No. 664,455. Patented Dec. 25, 1900.

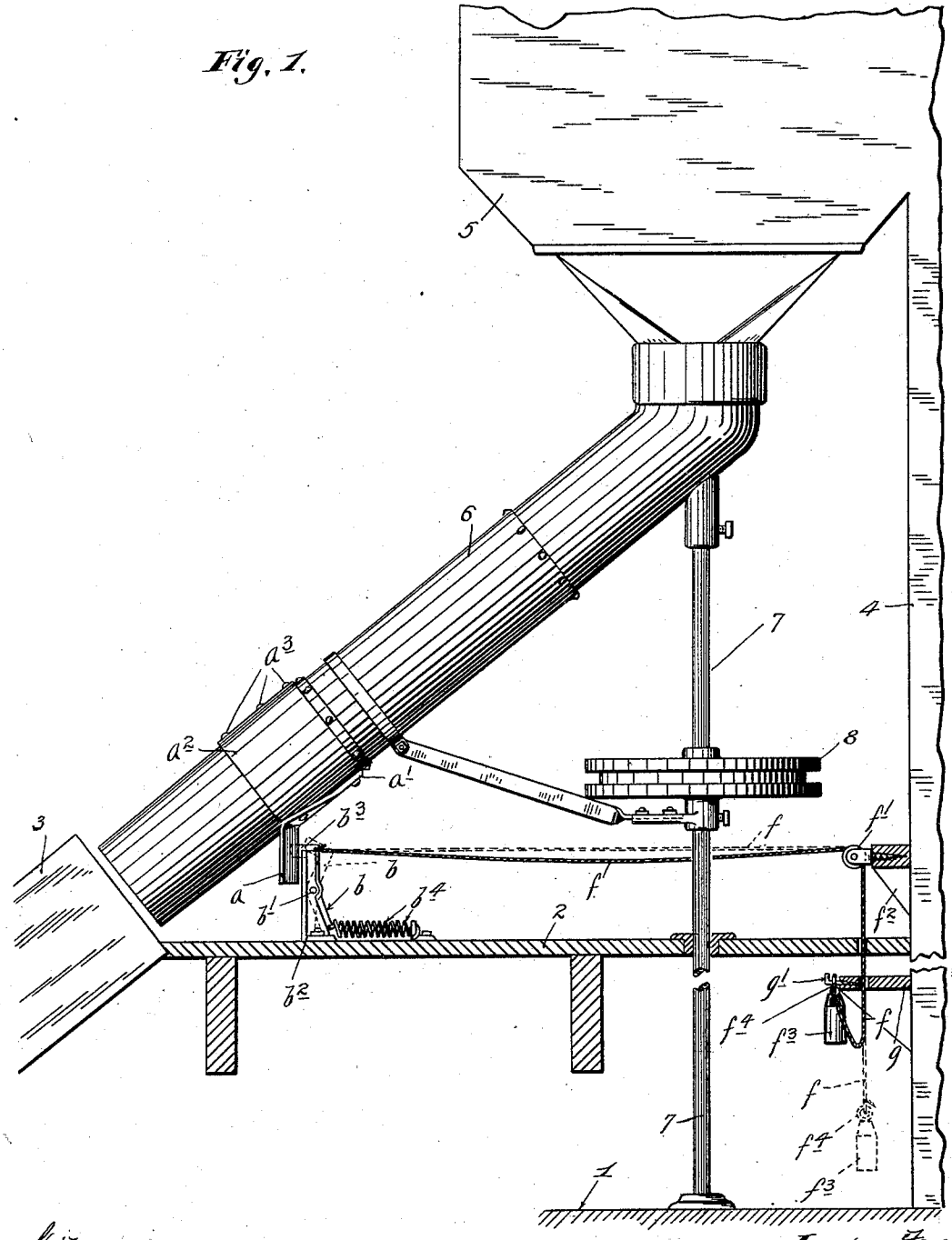
O. H. BAKER.

LOCK FOR GRAIN DISTRIBUTERS.

(Application filed Apr. 13, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



Witnesses,
Robert Otto.
Harry Kilgore.

Inventor:
Oscar H. Baker.
By his Attorneys.
Williamson & Merchant

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 664,455. Patented Dec. 25, 1900.

O. H. BAKER.

LOCK FOR GRAIN DISTRIBUTERS.

(Application filed Apr. 13, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

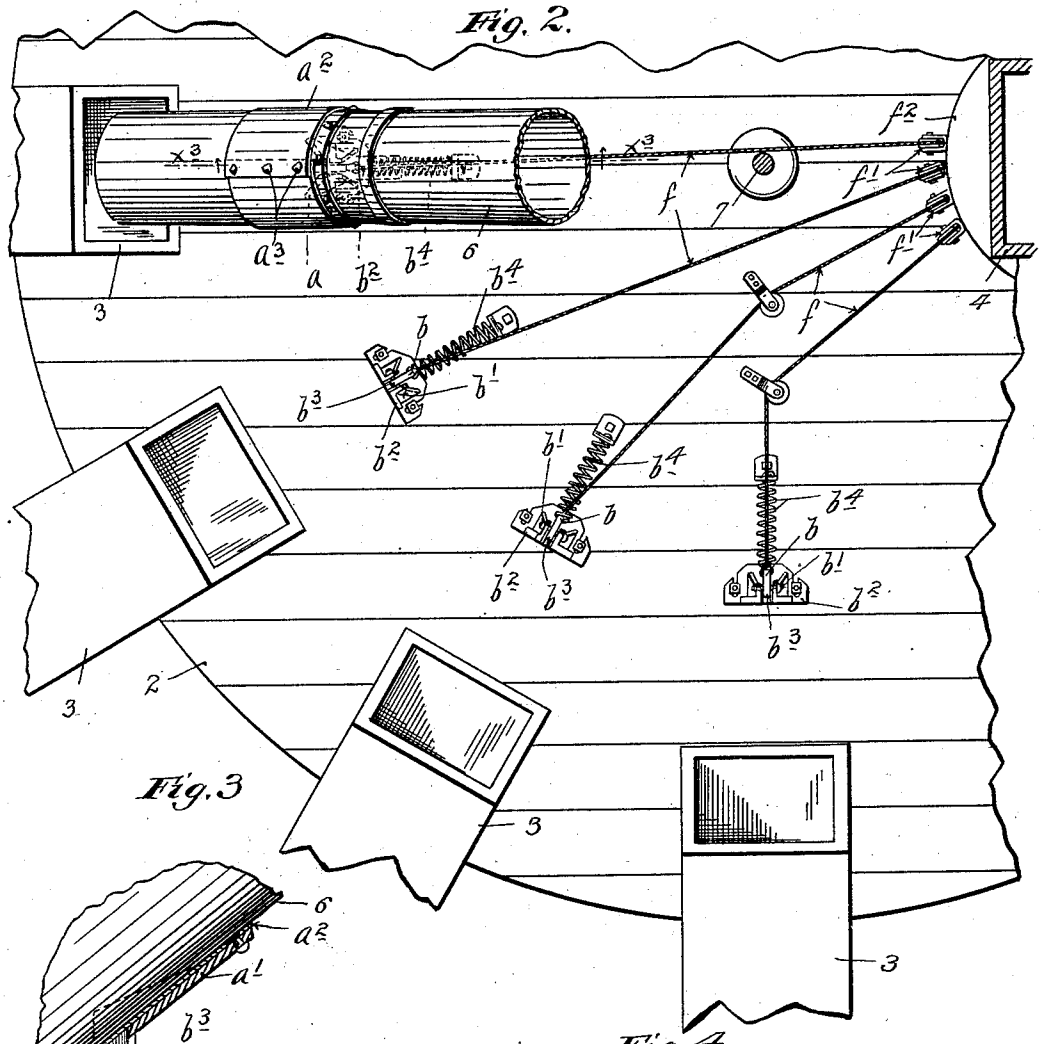


Fig. 3

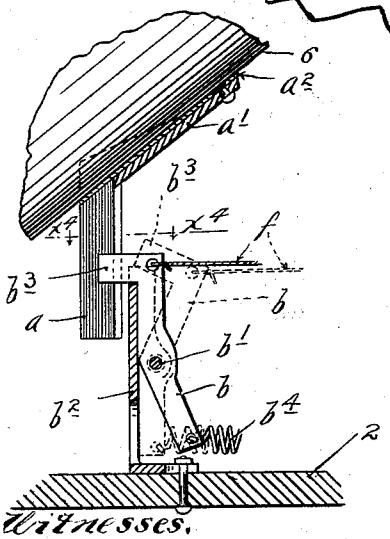
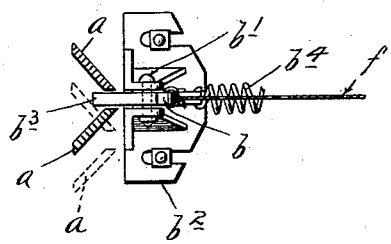


Fig. 4



Witnesses.
Robert Otto
Harry Kilgore.

Inventor.
Oscar H. Baker.
By his Attorneys.
Williamson & Merchant

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OSCAR H. BAKER, OF MINNEAPOLIS, MINNESOTA.

LOCK FOR GRAIN-DISTRIBUTERS.

SPECIFICATION forming part of Letters Patent No. 664,455, dated December 25, 1900.

Application filed April 13, 1900. Serial No. 12,697. (No model.)

To all whom it may concern:

Be it known that I, OSCAR H. BAKER, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Locks for Grain-Distributers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved locking mechanism for distributing-spouts, such as used in grain-elevators to deliver the grain into one or the other of a plurality of bin-spouts.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

As is a well-known fact, the distributing-spouts are located in the distributing-tower of the elevator. Unless the distributing-spouts be accurately positioned or alined with the bin-spouts into which they are to deliver the grain will be spilled and either delivered onto the floor or mixed with other grain or with grain of a different grade. Much loss is occasioned by the improper mixing and wasting of grain due to the cause noted. In larger elevators this has led to the placing of an attendant in the distributing-tower; but in the smaller elevators the attendant is usually dispensed with. Inasmuch as there is no other reason for placing the attendant in the distributing-tower, the expense is one which in all elevators is an objectionable item. In attempts to do the work of an attendant within the tower or to make his services unnecessary locking devices have been employed, and these locking devices provided with controllers for operating them from the ground-floor or from the vicinity from which the movements of the distributing-spout are controlled; but in all cases, I believe, the setting of these locking devices is dependent upon the accuracy of an indicator, which indicator is relied upon to indicate when the said spout has been brought to or approximately to the proper registration with the selected bin-spout. There are many reasons why the indicator will frequently fail to even approximately indicate the position of the distributing-spout. Among such reasons may be mentioned the flexibility, bending, stretching, and slipping of the parts of the long connections from the ground-floor to the distributing-spout and locking mechanism within the distributing-tower, as well as wear and inaccurate adjustments of the said connections. My invention removes the necessity of an attendant within the distributing-tower and also makes unnecessary the use of an indicator to indicate when the distribution-spout has been properly positioned. This I accomplish by the provision of locking mechanism which is adapted to be set in advance of the movement of the spout, so that the spout will be automatically locked in the predetermined or selected one of the several distributing positions of the spout when the said spout is subsequently moved. In the best construction of the locking mechanism a plurality of individual or independent locks are provided, one for each bin-spout. These independent locks have controllers or connections leading to the lower floor of the elevator or to the vicinity from which the movements of the distributing-spout are controlled. By these connections or controllers the locks which are normally thereby held inoperative are adapted to be set independently and at will and in advance of the movement of the spout, so that the release or set lock will under the subsequent movement of the spout lock the said spout in the predetermined or desired position. The operator at the ground-floor simply releases the lock for the proper bin-spout and has only then to swing the spout until it is locked, knowing that it can be locked only in the proper position.

My improved device is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view, partly in side elevation, partly in vertical section, and with some parts broken away, illustrating my improved locking mechanism applied in working position in connection with a distributing-spout of an ordinary grain-storage elevator. Fig. 2 is a view, partly in plan and partly in horizontal section, with some parts broken away, showing the mechanism illustrated in Fig. 1. Fig.

3 is a detail in vertical section approximately on the line x^3 x^3 of Fig. 2, some parts being broken away; and Fig. 4 is a horizontal section on the line x^4 x^4 of Fig. 3.

Of the ordinary parts of the elevator construction the numeral 1 indicates the ground-floor, the numeral 2 the table within the distributing-tower, the numeral 3 a plurality of bin delivery-spouts, the numeral 4 the elevator-leg, the numeral 5 the hopper or head at the upper end of said leg 4, and the numeral 6 the oscillating distributing-spout, which is secured on the upper end of a long vertical shaft 7, mounted in suitable bearings and extending to the ground-floor 1. The distributing-spout 6 is oscillated to throw its free end into alinement with any one of the spouts 3 by oscillations of the shaft 7. Various provisions have been made for giving such movements to the said shaft. In the construction illustrated the shaft 7 is provided near its upper end with a sheave 8, over which and other guide-sheaves (not shown) an endless cable or wire is run to a point in the vicinity of the ground-floor.

In the vicinity of its free end the spout 6 is provided with a pair of depending laterally-spaced and reversely-acting cam-blades a, which, as shown, are formed integral with the base-plate a'. Advisably the base-plate a' is riveted to a flexible metal band a^2, which in turn is wrapped around the spout 6, is overlapped at its ends, and secured by rivets a^3, passed therethrough and through the upper portion of said spout 6. With this construction the wear caused by the friction of the grain on the bottom of the spout will not loosen the support for the cam-blades a.

For each spout 3 there is a lock which coöperates with cam-blades a, carried by the spout 6. These locks are located in such positions that they will lock the distributing-spout in true registration or alinement with the corresponding bin-spouts 3. Each such lock, as shown, comprises a lock-dog b, pivoted at b' to a bracket b^2 on the shelf 2 and provided with a beak b^3, which coöperates with the cam-blades a, as presently noted. A spring b^4 puts the lock-dog b under strain to move into the position indicated by full lines in Figs. 1, 3, and 4, this being its operative position. The lock-dog is normally held in an inoperative position, as indicated by dotted lines in Figs. 1 and 3 and by full lines in Fig. 2, by means of a controller, preferably comprising a rope or flexible connection f, applied to the upper end of said dog, run over a guide-sheave f' on a suitably-supported bracket f^2, and passed downward to the ground-floor in the vicinity of the operating device for the distributing-spout. At its lower end the connection f is provided with a weight f^3, which has sufficient weight to overcome the tension of the spring b^4. As shown, the several connections f are passed through a shelf g, shown as supported slightly above the ground-floor from the elevator-leg 4 and provided with supporting-hooks g', engageable with rings f^4, with which the weights f^3 are shown as provided.

With the construction above described the operation is substantially as follows: Normally all of the weights f^3 are dropped, as shown by dotted lines in Fig. 1, and the lock-dogs b are held in the inoperative positions shown by dotted lines in Figs. 1 and 3. Under these conditions the distributing-spout 6 may be swung to any point and will not be locked in any position. The weights f^3 and connections f may be marked to indicate to which spout they are appropriated or the operator may know this simply by the successive order in which they are arranged. When the operator desires to secure the distributing-spout in a position to deliver into any particular one of the bin-spouts, he simply raises the weight f^3 of the proper lock-controlling device, which weight may be supported by the hook g', as shown in Fig. 1, or in any other suitable way. This permits the spring b^4 of the corresponding lock device to throw the lock-dog b into an operative position, as shown in Figs. 1, 2, and 4. This having been done, the operator knows that the distribution-spout can by a subsequent movement thereof be locked only in the proper position or in proper alinement with the desired or selected bin-spout 3. The subsequent movement of the distribution-spout actuates the released lock-dog automatically, regardless of which direction it may be swung. This action is best illustrated in Fig. 4, in which the dotted lines show one of the cam-blades a as having just struck the beak b^3 of the lock-dog b. Under continued movement of the distribution-spouts the engaged cam-blade a will force the beak b^3 of the lock-dog b backward until said beak registers with the gap between the two cam-blades a, whereupon the lock-dog b will under the action of its spring b^4 be thrown back into its operative position, and its beak b^3 entering between said cam-blades will lock the said distribution-tube. The lock-dog may be thrown into a releasing position simply by dropping the corresponding weight f^3.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with a movable distributing-spout, of locking mechanism adapted to be set in advance of the movement of said spout, to subsequently automatically lock the said spout in a predetermined position, substantially as described.

2. The combination with a movable distributing-spout, of a plurality of independent locks, normally inoperative, but adapted to be set at will and in advance of the movement of said spout, to automatically lock the said spout in the predetermined position, substantially as described.

3. The combination with an oscillating distributing-spout and a plurality of coöperating bin-spouts, of a plurality of independent locks, one for each bin-spout, said locks having in-

dependent connections whereby they may be operated at will, from a distant point, substantially as described.

4. The combination with an oscillating distributing-spout and a plurality of coöperating bin-spouts, of a plurality of individual locks one for each bin-spout, which locks are normally inoperative, and independent operating connections for said locks, serving to render them operative at will, the set lock serving to automatically lock said distributing-spout when the same is subsequently moved, substantially as described.

5. The combination with an oscillating distributing-spout and a plurality of bin-spouts, of a plurality of locks, one for each bin-spout, which locks are under strain to operate, independent lock-operating connections extending to a distant point and normally holding the locks inoperative, and laterally-spaced cam-blades on said distributing-spout coöperating with said locks, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

OSCAR H. BAKER.

Witnesses:
M. M. McGRORY,
F. D. MERCHANT.