

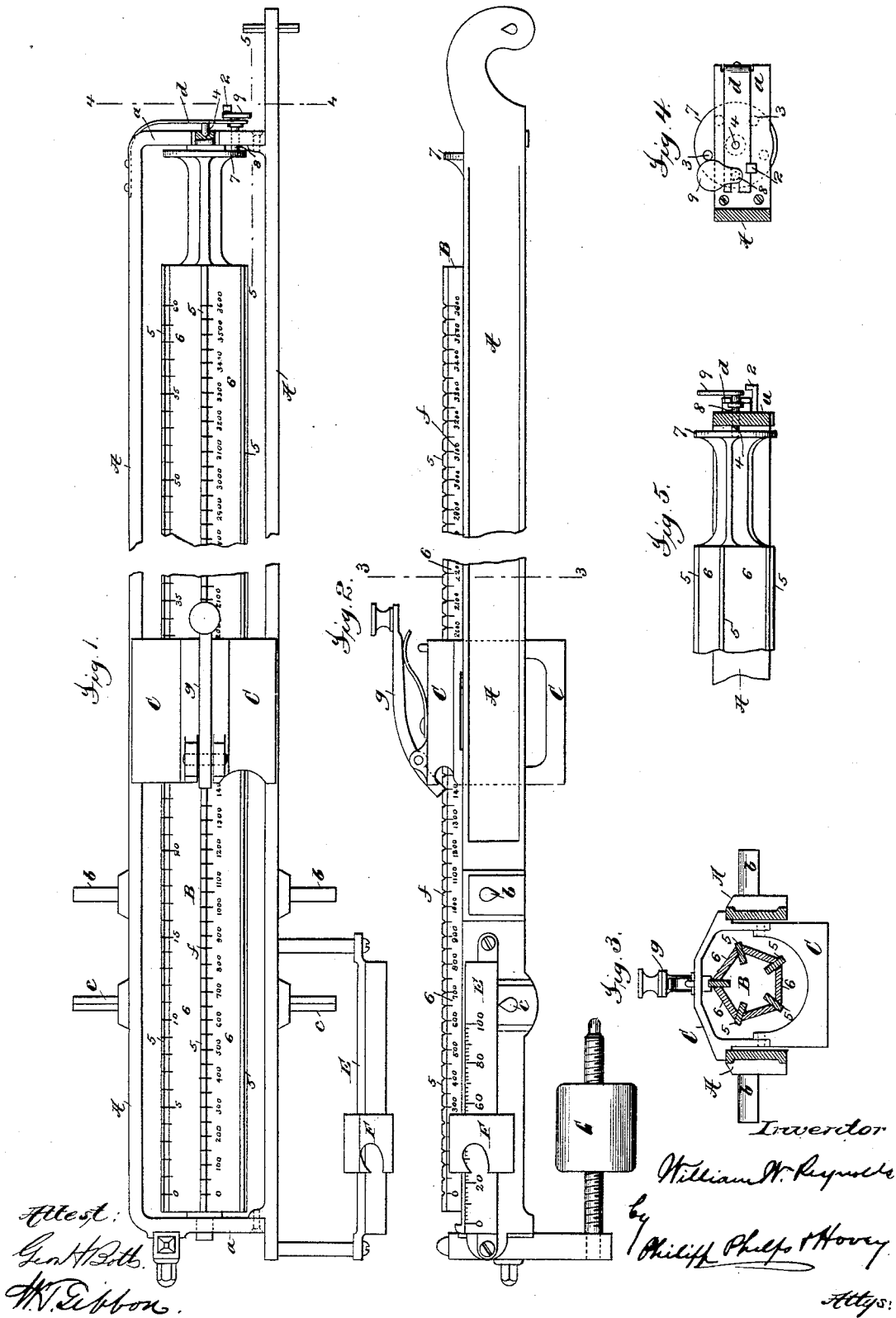
(No Model.)

W. W. REYNOLDS.

SCALE BEAM.

No. 383,912.

Patented June 5, 1888.



# UNITED STATES PATENT OFFICE.

WILLIAM W. REYNOLDS, OF RUTLAND, VERMONT.

## SCALE-BEAM.

SPECIFICATION forming part of Letters Patent No. 383,912, dated June 5, 1888.

Application filed July 27, 1887. Serial No. 245,401. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. REYNOLDS, a citizen of the United States, residing at Rutland, county of Rutland, and State of Vermont, have invented certain new and useful Improvements in Scale-Beams, fully described and represented in the following specification and the accompanying drawings forming a part of the same.

This invention relates to a beam for scales which is adapted to indicate the weight in a plurality of different units, the beam being especially adapted for use upon scales which are designed for weighing different kinds of produce where the number of pounds to a bushel varies with the character of the produce.

As a full understanding of the improvements constituting the invention can only be given by an illustration and a detailed description of a beam embodying the same, all preliminary description will be omitted and a full description given, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a scale-beam and its poise embodying the present invention. Fig. 2 is a side view of the same. Fig. 3 is a cross-section taken upon the line 3 3 of Fig. 2. Fig. 4 is a similar view taken upon the line 4 4 of Fig. 1, and Fig. 5 is a longitudinal section taken upon the line 5 5 of the same figure.

Referring to said figures, it is to be understood that the beam proper consists of two parallel bars, A, which are rigidly connected together at their front and rear ends by cross-pieces *a*, and from the outer sides of which project the usual fulcrum-pivots *b* and load-pivots *c*. Located between the bars A composing the beam is a revolving bar, B, which is journaled at its ends in the cross-pieces *a*, so as to turn freely. In order to prevent the bar B from being unduly heavy, it is preferably made of the skeleton form illustrated—that is to say, it consists of a number (five, as shown in the present case) of longitudinal blades or light bars, 5, of steel or other hard metal, between which are arranged thin plates 6 of brass or other soft metal, the whole being of the polygonal form in cross-section which is shown in Fig. 3; or in forming the bar B the

blades 5 may be omitted, the plates 6 being allowed to meet at their edges.

In order to prevent any slight endwise movement of the bar B, which would tend to destroy the accuracy of the scale, the outer end of the beam is provided with a spring, *d*, having a pin, 4, which is pressed inward against the journal of the bar, so as to always hold the bar pressed inward to its extreme position, and thus prevent it from shifting slightly during the operation of weighing. The outer end of the bar is provided with a disk, 7, having a number of openings, 3, corresponding to the blades 5, and the cross piece *a* is provided with a locking-pin, 8, which is adapted to enter the openings 3, so as to lock the bar B in any position to which it is turned. The pin 8 passes through a slot in the end of the spring *d*, and is provided with a collar upon which the spring *d* acts, so as to normally hold the pin in its innermost position. The pin, however, is provided with a handle, 9, by which it can be withdrawn, so as to permit the bar B to be revolved when it is desired to change its position. The cross-piece *a* is also provided with a stop, 2, which operates to limit the movement of the spring *d*, so as to prevent the pin 8 from being entirely withdrawn. The plates 6 are provided with graduations *f*, arranged to indicate the weight in different standards—as, for example, in pounds and in bushels—consisting of different numbers of pounds—for example, bushels consisting of sixty pounds for wheat, thirty-two pounds for oats, &c.

The poise C is arranged to slide upon the bars A composing the beam, as indicated in Fig. 3, and is provided with an opening through which the revolving bar B passes. For this purpose the poise is preferably made of two parts, as also indicated in Fig. 3, which will permit the parts to be more readily assembled. The poise is provided upon its upper side with a spring-catch, *g*, the end of which is formed to engage with notches formed in the edges of the blades 5, thereby preventing the poise from being shifted after it has been adjusted to the proper position to indicate the weight. The spring-catch *g* and the notches upon the bar B in some cases can be omitted, and in place of the catch the poise may be provided

with a point projecting down to the graduations upon the bar B, thus indicating the weight in the usual way.

As herein illustrated, the entire capacity of the scale is indicated upon the beam, no removable counterpoise-weights being employed. It is, therefore, necessary, that the poise C should be comparatively heavy and the subdivisions of the graduations upon the plates correspondingly large. In order, therefore, to indicate fractions of these subdivisions the beam is provided with a small auxiliary beam, E, having a poise, F, and graduated to indicate the weight from zero up to the amount of one or more of the subdivisions of the graduations of the main beam. The beam is also provided with a balancing-weight, G, arranged in substantially the usual manner to be shifted to balance the scale.

In scales of this class where the whole capacity of the scale is indicated upon the beam the counterpoise or poises must, of course, be comparatively heavy, and in order to avoid weighting the inner end of the beam to counterbalance the considerable weight of the poise or poises it is desirable that the beam should be so constructed as to permit the poise or poises to move to the rear of the fulcrum-pivots. It is also necessary, particularly where the poise is thus heavy, that its center of gravity should be in or substantially in the same horizontal plane with the fulcrum-pivots, and it is therefore undesirable that the poise should be located in a plane above or below the fulcrum pivots. By making the beam of the two parallel bars C, and providing the poise with an opening through which the revolving bar B passes, both of these difficulties are avoided, as this construction permits the poise C to move between the fulcrum-pivots and pass to the rear, and also permits it to be located so that its center of gravity will be in or substantially in the same horizontal plane as those pivots, thus avoiding the necessity of weighting the rear end of the beam to counterbalance the poise, and also obviating the liability of inaccuracy in the weighing, which would be occasioned if the poise passed to the rear by moving above or below the fulcrum-pivots.

What I claim is—

1. The combination, with the beam A, extending to the rear of the fulcrum-pivots, and the sliding poise C, supported upon said beam and arranged to move to the rear of said pivots, of the revolving bar B, arranged adjacent to the beam, and having a plurality of graduations and extending from the front end of the beam to the rear of the fulcrum-pivots, substantially as described.
2. The combination, with the beam A, carrying the sliding poise, of the revolving bar B, composed of a plurality of notched blades, 5, and a plurality of plates, 6, each having a graduation, and the sliding poise C, resting and sliding upon the beam A, and having a catch to engage with the notches upon the blades 5, substantially as described.
3. The combination, with the beam A, composed of the two parallel bars rigidly connected together and provided upon their outsides with the fulcrum and load pivots, of the revolving bar B, journaled between said parallel bars and extending from the front end of the beam between and to the rear of the fulcrum-pivots, and having a plurality of graduations, *f*, and the sliding poise supported upon said parallel bars and arranged to be moved to the rear of the fulcrum-pivots, substantially as described.
4. The combination, with the beam A, composed of the two parallel bars rigidly connected together and provided upon their outsides with the fulcrum-pivots *b* and load-pivots *c*, of the revolving bar having a plurality of blades, 5, of hard metal, and plates 6, of soft metal, and extending between and past the fulcrum-pivots to the rear thereof, and the poise C, arranged to slide upon the parallel bars of the beam A, and having an opening for the passage of the revolving bar B, substantially as described.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

WM. W. REYNOLDS.

Witnesses:

JOHN W. NORTON,  
JOHN S. PIERCE.