

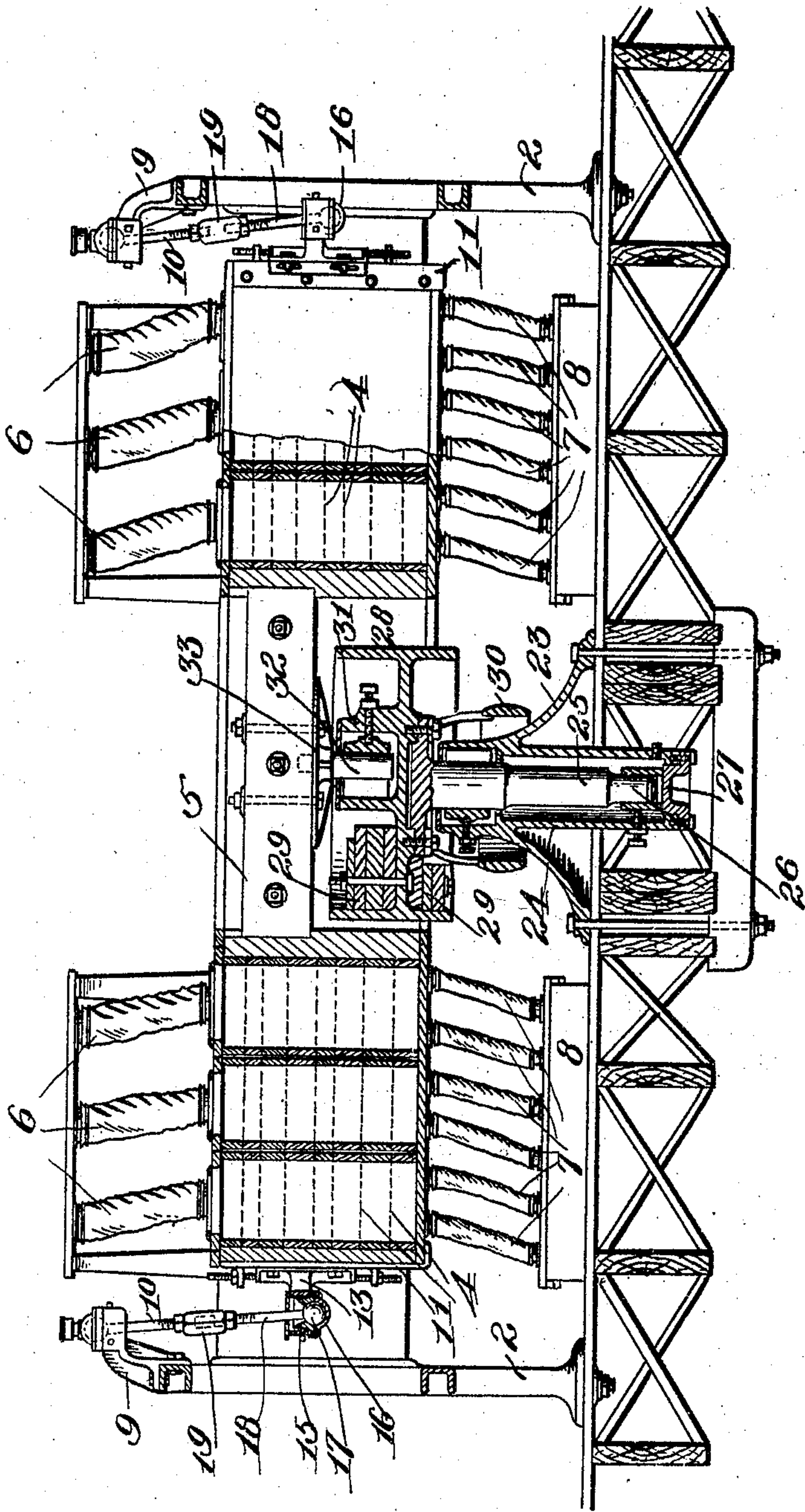
No. 806,002.

PATENTED NOV. 28, 1905.

H. C. ROBINSON.  
BOLTING MACHINE.  
APPLICATION FILED MAR. 14, 1903.

2 SHEETS—SHEET 1.

Fig. 1.



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James L. Norris, Jr.

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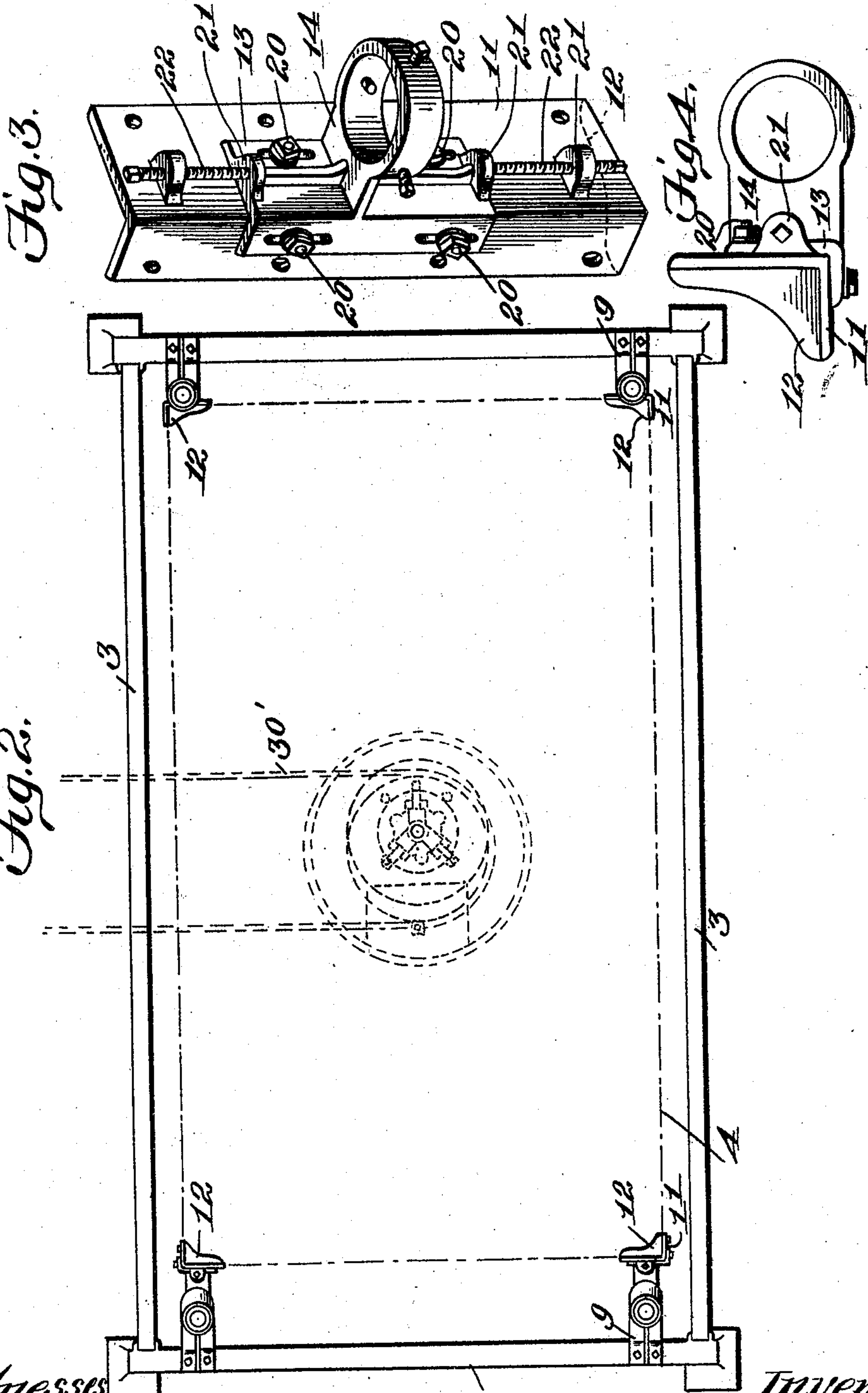
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Witnesses  
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James L. Morris.

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Harry C. Robinson  
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# UNITED STATES PATENT OFFICE.

HARRY C. ROBINSON, OF MUNCY, PENNSYLVANIA.

## BOLTING-MACHINE.

No. 806,002.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed March 14, 1903. Serial No. 147,825.

*To all whom it may concern:*

Be it known that I, HARRY C. ROBINSON, a citizen of the United States, residing at Muncy, in the county of Lycoming and State of Pennsylvania, have invented new and useful Improvements in Bolting-Machines, of which the following is a specification.

This invention relates to bolting-machines, and the improved machine includes a gyratory sifter. One of the primary objects of my invention is to provide means for supporting said sifter approximately in horizontal line with the center of gravity thereof, by virtue of which said sifter will have substantially equal weights above and below such center, or, in other words, it is counterbalanced, whereby it can be run at a high speed practically noiselessly and without undue vibration. By reason of securing an increase of speed over the ordinary types of gyratory sifters I am enabled to correspondingly increase the output of the machine.

As I do not intend to rely wholly on precision in manufacture to bring the points of support of the gyratory sifter in horizontal alinement with each other and with the center of gravity of said sifter, I prefer to make the supporting means adjustable in order that the object in question may be readily attained by users of the device, who need not possess extraordinary skill for this purpose and after the parts of the machine have been assembled in a mill or other place.

In order to secure the highest benefits arising from the peculiar mounting of the sifter, I prefer to apply the actuating force for gyrating the same at a point practically coincident with the center of gravity thereof.

The invention of course is not limited to any particular construction; but in the drawings accompanying and forming a part of this specification I have shown one simple and efficient embodiment of the apparatus which I will set forth in detail in the following description, while the novelty of the invention will constitute the basis of the claims succeeding such description.

Referring to said drawings, Figure 1 is a sectional side elevation of a bolting-machine including the invention. Fig. 2 is a plan view of the same, the sifter being shown by dotted lines. Fig. 3 is a perspective view of an angular corner plate or bracket and parts carried thereby, and Fig. 4 is a plan view of the same.

Like characters of reference refer to like parts in all the figures of the drawings.

The framework for carrying the different parts of the machine may be of any suitable character. That illustrated consists of end columns or uprights 2, which may conveniently be made of castings and side pieces 3, which may be made of wood, said side pieces being fastened in some suitable manner at their ends to the opposite sides of said columns at a convenient height from the foundation upon which said columns rest.

The columns or uprights constituting a part of the framing are adapted to be fastened in some suitable way to a floor or other foundation upon which the machine is set, and as they, with the side members or pieces 3, surround the gyratory sifter 4, hereinafter more particularly described, an effective guard or barrier to prevent mill operatives from walking against or striking such sifter is thereby provided.

The gyratory sifter 4 includes in its construction two substantially similar parts united by the bridge-piece 5, located above the lower edges of said substantially similar parts at such a distance that the actuating power for gyrating the sifter can be applied thereto approximately at a point coincident with its center of gravity.

The gyratory sifter or the two parts thereof just mentioned contain the usual cloths or sifting mechanism, which it is unnecessary to describe in detail, as the same forms no part of the present invention.

The material may be supplied to the respective parts or sections of the sifter by the flexible supply-spouts 6, mounted and connected with the sifter in the usual way. The discharge-spouts 7, which are also flexible, are connected to the sifter and discharge-boxes 8 also in some familiar way.

The sifter may be supported in any convenient manner, so long as the peculiar mounting, hereinbefore mentioned, is retained, and means for securing this result will now be set forth. At or near the opposite ends of the end columns or uprights 2 are suitably fastened the upright arms 9, which slightly overhang at their upper ends the space bounded by said columns 2 and side pieces 3. These upright arms constitute convenient bearings for the pendent rods 10, four of the latter being provided and serving as suitable carrying means for the gyratory sifter 5, the rods being united with



the sifter, which, it will be seen, is approximately of rectangular form in the vicinity of its corners. The connections between the rods and the sifter and upright arms 9 are shown 5 as ball-and-socket ones, by reason of which the gyratory frame may be operated with the least amount of friction.

Plates 11 are fastened to the corners of the gyratory sifter in some suitable way and extend 10 the complete height of the same, said plates having inwardly-disposed feet or flanges 12 at their lower ends extending under the bottom of the sifter in order to uphold the same.

To the plates 11 are adjustably fitted the slides 13, the mounting and operation of which will be hereinafter more particularly described. These slides are provided substantially midway of their heights with outwardly- 20 extending arms 14, in the hubs of which are fitted the cup-shaped members 15, held in place by the caps 16, suitably fastened to the hubs, said cup-shaped members and caps having complemental spherical seats to receive the 25 ball ends 17 at the lower ends of the rods 18. The upper ends of the rods are connected with the hubs of the upright arms 9 in an exactly similar manner, so that it is unnecessary to describe the upper bearings for this reason. 30 It is only necessary to remark that the cup-shaped part and cap of the upper and lower bearings, respectively, are reversed. The cup-shaped parts are of course perforated to provide for the passage of the rods 18. Said 35 rods 18 are preferably in two parts, united by the turnbuckles or right and left handed nuts 19, by reason of which the rods may be readily mounted. By virtue also of said turnbuckles the sifter 4 may be bodily raised or lowered 40 in order to adjust the height of the same from the floor or foundation upon which the machine as a whole rests.

The lower or ball ends of the hanging or pendent rods 18 are connected with the sifter 45 at points in horizontal alinement with each other and also in horizontal alinement with the center of gravity of the sifter, by reason of which the latter is perfectly counter-balanced, whereby it can be run at a high 50 speed without possibility of any of its parts being distorted or loosened. As previously indicated, I do not rely wholly upon shop precision to secure the peculiar result in question, but provide means for adjusting the supports 55 of the sifter so that they can be brought into the exact relation specified.

It will be remembered that the slides 13 are fitted against the plates 11. These slides are longitudinally slotted to receive the set-screws 60 20, mounted in superposed relation and extending through the plate and into sockets in the woodwork of the sifter. The plates are provided with lugs or ears 21, located, respectively, above and below the slides and threaded 65 to receive the vertically-disposed screws 22,

the inner ends of which bear against the ends of the slides. It will be assumed that it is desired to lower a slide. To do this, the following procedure is pursued: The set-screws 20 are first loosened, after which a lower screw 70 22 is backed out for the requisite distance and the coöperating upper screw run down an equal distance in order to lower said slide, and when said slide is in the proper position the set-screws 20 will be tightened up to firmly 75 hold the same. In adjusting the sifter it may be necessary to operate only one slide or it may be necessary to adjust them all. The action of the gyratory sifter will indicate exactly which of them and how many of them 80 are to be adjusted.

A standard 23 is shown as mounted below the bridge-piece 5, and it includes in its construction a central sleeve 24, which extends 85 below the foundation upon which the stand-ard is mounted and which sleeve incloses the spindle 25, supported at its lower end in the step 26, held removably in place by the detachable cap 27, upon which the step is supported, and which cap is suitably fitted to the 90 lower end of the sleeve. The step 26 is held centrally in place in some suitable manner. The upper end of the spindle has an enlarged head or disk fastened in some suitable way to the web of the balance-wheel 28, superposed 95 weights 29 being also suitably fastened to said web in order to counterbalance the momentum of the gyratory sifter. The spindle, and hence the balance-wheel 28 connected therewith, may be rotated in any suitable manner. For this 100 purpose I have shown a band-wheel 30 connected by a spider or its equivalent to the head of the spindle. The band for operating the band-wheel is denoted by 30'.

Upon the upper side of the web of the 105 balance-wheel 28 is an eccentric hub 31, which receives the crank or wrist pin 32, held centrally in the hub by suitably-mounted blocks, and which wrist or crank pin depends from the disk or plate 33, fastened to the under 110 side of the bridge-piece 5, substantially centrally thereof. Upon the rotation of the spindle 25 under the action of the band-wheel 30 the balance-wheel will be simultaneously ro- 115 tated in order to apply the effect thereof to the wrist-pin 32 for the purpose of actuating the gyratory sifter, such gyratory motion being permitted by virtue of the universal mounting of the same.

Angular plates 11 fit the corners of the 120 sifter and are traversed by similarly-shaped slides 13, thereby to provide for a double reinforcement at the corners of said sifter. Said slides are situated substantially midway of the depth of the sifter and each has a 125 bearing to receive a supporting-link. The angular plates 11, as hereinbefore indicated, are furnished with feet to engage under the sifter to further strengthen the latter. By reason of the fact that the slides 13, to which 0



the suspending-links are connected, are situated substantially midway of the depth of the sifter the plane of support of the latter intersects approximately the point at which the gyratory power is applied to said sifter to secure the advantages hereinbefore set forth. Should, however, it be necessary to adjust the sifter, this can be accomplished by the manipulation of the slides in the manner indicated.

As hereinbefore indicated, the invention is not limited to the construction hereinbefore described in detail, for such construction constitutes simply a convenient way of carrying out the invention. Many changes may be made within the scope of my claims.

Having thus described the invention, what I claim is—

1. In a bolting-machine, a gyratory sifter, and a plurality of vibratory rods adjustably connected with the sifter at points intersected approximately by a horizontal line passing through the center of gravity of said sifter, and means for actuating the sifter, the actuating power being applied thereto at substantially the center of gravity thereof.

2. In a bolting-machine, a gyratory sifter, and a plurality of vibratory rods adjustably connected with the sifter at points intersected approximately by a horizontal line passing through the center of gravity of said sifter, each of said rods consisting of a plurality of adjustably-connected sections, and means for actuating the sifter, the actuating power being applied thereto at substantially the center of gravity thereof.

3. In a bolting-machine, an approximately rectangular gyratory sifter, a plurality of plates fastened to the sifter substantially at the corners thereof having feet at their lower ends fitted against the bottom of the sifter,

vertically-adjustable slides fitted against said plates, and vibratory rods united with said slides and constituting supports for said sifter.

4. In a bolting-machine, a gyratory sifter, means for supporting said sifter approximately in horizontal line with the center of gravity thereof, and means for actuating the gyratory sifter, the actuating power being applied thereto substantially at its center of gravity.

5. In a bolting-machine, an approximately rectangular gyratory sifter, a plurality of plates fastened to the sifter substantially at the corners thereof, and vertically-adjustable slides fitted against said plates substantially centrally of the depth of said sifter, having means for the junction therewith of vibratory rods.

6. In a bolting-machine, an approximately rectangular sifter, a plurality of angular plates fastened to the sifter at the corners thereof, and angular slides fitted against said plates for vertical adjustment and having bearings for supporting-links.

7. In a bolting-machine, an approximately rectangular gyratory sifter, a plurality of angular plates fastened to the sifter at the corners thereof, vertically-adjustable angular slides fitted to said plates, having longitudinal slots, set-screws extending through said slots, adjusting-screws adapted to bear against the slides and carried by the plates, and vibratory rods constituting supports for the sifter and united with the slides.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY C. ROBINSON.

Witnesses:

G. L. PAINTER,

MORRIS J. COLLEY.