

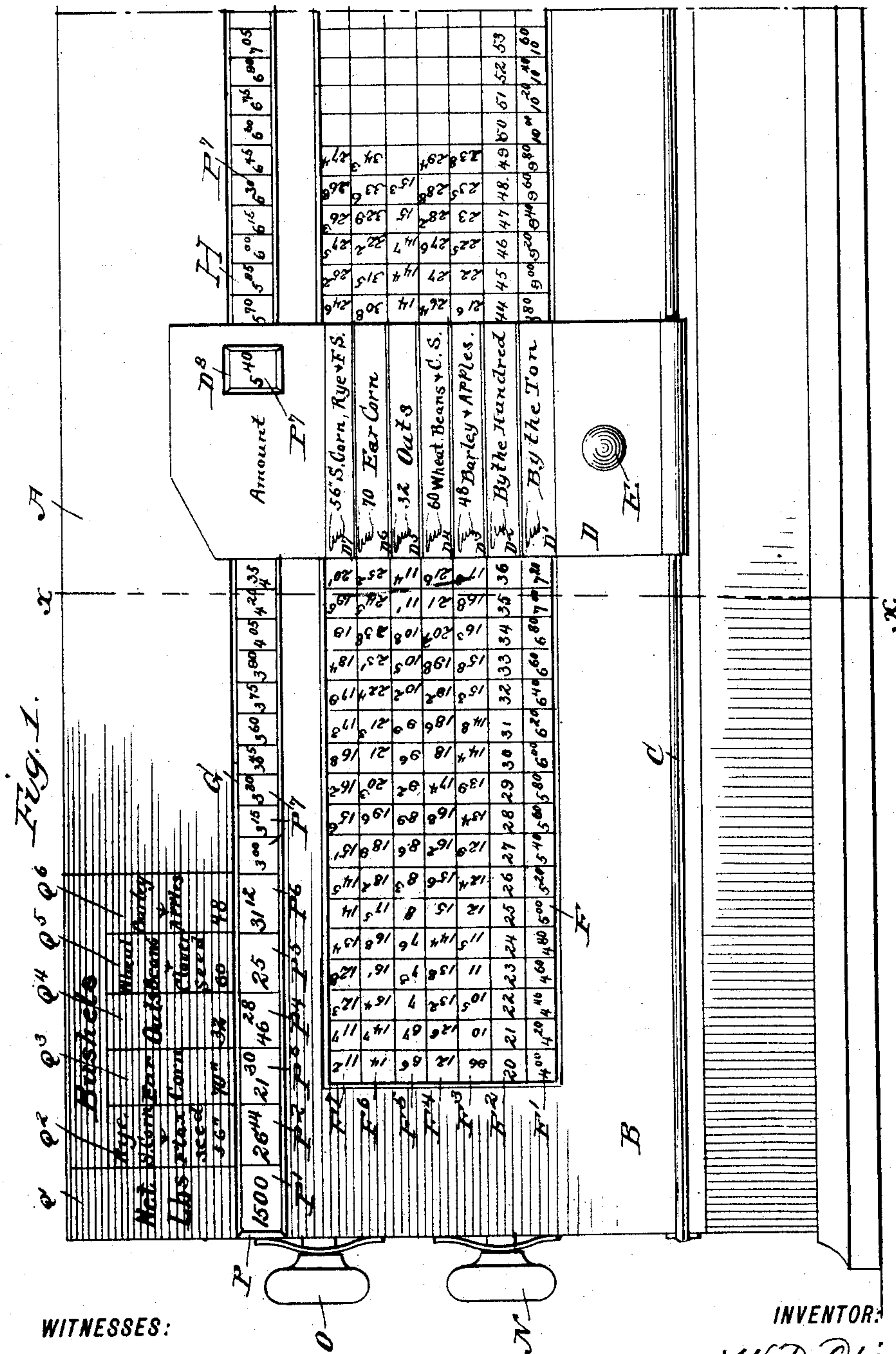
(No Model.)

2 Sheets—Sheet 1.

W. D. OTIS.  
CALCULATOR.

No. 421,108.

Patented Feb. 11, 1890.



**WITNESSES:**

W. R. Davis:  
C. Sedgwick

**INVENTOR:**

BY *W. D. Christie*  
*Munn & Co.*  
ATTORNEYS.

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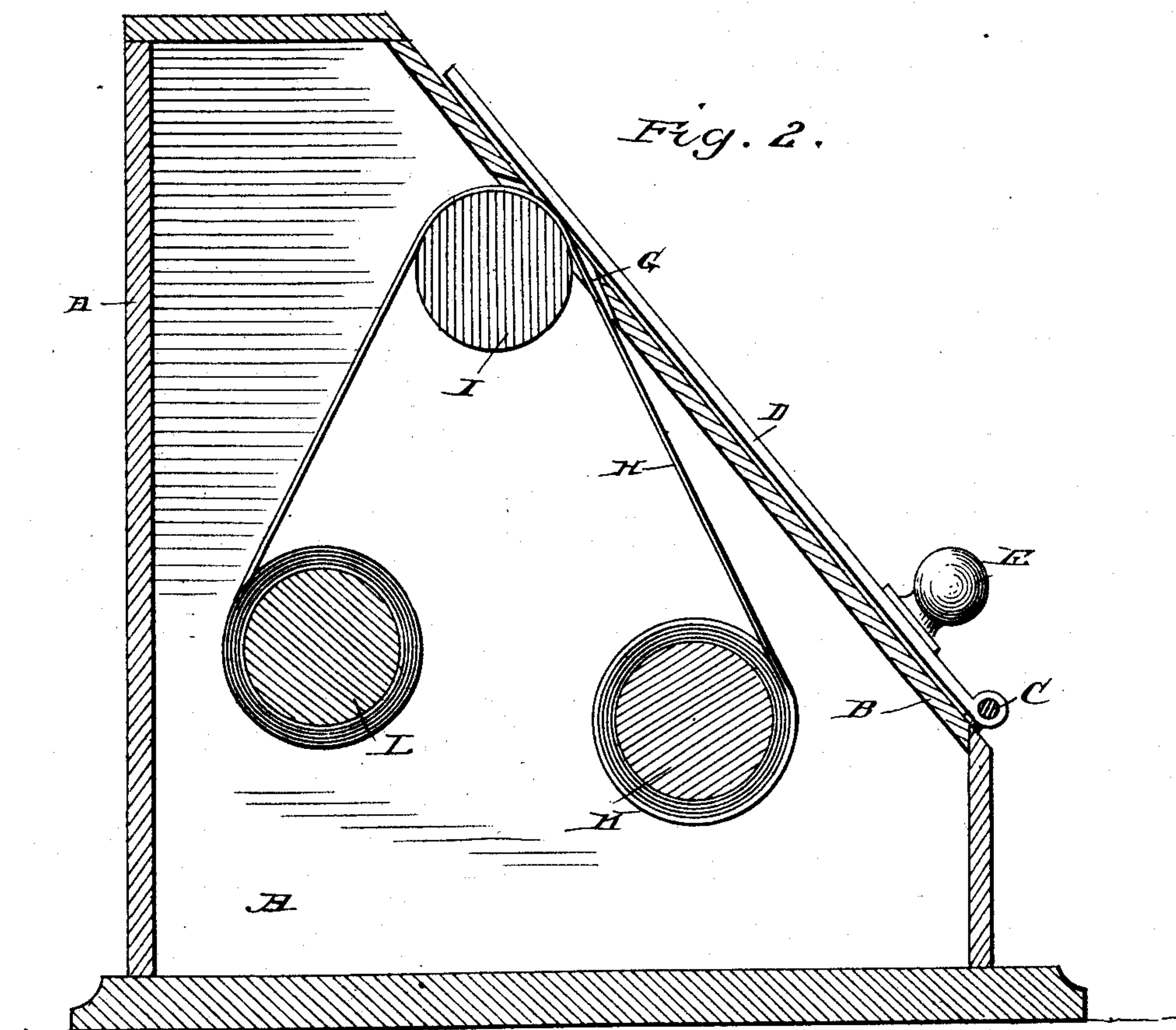
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# UNITED STATES PATENT OFFICE.

WILLARD D. OTIS, OF BLUE SPRINGS, NEBRASKA.

## CALCULATOR.

SPECIFICATION forming part of Letters Patent No. 421,108, dated February 11, 1890.

Application filed May 20, 1889. Serial No. 311,384. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD D. OTIS, of Blue Springs, in the county of Gage and State of Nebraska, have invented a new and Improved Calculator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved calculator for grain and other commodities which is simple and durable in construction, easily operated, and serves to readily, quickly, and accurately reduce any load of grain or seeds of from one hundred pounds to four thousand pounds to bushels and fractions thereof. It is further intended for computing the price of hay, grain, coal, or any other article bought or sold by the hundred pounds or ton, and at the same time this device gives the number of bushels in a ton of different kinds of grain. It indicates accurately the amount of money to be paid or received for a load of grain or other commodity, and it also indicates the amount of money to be paid per bushel for transporting it to any point when the rate is known.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a side elevation of the improvement, and Fig. 2 is a transverse section of the same on the line *xx* of Fig. 1.

The improved calculator is provided with a closed case A, having an inclined top B, on the lower end of which is secured a longitudinally-extending rod C, on which is mounted to slide an indicator D, provided with a knob E, for conveniently moving the said indicator forward and backward over the inclined top of the casing A. On the outside of the top B, under the indicator D, is arranged a chart F, provided with longitudinally-extending columns F<sup>1</sup>, F<sup>2</sup>, F<sup>3</sup>, F<sup>4</sup>, F<sup>5</sup>, F<sup>6</sup>, and F<sup>7</sup>, containing numerals indicating prices of the various commodities. For instance, the column F<sup>1</sup> contains numerals indicating

the price per ton, the column F<sup>2</sup> contains numerals indicating the price per hundred pounds, and the remaining columns F<sup>3</sup>, F<sup>4</sup>, F<sup>5</sup>, F<sup>6</sup>, and F<sup>7</sup> contain numerals indicating the price per bushel. On the top of the indicator D are arranged characters or longitudinally-pointing fingers D<sup>1</sup>, D<sup>2</sup>, D<sup>3</sup>, D<sup>4</sup>, D<sup>5</sup>, D<sup>6</sup>, and D<sup>7</sup>, pointing to the columns F<sup>1</sup>, F<sup>2</sup>, F<sup>3</sup>, F<sup>4</sup>, F<sup>5</sup>, F<sup>6</sup>, and F<sup>7</sup>, respectively. The finger D<sup>1</sup> indicates the price per ton, the finger D<sup>2</sup> the price per hundred pounds, and the fingers D<sup>3</sup>, D<sup>4</sup>, D<sup>5</sup>, D<sup>6</sup>, and D<sup>7</sup> indicate the price per bushel of the various grains and other commodities.

Near the upper end of the indicator D is formed an opening D<sup>8</sup>, registering with a slot G, formed in the top B, and arranged parallel to the chart F. Below the slot G is held a band H, passing over the idler I, held inside of the casing A, and mounted to turn in the ends of the same. The band H passes from the idler I to the rollers K and L, respectively, mounted to turn in the ends of the casing A, and provided at one end with knobs N and O, respectively, serving to conveniently turn said rollers L and K to move the band H over the idler I in an upward or downward direction, according to the direction in which the knobs are turned. The rollers L and K are preferably provided with a spring tension device of any approved construction, (see the left end of Fig. 1,) in order to hold the rollers in place.

On the band H are formed longitudinal columns P, each adapted to appear one at a time at the slot G. Each of the columns P is provided at its left end with a numeral P<sup>1</sup>, indicating the net number of pounds the price of which is to be calculated. Next to the numeral P<sup>1</sup> is a numeral P<sup>2</sup>, P<sup>3</sup>, P<sup>4</sup>, P<sup>5</sup>, or P<sup>6</sup>, indicating the exact number of bushels of a certain commodity in the number of pounds indicated by the numeral P<sup>1</sup>. Next to the last numeral P<sup>6</sup> is arranged a series of numerals P<sup>7</sup>, indicating the price in relation to the net number of pounds indicated by the numeral P<sup>1</sup> of a certain commodity, as hereinafter more fully described.

On the top B are arranged transversely-extending columns Q<sup>1</sup>, Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup>, Q<sup>5</sup>, and Q<sup>6</sup>, registering with the numerals P<sup>1</sup>, P<sup>2</sup>, P<sup>3</sup>, P<sup>4</sup>,



P<sup>5</sup>, and P<sup>6</sup> of each column P on the band H. The column Q' contains in writing the net number of pounds, referring to the numeral indicated at P' in the column P. The column Q<sup>2</sup> contains in writing the words "Rye," "Shelled Corn," and "Flaxseed," "Fifty-six Pounds to the Bushel." Similar writing relating to other commodities than the one contained in the column Q is contained in the other columns Q<sup>3</sup>, Q<sup>4</sup>, Q<sup>5</sup>, and Q<sup>6</sup>, the word "Bushels" standing above the columns Q<sup>2</sup>, Q<sup>3</sup>, Q<sup>4</sup>, Q<sup>5</sup>, and Q<sup>6</sup>.

The operation is as follows: When the operator desires to find, for instance, how many bushels of shelled corn (see column Q<sup>2</sup>) are in fifteen hundred pounds, he turns the knobs O and N until the column P, having "1,500" written at the left end, appears in the slot G. The operator, by following down the column Q<sup>2</sup>, containing shelled corn, will find "26.44"—that is, that number of bushels of shelled corn is contained in fifteen hundred pounds. If the operator now wants to find the price of fifteen hundred pounds, say, of oats, a bushel of which costs eleven and four-tenths cents, he moves the indicator D forward or backward until the finger D<sup>5</sup> points to "11.4," as shown in Fig. 1. In the opening D<sup>8</sup> is now found "5.40," indicating that fifteen hundred pounds of oats at eleven and four-tenths cents per bushel cost five dollars and forty cents. When the operator desires to know the price by the hundred pounds, say, of oats at eleven and four-tenths cents per bushel, the indicator D is left in the position shown in Fig. 1, the finger D<sup>2</sup> pointing to "36" in the column F<sup>2</sup>, indicating that one hundred pounds of oats will cost thirty-six cents, a bushel costing eleven and four-tenths cents. In the same manner the price per ton is given, the finger D' pointing to "\$7.20" in the column F.

In order to ascertain how much it costs to transport a bushel of grain to a certain point—for example, a bushel of shelled corn to Chicago—the rate being thirty-six per hundred, the operator moves the indicator D until the finger D<sup>2</sup> indicates on "36," as shown in Fig. 1. The pointer D<sup>7</sup> on the line of shelled corn on the said indicator now points to "20.1," which is the amount per bushel at the rate given. Thus it will be seen that by shifting the band H and moving the indicator D the operator is enabled to find the number of bushels and fraction of a bushel in a load of grain or seeds of from one hundred to four thousand pounds; is enabled to compute the price of the grain, hay, coal, or anything bought or sold by the hundred pounds or ton; is further enabled to give the number of bushels per ton of the different kinds of grain, and can tell the accurate amount of money necessary for a load of a certain commodity, and can also tell the cost per bushel of any commodity transported to any point when the rate is known.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a calculator, the combination, with a casing provided in its top with a slot, of a band mounted in the said casing and provided with sets of columns containing numerals and adapted to appear in the said slot, and an indicator held to slide on the top of the said casing and serving to indicate the numerals appearing in said slot, substantially as shown and described.

2. In a calculator, the combination, with a casing provided in its top with a slot and having a fixed chart, of a band mounted in the said casing and provided with sets of columns containing numerals indicating prices and quantities and appearing in the said slot, an indicator held to slide on the top of the said casing, and provided with characters indicating on the said chart, substantially as shown and described.

3. In a calculator, the combination, with a casing provided in its top with a slot and having a fixed chart, of a band mounted in the said casing and provided with sets of columns containing numerals indicating prices and quantities and appearing in the said slot, an indicator held to slide on the top of the said casing and provided with characters indicating on the said chart, the said indicator being also provided with an opening registering with the said slot, and means for moving the said band to register different columns with the said slot, substantially as shown and described.

4. In a calculator, the combination, with a casing provided in its top with a slot, of a chart containing numerals and fixed on the top of the casing, a band mounted in the said casing and provided with sets of columns containing numerals indicating prices and quantities and appearing in the said slot, an indicator held to slide on the top of the said casing over the said slot and chart and provided with fingers indicating on the columns on the said chart, said indicator being provided with an opening registering at all times with the said slot, substantially as shown and described.

5. In a calculator, the combination, with a casing provided in its top with a slot, of a chart containing numerals fixed on the top of the casing, a band mounted in the said casing and provided with sets of columns containing numerals indicating prices and quantities and appearing in the said slot, an indicator held to slide on the top of the said casing over the said slot and chart and provided with fingers indicating on the columns on the said chart, the said indicator being provided with an opening registering at all times with the said slot, rollers held to turn in the said casing and carrying the said band, and knobs for turning the said rollers, substantially as shown and described.

6. In a calculator, the combination, with a



casing provided with a slotted top and having fixed columns  $Q^1$   $Q^2$   $Q^3$ , &c., of a chart secured on the said top and provided with columns, an indicator held to slide over the  
5 said slot and chart and provided with pointing-fingers indicating on the said chart, and a band held to move in the said casing and provided with sets of numeral-columns adapt-

ed to appear under the said slot in the top of the casing, substantially as shown and described.

WILLARD D. OTIS.

Witnesses:

C. S. OTIS,

E. H. BURLINGTON.