

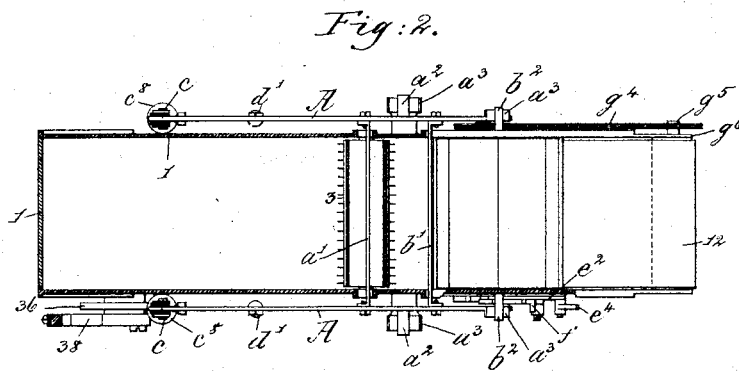
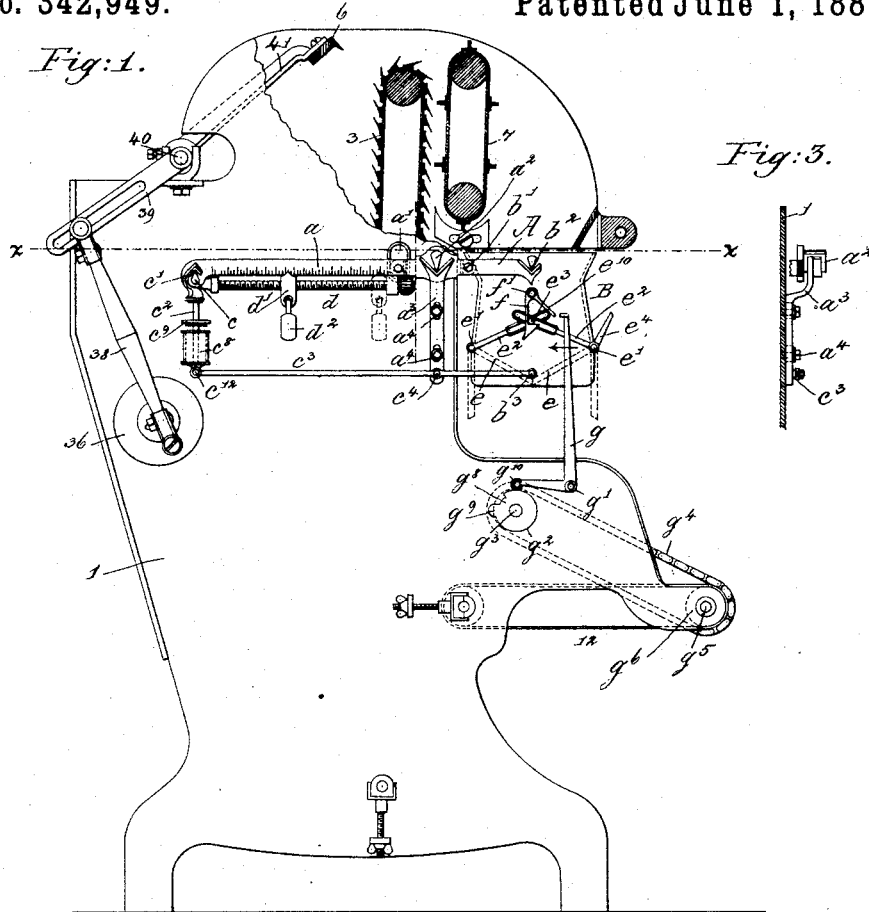
(No Model.)

W. C. BRAMWELL.

WEIGHING MECHANISM FOR WOOL AND OTHER FIBERS.

No. 342,949.

Patented June 1, 1886.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM CALVERT BRAMWELL, OF HYDE PARK, MASSACHUSETTS.

WEIGHING MECHANISM FOR WOOL AND OTHER FIBER.

SPECIFICATION forming part of Letters Patent No. 342,949, dated June 1, 1886.

Application filed November 5, 1885. Serial No. 181,955. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CALVERT BRAMWELL, of Hyde Park, county of Norfolk, and State of Massachusetts, have invented an
5 Improvement in Weighing Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object to provide an improved weighing mechanism whereby wool or other fiber entering carding or other machines may be uniformly weighed and discharged automatically.

15 The invention herein contained is intended to be an improvement upon the mechanism described in Letters Patent of the United States No. 216,373, granted to me June 10, 1879, to which reference may be had. In the
20 mechanism described in the said patent the receptacle into which the fibrous material falls to be weighed is rigidly secured to the weighing-beams, and thus moves in the arc of a circle the center of which is the pivot of
25 the said weighing-beams, the balance weight or weights being also rigidly fixed to the said beam or beams at the end opposite that carrying the said receptacle. The entire sides of the receptacle described in the said patent are
30 made as counterbalanced wings, which are opened at regular intervals by a system of cams and levers to permit the discharge of the fibrous material, the wings being closed by the action of counterbalance-weights,
35 which become effective as soon as the wool or other material is discharged.

Receptacles such as just referred to and fixed to the scale-arms are objectionable, because much time is lost in discharging the
40 material and closing the wings, and the counterbalancing-weights for the wings add considerable dead weight, which has to be moved, thus interfering with the sensitiveness of the weighing apparatus; and, further, in the patent
45 referred to the material was liable as deposited to fall to one or the other side of the center of the receptacle, thus throwing its weight nearer to or farther from the fulcrum of the lever to which the receptacle is fixed,
50 which causes the said lever to be turned by more or less weight, and consequently the amount of material discharged was variable.

The gradual opening of wings, as described in the said patent, tends to collect and condense the wool or fibrous material toward the middle of the receptacle, so that it is discharged
55 as a long lump. In accordance with my invention, the receptacle is pivoted to one end of the weighing-beams, while the counterbalancing-weights are pivoted to the other ends of
60 the said beams, and the said receptacle and the said weights are connected at their lower ends by means of a second connecting-lever, in order that the movement of both the said receptacle and of the said weights shall be in parallel
65 lines, the movement of each being substantially vertical, such construction always requiring that a certain definite quantity of material be dropped into the receptacle before the latter will descend, the falling or
70 tipping of the material in the receptacle to one or the other side thereof not effecting the descent of the receptacle, as in the old plan. Herein the apparatus having been set to have
75 the receptacle descend by the addition of a certain amount of material in weight, the said receptacle will descend only when it has received the proper quantity.

My invention therefore consists, essentially, in two connected pivoted beams, a receptacle pivoted thereon for the material to be
80 weighed, and a counterbalancing weight or weights, also pivoted to the said beam, combined with a lever or rod connected to the said receptacle and to the said weight, as will be
85 described, whereby the receptacle and the counterbalancing weight or weights move in parallel lines, such movement insuring uniformity in each weighing, as will be described.

My invention also consists in two connected
90 pivoted beams, a receptacle pivoted thereon having stationary sides and inclined doors located at its lower end, combined with the arms, and the pin or projection to cause the said doors and arms to move in unison.

95 My invention also consists in other details of construction, which will be described in the claims at the end of this specification.

Figure 1, in side elevation, partially broken out, represents a sufficient portion of a weighing
100 mechanism to enable my invention to be understood. Fig. 2 is a section of Fig. 1 below the dotted line *x x*, and Fig. 3 a detail to be referred to.

The frame-work 1, of suitable shape to contain the working parts, the vibrating comb 6, the pulley 36, the connecting-rod 38, the slotted arm 39 and shaft 40, the comb-arms 41, the material-lifting device 3, (shown as an endless toothed apron,) the stripping device (shown as an endless apron, 7,) the delivery-apron 12, and means to operate the said parts are all substantially as in my Patent No. 216,373, referred to, and hence no claim is herein made to any of the said devices. The scale-beams A A, arranged at each side the frame-work, and having usual scale-pivots, a^2 , which rest in V-shaped bearing-plates a^3 , are securely fixed or connected together by the connecting-rods $a' b'$, extended through holes or openings in the frame-work. The bearing-plates a^3 are adjustably connected to the side of the frame-work by means of bolts or studs a^4 . The short arms of the beams A A are provided with V-shaped notches, (see Fig. 1,) which receive V-shaped pivots b^2 , connected with one end of the receptacle B, into which the fibrous material to be weighed, and from which it is to be discharged automatically, is deposited by the stripping-apron 7. The rod a' passes through the space between the apron 3. These beams A A, at their opposite ends, have V-shaped pivots c , over which are hooked or caught the V-shaped ends c' of the weight-supporting rods or links c^2 , having attached weight-boxes c^3 , provided each with a lid, c^4 . The weight-box is made of the desired weight by the addition of lead or other heavy material. The rods c^2 at each side the frame-work have pivoted to them at c^2 a lever, c^3 , which in turn is pivoted at c^4 on the side plate, a^3 , the opposite end of the lever c^3 being jointed to the receptacle B at b^3 . Both beams A A, or one of them, has attached to it a screw, d , provided with a milled head, (see Fig. 1,) upon which is placed the carriage d' , which supports the weight d^2 , the carriage being screw-threaded to rest upon the thread of the screw. The screw d rotates within its bearings, supported by the beam, but is restrained from longitudinal motion, so that the rotation of the screw moves the carriage and weight. Movement of the screw to move the said weight from its normal position (shown by dotted lines, Fig. 1) into its full-line position serves to counterbalance the weight of the wool or to determine the amount of fibrous material which will be deposited in the receptacle before the doors thereof are opened, as will be described, to discharge the fibrous material. The pivot at c^4 is in the same vertical line as the pivot a^2 , and the distance between the pivot a^2 and the pivot b^2 is the same as between the pivot c^4 and the pivot b^3 , and the distance from the bearing a^2 to the bearings c is just equal to the distance between the pivot c^4 and the joint c^2 , uniting the lever c^3 to the bottom of the weight-box c^3 , and, being of the same length, the receptacle B and the rods c^2 of the counterbalancing-weight are caused to move in substantially

vertical paths or lines, the receptacles and rods always maintaining the same relation to each other and remain parallel during the entire movement of the beams. The receptacle B, having outwardly-inclined stationary sides, is closed at its bottom by two doors, $e e$, (shown by dotted lines,) which are joined to rock-shafts $e' e'$, the said rock-shafts having connected to them the arms e^2 , which arms, located at the end and outside of the receptacle, are shown as slotted for the reception of a holding-pin or projection, e^3 , which is fixed with relation to one of the arms e^2 , and extends loosely through a slot at the free end of the other arm, the said pin insuring the movement in unison of the doors and arms. The pin e^3 is extended sufficiently far through the slot of one of the said arms to be caught by the catch-lever f , it being herein shown as an angular lever pivoted at f' , and having a hook to engage the pin e^3 and hold the doors shut and retain the fibrous material in the receptacle. One of the rock-shafts e' has an arm, e^4 , through pressure upon which the doors are closed.

Mounted upon the side of the frame is a lever, g , pivoted at g' , and acted upon by a cam, g^2 , on a rotating shaft, g^3 , herein shown as driven by a chain, g^4 , extended over a chain-wheel shaft, g^5 , secured to one end of the roller g^6 , (see dotted lines,) about which is extended the apron 12, which latter receives upon it the fiber from the receptacle and delivers it to the machine which is to operate upon it. The cam g^2 has a depression, g^8 , and a projection, g^9 , and in its rotation, whenever the roller g^6 of the lever g enters the recess g^8 , the upper end of the lever g is thrown quickly in the direction of the arrow thereon, Fig. 1, causing the little finger at the upper end of the said lever to operate upon an arm, e^{10} , of the elbow-like catch-lever f , to so move it as to release the arms e^2 and permit the doors $e e$ to fall instantly by their own gravity. In the further rotation of the shaft g^3 the tappet g^9 strikes against the roller g^6 , operating the lever g in the reverse direction far enough to cause it to strike the lever e^4 to reset or close the doors $e e$, and consequently the bottom of the receptacle. The receptacle herein shown is made larger at its lower than its upper end, and the walls thereof are inclined in such direction as to leave the bottom or lower end of the receptacle free, the effect of such construction being to permit the wool to descend quickly onto the bottom plate, $e e$, which latter, when operated or released, opens quickly into the position represented in Fig. 1.

In the mechanism herein described the pivoted receptacle B has a substantially vertical motion and descends only when it has secured in it the predetermined amount of material. It will be seen that the discharge from the receptacle of the material is instantaneous, and to further facilitate this the stationary sides of the receptacle are fixed at an angle, so as to

make the receptacle wider at the bottom than anywhere else. The action of the material in sliding so quickly out of the receptacle having stationary sides is of very great importance, as it wipes all parts in its descent and keeps the interior clean, which the old arrangement, owing to its curved sides and mode of opening, could not do, and the accumulation of grease, &c., upon the sides and ends of the receptacle has caused serious variations in the weighing. It is also clear that no time is lost on account of the discharge, for the receptacle is reset immediately after it has deposited its contents.

The cam *g* may be driven from any regularly-moving parts of the machine to which my improvement is applied, and the wool, &c., may be deposited upon a feed-table in the usual way, or into anything placed beneath the receptacle to receive it.

The rods *c*², their hooked ends *c'*, and the weight-boxes constitute what I have designated as the "counterbalancing-weights," they counterbalancing the weight of the receptacle B.

I wish it to be understood that I do not desire to limit my invention to the exact form of counterbalancing-weights or to the exact form of beams A or receptacle, for instead thereof I may employ any other usual or well-known equivalents without departing from my invention. The pin *e*² in the slotted arms *e*² *e*² act to make the doors move in unison.

This invention being an improvement on the machine described in United States Patent No. 216,373, as stated, and having like toothed belt and shipping-apron, I have considered it unnecessary to show all the devices actually employed to rotate the said devices, or to stop the rotation of the belt and apron when the receptacle B has received its maximum amount of wool, as devices for that purpose are fully described in the said patent, and in practice the shaft over which the belt 3 passes at the top of the machine will have a toothed clutch, to be engaged and disengaged by a catch, all as in the said patent, the drivers for moving the catch to ship the feed-belt 3 being actuated by the descent of the receptacle, as in the said patent.

The receptacle B, to be herein described, when it receives the maximum amount of wool, will descend and stop the feed-apron 3; but the receptacle will not be opened until at a certain stage of the rotation of one of the shafts

of the machine, which has a cone for that purpose. The material having been discharged from the receptacle, the feed-apron 3 will be set in motion by devices substantially as shown and described in the said patent, but not herein shown.

I claim—

1. The pivoted beams A A, connected together to operate in unison, a receptacle pivoted thereon for the material to be weighed, and having pivoted doors at its lower side through which to discharge the material, and the counterbalancing weight or weights, also pivoted to the said beam or beams, combined with a lever to connect the said receptacle and the said weight or weights, whereby the movement of the receptacle and weight or weights is in lines parallel each to the other and substantially vertical, for the purpose described.

2. The pivoted beams, the receptacle pivoted thereon and having pivoted doors *e* *e*, closing the bottom of the receptacle, combined with the arms, and the pin or projection to cause the said doors and arms to move in unison, substantially as described.

3. The pivoted beams, the receptacle pivoted thereon, and pivoted doors to close the bottom of the said receptacle, the arms *e*² *e*² and arm *e'*, and holding-pin or projection, combined with the catch-lever and with means, substantially as described, to operate the said catch-lever and to engage the arm *e'* and close the said doors, substantially as set forth.

4. The pivoted beams A A, connected together to operate in unison, the screw *d*, its attached threaded carriage and weight, the receptacle pivoted on the said beams for the material to be weighed, and having pivoted doors at its lower side, and the counterbalancing weight or weights, also pivoted to the said beam or beams, combined with a lever to connect the said receptacle and the said weight or weights, whereby the movement of the receptacle and weight or weights is in lines parallel each to the other and substantially vertical, for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM CALVERT BRAMWELL.

Witnesses:

G. W. GREGORY,
C. M. CONE.