

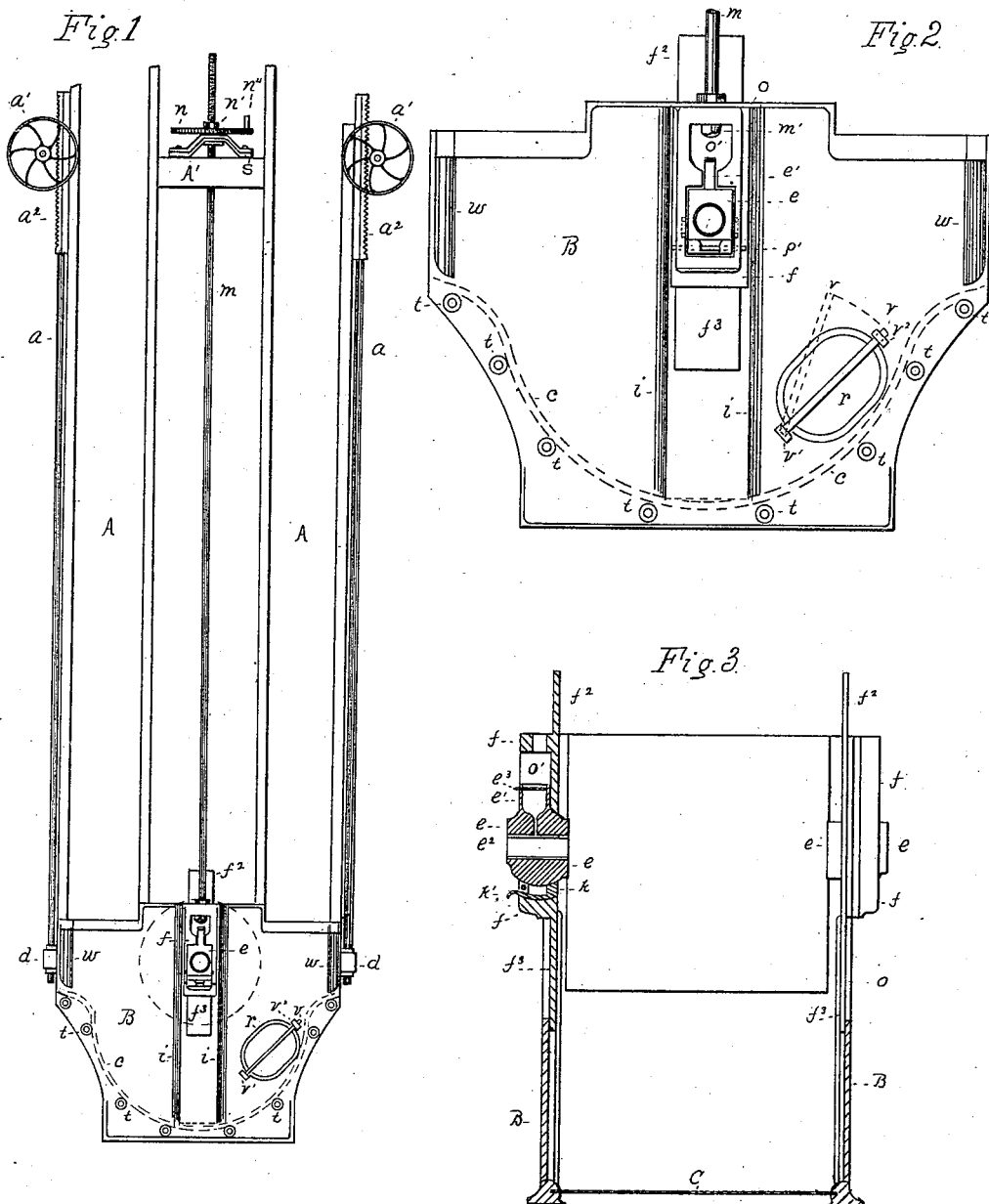
(No Model.)

3 Sheets—Sheet 1.

C. ESPLIN.
ELEVATOR BOOT.

No. 342,955.

Patented June 1, 1886.



Witnesses:

Orlando H. Reck
Emil Brzginzsky

Inventor:

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By C. H. Gunckel
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Fig. 8.

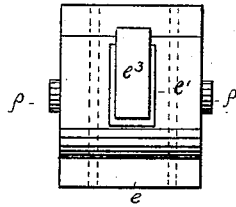
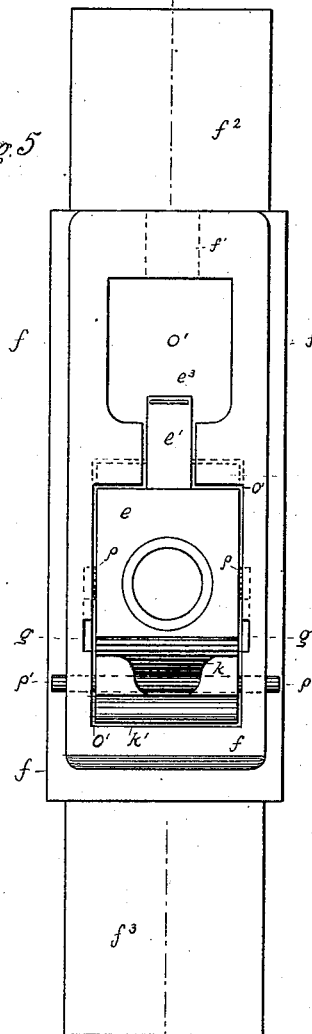


Fig. 5.



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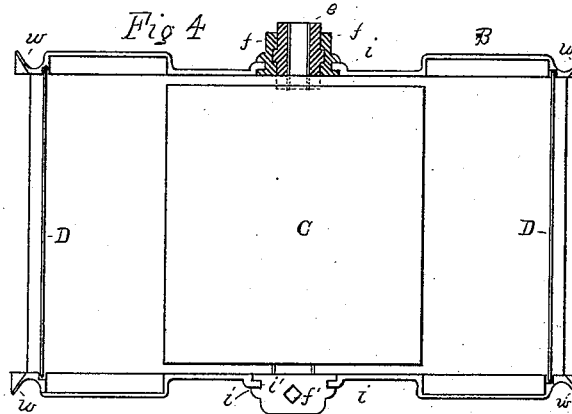


Fig. 6.

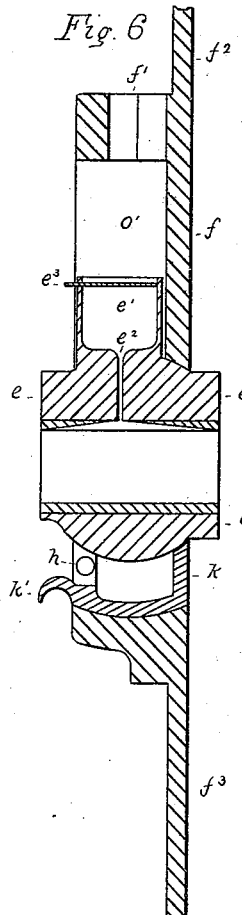
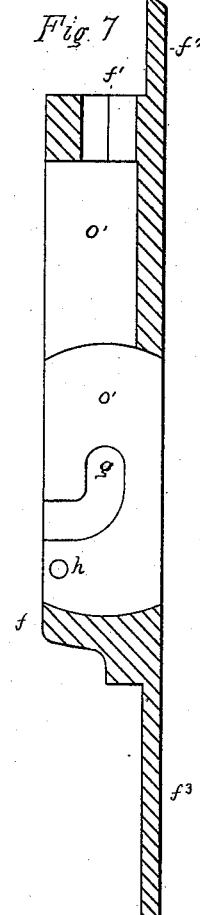


Fig. 7.



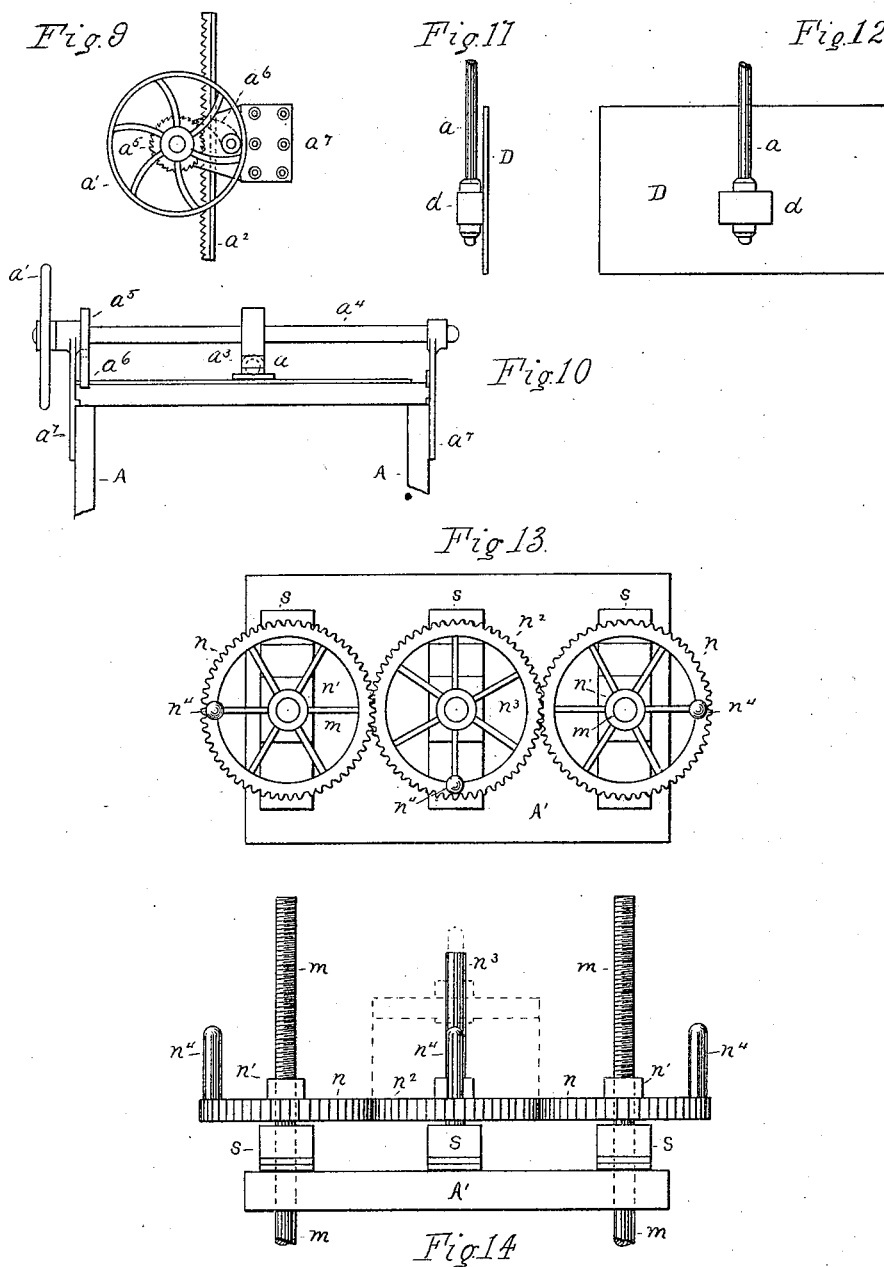
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UNITED STATES PATENT OFFICE.

CHARLES ESPLIN, OF MINNEAPOLIS, MINNESOTA.

ELEVATOR-BOOT.

SPECIFICATION forming part of Letters Patent No. 342,955, dated June 1, 1886.

Application filed August 22, 1885. Serial No. 175,074. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ESPLIN, a subject of the Queen of Great Britain, now residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Elevator-Boots, of which the following is a specification.

My invention relates to boots for grain-elevator-legs; and the objects of the invention are, mainly, the improvement of the devices for adjusting the grain-gates, improvement of the boxes for the belt-drum bearings, the box-supporting shells, and the adjusting devices for the shells and boxes. These objects are accomplished by the devices illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the boot and a portion of the elevator-leg, showing the devices for adjusting the gates and journal-boxes. Fig. 2 is an enlarged view of the boot. Fig. 3 is an elevation, in part sectional, of the end of the boot; Fig. 4, a plan of the same, showing one of the boxes and shells in section. Fig. 5 is an enlarged detail view of one of the boxes and its supporting-shell. Fig. 6 is a vertical section of the same on the line *x x* of Fig. 5. Fig. 7 is the same as Fig. 6, with the box and its pillow removed. Fig. 8 is a top view of the journal-box. Figs. 9, 10, 11, and 12 are details of the devices for adjusting the gates; and Figs. 13 and 14 are respectively top and side views of the devices for adjusting box-supporting shells.

A in the drawings represents an elevator-leg of ordinary construction.

B B are the sides of the boots, and D D the grain-gates at the ends.

a a are adjusting-rods attached to lugs or other suitable projecting portions, *d*, on the gates D, and adapted to raise or lower the gates by the operation of the hand-wheels *a'*. On the upper portions of these rods are racks *a²*, engaged by pinions *a³* on the shafts *a⁴*, which are operated by the hand-wheels *a'*, and on the shafts *a⁴* are also ratchets *a⁵*, engaged by pawls *a⁶*, to prevent the backward turning of the shafts. The shafts are supported by brackets *a⁷*, attached to the leg. The gates D are raised by turning the wheels *a'*, and when the gates are to be closed by releasing the pawls

from engagement, they will descend by their own weight.

In the inner surfaces of the bootsides B are curved grooves *c*, into which is fitted a curved bottom piece, C, and outside of this bottom the two sides are connected and secured by rods *t*. Near the ends of the sides B are wings *w*, for attaching the spouts to conduct the grain into the boot-ends, and are cast integrally with the sides.

e e are the journal-boxes for the shaft of the belt-drum. With these boxes are cast the oil-cups *e'*, having oil-holes *e²*, leading to the central opening, and sliding covers *e³* are provided for the cups, to exclude dirt.

f f are hollow casings or shells for supporting the boxes *e*, and are inserted and capable of sliding in openings *o* in the upper middle portions of the sides B. Along the walls of the openings *o*, and for a suitable distance below them, are flanges *i*, and the shells being provided with grooves *i'*, which fit the flanges *i*, can be inserted from the top into the opening *o*, and made to slide along the flanges. A hole, *f'*, preferably square, is made in the head of each of the shells *f*, to admit the lower end of an adjusting-rod, *m*, and the end of the rod is secured by a nut, *m'*, within the shell. The upper portions of the rods *m* are threaded and extend above a platform, A', between the sides of the leg. Above the platform are hand-wheels *n*, mounted on supports *s*, and having interiorly-threaded hubs, *n'*, through which the rods *m* pass, and by means of which the rods are screwed upward or downward by the turning of the wheels *n*. The wheels *n* are spur-wheels and an intermediate spur-wheel, *n²*, in mesh with the wheels *n*, enables both wheels to be operated by the turning of either of them or by the turning of the middle wheel, *n²*. The wheel, *n²*, is loose on its shaft *n³*, so that it can be lifted above the other wheels and out of engagement with them, as indicated by dotted lines in Fig. 14, to enable either of the wheels *n* to be turned independently. Handles *n⁴* are provided on the wheels for convenience in turning them. It is apparent that by operating the wheels *n* and *n²*, the shells *f* can be raised or lowered, as desired.

In the ordinary construction it is impera-

tive that the tightener for the elevator-bucket belt be in the boot; but in elevators worked by the system commonly known as the "Esplin Patent Elevator-Driving System," secured to me by Letters Patent No. 304,810, bearing date September 6, 1884, the bucket-belt tightener may be at the head of the elevator and the tightener in the boot dispensed with. The pulley in that case may be placed in nearly fixed position, leaving barely sufficient space between the pulley and the boot bottom for the free passage of the belt and buckets. This arrangement also allows the point at which the grain is delivered into the boot to be materially lowered, a matter of great importance in the limited room at this point in most elevators. The sliding boxes in the boot by this arrangement need have only sufficient movement to track the belt, about a half-inch being enough for the purpose, and the rods and gears described for tightening may be dispensed with and any well-known screw device substituted to effect the slight movement required.

o' is an opening in the face of the shell f to admit the box e . In the walls of this opening are grooves g , extending from the face inward and in a curved course upward to receive the pins p , projecting from the sides of the box and direct the course of the box as it is being inserted. The box e has a convex lower middle portion and flat sides, which adapt it to enter the opening o' . In inserting the box the pins p are entered into the mouths of the grooves g , and the box is pushed inward and upward until the pins are in the heads of the grooves. The pillow or supporting-piece k is then slid in beneath the box and secured in place by a pin, p' , run through a hole, h , in the walls of the shell and pillow. The pillow k is of concavo-convex form, and has flat sides to adapt it to enter the space beneath the box e , and it may be made hollow, as shown, and support the box on its side and rear walls. A lip, k' , on the outer edge of the pillow, enables it to be easily taken hold of for inserting or withdrawing it. When it is desired to remove the box, the pin p' is withdrawn and the pillow removed, which leaves the box free to be taken out. The upper portion of the opening o' in the shell is made wide enough to give access to the oil-cup and to the nut on the end of the adjusting-rod m . The middle and lower portions of the opening are respectively only of sufficient width to admit the oil-cup and box.

On the rear portion of the shells f are the plates f^2 and f^3 , the former extending above and the latter below the shells. These plates cover the opening o in the boot side when the shell is lowered or raised, and prevent the escape of grain through the opening. These plates are cast as a part of the shell, and their length should of course depend upon the length of the opening in the boot side. A hand-hole is provided in the side (or sides) B, above the

bottom C, and an oval-shaped cover, r , is fitted over the hole. A loose bar, v , is placed over it in an inclined direction to retain it in place. The lower end of the bar enters a recess in a lug, v' , and the upper portion is made to slide under the raised end of a lug, v^2 . The weight of the bar thus keeps it in place, holding the cover over the hand-hole. To remove the cover the bar v is swung upward, as shown by dotted lines in Fig. 2, which permits it to be withdrawn from the lug v' and releases the cover r .

I am aware that elevator-boots having their sides connected by rods and plates, and having adjustable journal-bearings which slide in slots in the sides of the boots, have been used. I therefore make no broad claim to such construction; but

What I do claim, and desire to secure by Letters Patent, is—

1. The combination, with an elevator-boot, of adjustable journal-boxes supported on removable supporting-pieces, substantially as set forth.

2. The combination, in an elevator-boot, of adjustable journal-boxes and removable pillows, the said journal-boxes being capable of removal from the boot by the withdrawal of said pillows, in substantially the manner set forth.

3. The combination, in an elevator boot having openings in its sides, of journal box supporting-shells arranged to slide in said openings, removable journal-boxes in said shells, and removable pillows for said journal-boxes, substantially as set forth.

4. The combination, with an elevator-boot having openings in its sides, of journal-box supporting-shells arranged to slide in said openings, and provided with upper and lower plates for closing said openings when said shells are raised or lowered, substantially as described.

5. In an elevator-boot having openings in its sides, sliding shells in said openings for supporting journal-bearings, removable journal-boxes in said shells, removable pillows for said boxes, and devices, substantially as described, for adjusting said shells.

6. In combination, in an elevator-boot, journal-box supporting-shells having openings in their faces and curved grooves in the walls of said openings, movable journal-boxes provided with pins fitting said grooves, and removable pillows for said boxes, and pins for holding them in place, substantially as set forth.

7. In an elevator-boot, the sides B, provided with wings w and openings o , and having flanges i along said openings, the curved groove c , hand-holes and covers for said hand-holes, the lugs v' v^2 , and bar v , substantially as shown and described.

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Witnesses:

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