

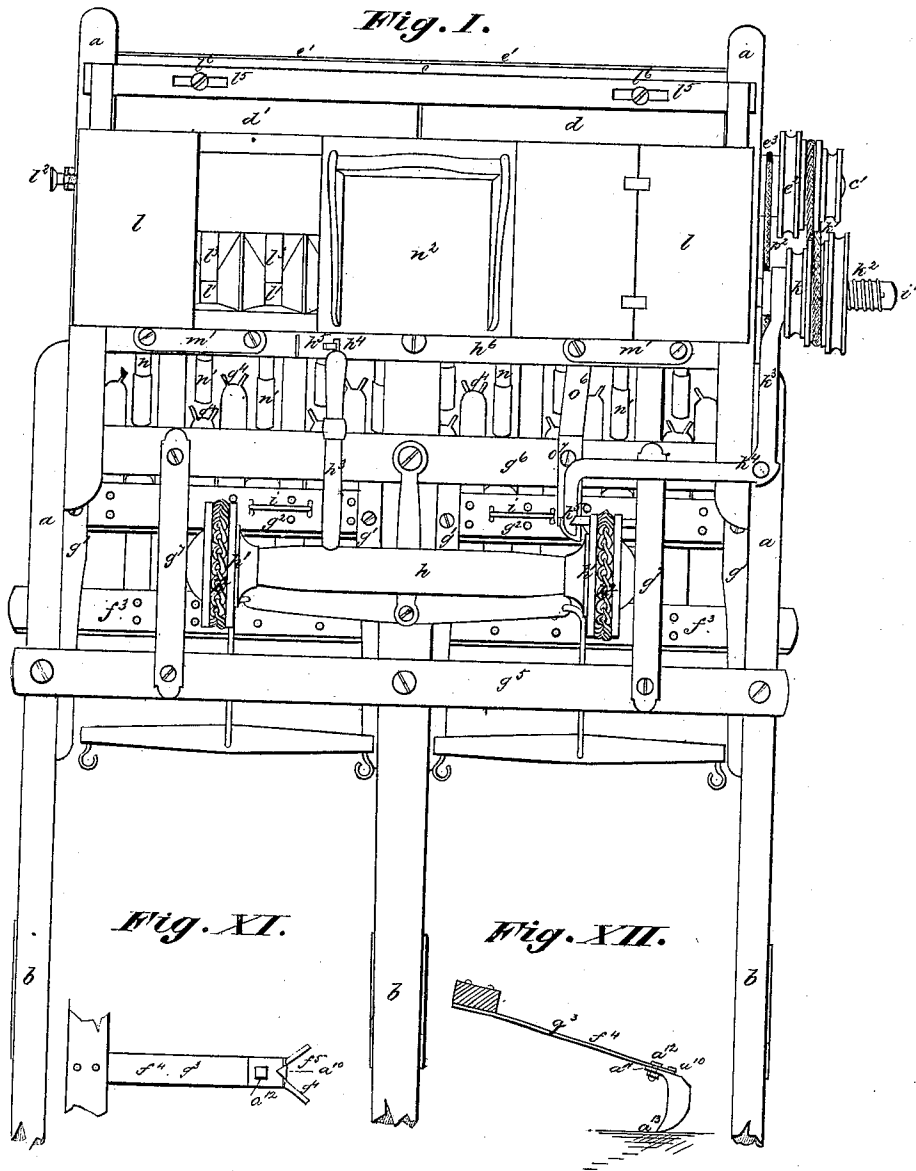
J. S. Vessot,

3. Sheets. Sheet 1.

Harrow.

No. 112,869.

Patented Mar. 21, 1871.



WITNESSES

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3. Sheets, Sheet 2.

No. 112,869.

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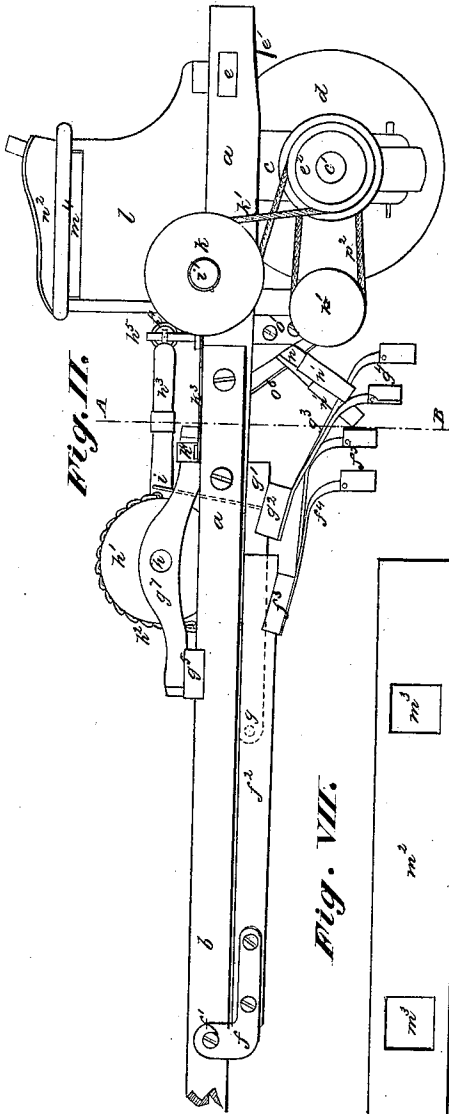


Fig. II.

Fig. III.

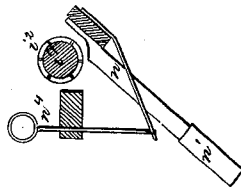


Fig. VII.



Fig. VI.

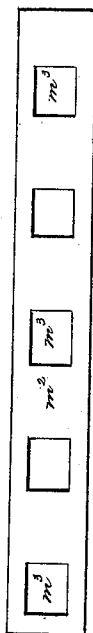


Fig. V.

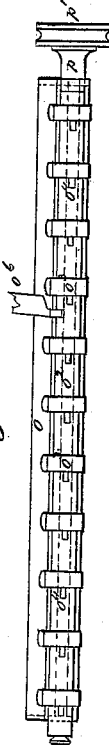


Fig. IV.



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3. Sheets. Sheet 3.

Fig. VIII.

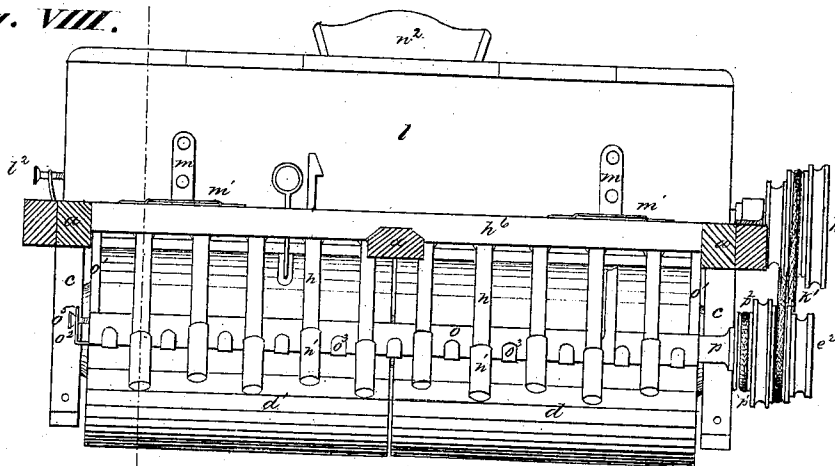


Fig. IX.

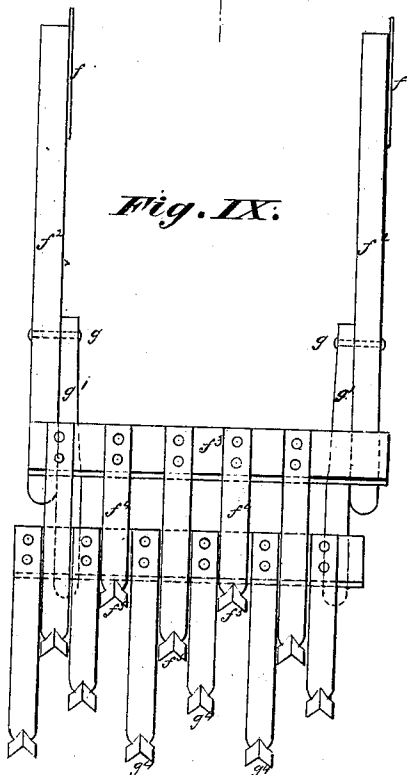
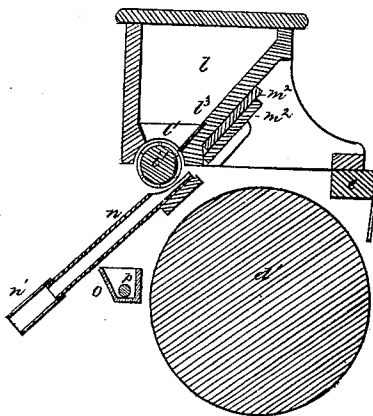


Fig. X.



WITNESSES

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JOSEPH VESSOT, SR., AND SAMUEL VESSOT, JR., OF JOLIETTE, CANADA.

Letters Patent No. 112,869, dated March 21, 1871.

IMPROVEMENT IN COMBINED HARROWS, SEEDERS, AND ROLLERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, JOSEPH VESSOT, Sr., farmer, and SAMUEL VESSOT, Jr., farmer, both of Joliette, in the county of Joliette, in the province of Quebec, in the Dominion of Canada, have invented new and useful Improvements on Combined Harrowing, Sowing, and Rolling-Machine; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, where—

Figure I represents a plan of the machine.

Figure II represents a side elevation of the machine.

Figure III represents a detail of seed-conveyer, &c.

Figure IV represents a detail of feed-roller, &c.

Figure V represents a detail of grass-seed sower, &c.

Figure VI represents a detail of stop, &c.

Figure VII represents a detail of stop, &c.

Figure VIII represents a front elevation of rollers, with parts in front of the line A B, Fig. II, removed.

Figure IX represents a detail of frame and harrows.

Figure X represents a section on line C D, Fig. VIII.

Figure XI represents a detail of harrows.

Figure XII represents a detail of harrows.

This invention relates to improvements on the harrowing, sowing, and rolling-machines now in use, combining them in our machine, performing the operations equally well, if not in a superior manner, to that of the separate, and with much less time and labor.

In the drawing hereunto annexed similar letters of reference indicate like parts.

Letter *a* is the frame-work of the machine of the form shown in the drawing, and the forward extremities forming the shafts *b* for the horses to draw it by.

On the under side of the frame projections *c* are formed, serving as bearings to attach the axle *c'* of the rollers *d d* to the frame, and support the hinder end of it at the proper height above the rollers, for the purposes hereinafter described. The rollers *d d* are of the usual size and construction used for the purpose.

To the outer edge of the cross-bar *e* of the frame scrapers *e'* are attached, for the purpose of clearing off any earth that may adhere to the rollers as they revolve.

The axle *c'* of the rollers is secured to the one *b*, and revolves with it, while the roller *b'* is loose on the axle, for the purpose of reducing the cramp which takes place in turning the horses to draw in another direction.

The end of the axle *c'* projects beyond the bearing *c* a sufficient distance to receive upon it a set of grooved pulleys, *e''*, and a single pulley, *e'*, all secured and revolving with it.

The harrowing portion of the machine is arranged and operated as follows:

At the required position in the shafts *b* are attached the knee-joints *f*, by suitable pivots, *f'*, forming a hinge, attaching the frames *f''* to the shafts.

To the cross-bar *f''*, forming part of these frames, are attached, in any desired manner, the steel springs *f'''*, of the form shown in Figs. II, IX, XI, and XII, and to the extremities of these springs the harrows *f''''* are secured.

The exact configuration and attachment of the harrows *f''''* and *g'* with the springs *f'''* and *g''* is shown in Figs. XI and XII, the springs, at their ends, having a V-formed piece cut out of them to receive a projection, *a''*, formed on the top of the harrow, which is also provided with a flange, *a'''*, extending under the springs *f'''* and *g''*, a bolt, *a''''*, attaching the two firmly together.

The harrows may be made of any suitable metal, but, by preference, I use cast-iron.

The toe or point *a'''* is slightly advanced in front of the body, and extends also a little lower down, as clearly shown in the drawing.

By the use of the steel springs *f'''* and *g''*, should the harrows meet with any large obstacles, they can lift up and pass over it without stopping.

The frames *f''* are two in number, each the width of the roller before which it is placed, and are provided with five harrows, more or less, as required.

To the two frames *f''* are attached, by pivots *g*, two other frames, *g'*, of similar construction, but smaller in size, so that their sides are on the insides of *f''* and freely move within them.

To the cross-bar *g''* of these frames another set of springs, *g'''*, is attached, with harrows *g''''* at their extremities, similar to the harrows *f''''* above described. In attaching all these harrows *f''''* and *g''''* they are so arranged that no two shall follow each other, but shall each cut a separate furrow in the ground over which they pass, at equal distances apart; but, by the harrows *f''''* going in advance of those *g''''*, the furrows cut by the former are closed by the latter, and, by the seed being dropped into the furrows opened by *f''''*, it is at once covered up by the harrows *g''''*, and is ready for the rollers.

The frame *a* is provided with two cross-bars, *g''* and *g'''*, and on these are attached two bearing-bars, *g''''*, carrying a shaft, *h*, provided with two grooved pulleys, *h'*; to these the chains *h''*, of suitable length, are attached, while their other ends are attached one to each of the cross-bars *f''*; these are for the purpose of lifting and holding up the harrows from the ground a suitable height by means of a handle, *h'''*, rotating the shaft and pulleys, and winding the chains *h''* partly around the latter; and for retaining them any desired period in this position a pin, *h''''*, at the end of the handle, is provided, hooking into a catch, *h'''''*, attached

to the upper side of the cross-bar h^s of the frame a ; when this is unhooked the harrows fall of their own weight to the ground, and those marked g^t come first to it; the pivot g allows the others to freely find their proper position also.

To give additional weight to the harrows g^t , for causing them to cut deeper, suitable projections i are formed on the upper side of the cross-bars g^t , the tops of which are in such a position that the driver may cause his weight to assist in performing this object, as will be hereinafter more particularly described.

On the top of the frame a , and with one on each side, two bearings are formed in any suitable manner, carrying the feed or seed-distributing roller i in the proper position. The construction of this roller is as follows:

It is divided transversely into alternate spaces, having recesses i^r formed in them to receive the required amount of grain to be sown, and blanks i^b ; in these the plain cylindrical form of the roller remains undisturbed.

The recesses i^r are made in series of larger or smaller size, suitable for various descriptions of grain; those marked i^t are for oats, pease, and barley, &c.; those i^w are for wheat, rye, buckwheat, &c.; those i^c are for corn, beans, &c.

The roller i extends beyond the frame a^1 to that side of the machine on which the pulleys e^2 are situated, and on this extension a corresponding set of pulleys, k , is loosely placed, and caused to rotate by any suitable belt, k^1 . On the end of the roller, and on the inside of the pulleys, a clutch is formed, the counterpart being on the pulleys. This is for the purpose of causing the roller to revolve when the clutches are in gear, and to remain stationary when thrown out. This is accomplished as follows:

On the end of the roller i^1 , extending beyond the pulleys, a spiral spring, k^2 , is so placed that it presses the clutches into gear when not held out by the end of the lever k^3 . This lever is of the form shown in the drawing, and is attached to the frame a by a pivot, k^4 ; the other end of this lever k^3 is bent to come to the inside of the pulley k^1 . On this, and in the proper position, an inclined projection, k^5 , is formed, so situated that when the pin k^4 of the handle k^3 is placed in the catch k^5 the inclined projection k^5 presses that end of the lever k^3 next it inward, while the other extremity of the lever is moved outward, throwing the clutches out of gear; or, in other words, when the harrows are lifted from the ground the roller i ceases to revolve, although the machine is drawn along, revolving the rollers d d' .

Again, upon the frame a , and in the position shown in the drawing, the grain-box l is placed, of the general form delineated; its bottom side at the front is fitted to and over the roller i , with suitable openings, l^1 , having inclined sides for the grain to descend into the recesses i^r formed in the roller i^1 , hereinbefore described.

These openings, and the various series of recesses, are so arranged that, by setting this seed-box to any one of the recesses i^r , they will match or come over the whole of the corresponding ones, and in like manner with those i^w and i^c .

This is done by an adjusting-screw, l^2 , or other suitable contrivance for moving the box l laterally and holding it in any required position.

To prevent the seeds entering into the recesses i^r of the roller i^1 being injured by being cut between the edges of the recess and the edges of the box, pieces of India rubber, l^3 , are placed over the edge of the latter.

The box l is attached to the frame a by its back rail l^4 , having slotted holes l^5 , through which the bolts l^6 pass, attaching it to the rail e . These bolts are loosened when the box l is to be adjusted.

It is also held in its position by angle-irons m in front, whose bottom ends slide in the space formed by the iron straps m^1 and the frame a .

The number of recesses formed in the roller i will depend on the number of harrows f^2 cutting the furrows, and, as shown in the drawing, these are ten; but, if desired, they may be increased or diminished.

The roller i will have, therefore, ten recesses i^t , ten i^w , and ten i^c ; it will also have ten blanks i^b .

When it is desired to only sow seed in part of the furrows cut by the harrows stops m^2 , similar to those shown in Figs. VI and VII, having any required number of openings m^3 , are placed in the box l by means of a small door, m^4 , in its end, shown in Fig. II, immediately over the openings l^1 , closing or stopping any required number of them, and leaving the remainder open.

That these stops m^2 may be carried with the machine when not in use a place is provided under the inclined side of the box l , at its back, and in that position they are shown in Fig. X.

The seed taken out of the box l , as above described, by the roller i^1 , falls into the open upper end of the conveying tubes n , suitably situated for that purpose.

These tubes are of metal, and to their lower ends pieces of India rubber tube n^1 are attached, so that if any fixed obstacle in the ground is presented to them they may give way and obviate the necessity of either removing it or injuring the tubes.

To cause the seed to be sown at a greater or lesser depth, the cross-bar to which the tubes n are attached may be turned by the handle n^4 , so as to cause their ends n^1 to come close to the harrows f^2 and drop the seed in immediately behind them; or they may be depressed, moving them further back, and giving time for a portion of the earth to fall back before the seed falls into the furrows.

The amount of seed sown may be regulated by placing the belt k^1 on the pulleys e^2 and k , so as to cause the latter to revolve with greater or lesser speed in comparison with the revolutions of the roller d .

On the top of the box l the seat n^2 is formed for the driver to sit upon, and when it is desired to cause the harrows g^t to act with more weight he places his feet upon the projections i , before mentioned.

The machine is also provided with another seed-sowing box, altogether separately and distinctly from that hereinabove described. This is for sowing grass and other small seeds requiring to be sown thicker and generally over the ground—that is to say, not in furrows.

The construction and operation of this seed-box are as follows:

o is a box, of suitable size and form, for holding a quantity of the seed to be sown, being in length equal to the length of the two rollers d d' , and is attached, immediately in front of them, to frame a by any suitable attachments o^1 . The bottom of the box is provided with a suitable number of openings for the seed to fall through. For the purpose of regulating this, to its under side a slide, o^2 , is attached by a number of guides, o^3 , shown in Figs. V and VIII. This slide is provided with corresponding openings, o^4 , to those in the bottom of the box. When these are set fair together the seed has the utmost amount of opening to escape by. To render this adjustable the end of the slide o^2 extends upward at the end of the box o , connecting with a screw, o^5 , which, while it prevents the apertures from opening more than the required amount, it will not prevent them closing, in the following manner: To the slide o^2 , at any suitable point, is attached the end of a lever, o^6 , attached in its central part to the frame a by a pivot, o^7 . The other extremity of the lever is brought up under the end of the lever k^3 , and is acted upon by the projection k^5 , in like manner to that herein described for the lever

k³. By this means, when the harrows are lifted from the ground the lever o⁶ causes the openings in the slide to move over the guides o³ and prevents the further escape of the seeds from the box o. To cause the flow of the seed to be steady an agitating-roller, p, of any suitable form, is placed in the box o, extending from one of its ends through the other a sufficient length to receive on the extended end of the roller p a pulley, p¹, for rotating it by a belt, p², from the pulley c².

Many inventions on similar machines have been made, most of them being provided with a roller in front for carrying the forward end of the machine. By my improvement of placing the box l over the rollers d and d' this is done away with, the weight not being greater than the two horses placed in the shafts b can carry, it being well understood that the machine may be made large or small, for a greater or lesser number of horses.

Having now described the construction and opera-

tion of our invention, to which we have given the name of "Vessor's Combined Harrowing, Sowing, and Rolling Machine," we beg to state that we disclaim all other forms of combined harrowing, sowing, and rolling machines now in use.

What we claim as our invention, and wish secured by Letters Patent, is the new and useful improvements on combined harrowing, sowing, and rolling machines, as follows:

The frame f, attached by pivots f¹ to the shafts, and the frame g¹, attached by pivots g to it, with springs f² and g², attaching the harrows f³ and g⁴ to the cross-bars f³ and g², substantially in the manner and for the purpose described.

Montreal, 29th day of October, A. D. 1870.

JOSEPH VESSOT, SEN'R.

SAMUEL VESSOT, JR.

Witnesses:

THOMAS RONDEAU,
SEWELL CLEMENTS.