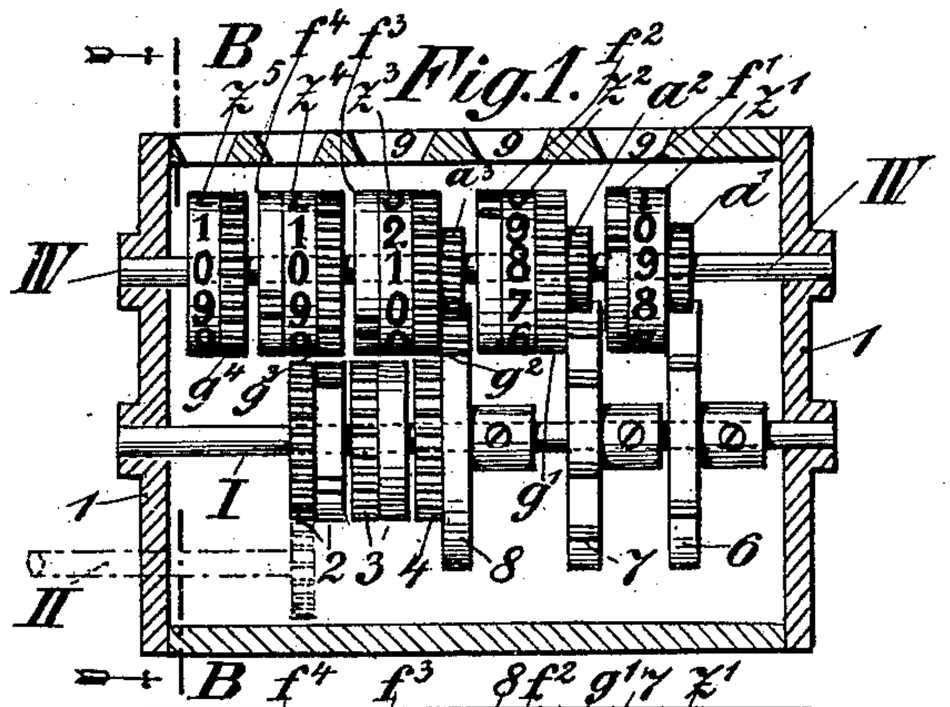


Fig. 2.

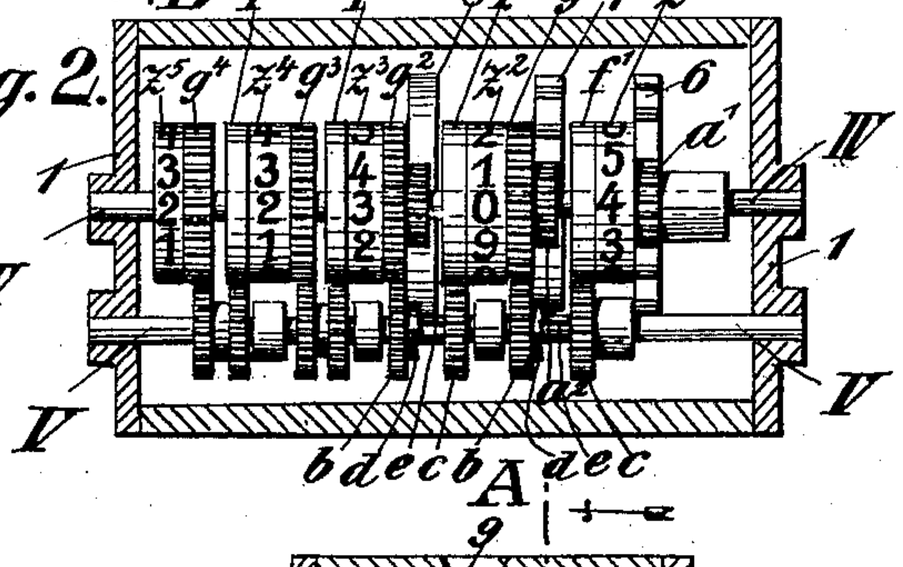


Fig. 3.

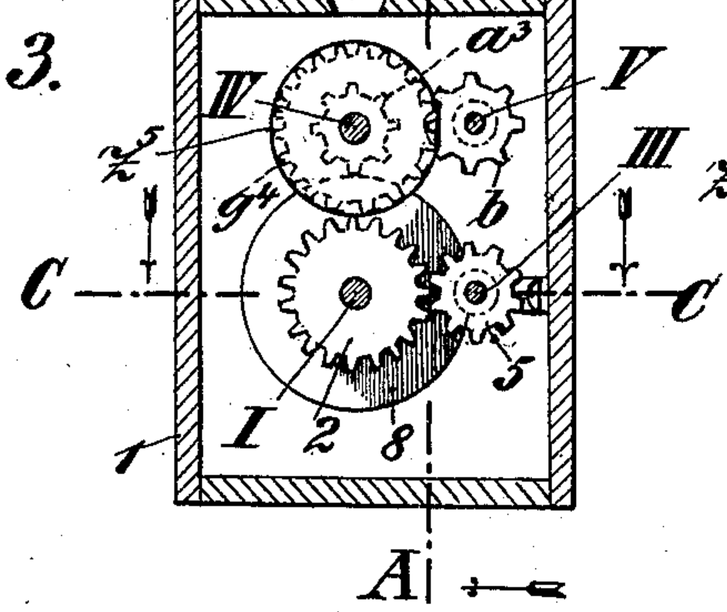


Fig. 5.

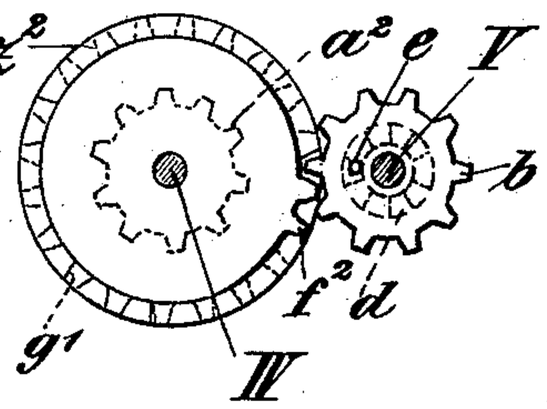
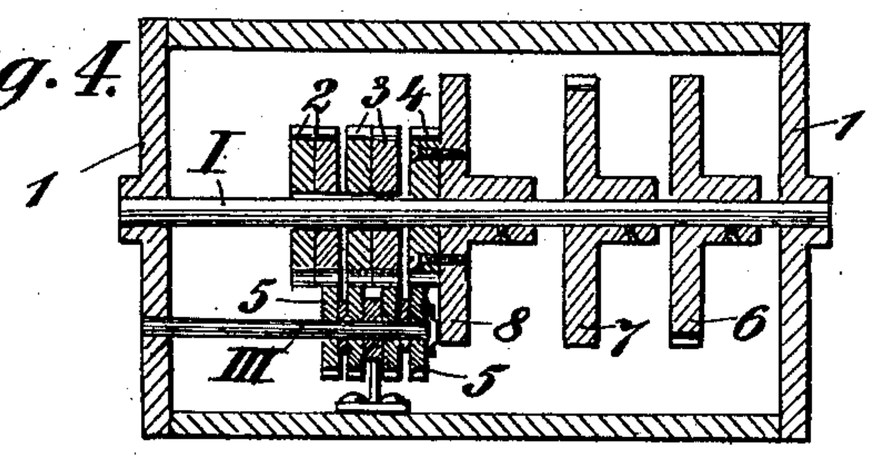


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL MARSCHIK, OF BRÜNN, AUSTRIA-HUNGARY.

WAGE-REGISTERING APPARATUS FOR MECHANICAL LOOMS.

988,957. Specification of Letters Patent. Patented Apr. 4, 1911.

Original application filed January 27, 1908, Serial No. 412,879. Divided and this application filed September 30, 1908. Serial No. 455,487.

To all whom it may concern:

Be it known that I, SAMUEL MARSCHIK, a subject of the Austro-Hungarian Emperor, and resident of 37 Schmerlingstrasse, Brünn, Austria-Hungary, have invented certain new and useful Improvements in Wage-Registering Apparatus for Mechanical Looms, of which the following is a specification.

My invention relates to an improvement in mechanical looms and consists of a counter which is driven by a suitable part of the loom and which automatically registers the weaving wages for a given period, say for example, one week.

By the use of this recording apparatus the calculation of wages and the book keeping relating thereto are done away with, so that errors are avoided, and the shoot-counters used hitherto and the meter-counters for the woven material or the subsequent measurement of the latter become unnecessary.

The weaving wage is calculated in monetary units per work unit.

In my specification (Serial No. 412,879) filed January 27, 1908, I describe an apparatus driven by the shaft of the card cylinder in the manner usual for weft counters and which serves to calculate wages according to the number of wefts.

The apparatus according to this invention is so devised as to permit of wages being determined upon a definitive number of yards, for example 300 yards, said apparatus being actuated from the ripple-beam or from the circumference of the cloth beam similarly to the ordinary weft counters. However, the apparatus can also be driven through the shaft of the card cylinder so that the wages are computed by the number of wefts.

The improved registering apparatus is shown in the accompanying drawings, in which:

Figure 1 is a vertical longitudinal section taken on the line A—A in Fig. 3. Fig. 2 is a plan and a horizontal section respectively. Fig. 3 is a vertical section through the line B—B in Fig. 1. Fig. 4 is a horizontal section through line C—C in Fig. 3. Fig. 5 shows on an enlarged scale the wheels of the tens transfer mechanism.

On the spindle I fitted inside the casing 1, there is mounted a gearing 2, 3, 4. The first tooth wheel 2 of this gearing, mounted loosely on the spindle I, is driven by the spindle II, the gearing of which starts from the ripple-beam of the loom and corresponds to the circumference of this beam, the gearing ratio being such that the tooth wheel 2 will make one revolution for every 3 yards of woven material, for instance.

By means of a connecting gearing 5 mounted on the spindle III the movement of the wheel 2 will be transmitted to the toothed wheel 3 mounted loosely on the spindle I in such a way that the wheel 3 makes one revolution for every 30 yards of material, and the rotation of the wheel 3 is further transmitted to the wheel 4 so that the latter makes one revolution for every 300 yards of material. This latter tooth wheel 4 is rigidly mounted on the spindle I on which are also firmly mounted the three registering or operating wheels 6, 7, 8. The latter therefore make one revolution with the shaft I for every 300 yards of material, this having been taken as the work unit in this example. These operating wheels serve to transmit the wages, settled upon for the work unit, to a counter of any desired construction. For this purpose the operating wheels 6, 7, 8 have a circumference which corresponds to thirty tooth divisions; the smallest distance between the teeth on one operating wheel is equal to three tooth divisions, and the three operating wheels are each set relatively to each other so that their positions differ by one tooth division, thus the teeth of the three operating wheels never operate simultaneously but one after the other. These operating wheels engage with the tooth wheels of a counter arranged on the spindle IV, viz. operating wheel 6 with the wheel a^1 of the units figure-wheel z^1, 7 with the wheel a^2 of the tens figure-wheel z^2, and 8 with the wheel a^3 of the hundreds figure-wheel z^3. The wheel 6 therefore transmits the units, 7 the tens and 8 the hundreds. The wheel 6 has as many teeth as the rate of wages contains multiples of monetary units under ten, 7 as many teeth as the rate of wages contains multiples of ten monetary units under one hundred, and 8 has as many teeth as the rate of wages contains multiples of one hundred monetary units under one thousand. For instance if the rate of wages is 186 monetary units per 300 yards the wheel 8 (hundreds-wheel) will have one tooth, 7 (tens-wheel) will have

eight teeth, and 6 (units-wheel) will have six teeth. For wages under one hundred monetary units the hundreds wheel remains blank.

As the tens figure-wheel must be moved by one place while the units-wheel makes one revolution, a transmission spindle V is used for the tens-transmission device (Figs. 2 and 3), by means of which the revolutions of one figure-wheel are transmitted to the other wheel of the next higher place. For this purpose I fix to the side of the number-wheels z^1, z^2, z^3, z^4 of the counting mechanism respectively the disks f^1, f^2, f^3, f^4 each of which has two teeth. These teeth which extend over one tenth of the circumference of the disk are so arranged as to come into gear with a loose toothed wheel c on the shaft V each time the corresponding number-wheel has turned from 9 to 0. For example when the wheel z^1 has turned from 9 to 0 and so caused the tenth wheel to turn by one number, the teeth of the disk f^1 will engage in the corresponding wheel c and turn the latter for two teeth. At the side of each wheel c there is a loose toothed wheel b on the shaft V. The toothed wheel b is furnished with lateral coupling teeth d, while each wheel c is fitted with a lateral spring controlled pin e engaging in the teeth d and so causing the wheel b to turn with the wheel c.

To the side of each number wheel z^1 or the like, is fixed a toothed wheel g^1 or g^2, g^3, g^4, in gear with the corresponding toothed wheel b. The latter wheel, as here arranged, turns the toothed wheel g^1 for two teeth, *i. e.* one tenth of the circumference, and consequently moves the number-wheel z^2 by one division.

The arrangement of the coupling teeth d is such that by turning one figure-wheel, the figure-wheel of the next higher degree will be driven by the catch e, but by the rotation of the last said figure-wheel, the spring catch e will be pressed by the coupling teeth d and thus will not cause the figure-wheel of lower degree to be operated.

The amount indicated by the counter can be read off at any time through reading-apertures 9 in the casing 1.

The spindle 5 with the tens-transmission device can naturally be arranged so that it can be disengaged, in order to bring the counter to the zero position.

In order to be able to use the apparatus for different rates of wages, a number of counting or operating wheels (6, 7, 8) with 1, 2, 3 . . . 9 teeth can be used, or these tooth-wheels can be fitted with adjustable teeth turning on hinges or radially displaceable. The teeth can also be fitted into holes provided on the wheels by means of screws or pins, or any other suitable manner, so that their number will correspond to the rate of wages required.

As already mentioned it is also possible to adopt 1000 wefts for the work unit as a basis for the rate of wages. In this case the spindle I must be driven from the spindle of the pattern-cylinder of the loom, so that it will make one revolution for 1000 wefts.

What I claim as my invention and desire to secure by Letters Patent, is:—

A wage registering apparatus comprising in combination, a casing, a spindle turnable in said casing, a number of operating wheels, each showing as many teeth as there are multiples of units in the corresponding places of the rate of wages, the said operating wheels being interchangeably mounted on said spindle, the said operating wheels being further provided with widened tooth gaps and set relatively to each other, a set of gearing adapted to drive said spindle so that the latter makes one revolution per work unit, and a counter presenting toothed wheels, the latter meshing with said operating wheels, substantially as set forth.

In testimony whereof I have hereunto signed my name this 17th day of September 1908, in the presence of two subscribing witnesses.

SAMUEL MARSCHIK.

Witnesses:

ROBERT W. HEINGARTNER,

AUGUST FUGGER.