

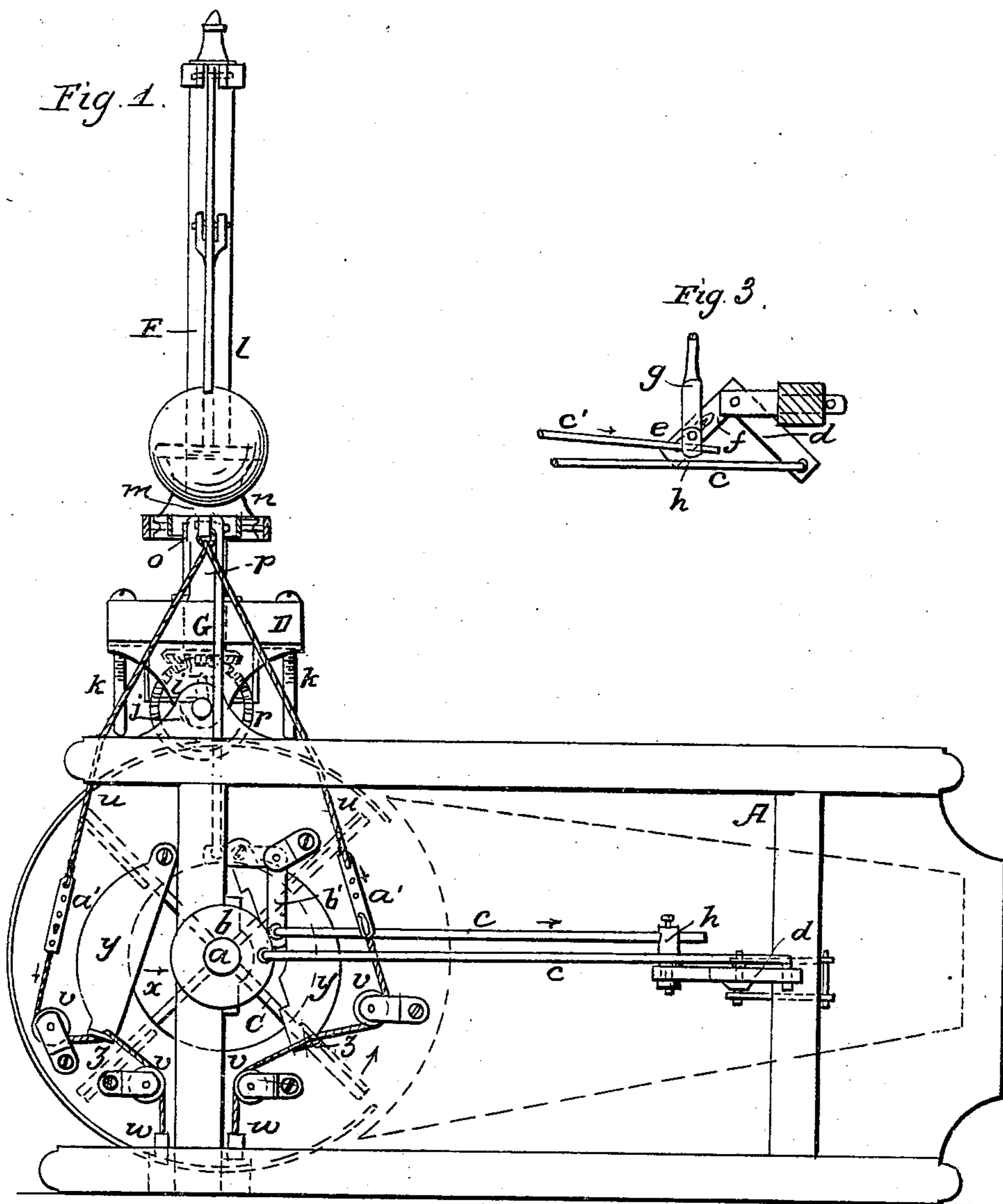
L. D. LANE.

2 Sheets—Sheet 1.

Governor Attachment for Grain Separators.

No. 29,178.

Patented July 17, 1860.



Witnesses:
W. C. Coombs
R. S. Spencer

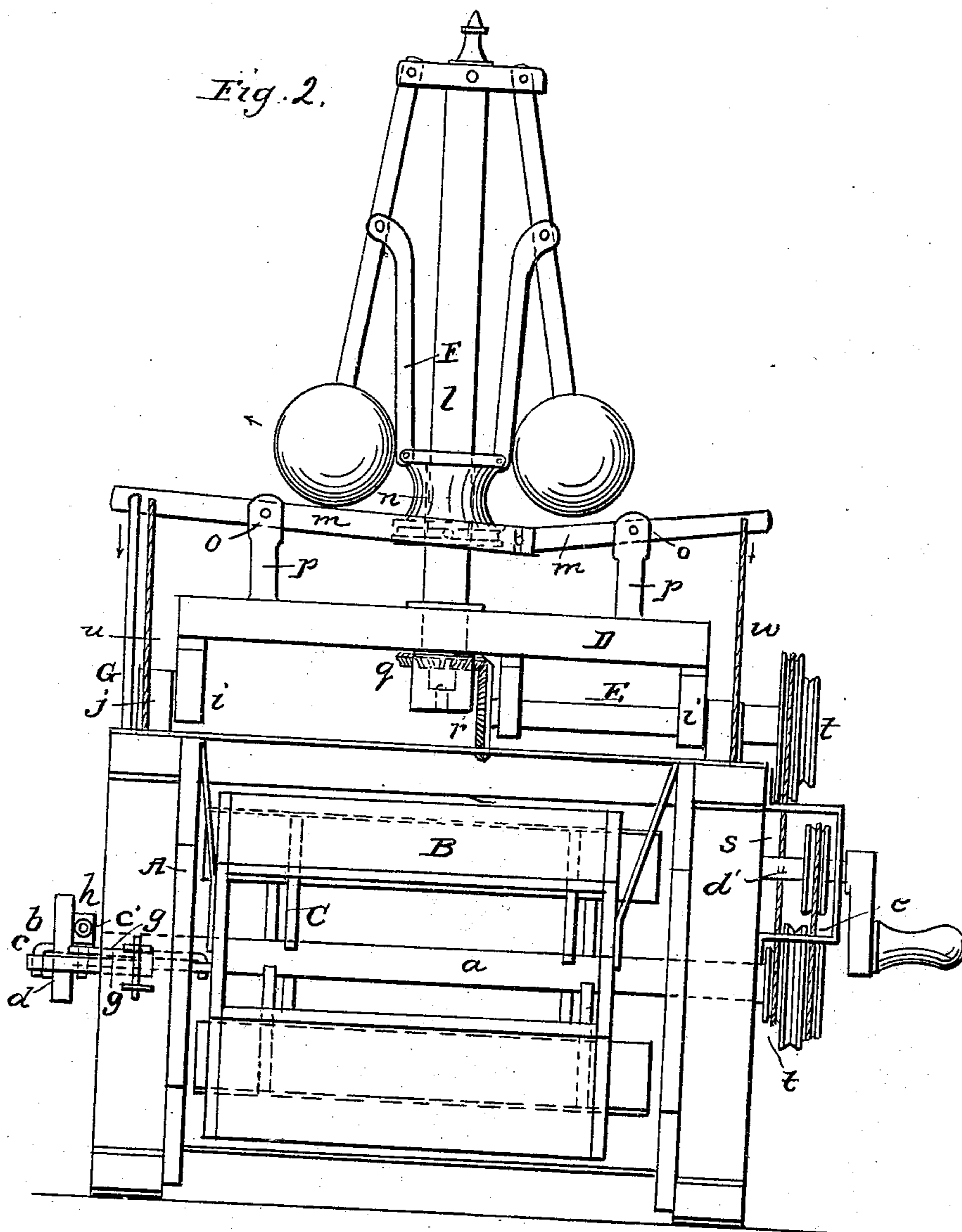
Inventor:
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UNITED STATES PATENT OFFICE.

LORENZO D. LANE, OF FREEPORT, ILLINOIS.

GOVERNOR ATTACHMENT TO GRAIN-SEPARATORS.

Specification of Letters Patent No. 29,178, dated July 17, 1860.

To all whom it may concern:

Be it known that I, LORENZO D. LANE, of Freeport, in the county of Stephenson and State of Illinois, have invented a new and useful Governor Attachment for Grain-Separators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side elevation of a grain separator with my invention applied to it. Fig. 2, an end view of ditto. Fig. 3 a detached plan or top view of the mechanism which gives the shake motion to the shoe of the separator.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to insure a uniform or constant blast from the fan of a grain separating machine, so that all variation in the speed of the driving shaft will be compensated for and the grain subjected to a uniform blast of sufficient power to separate the light foreign impurities from it.

The invention has further for its object the giving of the shoe a variable shake motion or stroke corresponding inversely with the variable speed of the driving shaft so as to insure a regular passage of the grain through the separator under varying degrees of speed of the driving shaft.

These two results being obtained the grain will be separated from foreign substances without being subjected to a blast of sufficient strength to expel any sound grain from the machine, and the grain will also be fed down over the shoe with a speed commensurate with the blasts so as to insure its being fully acted upon by the latter.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents the case or box of a grain separator; B, is the shoe, and C, the fan. These parts may be constructed and arranged in the usual way and therefore do not require a minute description.

The shoe B, is suspended within the case A, in the ordinary way, and it has its shake-motion given it from the shaft *a*, of the fan C, by means of a crank pulley *b*, connecting rod *c*, and bell crank *d*, all arranged in the usual way with the exception that the end *e*, of the bell crank *d*, is slotted longitudinally as shown at *f*, and the link *g*, which connects

the shoe B, with the bell crank is attached to a slide *h*, which is fitted in said slot *f*, as shown more particularly in Fig. 3.

On the top of the case or box A, of the separator there is placed a platform D. This platform D, has a bearing *i*, attached to each end of it at its under side, one bearing *i*, being fitted on a shaft E, and the other on a pintle in a support *j*, attached to the top of the case, see Fig. 2. The platform D, is allowed to turn on the pintle and shaft E, which form its axis and it may be adjusted in a perfectly horizontal position by means of set screws *k*, *k*, which pass vertically through the platform D, at opposite sides of its axis as shown clearly in Fig. 1.

In the platform D, the lower end of a shaft *l*, is fitted. This is the shaft of a governor F, which is an ordinary bull-governor having two levers *m*, *m*, attached to its slide *n*, the levers *m*, having their fulcras *o*, in up-rights *p*, on the platform D, as shown clearly in Fig. 2.

On the lower end of the shaft *l*, there is placed a bevel pinion *q*, and this pinion gears into a corresponding pinion *r*, on the inner end of a shaft E, which is driven from the fan shaft *a*, by a belt *s*, as shown in Fig. 2, said belt passing over cone pulleys *t*.

At the outer end of each lever *m*, there are two cords or chains *u*, attached. These cords or chains extend down at each side of the case or box A, pass around pulleys *v*, and have weights *w*, secured to their lower ends, see Fig. 1. The cords or chains *u*, extend down at each side of the fan C, near the orifices, *x*, which admit air to the fan and each cord or chain is connected to a pivoted slide *y*, which works over said orifices *x*, and regulates their capacity according to the speed of the fan. In Fig. 1, the two slides *y*, *y*, which are fitted over the orifice *x*, at one side of the fan case are seen; the cords or chains *u*, are attached to the lower ends of the slides as shown at *z*. It will be seen by referring to this figure that when the outer ends of the levers *m*, *m*, are lowered the slides *y*, will approach each other and contract the orifices *x*, the reverse being the case as the outer ends of the levers *m*, *m*, rise.

Each cord or chain *u*, is provided with an extension link *a'*, by which the cords may be lengthened or shortened. These links in the drawing Fig. 1, are represented as being formed of a hook and perforated plate, but

a screw and nut would probably answer as good a purpose.

To one of the levers m , at its outer end there is connected a rod G , the lower end of which is attached to the upper part of a bell crank b' , the lower end of which is connected to a rod c' , which is attached to the slide h , of the bell-crank d .

The operation is as follows: The driving shaft d' , of the machine is rotated by any convenient power and motion is communicated therefrom to the fan shaft a , by a belt e' , see Fig. 2. The shaft l , of the governor F , is rotated from shaft E , by the gearing q, r , and the slides y, y , it will be seen are actuated by the levers m, m , of the governor so as to cover the orifices x , more or less according to the speed of the shaft d' , the orifices x , being contracted as the speed of the shaft d' , increases, and enlarged as the speed of the shaft d' , decreases. By this arrangement the admission of air to the fan case is regulated according to the speed of the fan and the blast generated by the rotation of the latter is consequently rendered uniform or regular.

Simultaneously with the movement of the slides y , is the movement of the slide h , in the slot f , of the bell crank d . This slide h , as the outer ends of the levers m , are depressed is moved nearer the fulcrum of the bell crank d , and consequently the length of stroke of the shoe B , will be decreased as the speed of the driving shaft d' , increases and the length of stroke increased as the speed of the driving shaft decreases. By this arrangement the passage of the grain through the machine is rendered uniform for when the speed of shaft d' , is increased the stroke of the shoe is decreased and vice

versa. The grain therefore will be acted upon in the most effective manner both as regards the screening of the same in passing through the shoe and also as regards the separation of the light foreign substances by the blast from the fan, the blast being also sufficient to expel from the machine the light foreign substances but never so strong as to expel sound grain.

The movement of the slides y , over the orifices x , by the arms m , may be regulated by lengthening or shortening the cords or chains u , by means of the extension links a' , and the relative speed of the governor F , with the fan C , may be regulated as may be required by adjusting the belt s , on the cone pulleys t .

The governor F , may be adjusted in a perfectly vertical position by means of the set screws k, k , in the platform D .

Having thus described my invention what I claim as new and desire to secure by Letters Patent is—

1. The employment or use of a governor F , connected substantially as shown to slides y, y , fitted over the blast-induction orifice x , of the fan of a grain-separator for the purpose herein set forth.

2. Connecting substantially as shown with the governor F , the link slide h , fitted in the slotted bell crank d , and arranged to operate as and for the purpose specified.

3. Attaching the shaft l , of the governor F , to the platform D , which is fitted on an axis and adjusted by screws k , (or their equivalents) for the purpose set forth.

LORENZO D. LANE.

Witnesses:

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JOHN C. KEAN.