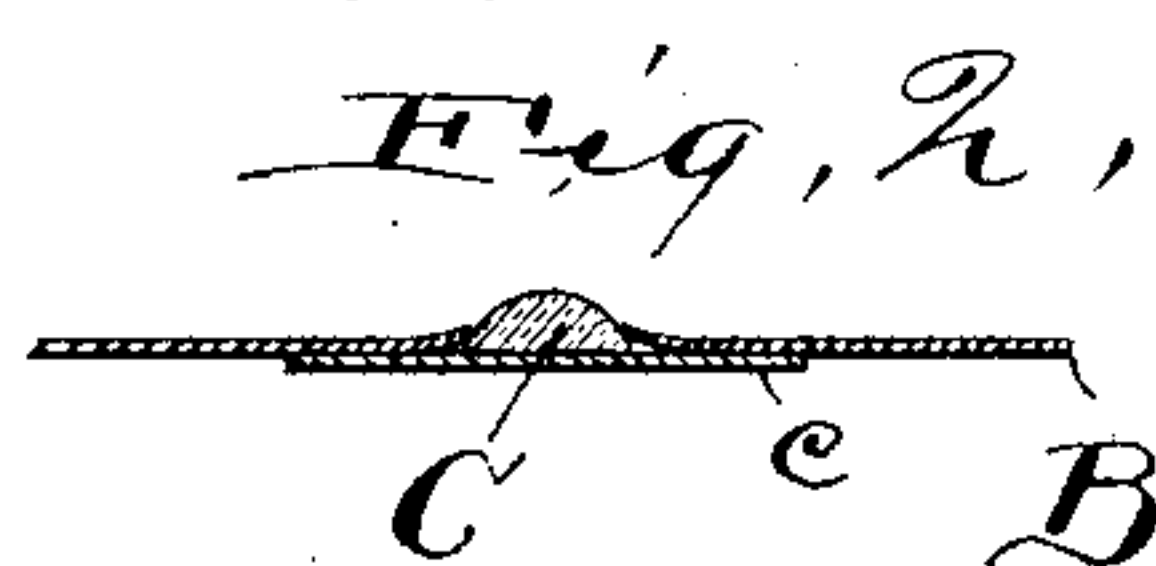
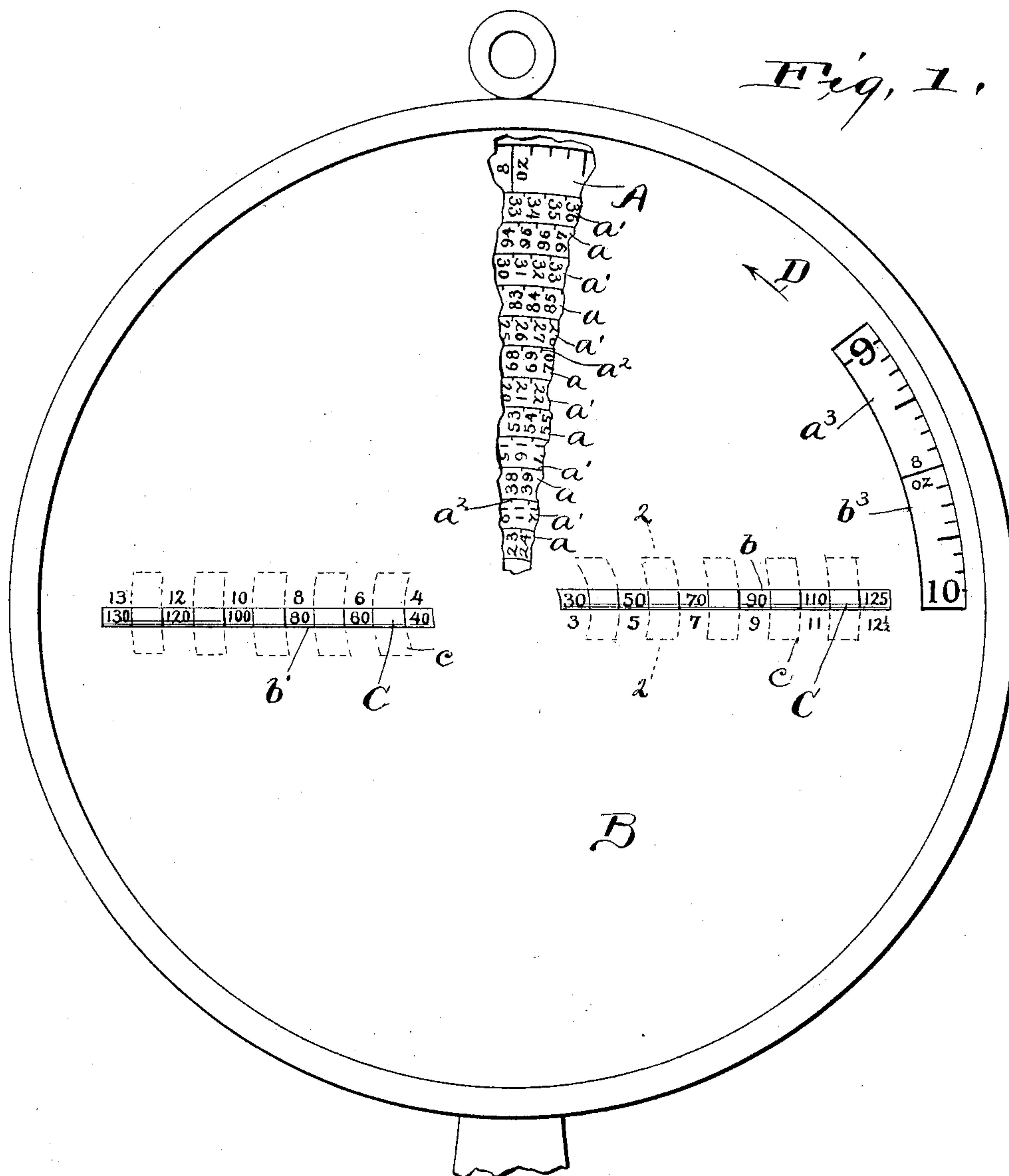


(No Model.)

F. C. HOYT.
SPRING BALANCE COMPUTING SCALE.

No. 589,602.

Patented Sept. 7, 1897.



WITNESSES.

E. B. Geckner
A. M. Rankin

INVENTOR.

Frank C. Hoyt
By E. L. Thurston
his attorney

UNITED STATES PATENT OFFICE.

FRANK C. HOYT, OF CLEVELAND, OHIO.

SPRING-BALANCE COMPUTING-SCALE.

SPECIFICATION forming part of Letters Patent No. 589,602, dated September 7, 1897.

Application filed October 3, 1896. Serial No. 607,790. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. HOYT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Spring-Balance Computing-Scales; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in the dial and face-plate of a spring-balance computing-scale.

The object of the invention is to provide a dial which shall have the maximum capacity for indicating values of any article placed upon the scale-pan, at different rates, which will indicate said values plainly and in such manner that there is the minimum danger of error in reading the indications.

The invention consists in the construction and combination of the dial and face-plate, substantially as hereinafter described, and as definitely set forth in the claims.

In the drawings, Figure 1 is a front view of a spring-balance scale containing my invention, and Fig. 2 is a sectional view of the face-plate on line 2 2 of Fig. 1.

Referring to the parts by letters, A represents the dial, which is rotated, by suitable mechanism, in the direction of the arrow D, distances proportionate to the weight of any article which is placed upon the scale-pan.

B represents the face-plate, which is secured in front of the dial.

The dial is divided into any desired number of circular columns $a a'$. Each column contains figures which, when seen right side up through either of the sight-openings $b b'$ in the face-plate, indicate the value in cents of the article upon the scale-pan at the rates indicated on said face-plate in line with the columns. Each column is divided by transverse lines a^2 into as many equal spaces as will equal the product of multiplying the associated rate per pound by the number of pounds which will cause the dial to make one complete revolution—in the present case ten. For example, the column which is associated with the rate of three cents is divided into thirty spaces, and the column which is asso-

ciated with the rate of sixteen cents is divided into one hundred and sixty spaces. In all of the spaces are placed figures which increase by increments of one from the zero-mark entirely around the dial. Every figure therefore indicates the number of spaces in its column which it is removed from the zero-point. The figures in every other row are inverted with respect to the figures in the intermediate rows, and the zero-points in every other row are in a common line on one side of the dial, while the zero-points in the intermediate rows are in a common line on the opposite side.

The sight-openings $b b'$ extend from near the center of the face-plate in opposite directions across the face of the dial. These sight-openings are a little wider than the height of the figures on the dial, wherefore one number in each column may be seen completely, even if it is not exactly in the center of the sight-opening, but they are not wide enough to show two complete numbers in any column.

When the scale is empty, the zero-line of the columns a is in line with the lower (reading) edge of the sight-opening b and the zero-line of the columns a' is in line with the upper (reading) edge of the sight-opening b' . The figures in columns a appear right side up on the right side of the center and inverted on the left side, while the figures in the columns a' are right side up on the left side of the center and inverted upon the right side.

Since each column contains figures representing every value in cents, from one cent to the total value of ten pounds at the indicated rate, the figures are small, and to make them more easy to read through the narrow sight-opening a plano-cylindrical magnifying-glass C is secured across said opening by the following construction: The parallel horizontal edges of the glass lie behind the horizontal edges of the sight-opening, the edges of said sight-opening being bent outward a little, but so much that the rear flat side of the glass will be in substantially the same plane as the rear side of the face-plate. The glass is held in this position by metal strips c , which are soldered or otherwise secured to the rear side of the face-plate. By this means of securing the glass across the sight-openings the

glass is brought as close to the dial as it can safely be placed, whereas if secured against the front side of the face-plate it would be removed from the dial a distance greater by the thickness of the face-plate. This may seem a small matter, but if the glass is not very close to the dial the figures appear indistinct and blurred when seen through the glass.

In order to make the reading of the indications on the dial as easy as possible, the sight-openings over the columns which show inverted figures are covered. This desired result may be attained in a variety of ways. For example, the under surface of the sight-glass on the right may be painted over the columns a' , which contain the inverted figure on that side of the center, and the under surface of the opposite sight-glass may be similarly painted over the columns a . Any opaque paint may be used, but it is believed that a paint the color of the face-plate, generally white, is the best. Instead of paint the metal strips c may be so placed as to entirely cover the columns containing the inverted figures, or instead of cutting the sight-openings in the form of one long slot these openings might be made as a series of short slots over the proper columns. This last construction would probably be found the best if magnifying-glasses C were not used.

The figures on the face-plate below the sight-opening b and above the sight-opening b' indicate the rate per pound at which the figures in the corresponding columns indicate values.

On the outer part of the dial a circular column a^3 may be formed and divided to indicate weights, and this column may be read through a curved sight-opening b^3 in the face-plate.

I disclaim the invention described as follows, to wit: In a computing-scale, a dial having on its face two sets of concentric rows of figures, which rows respectively represent progressive values at different rates, the figures in one set of rows being inverted with respect to the other figures, and the rows of one set beginning in a common zero-line upon one side of the dial, while the rows of the other set begin in a common zero-line upon the opposite side of the dial, combined with a face-plate having two sight-openings on opposite sides of the center, the reading edge of one

sight-opening having rate-indicating figures in line with the rows of value-indicating figures on the dial, which appear right side up through said sight-opening, the other sight-opening having on its reading edge other rate-indicating figures in line with the rows of value-figures, which appear right side up through said sight-opening, as I am not the first inventor thereof.

What I do claim, and desire to secure by Letters Patent, is—

1. In a computing-scale, the combination of a face-plate having sight-openings on opposite sides of the center, and rate-indicating figures adjacent to said sight-openings, with a rotatable dial divided into circular columns, each of which is divided by one set of radial lines into as many equal spaces as will equal the product of the associated rate-figure multiplied by the number of pounds which will cause one complete revolution of the dial, each of said spaces containing a figure indicating the number of spaces it is removed from the zero-point, the figures in alternate columns having their zero-points on opposite sides of the center of the dial, substantially as and for the purpose specified.

2. In a computing-scale, the combination of a rotatable dial having annular columns which contain value-indicating figures, the figures in alternate rows being inverted, with a face-plate having sight-openings on both sides of the center, and means for hiding on both sides of the center the columns which contain the figures which appear upside down, substantially as and for the purpose specified.

3. In a computing-scale, the combination of a rotatable dial having annular columns containing value-indicating figures, with a fixed face-plate having a long narrow sight-opening the edges of which are bent outward, and a plano-cylindrical magnifying-glass which projects through said sight-opening, and has its edges behind the outwardly-bent edges of the sight-opening, and retaining-strips, secured to the rear side of said face-plate, which hold the glass in place, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK C. HOYT.

Witnesses:

E. L. THURSTON,
E. B. GILCHRIST.