No. 712,342. Patented Oct. 28, 1902.

D. E. SPEICHER & V. ROUSEY.

BROADCAST SEED SOWER.

(Application filed Apr. 22, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

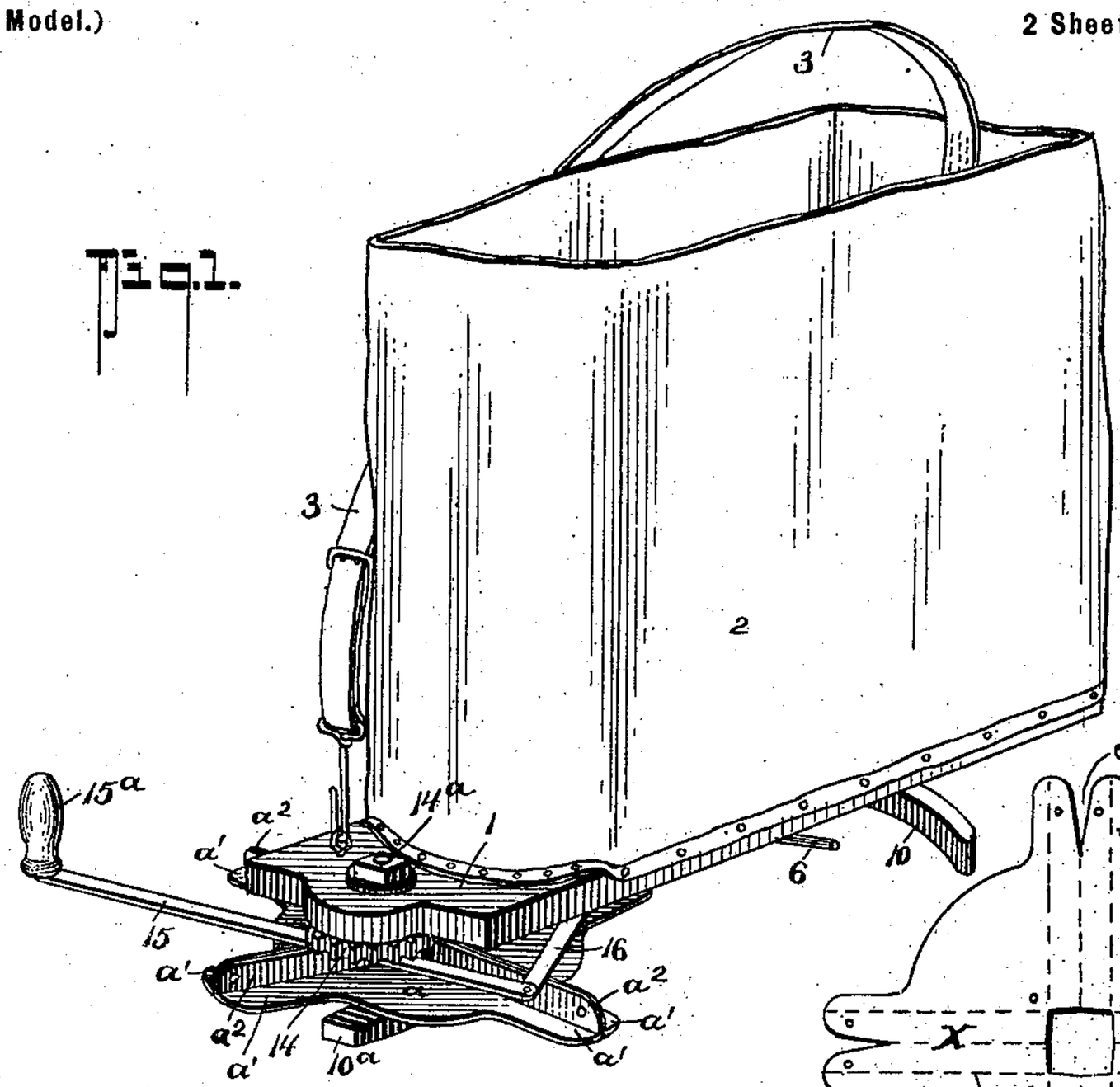

Fig. 3.

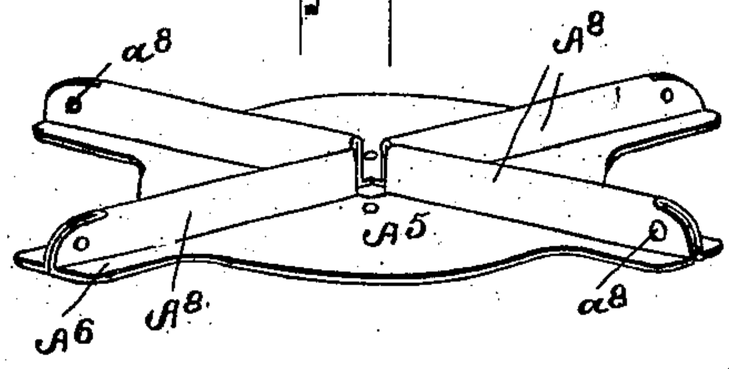

Fig. 4.

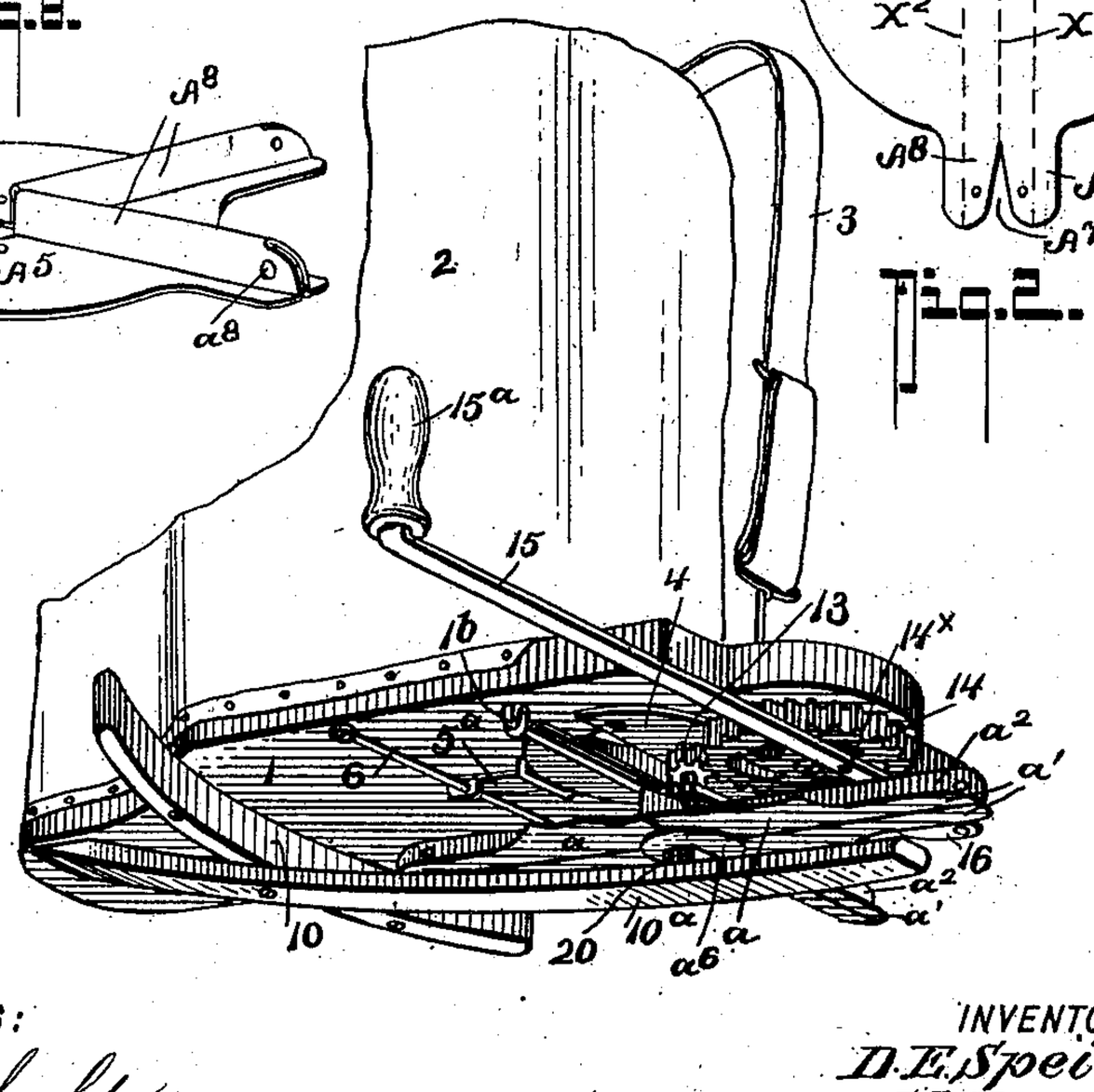

Fig. 5.

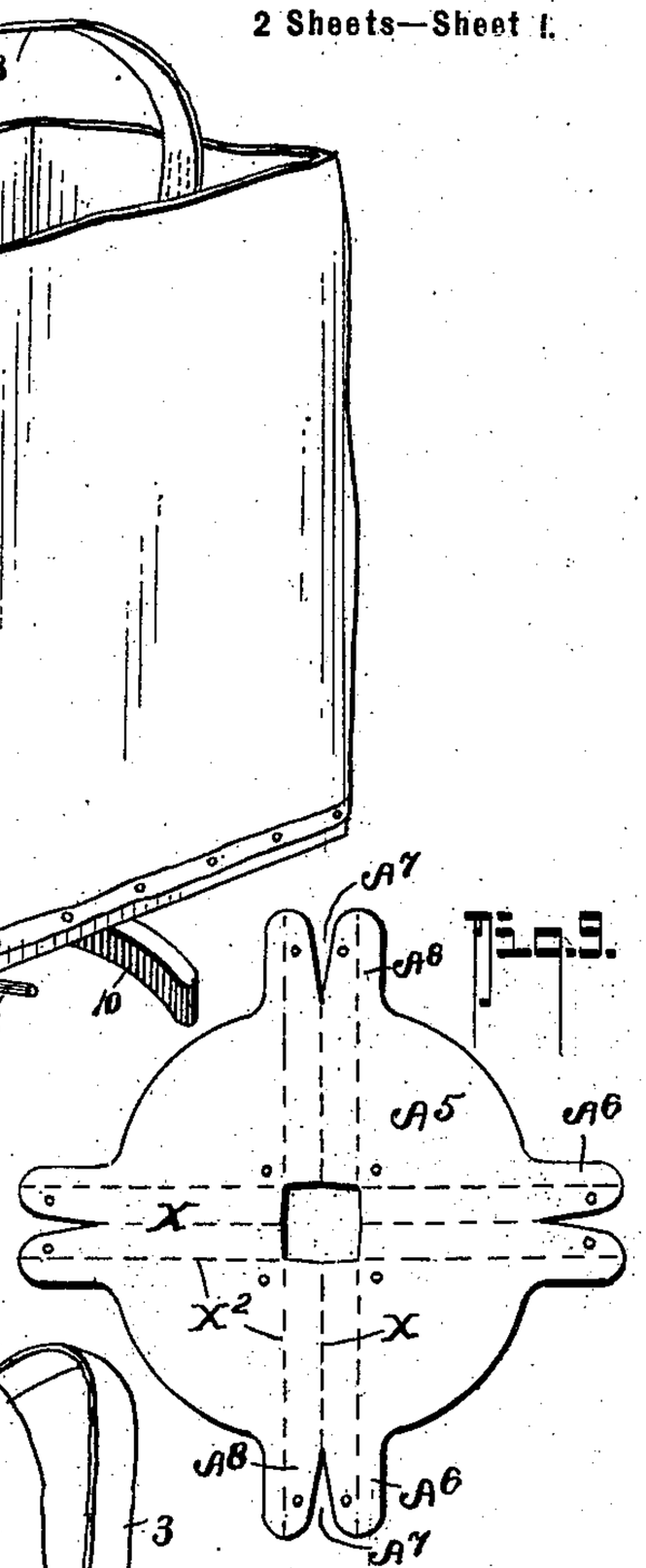

Fig. 2.

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Fig. 3.

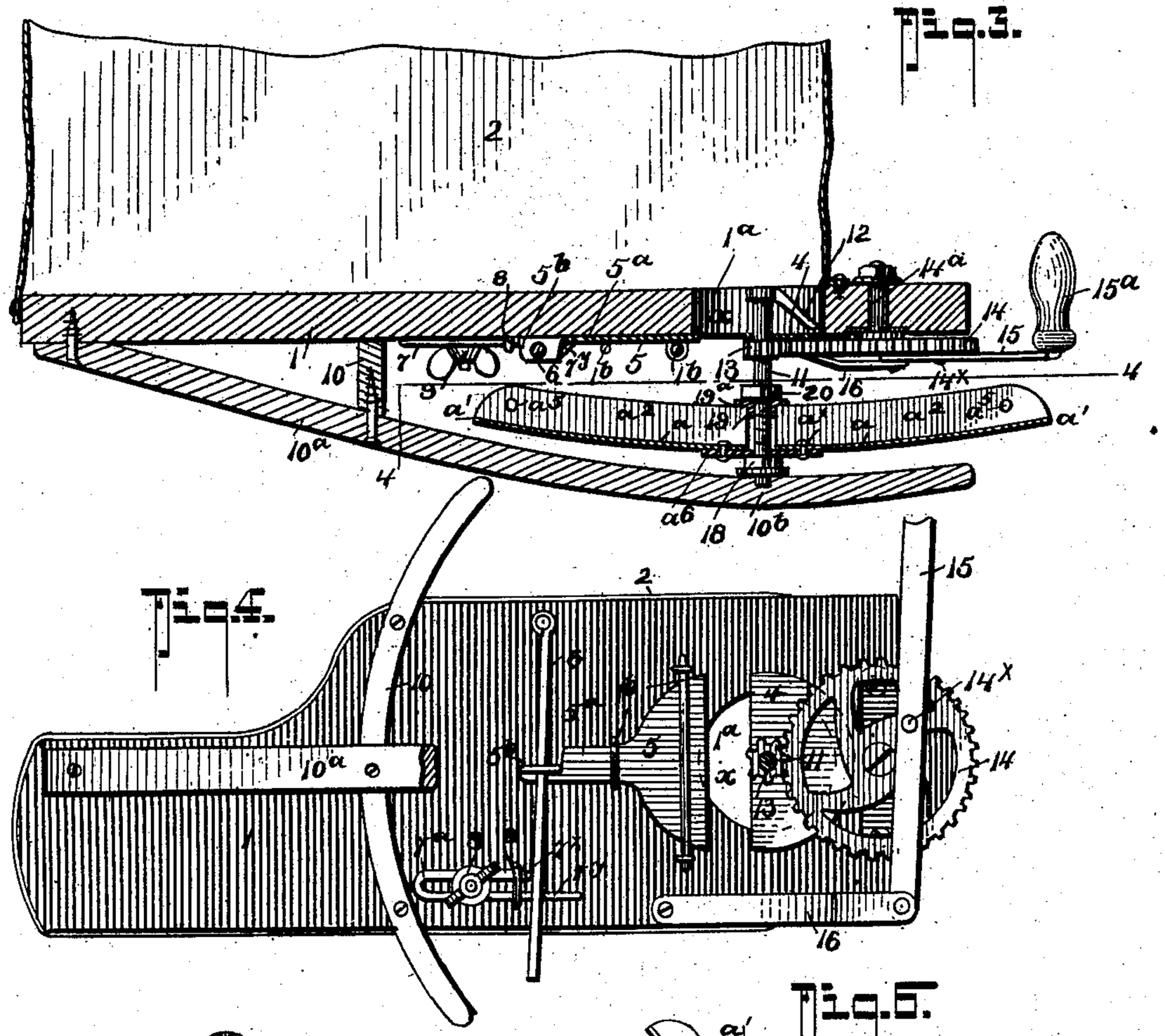


Fig. 4.

Fig. 5.

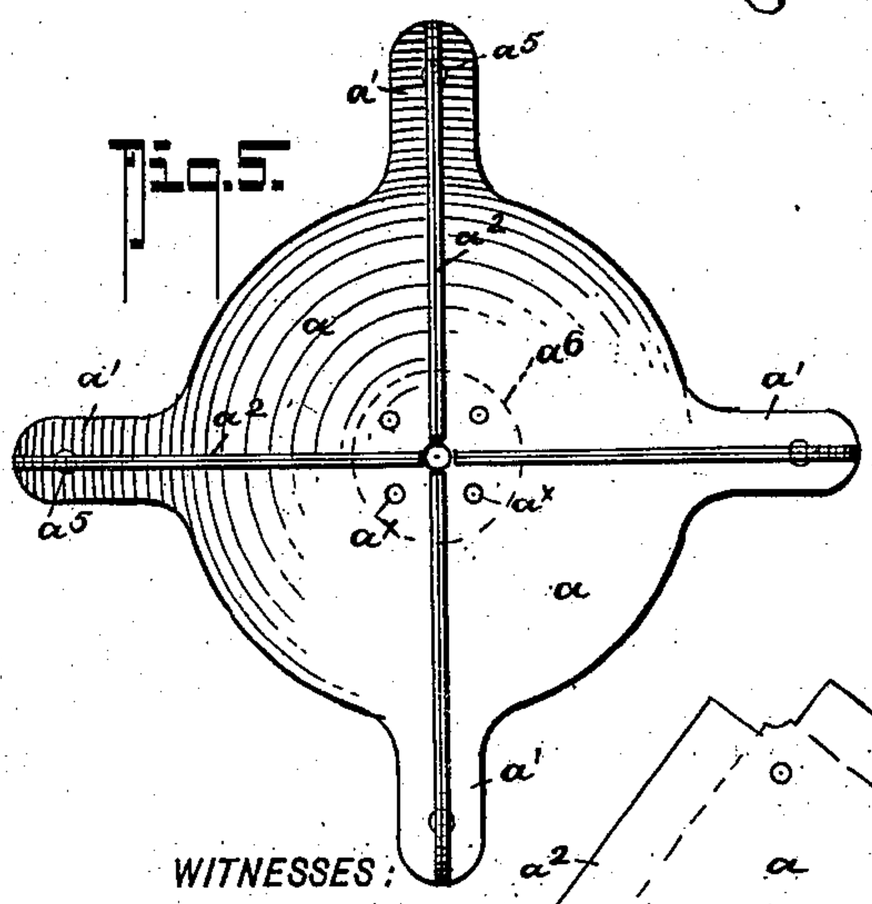


Fig. 6.

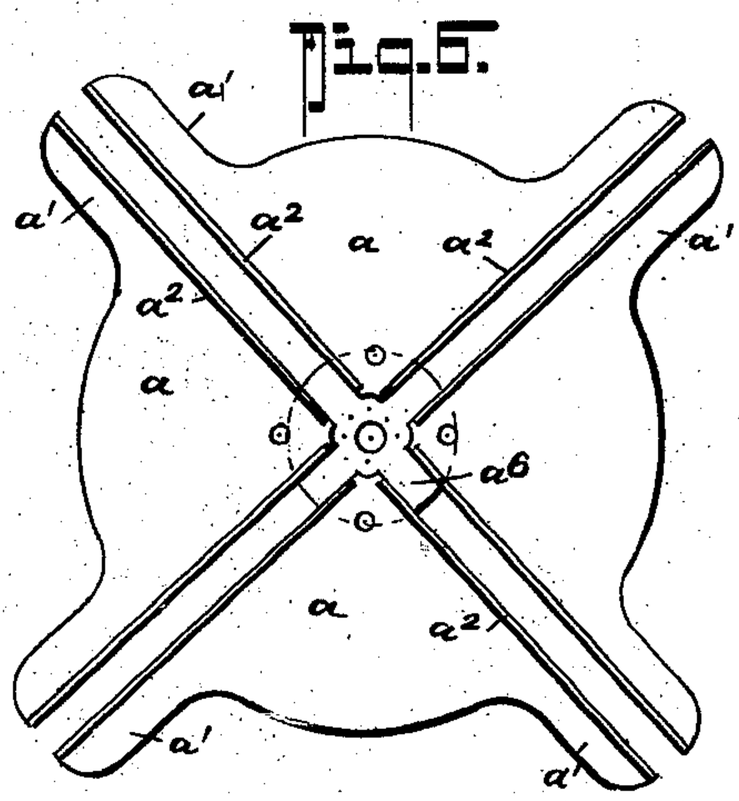
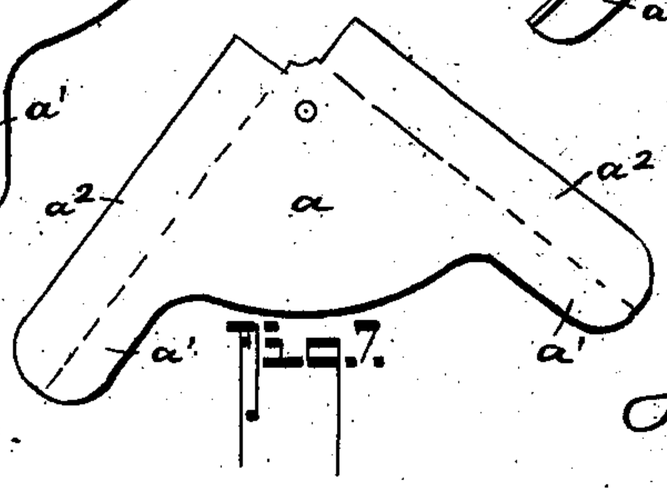


Fig. 7.



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UNITED STATES PATENT OFFICE.

DANIEL E. SPEICHER AND VERD ROUSEY, OF URBANA, INDIANA; SAID ROUSEY ASSIGNOR TO SAID SPEICHER.

BROADCAST SEED-SOWER.

SPECIFICATION forming part of Letters Patent No. 712,342, dated October 28, 1902.

Application filed April 22, 1902. Serial No. 104,197. (No model.)

To all whom it may concern:

Be it known that we, DANIEL E. SPEICHER and VERD ROUSEY, of Urbana, in the county of Wabash and State of Indiana, have invented a new and Improved Broadcast Seed-Sower, of which the following is a specification.

Our invention is in the nature of an improved hand-operated broadcast seed-sower; and it primarily has for its object to provide a means of the character stated, of a simple and economical construction, adapted to uniformly sow or distribute the seed and in which the operation can be effected in a more convenient manner and with less exertion on the part of the operator than is possible in the ordinary run of sowers of this kind heretofore provided.

In its generic nature our invention embodies a new and novel combination of the seed-supporting frame, the whirling wheel, and a power-transmitting means including a reciprocable lever-arm movable in a horizontal plane in close proximity to the under side of the said frame and gear mechanism for transforming the reciprocal movement of the operating-lever into a rotary motion in either direction to the whirling or distributing wheel shaft, the said several parts having a special coöperative arrangement whereby the seed can be uniformly fed to the wheel and the wheel properly rotated with a minimum amount of exertion on the part of the user and without any material impeding of a proper centrifugal throw of the seed.

In its more complete nature our invention also includes a special construction of the distributing-wheel capable of being conveniently and economically made and in which the use of solder and other like fastening means is dispensed with.

In its more subordinate features our invention includes a special arrangement of stirrer, an adjustable feed-throat, and other novel details of construction and peculiar combination of parts, all of which will hereinafter be fully explained, and specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a view illustrating our invention as applied for use. Fig. 2 is an inverted perspective view of the same, parts of the distributer or whirling wheel being broken away to show the construction the more clearly. Fig. 3 is a central vertical longitudinal section. Fig. 4 is a horizontal section on line 4 4 of Fig. 3. Fig. 5 is a plan view of the distributing-wheel detached. Fig. 6 is a view of the same, the several members being shown separated. Fig. 7 is a view of one of said members in its blank shape. Fig. 8 is a perspective view of a modified form of the distributing-wheel. Fig. 9 is a plan view of the blank from which the form shown in Fig. 8 is made.

In the drawings, in which like characters indicate like parts in all the figures, 1 designates the board that forms the bottom of the seed-holder and the support for the distributing mechanism, presently referred to. The bag 2 is secured to the board in the usual manner, as is also the strap 3 for supporting the machine from the shoulders of the operator, as clearly shown in Fig. 1. Near the front end the bottom or board 1 has a circular discharge-opening 1^a, the forward half of which is covered on the under side by a fixedly-held metal plate 4, and the throat or discharge-opening proper (designated by x) is controlled by a cut-off plate 5, slidable on the under side of the board 1 in guides 1^b. The rear end of the plate 5 terminates in a tang 5^a, that has a pendent apertured flange 5^b to engage with the shifting rod 6, pivotally secured to the board 1 and adapted to be held to its adjusted position by a detent device 7, consisting of a spring-rod bent upon itself to form a loop 7^a, slidable under a guide-clip 8 on the board 1, and to coöperate with the winged nut 9 to provide for shifting said device 7. One of the ends of the rod terminates in an angle-stop 7^x and the other in a beveled stop 7^y, with which the outer end of the rod 6 engages, as shown. By providing a shifting and detent mechanism, as described, it is manifest the detent can be set to the position necessary to provide for a desired adjustment of the cut-off 5.

10 designates the usual curved grain-guard, and 10^a a bent-wood longitudinally-extending arm, the rear end of which is rigidly secured to the bottom 1 and to the under side of the guard 10, and its front end projects to the

front end of the member 1 and is disposed at a plane sufficiently below said board to support the bearing 10^b for the lower end of the shaft 11, that carries the distributing or whirling wheel, presently described.

The upper end of the shaft 11 has a bearing in the plate 4 and extends up into the circular opening in the bottom board 1, and said end carries a radially-projecting arm 12, that rotates in the plane of said opening, the purpose of which is to provide a simple and effective means for stirring the seed and dispensing with agitators, wires, and other contrivances for agitating the seed, such as are commonly used in hand-sowers.

The shaft 11 carries a pinion 13, and said shaft 11 is so disposed relatively to the throat or discharge that its pinion does not project into said throat.

14 designates a master or drive pinion journaled upon a pendent stud-bolt 14^a, made fast to the bottom 1 and held in a plane with the pinion 13, with which it meshes, as clearly shown in Fig. 3, by reference to which it will be seen both pinions 13 and 14 are positioned close up against the board 1 and by reason of such position held out of the way of interfering with a proper operation of the whirling or distributing wheel.

The pinion 14 has a wrist or eccentric pin 14^x, to which is secured a lever-arm 15, reciprocal in a horizontal plane, one end of which extends to one side of the bottom 1, and pivotally joins with a pendent bracket 16, made fast to the bottom 1, and the other end extends beyond the opposite side of the bottom 1 and has an upwardly-extended handle 15^a.

By providing a gear-and-lever mechanism, as described, we are enabled to utilize a lever-arm reciprocally movable in a horizontal plane, and thereby produce a more convenient and effective means for rotating the wheel-shaft and with much less exertion than is possible by the use of the bow or crank operating means, so common in this type of sowers.

We are aware that it is not new to transform a reciprocal motion into a rotary by gear devices joined in the manner described; but so far as we know it is new to combine the said gear and motion-transmitting means and to arrange them relatively to the discharge-throat and the distributing-wheel of the sower and to coöperate therewith, as shown. Such coöperative arrangement of the parts stated has its advantages for the reason a very economical construction of operating mechanism is thereby provided capable of being operated the more conveniently and with less exhaustion than the other types of sowers heretofore referred to, and the parts can be arranged for a positive and uniform action with the wheel to run in either direction, as desired, and, furthermore, the gear and operating devices being positioned in a horizontal plane close under the bottom 1, practically no part of the gearing and drive devices is located to impede a uniform and proper whirl or distribution of the seed.

The distributing-wheel, the peculiar construction of which also forms an essential feature of our invention, is formed of sheet metal, as usual, with a dished bottom plate and vertical radially-extending wings.

In our construction of distributing-wheel we preferably form the same of sections of like shape, preferably four, each of which has the same blank or initial form, and each section when bent to shape consists of bottom portion a, having a segmental shape, the ends a' of its peripheral edges extending radially outward and terminating at the other ends of the vertical flanges a^2 when the wheel is of four sections. The flanges a^2 extend inward and practically abut, they being separate at their meeting-point only sufficient to allow for the shaft 11 passing down between the four sections when they are assembled. The several sections when assembled are made fast by rivets or clips a^5, that clamp the flanges, as shown, and a centrally-apertured disk a^6, disposed under the meeting ends of the several sections and made fast to the base portions of said sections by the rivets or clips a^x, as shown, and the said disk a^6 serves as a reinforce and a bottom bearing for the wheel to engage with the shaft 11. The wheel is conveniently and fixedly secured to the shaft 11 to turn therewith by clamping it between the nut 18 on the lower threaded end of the shaft 11 and a cap or washer 19, fixedly fitted on the shaft 11 and having radial slots 19^a on its under face to receive the upper edges of the flanges a^2 of the wheel, and the said washer 19 is firmly held interlocked with the said flanges by the jam-nut 20.

Instead of forming the distributing-wheel of independent sections joined in the manner shown in Figs. 5 and 6 the same may be made up of a single piece of metal bent to shape. When of a single piece of metal, the blank A^5, Fig. 9, is cut with radial projections A^6 A^6, having V-cuts A^7, whereby to provide opposing members A^8, having their opposing edges merging on a central folding-line X. In bending up the blank A^5 each section A^8 is also bent on the folding-lines X^2, and when the parts are bent up, as shown in Fig. 8, the opposing portions A^8 are held together by the rivets a^8.

From the foregoing description, taken in connection with the accompanying drawings, it is thought the advantages of our invention will readily appear. In operation the operator suspends the sower on his shoulders in the usual manner, and sows the seed by simply reciprocating the handle in a horizontal plane, an action most convenient and easy, and by proper manipulation the seed-wheel can be rotated continuously in the same direction, as desired.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination in a seeding-machine of the character described, with the seed-holder including the bottom board having a discharge-throat, the distributing-wheel, and the operating means therefor; of a cut-off slidable over the discharge-throat, having a rearwardly-extending tang, a transversely-disposed pivotally-mounted rod, and the detent for the rod, consisting of a spring-rod bent upon itself to form a loop, said loop being slidably held on the under side of the bottom board of the seed-holder, one end of the loop portion terminating in a pendent angle-lug, the other end having a beveled projection, and a means for clamping the looped member to its adjusted positions, as set forth.

2. A broadcast seeder, comprising in combination, a seed-receptacle having a bottom board provided with a discharge-opening, a horizontally-disposed distributing-wheel under said opening, a drive-shaft for said wheel, having its upper end adjacent said opening, a pinion on the upper end of the shaft flush with the inside of the bottom board of the receptacle, a stud projected down from the said board, a master-gear mounted thereon to mesh with the shaft-pinion, said master-gear having a wrist-pin, a bracket on the under face of the bottom board at one side thereof, a horizontally-swingable lever pivoted thereto, extended crosswise of the bottom board, joined with the wrist-pin on the master-gear and terminating at the free end with a handle, all being arranged substantially as shown and for the purposes described.

3. A broadcast seed-sower, comprising a receptacle for the seed, including a bottom board having a discharge, a vertically-disposed operating-shaft, a horizontal distributing-wheel on said shaft, a bearing for the shaft below the wheel and a bearing therefor on the bottom board, and a mechanism for imparting a rotary motion to the shaft, located between the wheel and the bottom board, said mechanism including a horizontally-reciprocable lever-arm, and intermediate gearing connected with the arm and the wheel-shaft for transmitting a rotary motion to the shaft, substantially as shown and described.

4. In a broadcast seed-sower, the combination with the receptacle including the bottom board having a discharge-opening, a curved guard on the under side thereof, and a bent-wood longitudinally-extended arm secured at one end to the bottom board and to the under side of the curved guard, said bent-wood arm having a bearing 10^b at its front end; of the fixed plate extended under the opening in the bottom board, the plate 4 extended over the discharge-opening in the bottom board, the shaft 11 journaled in said plate, and the bearing 10, the distributing-wheel mounted on the shaft to turn therewith, the pinion on the shaft, the master-gear guided flatwise on the under side of the bottom board, held to mesh with the pinion, the pivoted lever reciprocal in a horizontal plane, and eccentrically connected to the under face of the master-wheel, all being arranged substantially as shown and for the purposes described.

5. In a broadcast seeder, as described, the combination with the wheel-rotating shaft; of a distributing-wheel formed of sheet-metal sections, of like contour, each comprising a segment of a circle having a dished bottom portion, the tapering edges of which terminate in vertical flanges, means for fixedly connecting the flanges, a plate secured to the under side of the inner meeting ends of the several sections, and means for mounting the wheel on the shaft, to rotate therewith.

6. In a broadcast seeding-machine, as described, the combination with the rotary shaft having a threaded portion, and means for operating it; of the distributing-wheel mounted on the shaft, said wheel having a series of radial flanges, a clamp-nut on the threaded portion of the shaft adapted to engage the under side of the wheel, a cap member on the shaft, rotatable therewith, said cap having radial slots to fit over the upper edge of the radial flanges, and a jam-nut for pressing the clamp down into engagement with the said flanges, all being arranged substantially as shown and for the purposes described.

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