

(No Model.)

E. R. DRAVER.
CONVEYER.

2 Sheets—Sheet 1.

No. 538,822.

Patented May 7, 1895.

Fig. 1

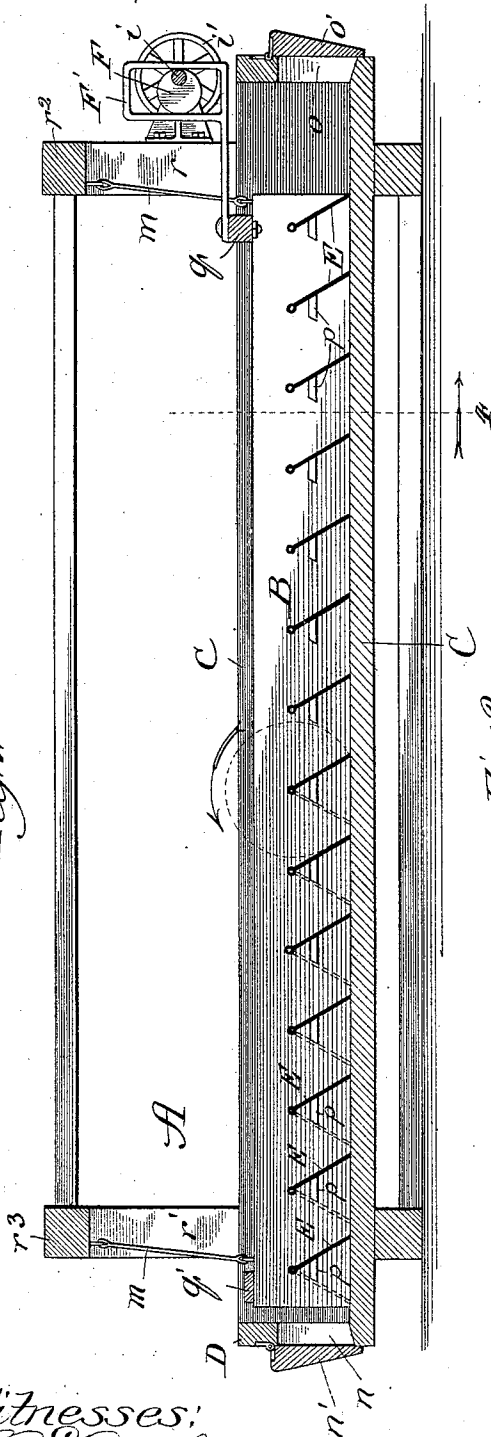
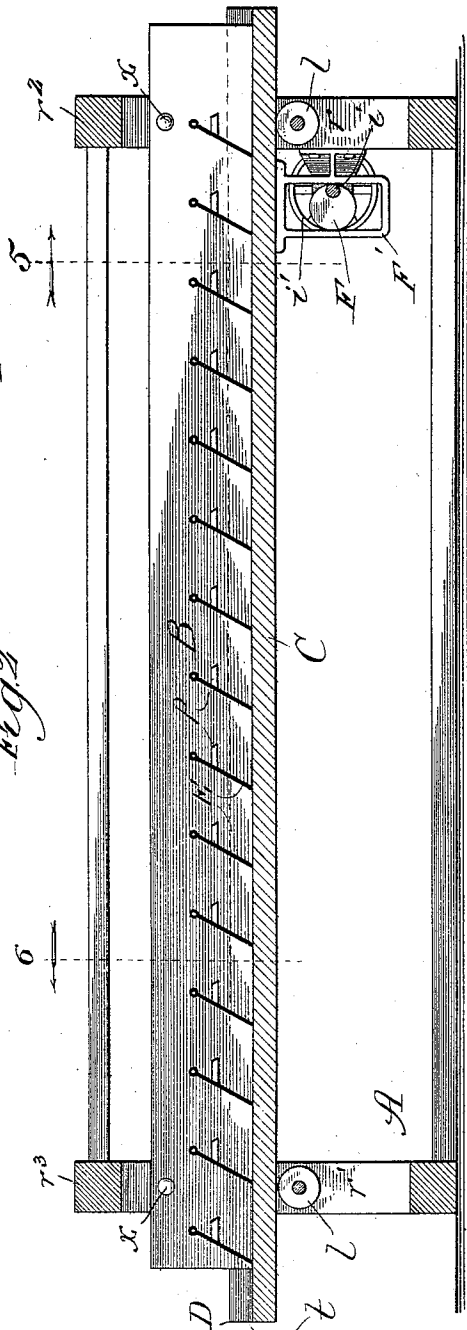


Fig. 2



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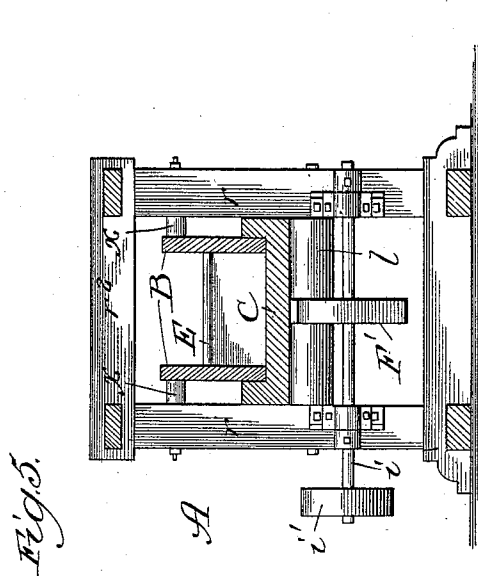
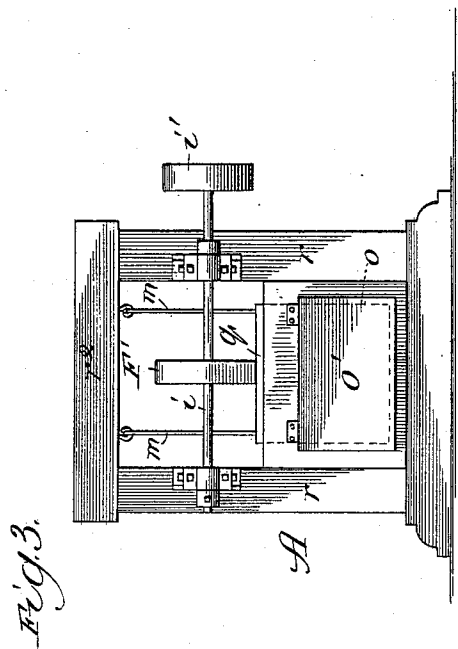
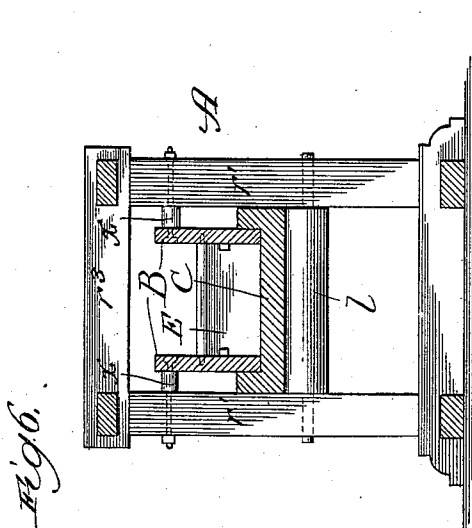
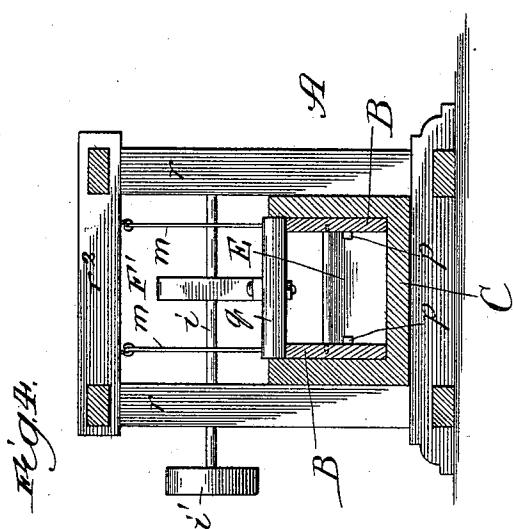
(No Model.)

2 Sheets—Sheet 2.

E. R. DRAVER.
CONVEYER.

No. 538,822.

Patented May 7, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

EMIL R. DRAVER, OF ALLIANCE, NEBRASKA, ASSIGNOR TO FLORENCE N. DRAVER, OF SAME PLACE.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 538,822, dated May 7, 1895.

Application filed January 25, 1895. Serial No. 536,217. (No model.)

To all whom it may concern:

Be it known that I, EMIL R. DRAVER, a citizen of the United States, residing at Alliance, in the county of Boxbutte and State of Nebraska, have invented a new and useful Improvement in Conveyers, of which the following is a specification.

The object of my improvement is to provide a construction of apparatus for conveying material, particularly of a character which is readily penetrable by a shovel, such as flour, meal, grain, &c., whereby the particles of the material shall be conveyed with the least attrition, in a clean and expeditious manner and with the least expenditure of power.

A further object of my improvement is to render the conveying means reversible, thereby to permit the material, or a portion of it, to be conveyed in different directions at the will of the operator. A peculiar advantage of my improvement in this particular, especially when the conveyer is used in connection with bolting-reels, purifiers and other flour-mill machinery consists in its being reversible while the machine is in operation.

In its broadest sense my invention consists in a support for the material to be conveyed, a series of shovel-gates pivotally supported to engage the material toward their lower free ends, and reversible against stops located in vertical line directly beneath the shovel-gate pivots and means for imparting reciprocating motion to the said support or to the shovel-gates, or both, that is, to the one with relation to the other whereby the material may readily pass under the shovel-gates in the direction in which they rise, but will be advanced by them in the opposite direction.

My invention also consists in details of construction and combination of parts, as hereinafter set forth and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 shows my improved conveyer by a view in longitudinal sectional elevation. Fig. 2 is a similar view of the same, showing a modification. Fig. 3 is a view of the machine in end elevation. Fig. 4 is a section taken at the line 4 on Fig. 1 and viewed in the direction of the arrow. Fig. 5 is a section taken

at the line 5 on Fig. 2 and viewed in the direction of the arrow. Fig. 6 is a section taken at the line 6 on Fig. 2 and viewed in the direction of the arrow.

A denotes a supporting-frame for the apparatus, and is shown as comprising end posts r , r and r' , r' in pairs, suitably braced at their bases and from a member of each pair to the corresponding member of the opposite pair, the members of the respective pairs being connected at their upper ends by the cross-rails r^2 and r^3 .

B B are two parallel side bars connected together toward their opposite ends, by cross-bars q and q' , as shown in Fig. 1, or otherwise. At their lower ends the side-bars B rest on a base C. As represented in Fig. 1, the base C forms a stationary bottom of a rectangular oblong box D rigidly supported between the posts r , r' and having the end discharge-openings o and n , provided, respectively, with the hinged valves o' and n' ; and the side bars are suspended, near their opposite ends, as by the links m , from the end rails r^2 and r^3 .

As shown in Fig. 2, the box D, the sides of which are shallower than in Fig. 1, rests at its base C on rollers l supported between the end posts, and the side bars B are rigidly fastened at x to the posts. At desired intervals between the side-bars B are supported the shovel-gates E, by suitably hinging them at their upper ends to enable them to contact with, or at least almost reach at their lower ends to, the upper surface of the base C. I form these shovel-gates of adequately stiff material, preferably of sheet metal; and below the pivotal point of each shovel-gate to extend beyond opposite sides of an imaginary vertical line depending from each pivot I provide a stop p having the oblique ends, as shown, to afford bearings for the shovel-gates, which, as indicated in Fig. 1 may readily be turned to occupy the positions represented by full lines or those represented by dotted lines.

For imparting movement to the apparatus, I provide an eccentric F on the drive-shaft i carrying the belt-wheel i' to work in a frame F' connected with a movable portion of the machine. Thus, according to Fig. 1, the frame

F' is connected with the side-bars B at the cross-piece *g*; and according to Fig. 2, the frame F' is rigidly fastened to the base C of the movable box D.

5 The operation is as follows: With the material to be conveyed on the base C and the shaft *i* set in motion, the action of the eccentric F with the connection shown in Fig. 1 is to reciprocate the side-bars B, and, with the
10 connection shown in Fig. 2 to reciprocate the base C. The one action has the effect of sliding the shovel-gates over the material when the side-bars B are moved in the direction in which the shovel-gates may be raised in
15 their full line position; and movement of the side-bars in the opposite direction engages the shovel-gates, owing to the stops *p* behind them, with the material, causing them to dig into the latter, and, by the advance of the
20 side-bars, conveying the material toward the opening *o*, through which it discharges. The other action (according to the construction represented in Fig. 2) has the effect of sliding the movable base C with the material
25 upon it under the shovel-gates when the side-bars B are moved in the direction in which the shovel-gates may be raised; and movement of the base in the opposite direction engages the material upon it with the shovel-
30 gates, thus causing it to be conveyed toward and to be discharged at the end *t* of the box D.

As will be noticed, on inspection of the diagrammatic representation in Fig. 1, the position of the shovel-gates may readily be reversed by turning them on their hinges to extend as shown by the dotted-line representation. It is intended that one half of the series of shovel-gates shall extend, thus, in one direction, and the other half in the other direction, whereby the reciprocating action of the
40 movable part of the machine shall, in the one operation, convey the material to and discharge it at both ends of the apparatus. Moreover, it will be obvious that reversal of the
45 shovel-gates may be accomplished while the machine is in operation, which is a very desirable feature when the conveyer is used in connection with flour-mill machinery. I show
50 no special means for facilitating the operation of turning the shovel-gates; but such means may be readily provided, if desired, by those skilled in the art, without departing from my invention. The construction herein shown and described may, also, be modified in various
55 ways without departure from my invention. Hence I do not wish to be understood as limiting the same to the details of construction set forth. It would also be within my invention to provide for reciprocating both the

shovel-gate support and the material-support 6c simultaneously in opposite directions.

My improvement is to be carefully distinguished in the art from a conveying apparatus known to me, wherein sifting surfaces are supported in a gyratory frame carrying, to 65 move with the sifting surfaces, hinged cant-boards.

According to my improvement, as hereinbefore explained, the function of the hinged shovel-gates results from their stationary relation to the moving surface carrying the material, or to the surface being stationary while the shovel gates move. 70

What I claim as new, and desire to secure by Letters Patent, is— 75

1. In a conveyer, the combination of a support for the material to be conveyed, a series of shovel-gates pivotally and reversibly supported to engage said material at their lower free ends, stops for the shovel-gates located in 80 vertical line directly beneath their pivots and against which said gates are reversible, and driving means for reciprocating, one with relation to the other, said support for the material and the shovel-gate support, substantially as described. 85

2. In a conveyer, the combination of a base forming a support for the material to be conveyed, side-bars above said base, shovel-gates pivotally and reversibly supported between 90 said bars at suitable intervals apart to engage, at their lower, free ends the material, stops for the shovel-gates located on said side-bars in vertical line directly beneath the pivots and against which said gates are reversible, 95 said support and the side-bars being relatively reciprocable, and driving means for imparting the reciprocating motion, substantially as described.

3. In a conveyer, the combination with a 100 supporting-frame A of a box D, side-bars B in said box, shovel-gates E pivotally and reversibly supported between said bars, stops *p* on the side-bars in vertical line directly beneath the shovel-gate pivots and against which 105 said gates are reversible, said base and the side-bars being relatively reciprocable, and driving means for imparting the reciprocating motion, comprising an eccentric F on the drive-shaft *i* and a frame F' attached to the reciprocable portion of the apparatus and in which said eccentric is confined, substantially as described. 110

EMIL R. DRAVER.

In presence of—

C. F. CARLETON,
H. C. DRAVER.