2 Sheets--Sheet 1.

F. BRAMER.

Combined Wheel-Harrows and Seeders.

No. 140,182. Patented June 24, 1873.

Fig. 1.

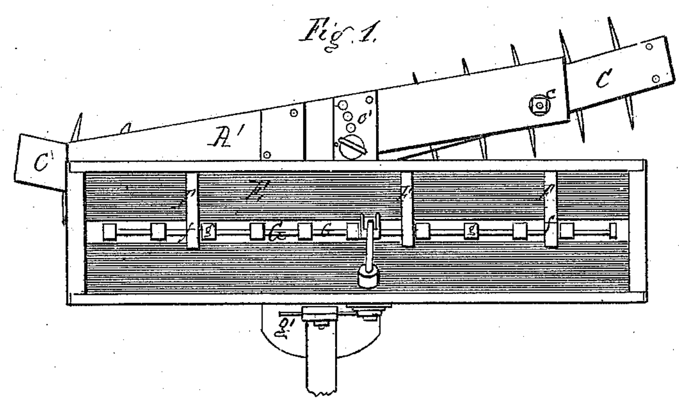
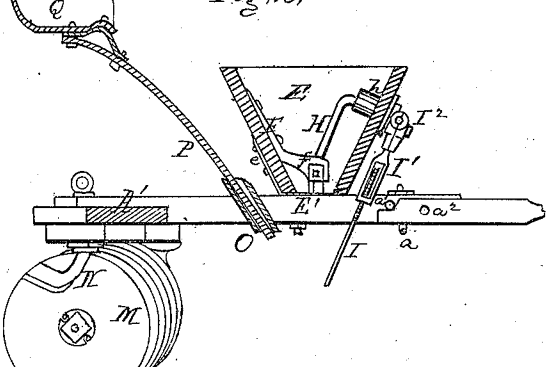


Fig. 2.



Witnesses
Alex. Mahon
J. S. Thomas

Frank Bramer
by A. M. Smith
Attorney

2 Sheets--Sheet 2.

F. BRAMER.

Combined Wheel-Harrows and Seeders.

No. 140,182. Patented June 24, 1873.

Fig. 3.

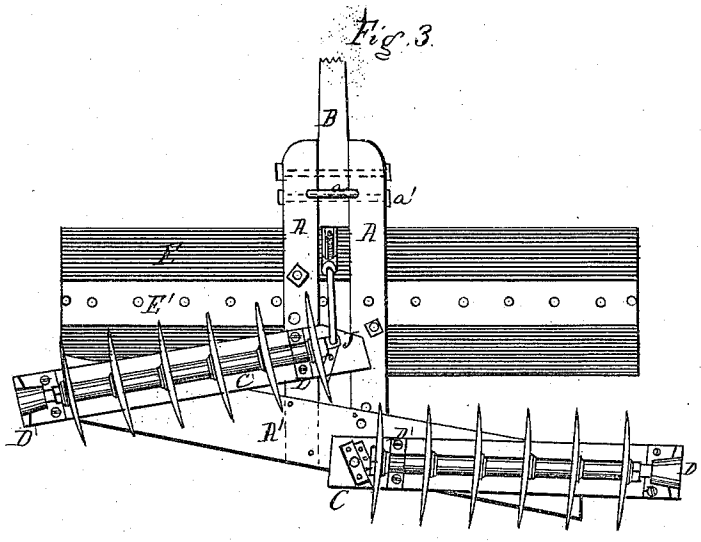
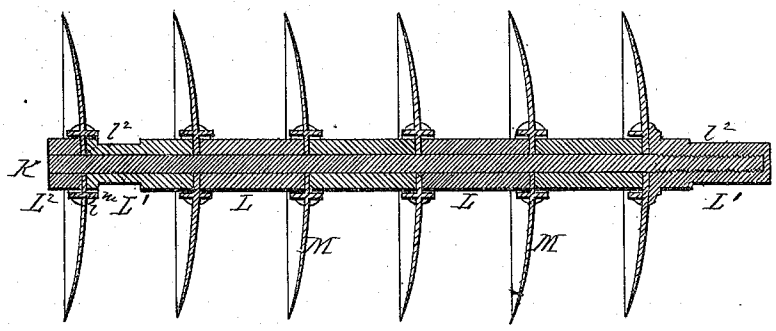


Fig. 4.



Witnesses
Alex. Mahon
J. F. Thomas

Frank Bramer
by Hill & Smith
Attorneys

UNITED STATES PATENT OFFICE.

FRANK BRAMER, OF LITTLE FALLS, NEW YORK.

IMPROVEMENT IN COMBINED WHEEL-HARROWS AND SEEDERS.

Specification forming part of Letters Patent No. **140,182**, dated June 24, 1873; application filed April 9, 1873.

To all whom it may concern:

Be it known that I, FRANK BRAMER, of Little Falls, county of Herkimer, State of New York, have invented a new and useful Improvement in Combined Wheel-Harrow and Seeder, of which the following is a full, clear and exact description, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a plan view of my improved harrow and seeder. Fig. 2 is a longitudinal vertical section through the same. Fig. 3 is an inverted or bottom view, and Fig. 4 represents in section one of the wheel-gangs enlarged.

Similar letters of reference denote corresponding parts in all the figures.

My invention consists, first, in a novel construction of the main frame which supports the seeder and wheel-gangs, whereby the gang-frames, when properly adjusted, are made to brace and strengthen the frame. Second, in combining the distributers or agitators of the seeder with, and operating them from, the shaft of one of the harrow wheel-gangs. Third, in a novel construction of the adjustable pitman, whereby its length and its angle of relation to the seeder-slide may be varied to adapt it to the adjustable wheel-shaft from which it is operated. Fourth, in providing the sleeves or spools which space the harrow-wheels on the shaft with recessed hubs or bosses, or with pins cast with said spools and serving to insure their uniform rotation together with the harrow-wheels, and to prevent any movement relative to each other, thereby preventing the parts from wearing and becoming loose. Fifth, in the construction of the seat-socket, and the manner of uniting it to the main frame.

In the accompanying drawings, A A represent two longitudinal frame-bars separated from each other by a space about equal to the width of the rear end of the pole or tongue B, which is pivoted between their forward ends. The forward ends of said bars are connected with each other by a loop or staple, *a*, passing underneath the tongue, and by a bolt, a^1, passing through the bars and above the notched rear end of the tongue, as shown in Fig. 2, the arrangement of the bolt a^1 and loop *a* being such as to permit a limited vertical movement of the rear end of the tongue and forward end of the harrow-frame upon their pivotal bolt a^2, sufficient to permit the harrow to follow the undulating surface of the ground over which it is drawn. The rear ends of bars A are secured to a tranverse bar or plank, A′, to which the wheel-gangs or gang-frames are attached, and which is arranged obliquely to the longitudinal bars A, as shown in Figs. 1 and 3. C C′ are the gang frames or bars provided with pendent brackets or arms D D′, in the lower ends of which the wheel-harrow shafts are mounted, said bars C C′ being pivoted each in an outer end of the oblique frame-bar A′, as shown at *c*, and connected adjustably at their inner ends with the longitudinal bars A by tap or thumb bolts, which, by being inserted into one or another of a series of perforations, *c′ c′*, made in bars A, in the arc of a circle of which pivot *c* is the center, permit the adjustment of the angle of the gang, as desired. The relation of the bars C C′ to, and their connection with, the frame-bars A A and oblique gang bar or plank A′, as shown in the drawing, Fig. 3, serves to brace and strengthen the frame in a manner that will be readily understood, thereby dispensing with the necessity for the further bracing and strengthening of the frame, and with the weight of material employed for that purpose in these machines as ordinarily constructed, besides reducing the weight of the machine and the cost of construction. E is the seed box or hopper mounted on the frame-bars A, arranged transversely thereto and connected therewith by strap-bolts *e*. The sides of seed-box E, front and rear, are made to converge toward the bottom, where they are connected by a perforated metal bottom, E′, through which the seed or grain is distributed upon the surface of the ground. The size of the perforations or openings in the bottom plate E may be made adjustable, if desired, by any of the arrangements of slides or adjusting devices ordinarily employed for that purpose. To the inner face of the hopper, either front or rear, is connected a number of brackets, F, in the perforated overhanging arms *f* of which is mounted a sliding rod, G, provided with a series of pendent feet or stirrers, *g*, correspond-

ing in number to the number of perforations in the bottom of the hopper, over which they reciprocate and serve to prevent choking or clogging of the seed or grain, and to insure the uniform discharge of the same over the surface of the ground. The sliding rod G, with its stirrers *g*, is actuated by an arm, H, on a rock-shaft mounted in a tubular bearing, *h*, secured to the side of the seed-box, a crank-arm, *g'*, on the outer end of the rock-shaft, connected, by an adjustable pitman, I I^1, with a crank, J, on the inner end of one of the rotating harrow-wheel shafts, actuating the rock-shaft and arm and the sliding rod G in a manner that will be readily understood without further description. The adjustment of the inner ends of the harrow-gangs, as above described, renders it necessary to provide for the adjustment of the length of the pitman, and also for the varying angle of relation of the pitman to the crank-wrist I^2, consequent upon the adjustment of the harrow-shaft, which operates said pitman. This is done by making the pitman in two, or, virtually, in three parts, viz: One part, I^2, forming the crank-wrist, which is divided vertically, and has a sleeve formed at its upper end in the adjacent faces, and at its lower end a socket to receive a ball at the upper end of part I^1, forming practically an universal joint between said two parts, and providing for the varying angle referred to. The part I^1 is bifurcated or slotted, and has the web connecting its lower end provided with a female screw adapted to receive the male screw on the upper end of part I, as shown in Figs. 2 and 3, thus providing for the adjustment of the length of the pitman for the purpose explained. The harrow-wheel shafts K, which, as above described, are mounted in bearings in pendent brackets D D', attached to bars C C^1, are armed with a series of alternate spools or ferrules, L L^1, and harrow-wheels or disks M. The inner end of each shaft is provided with a screw-thread, adapting it to receive a nut, L^2, provided with a hub or boss, *l*, recessed or notched to receive pins *m* on the sides or vertical faces of the wheels M; and where it is intended to operate the seed-slide, as above explained, said nut is also armed with a crank-wrist, to which the pitman I is connected. The nut L^2 being tightly screwed on the end of the shaft, a wheel, M, is slipped over the shaft until it rests against the boss *l*, with its pins entering the notches or perforations therein. A spool, L^1, provided with notched hubs or bosses, one at each end, is now placed on the shaft against wheel M, as shown, and so on, placing the wheels M and spools L alternately until the desired number of wheels is reached, when a thimble, L^1, which screws tightly on the outer end of the shaft, secures them all firmly in place. The recessed bosses and pins prevent any relative movement of the wheels and spools to each other, and the wear consequent thereon, and insure their uniform rotation with the shaft. Where preferred, pins on the spools or bosses passing through perforations in the wheels may be substituted for the construction above described. The spools and thimbles L^1 L^1 are each cut away, as shown at l^2, to form the journals of the shaft where the shaft has its bearings in the bracket D D', and the spools and wheels, thus united to the shaft or through-bolt K by means of the clamping-nuts L^1 L^2, form practically a solid harrow-wheel axle, the wheels, spools, and shaft rotating together. N are metal scrapers attached to the bars C C^1, and made slightly elastic, so that they will conform to or follow any irregularities in the surface of the wheels for removing the adhering dirt therefrom. O is a metal socket placed in inclined notches or recesses cut in the adjacent faces of the frame-bars A A to receive it, and provided at its upper edge or end with flanges, which rest upon said bars, and prevent the socket from dropping through. P is the seat-standard, made of wood or metal, as preferred, slightly elastic; and Q is the seat for the driver, arranged, as will be seen, behind the seed-box, and in convenient position to enable the attendant to watch all the operations of the seeder and harrow.

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

1. The main frame, composed of the longitudinal bars A and oblique transverse bars A^1, in combination with the adjustable gang-bars C C^1, arranged to brace the frame, substantially as and for the purpose set forth.

2. The seed distributer or agitator of a combined seeding-machine and wheel-harrow, connected with and operated by a crank on the shaft of one of the wheel-gangs through an adjustable pitman arranged at right angles to said shaft, substantially as and for the purposes set forth.

3. The construction of the pitman-connection, of the seed-distributer and harrow-wheel shaft, and of the parts I I^1 I^2 to permit the adjustment of its length and angle, as described.

4. The spools or thimbles L provided with notched or perforated hubs, or bosses, or pins for securing the harrow-wheels and causing their uniform rotation, substantially as described.

In testimony whereof I have hereunto set my hand this 11th day of January, A. D. 1873.

FRANK BRAMER.

Witnesses:
WATTS T. LOOMIS,
A. LOOMIS.