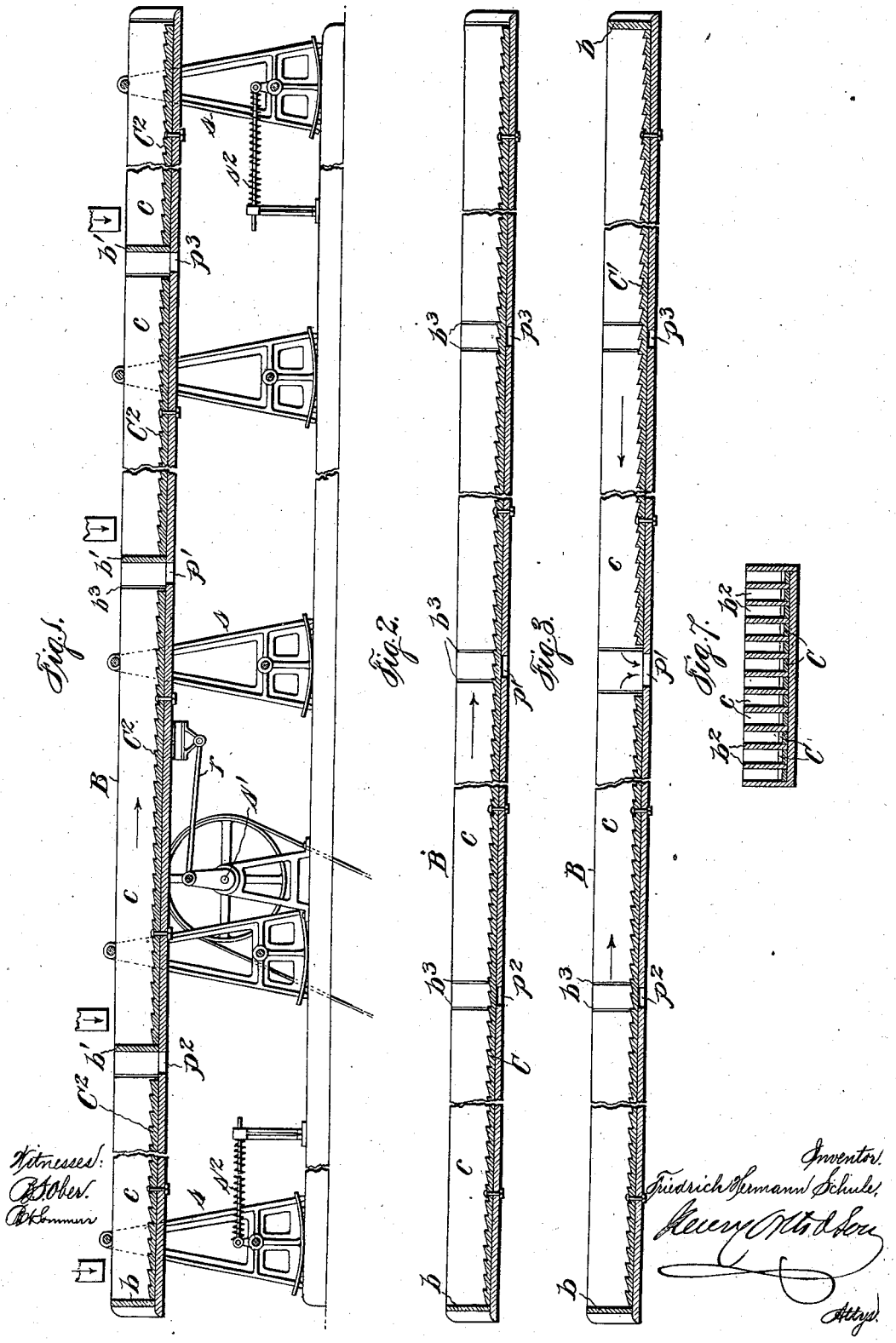
No. 724,054. PATENTED MAR. 31, 1903.

F. H. SCHULE.

RECIPROCATING CONVEYER.

APPLICATION FILED JAN. 2, 1902.

NO MODEL. 2 SHEETS—SHEET 1.



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

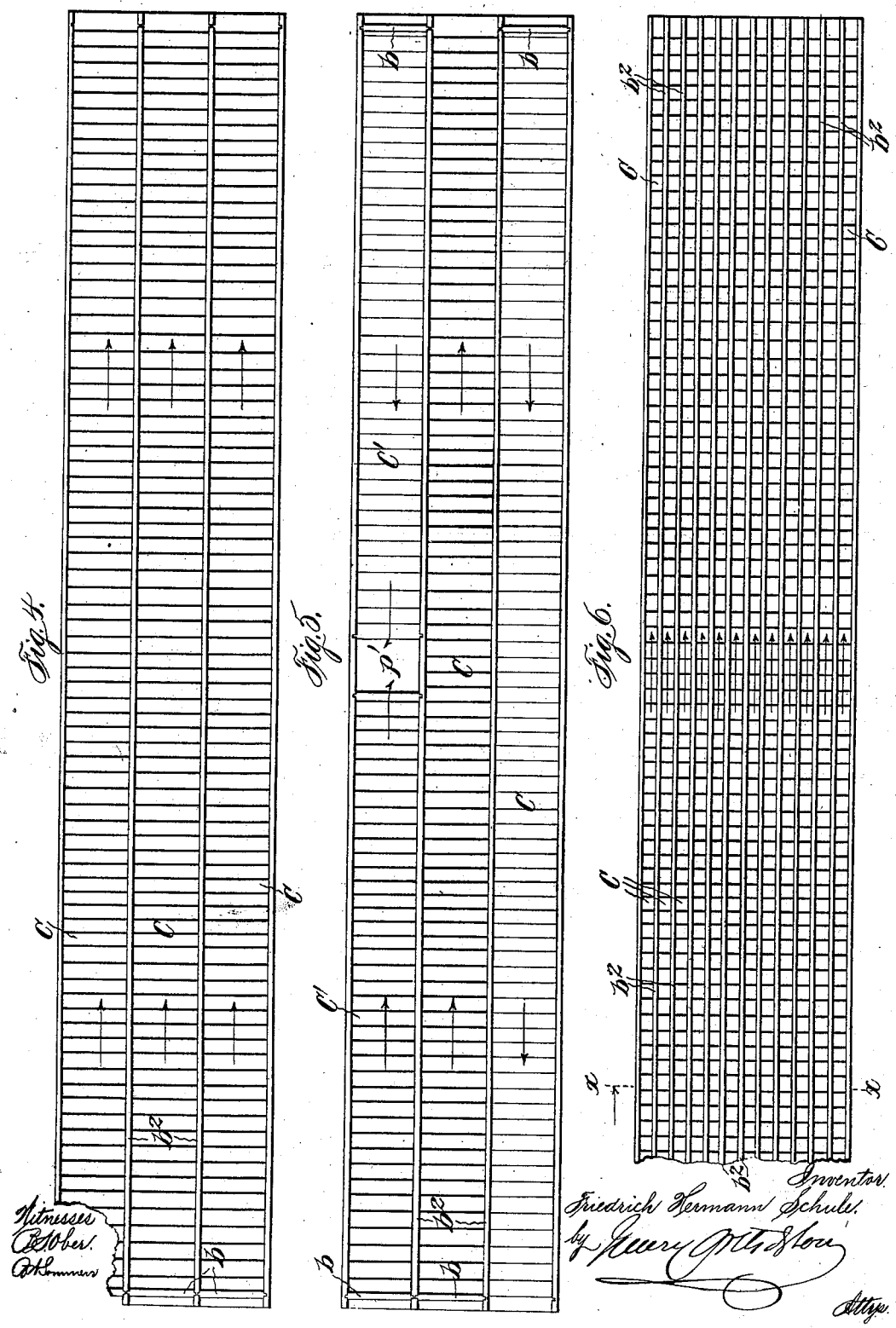
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UNITED STATES PATENT OFFICE.

FRIEDRICH HERMANN SCHULE, OF HAMBURG, GERMANY.

RECIPROCATING CONVEYER.

SPECIFICATION forming part of Letters Patent No. 724,054, dated March 31, 1903.

Application filed January 2, 1902. Serial No. 88,214. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH HERMANN SCHULE, a subject of the German Emperor, residing at No. 94 Hammerdeich, in the city of Hamburg and Empire of Germany, have invented certain new and useful Improvements in Reciprocating Conveyers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has relation to conveyers, and more particularly to that type known as "reciprocating" conveyers. Conveyers of the type referred to were heretofore constructed to convey a single material from end to end of such conveyers. In many industries the use of these conveyers becomes either impossible for want of space or involves the necessity of a conveyer for each material, resulting from the preparation for market of a given material. Taking, for example, those industries which require separators for separating various more or less undesirable yet marketable constituents from a more valuable constituent, a conveyer for each of said constituents is required to remove them as they leave the separator or separators, and then said constituents are moved in one and the same direction only, to be discharged in separate receptacles or bins. It is obvious that such an installation requires a vast amount of space, a complex system of power transmission, and a great expenditure of power. In the separation of rice for market, for instance, no less than twelve products, all of them having a greater or less market value, are obtained, to wit: first and second, rice of first and second quality; third, fourth, and fifth, coarse, medium, and small broken rice; sixth, seventh, and eighth, coarse, medium, and fine rice-middlings from small broken rice of low marketable value; ninth, tenth, eleventh, and twelfth, rice-flour from said middlings, white bran, first bran, and hull-flour. It will readily be understood that if the planter is to carry out this industry and has to use a conveyer for each of the aforementioned constituents the plant becomes an extensive, complex, and expensive one.

The object of this invention lies in the construction of the conveyer-body whereby one kind or a plurality of different kinds of materials may be conveyed to either end of the conveyer and there discharged or to either end and to one or more intermediate discharge-ports, and this I attain by the use of interchangeable conveyer elements of different lengths.

That my invention may be fully understood I will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of a conveyer embodying my invention. Figs. 2 and 3 are similar views of the conveyer-body. Figs. 4, 5, and 6 are top plan views of the conveyer-body, and Fig. 7 is a section on line $x\ x$ of Fig. 6.

In Fig. 1 the conveyer-body B is mounted on toothed sectors s, engaging rack-bars on the floor or on a suitable bed, and is adapted to receive a reciprocating motion from the crank of a crank-shaft s' through a connecting-rod r, and s^2 represents buffer-springs arranged to take up or neutralize the shocks resulting from the reciprocations of said conveyer-body, the described arrangement being well known. The crank-shaft is preferably located underneath the conveyer-body at a suitable point so as not to interfere with the discharge of material at points intermediate of the ends of the conveyer, with a view to economy of space. The conveyer-body B has removable heads b and one or more intermediate removable partitions b', three such being shown in Fig. 1, and three intermediate discharge-ports p', p^2, and p^3, the grooves b^3 for said partitions being shown in Figs. 2 and 3. When the conveyer-body is constructed for the conveyance of different materials, I provide longitudinal removable partitions b^2, so that any one or more of them may be taken out to vary the number of conveying-channels c, and of course provide suitable heads b of different width for interchangeable use.

The conveyer elements proper, C, I may construct of wood, but preferably of sheet metal. They are made of various lengths

and widths and are adapted to be interchangeably used in the conveyer-body to suit the work to be performed.

In a twelve-channel conveyer, Fig. 6, the width of each element is about three inches, those for the conveyer-bodies, Figs. 4 and 5, about four inches, while those for conveying a single material will be of a width equal to the clear width of the conveyer-body. In Fig. 6 twelve different materials are conveyed from left to right and discharged from the end into separate flexible receiving trunks or spouts (not shown and of common use) to be delivered thereby into separate receptacles. It is obvious, however, that by reversing one or more of the conveying elements C and correspondingly changing the heads b of the channels thereof one or more of the materials will be conveyed in an opposite direction, or from right to left, or all of said materials may be conveyed from right to left, or materials may be alternately conveyed in opposite directions, as shown in Fig. 5. On the other hand, by removing one or more of the conveyer elements and substituting therefor elements C′ of suitable length the material in one or more of the channels can be discharged through a central port p', Figs. 3 and 5, the material being fed at both ends of the channel, said ends being of course closed by heads b. Furthermore, by removing a given number of conveyer elements C and partitions b^2, Fig. 6, and substituting others of proper width the number of conveyer-channels c can be reduced, as shown in Figs. 4 and 5. Again, by removing the head b at the right-hand end of the central discharge-channel, Fig. 5, and placing it on the right side of port p' and reversing the conveyer element C′ in the right-hand portion of said channel two different materials may be conveyed from left to right, one discharging through port p' and the other from the right-hand end of the conveyer. Then, again, by the substitution of shorter conveying elements C^2, Fig. 1, and proper arrangement of heads and partitions a material may be conveyed from one end to the other of the conveyer and discharged at said end and at intermediate ports p^2 p' p^3, this arrangement being of great advantage if large masses of material are to be expeditiously transferred from one point to another. This arrangement is also susceptible to various changes, according as different materials are to be conveyed through one and the same channel. Thus by interposing a cross-partition b' on the right of ports p^2 p' p^3, as shown in said Fig. 1, four different kinds of material may be conveyed in one and the same direction and discharged through said ports. If, on the contrary, the left-hand head b is removed and conveying elements of such length as to cover ports p^2 p^3 substituted and reversed for the left and right hand elements, materials will be discharged from both ends as well as through central port p'. Furthermore, if in the arrangement shown in Fig. 1 the cross-partition b' on the right of port p^2 is transferred to the left of said port, head b removed, and one of the intermediate elements reversed material will be discharged from opposite ends of the conveyer and from the central port p', the material on the left and right of said port moving toward said port. This is of advantage when one of the constituents of a mixture of materials coming from a separator is more or less voluminous than another and requires quicker removal. Obviously other combinations may be made as to the points of discharge and the direction of motion of the material or materials. The heads b and cross-partitions b' being of the same width as the conveyer-body or of any one or more of the conveyer-channels c can therefore be interchangeably used to suit the conditions of use.

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

1. In combination, a reciprocating conveyer-body, a conveyer element reciprocating therewith and reversibly securable thereto and means for delivering the material from either end of said body, for the purpose set forth.

2. In combination, a reciprocating conveyer-body, separate conveyer elements reciprocating with and reversibly securable thereto, and means for delivering the material from either or both ends of the body, for the purpose set forth.

3. The combination with a reciprocating conveyer, of means for conveying a material in opposite directions at the same time, for the purposes set forth.

4. The combination with a reciprocating conveyer, of means for conveying different materials in different directions and discharging the same at different points, for the purposes set forth.

5. The combination with a reciprocating conveyer having one or more discharge-ports in its bottom, of conveying elements of different lengths adapted to be interchangeably used to effect the discharge through one or more or all of said ports, for the purposes set forth.

6. The combination with a reciprocating end-discharge conveyer having one or more discharge-ports in its bottom; of conveying elements of different lengths adapted to be interchangeably used to effect the discharge through one or more or all of said ports, for the purposes set forth.

7. The combination with a reciprocating end-discharge conveyer having one or more discharge-ports in its bottom and a head shiftable from one end of the conveyer to the other; of conveying elements of different lengths adapted to be interchangeably used to effect the discharge through one or more or all of said ports and from one or both ends, said elements adapted also to be turned end for end

to reverse the direction of motion of the material, for the purposes set forth.

8. A reciprocating conveyer having a plurality of parallel directing-channels for simultaneous conveyance of different materials, substantially as set forth.

9. The combination with a reciprocating conveyer having a plurality of directing-channels, and a head for each shiftable from one end to the other of either channel, for the simultaneous conveyance of different materials; of conveying or propelling elements in said channels adapted to be turned end for end, for the purpose of changing the direction of motion of the material conveyed thereby, substantially as set forth.

10. The combination with a reciprocating conveyer having a plurality of directing-channels and a head for each, shiftable from one end of either channel to the other, and one or more discharge-ports for each of said channels intermediate of their ends; of conveying or propelling elements of different lengths adapted to be interchangeably used in said channels for the purpose of controlling the discharge of the materials through one or more or all of said intermediate ports, as set forth.

11. The combination with a reciprocating conveyer having a plurality of directing-channels and a head for each, shiftable from one end of either channel to the other, and one or more discharge-ports for each of said channels intermediate of their ends; of conveying or propelling elements of different lengths adapted to be interchangeably used in said channels for the purpose of controlling the discharge of the materials through one or more or all of said intermediate ports, said elements also adapted to be turned end for end for the purpose of changing the direction of motion of the materials, substantially as and for the purposes set forth.

12. A reciprocating conveyer, comprising a conveyer-body provided in its bottom with a plurality of discharge-ports in parallel lines and at given distances apart both longitudinally and transversely, removable and interchangeable heads, and cross-partitions and removable longitudinal partitions, in combination with removable and interchangeable conveying elements of different lengths and widths, for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRIEDRICH HERMANN SCHULE.

Witnesses:

WM. HEINRICHS,

GUSTAV HESS.