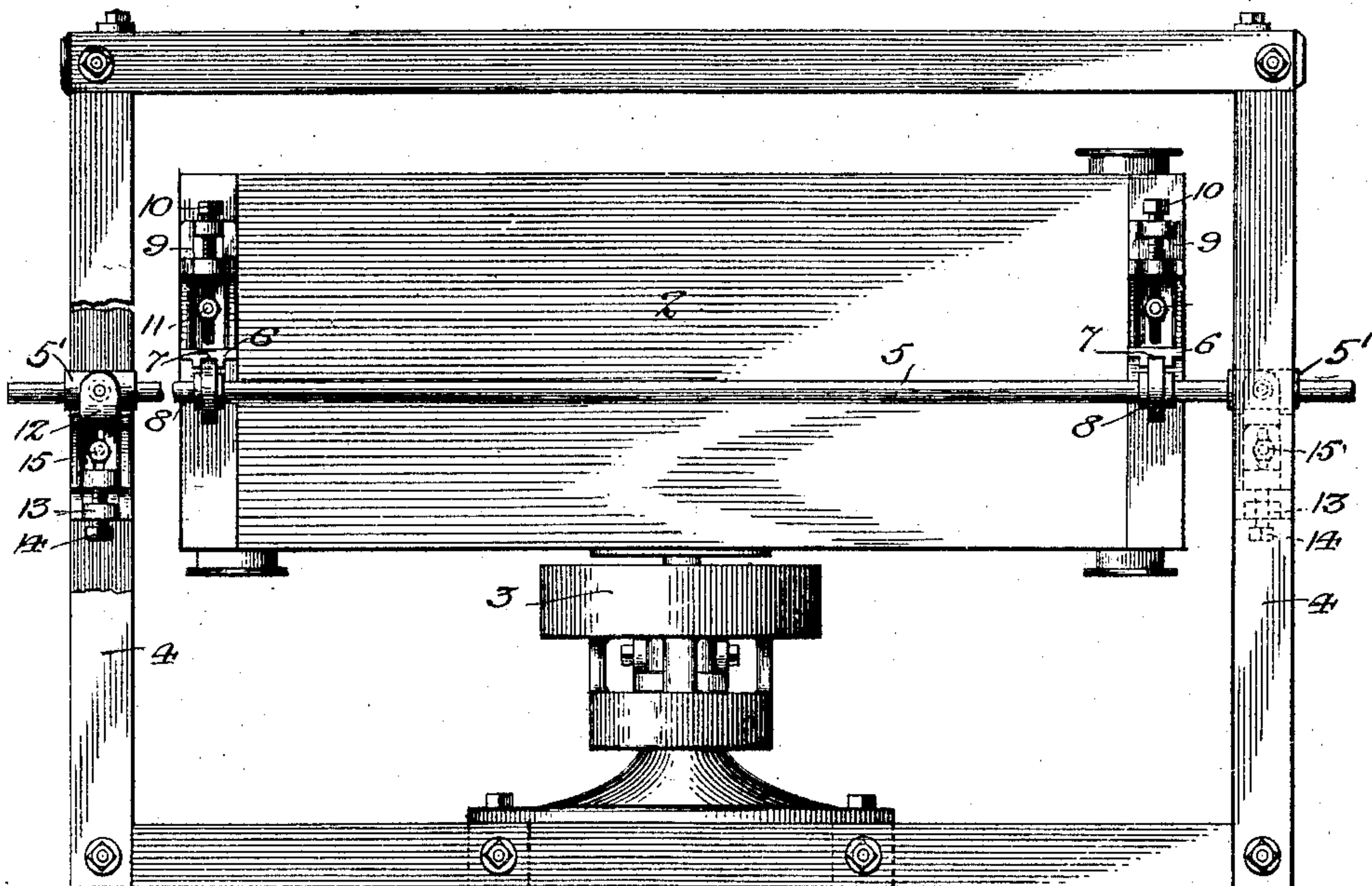


No. 859,412.

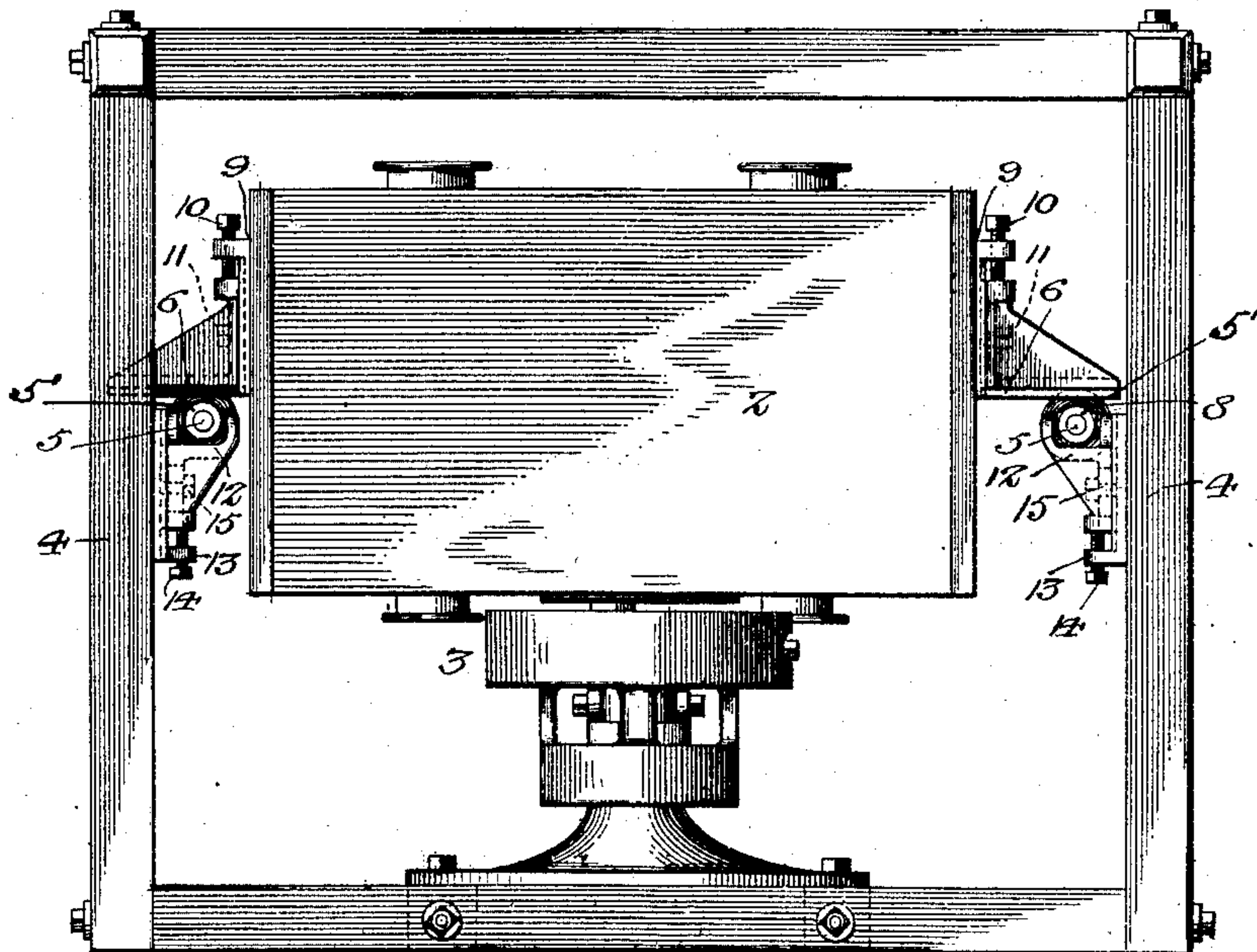
PATENTED JULY 9, 1907.

J. M. SCHUTZ.  
GYRATING MACHINE.  
APPLICATION FILED APR. 1, 1905.

*Fig. 1.*



*Fig. 2.*



*Witnesses:-*

*John M. Whitehead*

*John M. Whitehead*

*Inventor:-*

*Joseph M. Schutz*

*By:- C. Hawley*



# UNITED STATES PATENT OFFICE.

JOSEPH M. SCHUTZ, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO SCHUTZ-O'NEILL CO., OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

## GYRATING MACHINE.

No. 859,412.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed April 1, 1905. Serial No. 253,343.

*To all whom it may concern:*

Be it known that I, JOSEPH M. SCHUTZ, of Minneapolis, Hennepin county, Minnesota, have invented a certain new, useful, and Improved Gyrating Machine, of which the following is a specification.

My invention relates to gyrators and gyrating machines which are used for sifting, screening or concentrating various materials, and has special reference to improved plansifters for flour mills.

10 The plansifters now in common use may be briefly described as follows: The chief member is a box or body, which contains a plurality of sieves, through which the flour or other light material is sifted or bolted. The body or box is substantially horizontal and means are provided for imparting gyratory movement thereto in a horizontal plane. Various mechanisms have been devised for accomplishing the necessary gyration of the sieve box, and the object of all has been to gyrate the same accurately and forcibly, 20 but with the least possible reflex vibration. However, this result has not been accomplished, for as yet all plansifters are characterized by the violent vibration which they produce in the buildings containing them. Furthermore, all these gyratory plansifters, in 25 which the box is suspended upon links, occupy a great deal of space; they are also objectionable because the sieves instead of being held to given planes have imparted to them a rocking movement which detracts from the effectiveness of the machine. On the other 30 hand, those plansifters in which the gyrating mechanism is confined to the space beneath the sifter-box, are top-heavy and are considered to be dangerous, as well as possessing the objectionable features of the plansifters of the suspended type. All of the plansifters with which I am familiar, as having been in- 35 vented by others, are of such construction that the box-sustaining parts add their weight and momentum to that of the box, and tend to throw the same out of balance; for this reason it has been the practice to 40 make said parts as light as possible; thus annoying and costly breakages have been frequent.

45 The object of my invention is to provide a gyrating machine—and particularly a plansifter,—which may be of any desired height,—which may be operated without endangering the building containing it or wrecking the machine supports,—that is, substantially without secondary or reflex vibration,—and in which all parts shall be strong and durable.

50 A further object of the invention is to not only properly and effectively support and gyrate the sifter-box of a machine of the class mentioned, but also to accomplish these results in such a manner that the gyration of said box or body shall be absolutely and positively confined to a given plane, usually horizon-

tal. And a further object of the invention is to generally simplify and cheapen the construction of plansifters and the like.

My invention consists generally in a gyrating machine comprising a box or member to be gyrated, and its frame or support, in combination with a crank 60 mechanism for moving said box, and a movement-controlling and restricting mechanism, comprising rotary reciprocatory elements, arranged beside the box and engaged therewith through the medium of bracket-like guides occupying elevated positions on said box 65 or body, whereby said body is stably supported and made freely movable by said crank mechanism, but is confined or restricted to gyratory motion in the plane of aforesaid guides; and further my invention consists in various details of construction and in combinations of parts, all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which 75

Figure 1 is a side elevation of a plansifter embodying my invention; Fig. 2 is an end elevation thereof.

As shown in the drawings, 2 represents the plansifter box, containing the usual bolting sieves (not shown.) The box may represent the body of any gyratory machine, as this invention is adaptable to all kinds thereof which have a deep box or box-like frame containing 80 sieves, screens, tables or like parts. Beneath the box, 2, is the crank mechanism, 3, of well-known construction, for imparting a small or limited throw to the box. 85 The sieve box is inclosed within a frame, 4, of which the uprights are the chief members, one being arranged at each corner of the box, sufficient space being allowed for the movement of the latter. On the uprights, 4, are bearings to accommodate shafts, 5—5. 90 These shafts support the box, 2, either wholly or partially, according to the construction of the crank mechanism. I prefer that the entire weight of the box shall be carried by the shafts, 5. The connection or attachment between the box and the shaft is made by means 95 of overhanging or projecting guides, 6, which are at right angles to the shafts. The shafts are slidable in their bearings, and therefore permit longitudinal movement of the box, and at the same time the box is free to move transversely, the shafts constituting anti-friction roller supports therefor. The guides, 6, are preferably always arranged above the plane of the center of gravity of the box, but even when occupying lower positions, the said guides positively prevent rocking movement of the box and confine its movement to their 100 own common plane. It will be observed that the bracket-like guides 6, are of greater length than the throw of the operating crank; and the shafts, 5, are also 105



proportionately longer. The guides, 6, are preferably brackets having grooves, 7, in their bottom, horizontal portions to receive the narrow faced rollers, 8, upon the shafts 5. The rollers are rigidly attached to the shafts, 5, and it is obvious that said shafts must at all times move with the box, 2, however slight its longitudinal movement. Likewise the shafts will be rotated by every transverse movement of the box. The longitudinal and transverse movements occur simultaneously, and therefore the shafts, 5, take on a longitudinal twisting motion in their bearings, a movement which tends to preserve the bearings and the ends of the shafts from uneven wear. The plane which includes one guide, 6, should include them all, and should be perpendicular to the operating crank-pin, and to insure this condition at all times, I make the bracket guides adjustable upon the box, and the shaft bearing adjustable upon the uprights, 4. Thus 9 represents a plate on the side of the box, wherein the bracket guides, 6, proper, are slidable. 10 represents an adjusting screw, and 11 a bolt for securing the part, 6, after it has been adjusted. The bearings, 5', for the shafts, 5, are pivoted in the yoke-blocks, 12, each of which is vertically adjustable upon a plate, 13, that is attached to the upright. 14 and 15 represent the adjusting and locking screws respectively. It will be readily seen that by means of these devices the shafts, 5, the brackets, 6, and the box, 2, may be quickly adjusted to exact parallelism with a single horizontal plane that is common to all. The crank mechanism is provided with a suitable balancing device (not shown) and when the said mechanism is set in rotation, the box or body, 2, will be rapidly gyrated, the shafts and brackets acting to limit the same to movements and positions which are the resultants of the longitudinal and transverse movement permitted by the right angled slidable or shiftable connections between box and the base, constituted by said brackets, shafts and bearings.

It will be obvious that numerous modifications of my invention will readily suggest themselves to one skilled in the art, and I therefore do not confine my invention to the specific constructions herein shown and described.

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

1. In a gyrating machine, a box or body member of considerable depth, in combination with a frame therefor; a mechanism for moving or driving said member; guide bearings on said frame, shafts adapted to rotate and re-

ciprocate in said bearings and elevated horizontal slides on said body, resting upon said shafts and wherewith said shafts are movable, said guides being at substantial right angles to said shafts, as and for the purpose specified.

2. In a gyrating machine, a box or body member to be gyrated, in combination with a frame or support therefor; a crank mechanism for imparting rotative motions to said member, and the movement-controlling and restricting mechanism comprising rotative longitudinal shafts arranged adjacent to the sides of said body member, guide bearings on said frame for said shafts and bracket-like guides upon the sides of said member resting upon said shafts, to stably support said member and restrict its motion to gyration, substantially as described.

3. In a gyrating machine, a box or body member to be gyrated, in combination with a driving mechanism therefor; a frame; bearings arranged upon said frame, shafts arranged in said bearings, bracket-like guides upon said member, projecting into engagement with said shafts, said brackets and shafts being provided respectively with guide-ways and rollers, as and for the purpose specified.

4. In a gyrating machine, a box or body, in combination with a crank mechanism for driving the same; a frame having uprights adjacent to the sides of said box or body; bearings adjustable upon said uprights; rotary reciprocating shafts arranged in said bearings and provided with rollers, and adjustable parts arranged upon the sides of said box or body and having horizontal guides resting upon said rollers, substantially as and for the purpose specified.

5. In a gyrating machine, a deep box or body to be gyrated, in combination with a crank mechanism for driving said box or body, guides projecting from the sides of said body, at right angles thereto and suitable supported rotary reciprocating shafts parallel with the sides of said body and adjacent thereto, to support and restrain said box or body through the medium of said guides, substantially as described.

6. In a gyrating machine, a box or body to be gyrated, in combination with bracket-like guides projecting from the sides of said box and all arranged in substantially the same plane, and rotary reciprocating shafts suitably supported at the sides of said machine, said shafts being parallel and in the same plane, to support and restrain said body through the medium of said guides, substantially as and for the purpose specified.

7. In a gyrating machine, a suitable frame and a base or body to be gyrated, in combination with vertically adjustable bracket like members upon said frame, bearings upon said brackets, rotary reciprocating shafts mounted in said bearings, rollers upon said shafts, adjustable guides projecting from the sides of said box and resting upon said rollers, substantially as and for the purpose described.

In testimony whereof, I have hereunto set my hand this 15 of March A. D. 1905, in the presence of two witnesses.

JOSEPH M. SCHUTZ.

Witnesses:

W. H. EUSTIS.

B. A. O'NEILL.