(No Model.)

F. H. RICHARDS.

GRAIN WEIGHER.

No. 442,720. Patented Dec. 16, 1890.

Fig. 1

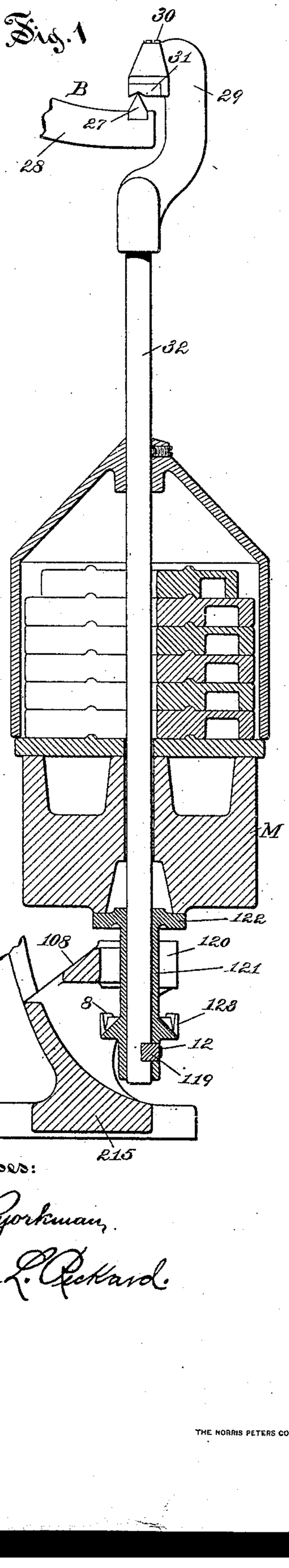


Fig. 2

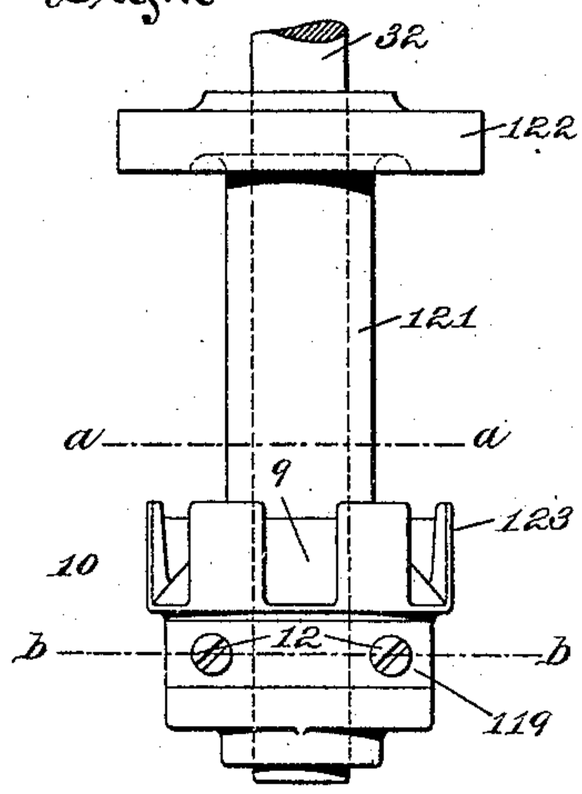


Fig. 3

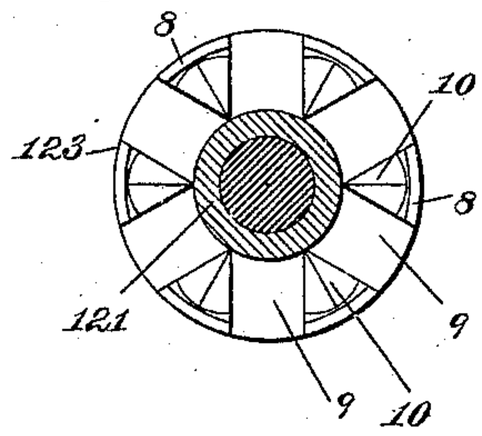
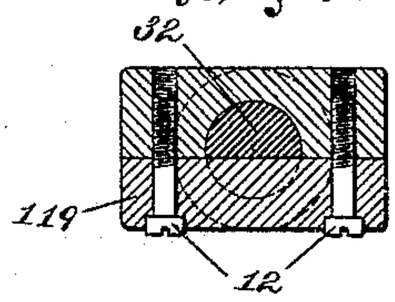


Fig. 4



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UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PRATT & WHITNEY COMPANY, OF SAME PLACE.

GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 442,720, dated December 16, 1890.

Original application filed March 28, 1890. Serial No. 345,730. Divided and this application filed July 14, 1890. Serial No. 358,634. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Grain-Weighers, of which the following is a specification.

This invention relates to grain-weighers, and has for its object to provide improved stops for limiting the vertical movements of the counter-weight.

This application is a division of my application, Serial No. 345,730, filed March 28, 1890, to which reference may be had for a more complete description of the grain-weigher and of certain parts thereof herein shown, but not herein fully described.

In the drawings accompanying and forming a part of this specification, Figure 1 is a sectional side view of the counter-weight or main weight of the grain-weigher, together with my present improvements. Fig. 2 is an enlarged side view of the stop devices. Fig. 3 is a plan view of that part of said devices below the line *a a*, Fig. 2. Fig. 4 is a cross-section in line *b b*, Fig. 2.

Similar characters designate like parts in all the figures.

In Fig. 1, the numeral 28 designates the rearward arm of the grain-weigher scale-beam, said arm being furnished with the usual knife-edge 27 for supporting the counter-weight, which is designated in a general way by W.

At the lower part of Fig. 1 is shown a portion of the frame-work of the grain-weigher, consisting of the horizontal beam 215, carrying the weight-supporting bracket 108. For a complete description of these parts reference may be had to my aforesaid prior application. Said bracket has formed therein a slot 120, through which passes the weight-rod 32, together with a thimble or sleeve carried on said rod at that part thereof. Said sleeve is fixed to the lower end of said rod 32 by means of a key, whose construction and combination with the rod and sleeve are shown by Figs. 1, 2, and 4. Near the lower end of the sleeve and rod there is formed in both a transverse channel or keyway, into which is fitted the key 119, that engages with both the sleeve and rod, as indicated in Figs. 1 and 4, thus securely locking said parts together. The key is held in place by two screws, as 12. By this means the sleeve 121 is locked on the rod 32 in such a manner that it cannot be misadjusted thereon, but can only be assembled or disassembled. This provision I find to be of great importance in this class of machines, which must in practice be intrusted to the care and management of comparatively uninformed laborers and workmen.

Above the key 119 and below the bracket 108 there is formed on the sleeve 121 a stop-collar consisting of a series of small surfaces arranged in a circuit surrounding a weight-rod at some distance out therefrom, and having between said stop-surfaces and the sleeve spaces formed for shedding any grain which may by accident or design be lodged or thrown on the stop-collar. Said stop collar or flange 123 has a series of inclined surfaces 9, between which rise the elevations whose upper surfaces 8 constitute the aforesaid circuit of stop-surfaces for limiting the upward movement of the weight W by impacting against the under side of the bracket 108. The surface 10, between the stop-surfaces 8 and the thimble and lying between the adjacent inclines 9 9, is formed roof-shaped, so that any grain lodging immediately inside of said stops 8 will be directed down upon the grain-shedding lowered surfaces or inclines 9 and by these directed off from said collar. The rim-sections 8 being so narrow diametrically of the collar 123 the grain does not readily lie thereon, but is dislodged therefrom on the slightest touch, so that, as determined experimentally, this improvement is very reliable and effective for its intended purpose. It has been found that with a plain collar in place of this specially-constructed flange grain-weighers in regular commercial work are subject to frequent stoppages from grain being thrown on said collars accidentally or otherwise—as, for instance, by laborers sweeping the floors or brushing off the machines. In this connection it will of course be remembered that any grain between said lower stop-flange and its

stop-surfaces under the bracket 108 would reduce the descending movement of the scale-beam and bucket, so that the bucket-latches would not unhook for discharging the load, and would thus cause the stopping of the grain-weigher.

At the upper end of the sleeve 121 there is formed the upper stop collar or flange 122, on which rests the main weight M of the counterpoise W. This counterpoise, as shown in Fig. 1, is made up of an assemblage of parts, substantially as described in the concurrent application of Cooley and Richards, Serial No. 358,659, filed July 14, 1890, to which I have permission to refer.

Having thus described my invention, I claim—

1. In a grain-weigher, the combination, with the scale-beam and the weight-rod suspended therefrom and with the weight-bracket, of the sleeve fixed on said rod and having one stop collar or flange above and one below said bracket, and a laterally-removable and longitudinally non-adjustable stop-fastening, substantially as described, engaging both said sleeve and rod, whereby the sleeve and rod are united and their misadjustment prevented.

2. In a grain-weigher, the combination, with the scale-beam and the weight-rod suspended therefrom and with the weight-bracket, of the sleeve fixed on said rod and having a stop-collar above said bracket, and having the flange 123 below said bracket, said flange having the circuit of narrow stop-surfaces separated by grain-shedding lowered surfaces.

3. In a grain-weigher, the combination, with the fixed bracket, of the weight-rod provided with the stop-collar 122 and the flange 123, said flange having the rim-sections 8 and the lowered inclined surfaces 9 between said sections 8.

4. The combination, with the weight-rod and with the stop-provided sleeve thereon, said rod and sleeve each having a corresponding transverse slot, of the key fitted to lie in both said slots and means holding in place said key.

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