(No Model.)

S. J. AUSTIN.

SCALE FOR WEIGHING BUSHELS.

No. 251,087. Patented Dec. 20, 1881.

Fig. 1.

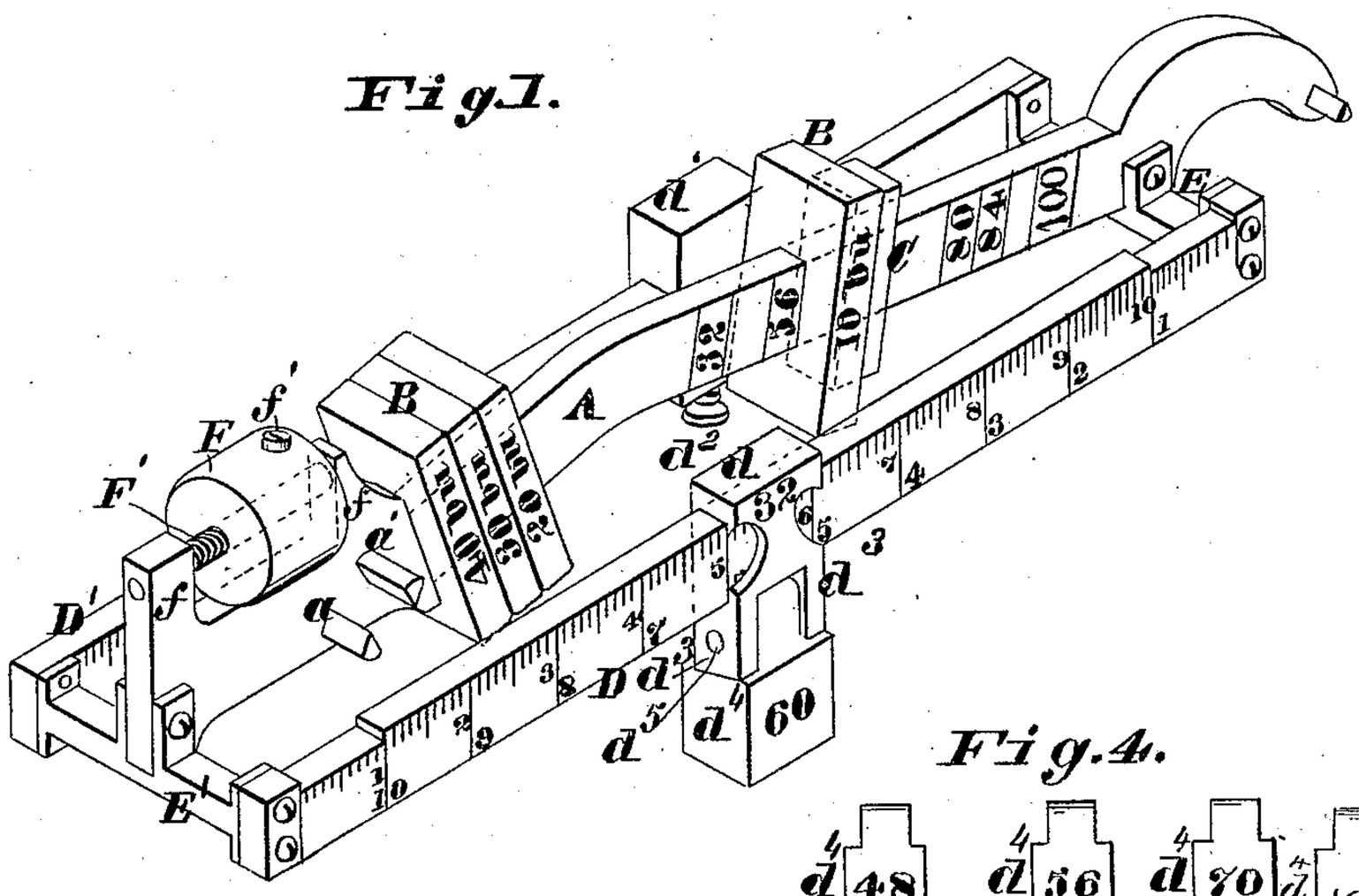


Fig. 4.

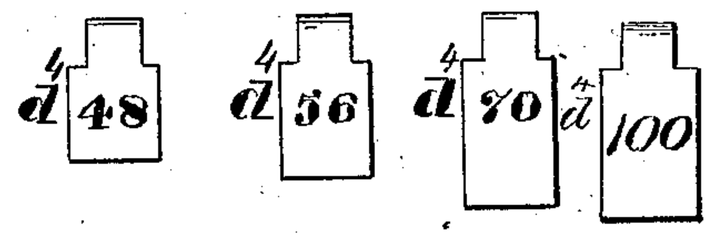


Fig. 2.

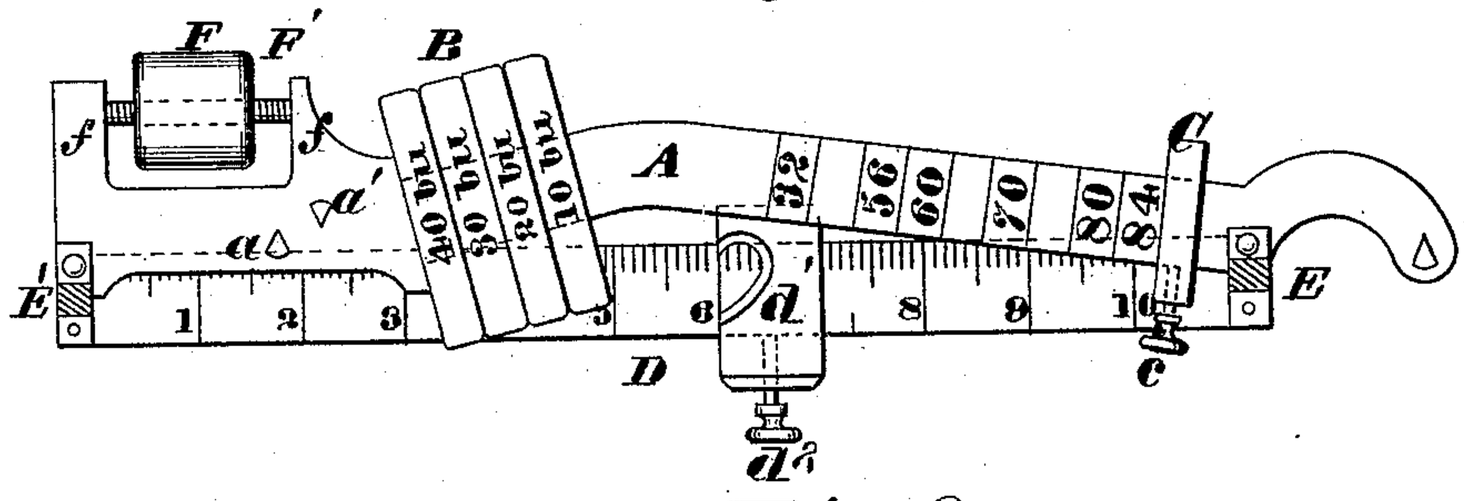
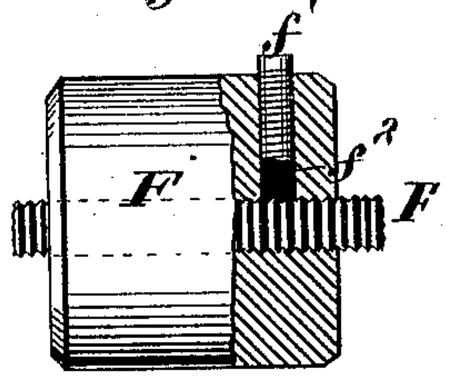


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SCALE FOR WEIGHING BUSHELS.

SPECIFICATION forming part of Letters Patent No. 251,087, dated December 20, 1881.

Application filed May 31, 1881. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN J. AUSTIN, of Terre Haute, in the county of Vigo and State of Indiana, have invented a certain new and useful Improvement in Scale-Beams, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This device relates to a scale-beam graduated to weigh bushels instead of pounds; and this invention consists in the device as hereinafter set forth and claimed.

In the drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a longitudinal view of same with one of the side beams removed. Fig. 3 is a detached view, part in section, of the adjustable weight, showing the means for holding it to its adjustment. In Fig. 4 is shown a number of the detachable weights d^4.

A is a scale-beam having its forward end numbered, as shown, for the purpose to be set forth, and having the usual knife-edges, *a a'*. This beam A inclines each way from or about its middle, for the purpose of keeping the weights thereon in close contact with each other for the purpose below mentioned.

B are weights upon the beam A, which are of a uniform weight, and marked "10 bu.," "20 bu.," "30 bu.," and "40 bu.," as shown.

C is a sleeve provided with a set-screw, *c*, for securing it in any desired position on the beam A.

D D' are side beams, connected to the main beam A by means of a connecting plate or rod, E, at the forward end of the beams, and by a plate or rod, E', at the other ends. By this connection the side beams are removed a sufficient distance from the main beam to allow the poises *d d'* to pass along their respective beams without being interfered with or interfering with the weights upon the main beam or the lower clevis on the knife-edge *a*. The poise *d'* upon the beam D' is provided with a set-screw, d^2, for holding it to its adjustment upon its beam. This beam D is a common tare-beam, and is marked to weigh pounds and parts thereof, as usual. The poise *d* upon the beam D has its lower part formed with lugs d^3, for the attachment of removable weights d^4. The weights d^4 are preferably made hollow, of brass, and are filled with lead to the weight desired. The beam D is marked off into divisions of one bushel each, and these are subdivided into tenths of bushels; or, instead of being divided into divisions of one bushel each and subdivided into tenths of bushels, it may be set off into divisions of one hundred bushels and subdivided into tenths of hundreds, or divisions of one hundred pounds and subdivisions of ten pounds for weighing the usual way. This beam D is also marked with numerals in reversed order. The reason will be explained when I come to speak of the operation of the device.

F is a ball-weight internally screw-threaded, and is upon the screw-threaded pin F', having bearing in lugs *f* upon the rear of the scale-beam A. This weight is provided with a set-screw, *f'*, whose lower end bears against a soft-metal cushion, f^2, between it and the pin F'. Thus, when the weight is moved to any desired place on the pin to balance the scales, it is held in that position by means of the screw, forcing the soft-metal cushion upon the thread of the pin. As the cushion is of soft metal it does not injure the thread upon the pin.

The operation of the device is as follows: In describing the operation we will first suppose that wheat is the matter being weighed. The first thing to be done is to move the sleeve C to the numeral 60, where it is secured by its set-screw *c*. Also hook onto poise *d* the extra wheat-poise d^4. Then move to the right until it comes against the sleeve the first of the weights B, which is marked "10 bu.," and will indicate that there are ten bushels of wheat, or six hundred pounds, the weight of the wagon or receptacle containing the grain having been balanced on the tare-beam. Then move forward the next weight B until it comes against the first, which will indicate that there are twenty bushels of wheat, and then move forward the next weight, which will indicate thirty bushels, and so on. Any number of blocks or weights may be on the scale-beam. I have shown four only. Now, supposing the amount of wheat in the receptacle to be between twenty and thirty bushels—say twenty-five bushels—two of the weights B would be moved along the beam A to the sleeve C, and then the poise *d* would be moved to the right on the beam D until it comes to the numeral 5. This would show that there are twenty-five bushels of wheat; and then should there be a fraction of a bushel, it

is at once ascertained by moving the poise forward so many tenths in the same way as though pounds and fractions of pounds were being weighed, the result being bushels and tenths thereof, instead of pounds and parts thereof.

We have supposed that wheat was being weighed; but it is evident that any other kind of grain may be weighed in the same way by simply moving the sleeve C along the beam to the number of pounds per bushel of the kind of grain being weighed. Thus, if oats are to be weighed the sleeve would be set at the numeral 32, and the weighing would proceed in the same way as described for wheat by moving the weights B up to the sleeve and moving the poise *d* to the right on its beam, the weight d^4 having been removed by simply unhooking from the pin d^5, as the poise *d* is of sufficient weight in itself for weighing oats. If shelled corn is being weighed, the sleeve C would be moved to 56, and the proper weight added to the poise *d*. If corn on the cob is to be weighed, the sleeve is set at 70, and the proper weight added to the poise, and so on, any kind of grain being weighed, the result being given in bushels and fractions thereof, instead of pounds and parts thereof. The weights B and sleeve C are slipped onto the beam A before its forward end is connected to the side beams.

In the above explanation of the operation of the device it has been supposed that the weight of the wagon or receptacle containing the grain had been taken on the tare-beam before being loaded with grain and the poise *d'* made fast in place by its set-screw; but suppose the wagon has not been weighed on the scales before being loaded with grain, it will in this case be necessary to subtract the weight of the wagon, or, in other words, ascertain the amount of grain removed from the wagon, the amount removed being all or a part of the grain contained in the wagon. To accomplish this I mark the beam D with numerals arranged in the reversed order, the weighing being done as follows: We will suppose again that wheat is being weighed. The poise *d*, with extra wheat-poise d^4 attached on the beam D, is first moved to the extreme right-hand end of the beam. The weight of the matter on the scales is then ascertained by the weights B and poise *d'*, the result being given in so many pounds, or so many bushels and pounds. Now, suppose the matter on the scales to weigh something over eighteen hundred pounds, or over thirty bushels of wheat. Two weights, B, would be moved to the sleeve C, which would indicate twenty bushels of wheat, or twelve hundred pounds, and the poise *d*, being at the extreme right-hand end of the beam *d*, as stated, would be ten bushels more, or six hundred pounds, making eighteen hundred pounds. Then the poise *d'* would be moved forward until the scales balanced. The whole weight of matter on the scales would be thus ascertained. Then supposing part of the grain to be removed from the scales, the weight of the balance is at once ascertained, or what amounts to the same thing, the weight of that removed, by simply moving the poise *d* to the left on its beam until the scales balance. If the amount of grain removed should happen to be more than ten bushels, or six hundred pounds, one of the weights B would have to be moved back to the left-hand end of the beam A, and then poise *d* moved back until the scales balanced. Any matter can be weighed in this way, and when part of it has been removed, or the net weight is to be ascertained, the weight of the balance can at once be had.

I do not claim to be the first inventor of a scale-beam marked both forward and backward; but I do claim to be the inventor of it in combination with beams A and D'.

Were the beam A not inclined, as shown, but straight on its upper surface, the weights B would be liable to get slightly removed from each other or the sleeve C, and the correct weighing interfered with. When it is thus inclined it will be impossible for the weights to shift from each other in themselves, because they will be kept together by gravity.

By setting the sleeve at the numerals 100 and attaching the extra poise d^4 marked 100 the beam is adapted to weighing in the ordinary manner, each of the weights B indicating one thousand pounds, and each division on the beam D will represent one hundred pounds and each subdivision ten pounds.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of scale-beam A, marked substantially as set forth, weights B, and sleeve C, said beam being inclined from or about its center forward and backward, as and for the purpose set forth.

2. The combination of beam A, having weights B and sleeve C, tare-beam D', having poise *d'*, and beam D, having poise *d*, and adapted to read either way, as and for the purpose set forth.

3. In combination with poise *d* on beam D, the removable weights d^4, as set forth.

4. In combination with beams A and D, arranged as set forth, the tare-beam D', as and for the purpose set forth.

5. In combination with the main beam A and side beams, D D', the connecting plates or rods E E', for the purpose set forth.

6. The combination of inclined beam A, marked as set forth and having weights B and sleeve C, tare-beam D', with poise *d'*, having set screw d^2, beam D, made to read either way and having poise *d* formed to receive weights d^4, and ball-weight F on pin F', having cushion f^2 and set-screw *f'*, all arranged substantially as and for the purpose set forth.

STEPHEN J. AUSTIN.

Witnesses:
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E. J. BARRY.