

No. 701,641.

Patented June 3, 1902.

W. STEPHENSON.
ADJUSTING DEVICE FOR SEEDERS.

(Application filed Mar. 18, 1901.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

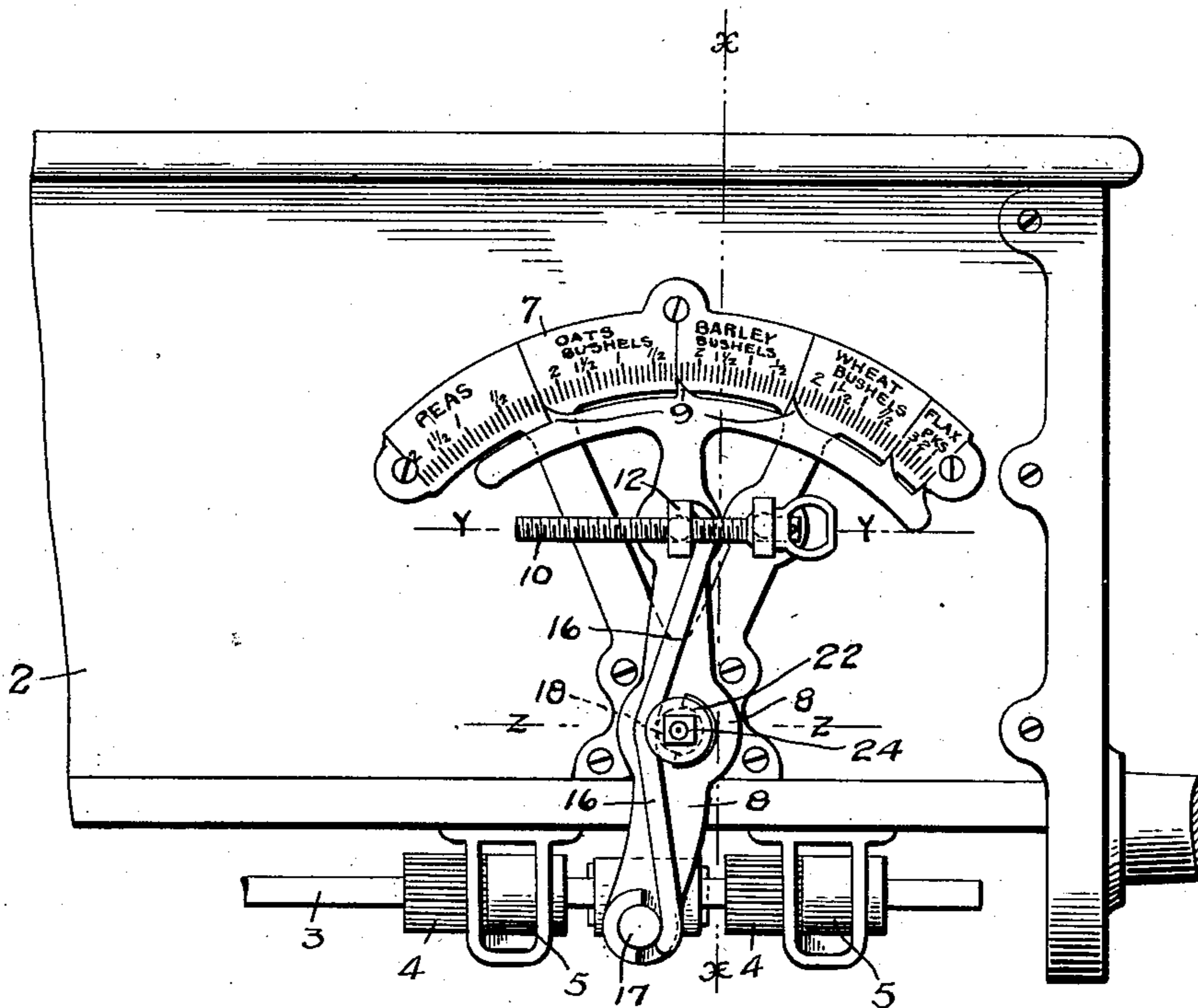
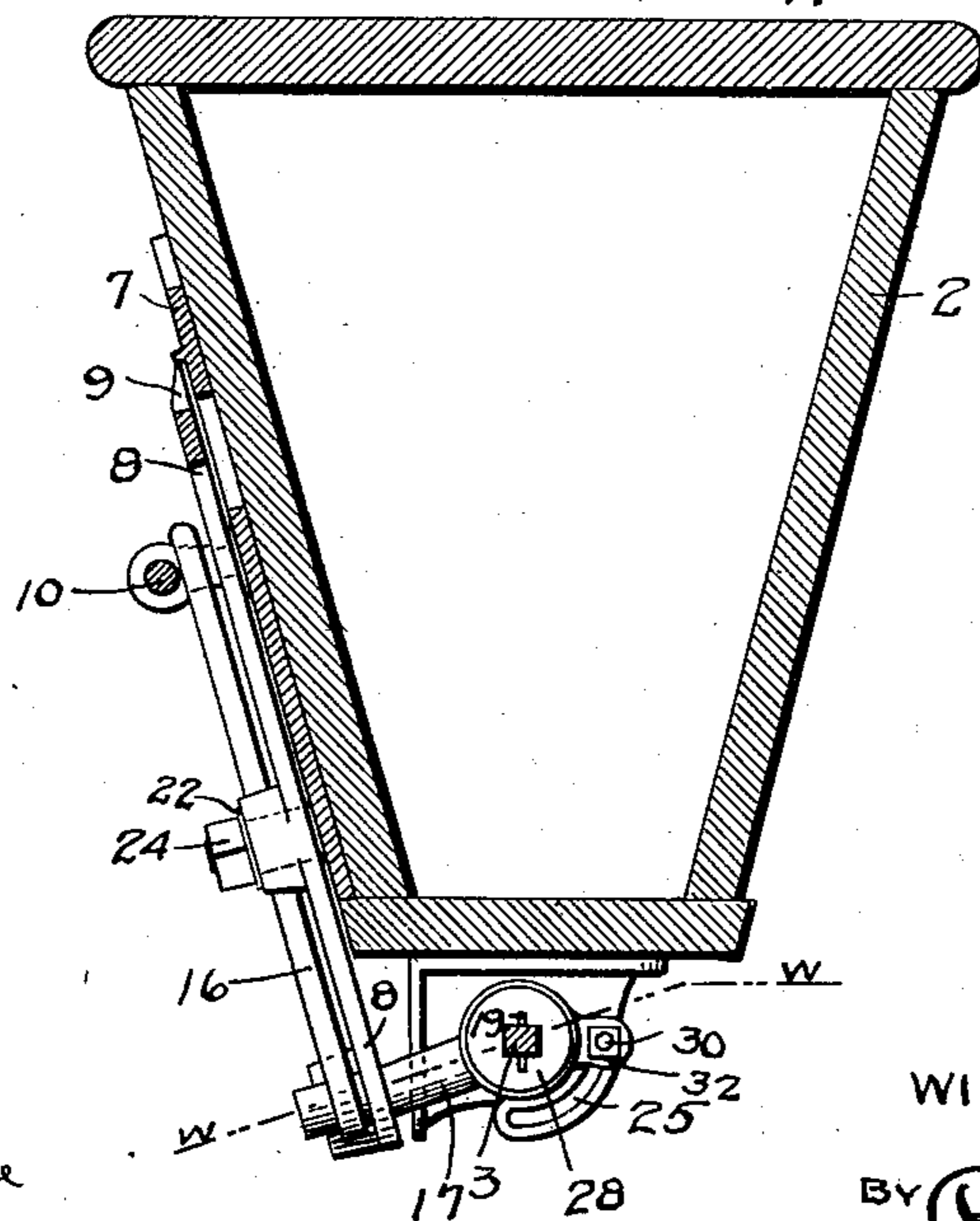


FIG. 2.



WITNESSES

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2 Sheets—Sheet 2.

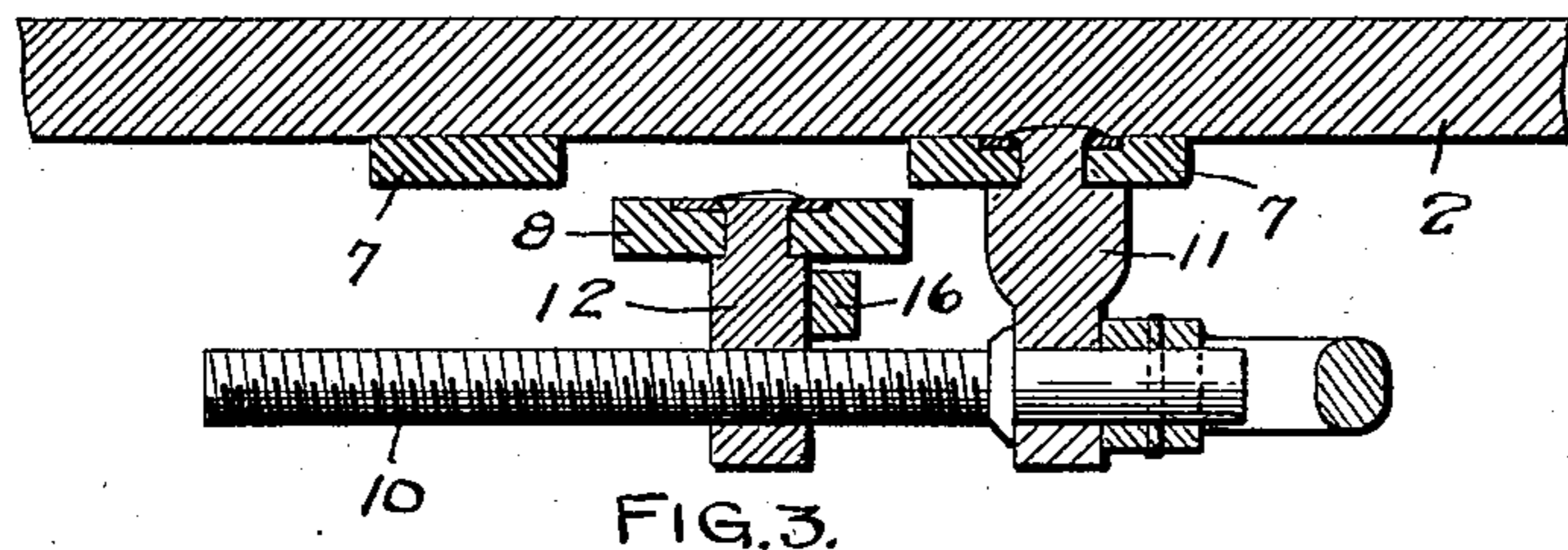


FIG. 3.

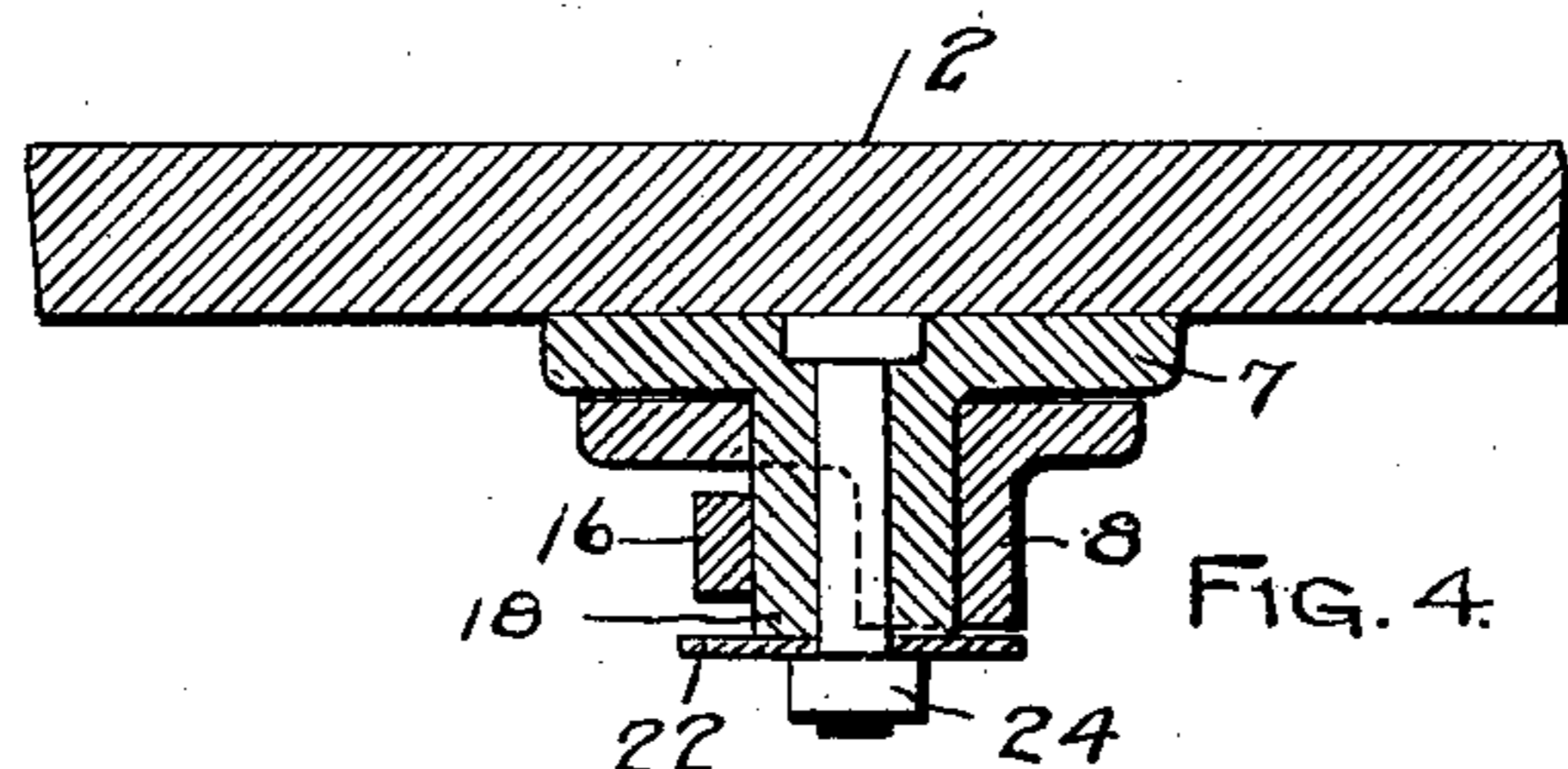


FIG. 4.

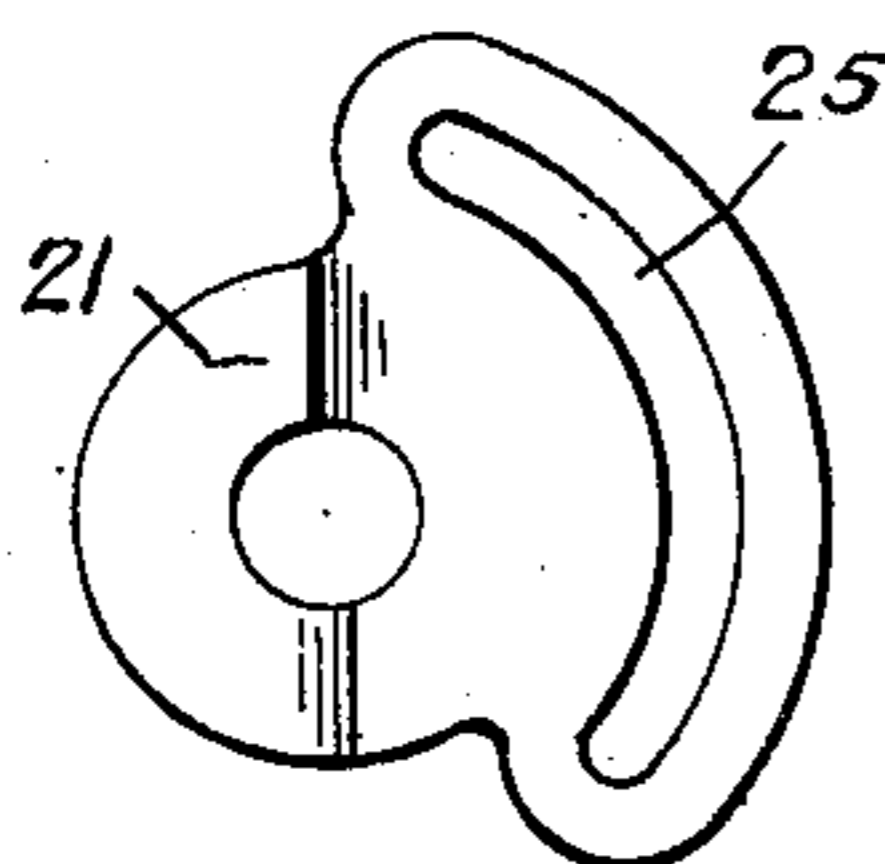


FIG. 9.

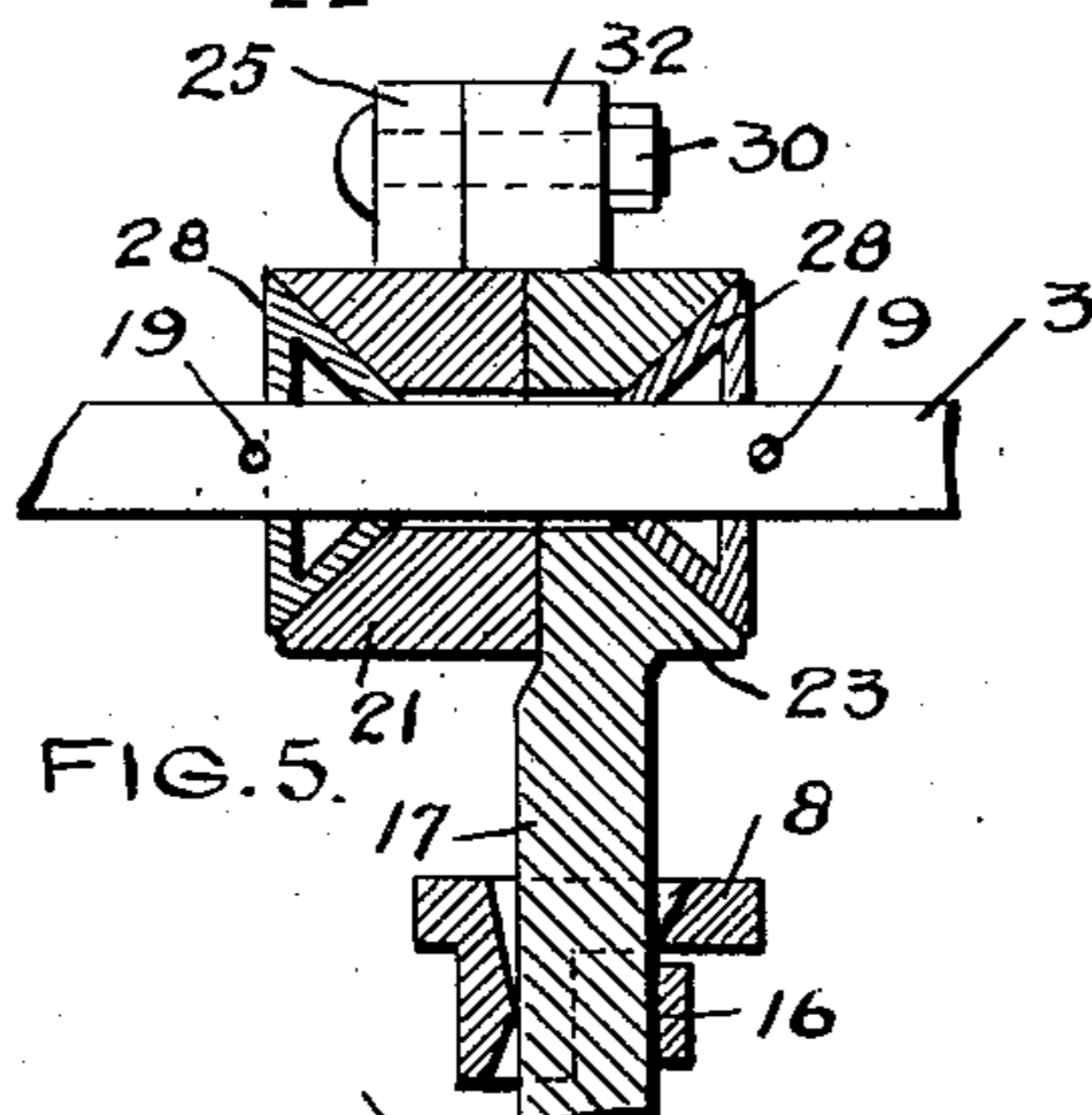


FIG. 5.

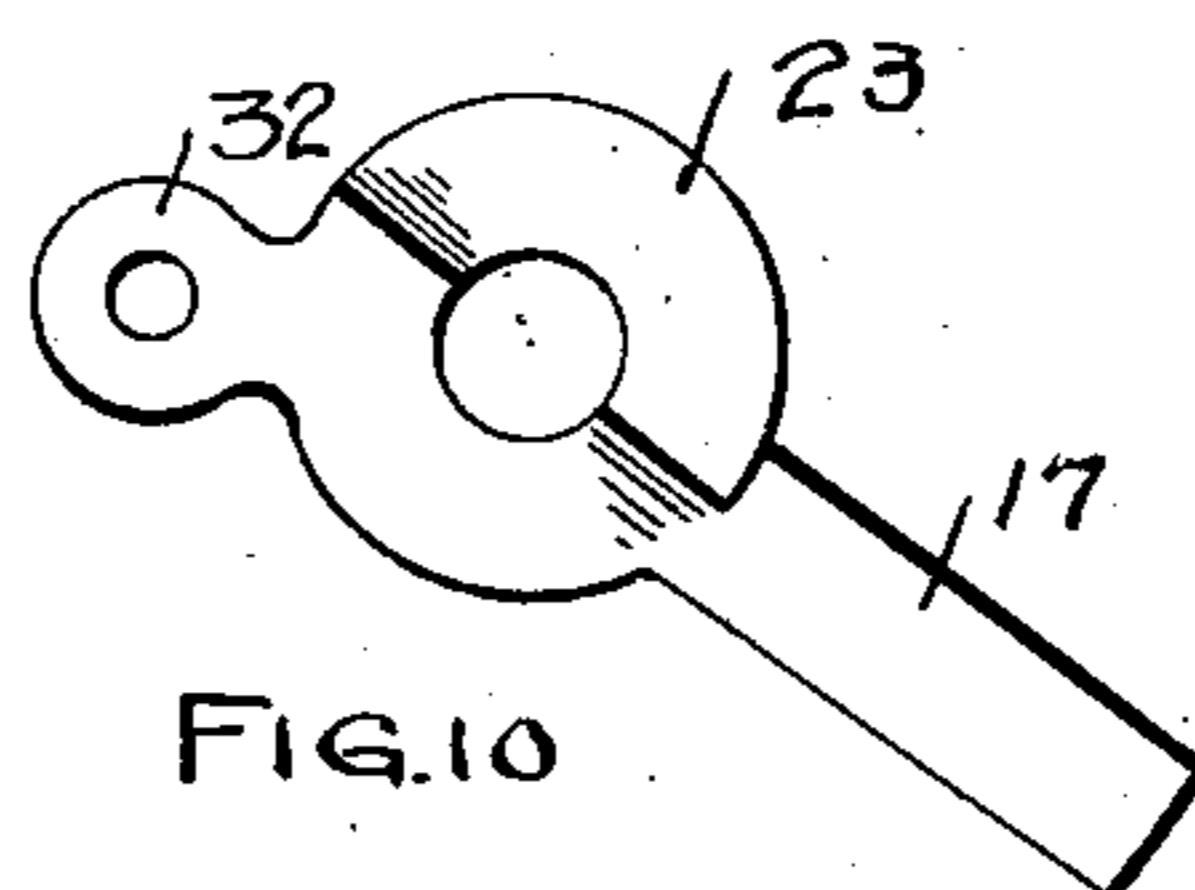


FIG. 10.

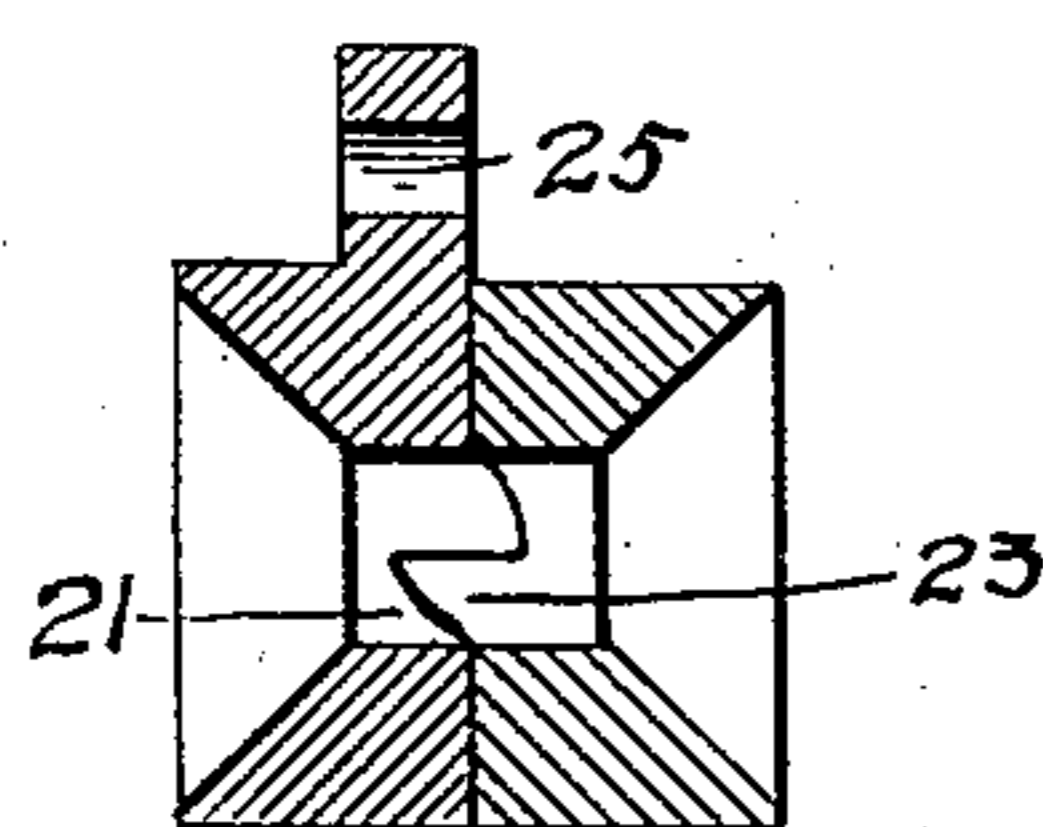


FIG. 7.

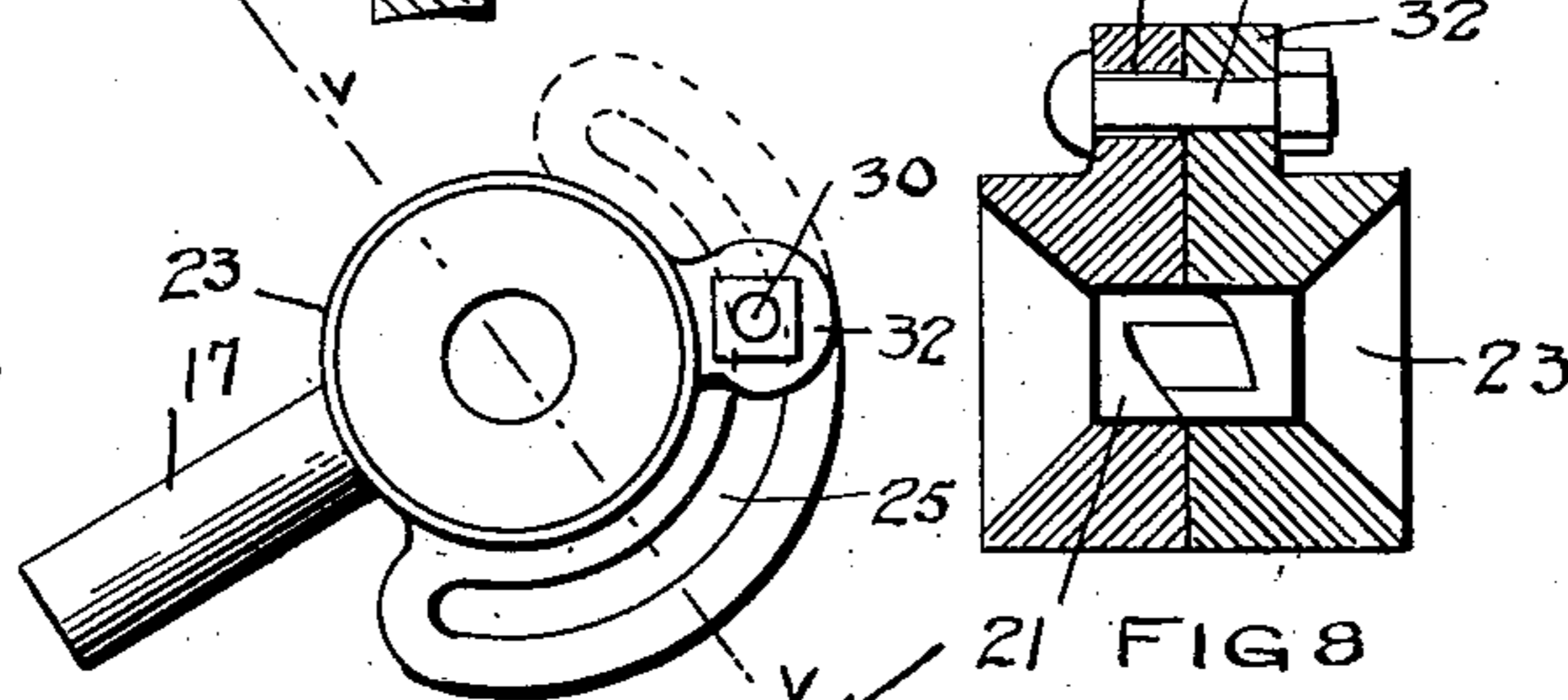


FIG. 6.

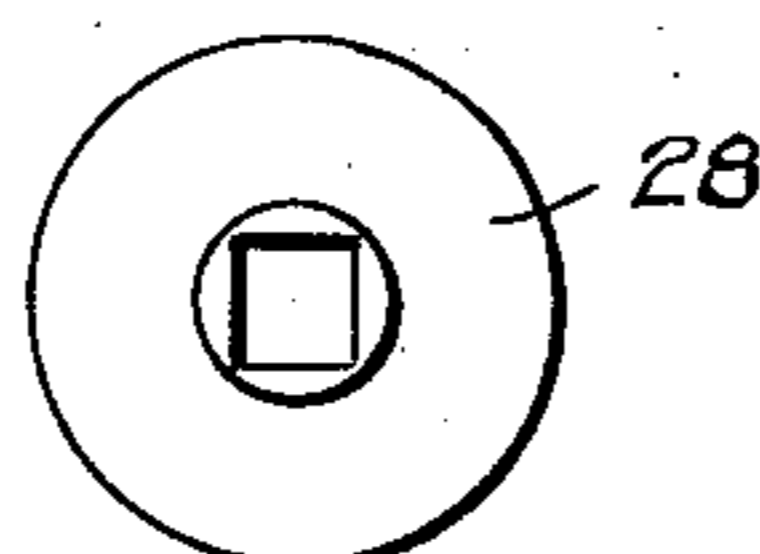
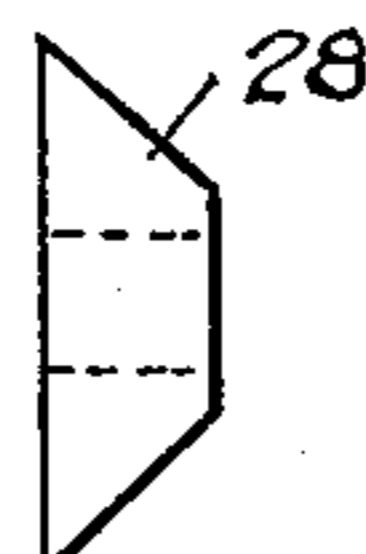


FIG. 11.



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FIG. 12 BY *Paul & Hawley*
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UNITED STATES PATENT OFFICE.

WILLIAM STEPHENSON, OF ST. LOUIS PARK, MINNESOTA.

ADJUSTING DEVICE FOR SEEDERS.

SPECIFICATION forming part of Letters Patent No. 701,641, dated June 3, 1902.

Application filed March 18, 1901. Serial No. 51,600. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STEPHENSON, a citizen of the Dominion of Canada, residing at St. Louis Park, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Adjusting Devices for Seeders, of which the following is a specification.

This invention relates to improvements in devices for adjusting cylinders of seeders and for taking up lost motion in the adjusting devices, so that a close and accurate adjustment may be obtained at any time and an exact and measured feeding of the seed may be secured.

The invention consists generally in the constructions and combinations hereinafter described, and particularly pointed out in the claims.

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

Figure 1 is an elevation of a portion of a seeder having my improvements applied thereto. Fig. 2 is a vertical section on line xx of Fig. 1. Fig. 3 is a section on line yy of Fig. 1. Fig. 4 is a section on line zz of Fig. 1. Fig. 5 is a section on line ww of Fig. 2. Figs. 6, 7, 8, 9, and 10 are details of the adjustable cam. Figs. 11 and 12 are details of the adjustable conical washers.

In the drawings, 2 represents a portion of the hopper of a seeder.

3 represents the usual longitudinal rod upon which the feed-cylinders are arranged, and 4 and 5 are portions of the feed-cylinders which are adjustable for the purpose of regulating the feed of any kind of seed from the machine. The cylinder-rod 3 and the cylinders 4 and 5 are of the ordinary or usual construction, and by adjusting said rod longitudinally of the hopper the supply of seed to be delivered from the seeder is regulated. I provide also, preferably upon the hopper, a stationary scale or quadrant 7, which is preferably graduated for the different kinds of seeds that are to be sowed by the machine. A lever 8 is pivoted upon a suitable stationary support or stud 18, and it is connected with the sliding rod 3 and is provided with one or more pointers or indicators that, together with the

scale 7, indicate the amount of grain or seed discharged from the hopper while the machine is being used for seeding a certain amount of ground—as, for instance, one acre. The scale 7 has divisions upon it, each preferably marked to indicate the number of bushels per acre that the machine will sow of that particular seed, and the lever 8 is provided with a segment of a circle at its upper end, and this segment has a series of pointers 9, one for each division of the scale 7. For the purpose of adjusting the lever 8 I provide a suitable adjusting-screw 10, (see Fig. 3,) rotatably mounted in a stud 11, pivotally supported upon the face of the hopper 2. The adjusting-screw has a threaded connection with a lug 12, pivotally supported upon the lever 8. By means of this screw the lever 8 may be adjusted, and the pointers on the upper end of said lever may be set so that one of them will indicate the kind of seed that it is desired to sow and the number of bushels per acre that will be sowed by the machine when so adjusted.

It will be seen that it is essential to have the machine so constructed that there is no lost motion in any of the parts between the adjusting-lever and the means for operating the rod. As here shown, a spring 16 is arranged upon the lever 8 and engages the stud 12 and also engages at its lower end the stud or short shaft 17, which constitutes the means through which the cylinder-rod is adjusted. The spring 16 engages the pivoted stud 12, (see Fig. 3,) passes to one side and bears against the stud 18, upon which the lever 8 is mounted, (see Fig. 4,) and engages the end of the rod 17, through which connection is made to the adjustable rod 3. (See Fig. 5.) The lever 8 is provided with a boss which fits upon the stud 18, and it is held in place on said stud by means of a washer 22 and a nut 24. This boss is cut away at one side, however, so as to permit the spring 16 to bear directly upon the stud 18. (See Fig. 4.) The rod 17 is connected to the adjustable rod 3 through an adjustable cam device, by means of which any wear in the parts may be taken up, so that there will be no lost motion between the sliding rod 3 and its adjusting device. As here shown, the rod 3 is rectangular in cross-section (see Fig. 2) and is pro-

vided with the pins 19, which pass through the rod, and between the pins the cams 21 and 23 are arranged, one of said cams 23 being formed integrally with the rod 17. These
 5 cams are adapted to turn on the rod 3, the opening through the cam being of sufficient size to permit this movement. Each of the cams is provided upon its outer surface with a conical recess, and the two surfaces of
 10 the cams that are toward each other are inclined, so that by rotating one of said cams upon the other the distance between the outer surfaces of the cams will be increased. I provide in connection with each cam a conical washer or centering device 28. (See Figs.
 15 5, 11, and 12.) These washers are preferably made of malleable iron and are cored out so as to be hollow, and each has an opening through it of substantially the same size as the rod 3. After the cams are put in place
 20 on the rod 3 the conical washers or centering devices 28 are driven onto the rod and are driven in place, and the pins 19 are then inserted. These cones center the cams and
 25 bring them into proper relation to the rod 3. The cams are adjusted so as to force the outer surfaces of the cones or washers 28 tightly against the pins 19, and the cams are then locked together by means of the bolt 30, which
 30 passes through a lug 32 on one part of the cam (see Fig. 10) and through a segmental slot 25 in the other part of the cam. (See Fig. 9.) The bolt 30 being locked in place holds the cams so as to prevent any accidental
 35 rotation of one upon the other. The opening in the lower end of the lever 8, through which the short shaft or stud 17 passes, is preferably made with a V-shaped bearing at one side and with a knife-edge at the other.
 40 This prevents any binding of the short shaft or rod 17 in the opening in the lever when the lever is adjusted. It will be seen that the spring 16, arranged in the manner described, takes up any lost motion between
 45 the stud 12 and the screw 10, also between the lever 8 and the stud 18 and between the rod or short shaft 17 and the lower end of the lever 8, and by the adjustment of the cams all lost motion between the rod or shaft
 50 17 and the sliding rod 3 may be obviated. It will thus be seen that with this device I provide means for quickly and reliably adjusting the cylinders of the feeder. All lost motion in the adjusting parts is avoided, and move-
 55 ment of the indicator will move the cylinders a corresponding distance, so that the machine, with the grain in the same condition, will sow at all times the quantity indicated.
 The lever 8 will need no finishing after being cast, except for a little machine-work at
 60 the points where it is connected to the stud 18 and the screw 10.

I do not limit myself to the details of the construction, as the same may be modified in
 65 various ways without departing from my invention.

I claim as my invention—

1. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotally connected to said rod, means
 70 arranged to take up lost motion between said lever and said rod, an indicating-scale, pointers carried by said lever and cooperating with said scale, and an adjusting-screw connected to said lever, for the purpose set forth. 75

2. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotally connected to said rod, and a spring arranged to take up lost motion between said lever and said rod, for the purpose set forth. 80

3. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotally connected to said rod, and mounted upon a stationary support, an adjusting-screw for said lever, and a spring arranged to take up lost motion between said lever and said rod, and between said lever and its adjusting-screw, for the purpose set forth. 85

4. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of a lever pivotally connected to said rod, a stationary support upon which said lever is mounted, an adjusting-screw mounted in a fixed support and having a threaded connection
 90 with said lever, and a spring engaging the pivotal connection of said lever and said rod, the support upon which said lever is mounted, and the connecting device between said screw and said lever, for the purpose set forth. 95

5. In a seeder, the combination, with the feed-cylinders and the adjustable rod 3, of a lever 8 pivotally connected to said rod, an indicating-scale, pointers carried by said lever and cooperating with said scale, an adjusting-screw connected to said lever, and a spring arranged to take up lost motion between said lever and said screw and between said lever and its connection with said rod, for the purpose set forth. 100

6. In a seeder, the combination, with the feed-cylinders and the adjustable rod, of an adjusting-lever, a connection between said lever and said rod, and an adjustable cam forming part of said connection, for the purpose set forth. 105

7. In a seeder, the combination, with the cylinders and the adjustable rod 3, of the operating-lever 8, the short shaft 17 connected to said lever and having the cam 23 formed integrally therewith, and the cooperating cam 21, substantially as described. 110

8. In a seeder, the combination, with the feed-cylinders and the adjustable rod 3, of an adjusting-lever, a shaft or rod 17 connecting
 115 said lever with said adjustable rod, and an adjustable cam arranged in connection with said rod or shaft 17, substantially as described. 120

9. In a seeder, the combination, with the cylinders and the adjustable rod 3, of the lever 8, the cams 21 and 23 arranged upon said rod, one of said cams being connected with said lever 8, the conical washers arranged upon said rod and engaging said cams, and 125

means permitting one of said cams to be turned upon the other, for the purpose set forth.

5 10. In a seeder, the combination, with the short shaft 17 and the cam 23 formed integrally therewith, of a cooperating cam 21 the rod 3 and the bolt 30 adapted to prevent accidental rotation of said cams, for the purpose specified.

10 11. The combination, with the feed-cylinders and the adjustable rod, of a lever pivot-

ally connected to said rod, and means arranged to take up lost motion between said lever and said rod.

In testimony whereof I have hereunto set 15 my hand this 11th day of March, 1901, at Minneapolis, Minnesota.

WILLIAM STEPHENSON.

In presence of—

RICHARD PAUL,
M. C. NOONAN.