

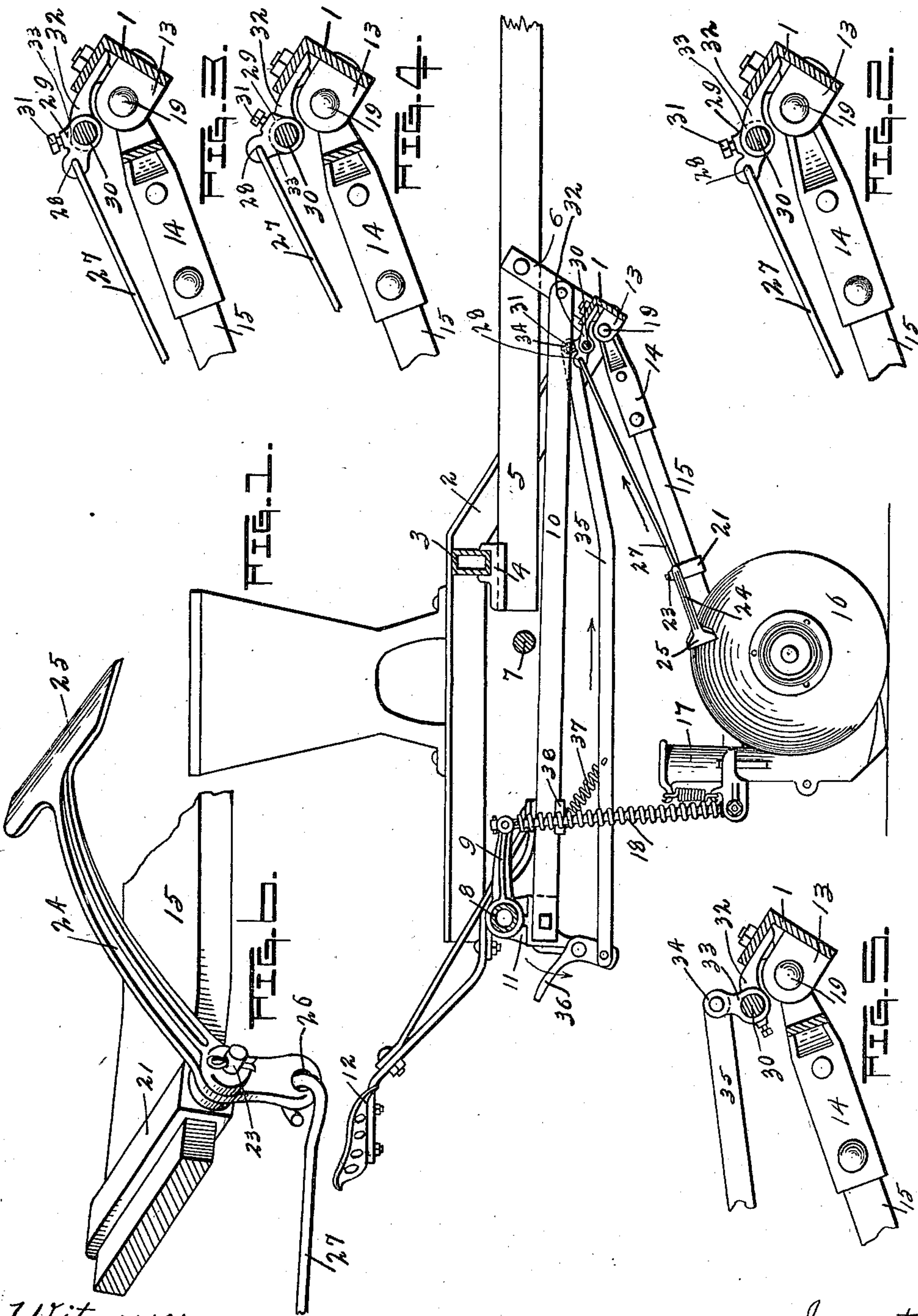
L. E. ROBY.
GRAIN DRILL.

APPLICATION FILED SEPT. 19, 1908.

997,703.

Patented July 11, 1911.

3 SHEETS—SHEET 1.



Witnesses:
H. V. Gibson.
Laura E. Claypool.

Inventor.
By Luther E. Roby
Chas. W. LaPorte, Atty.

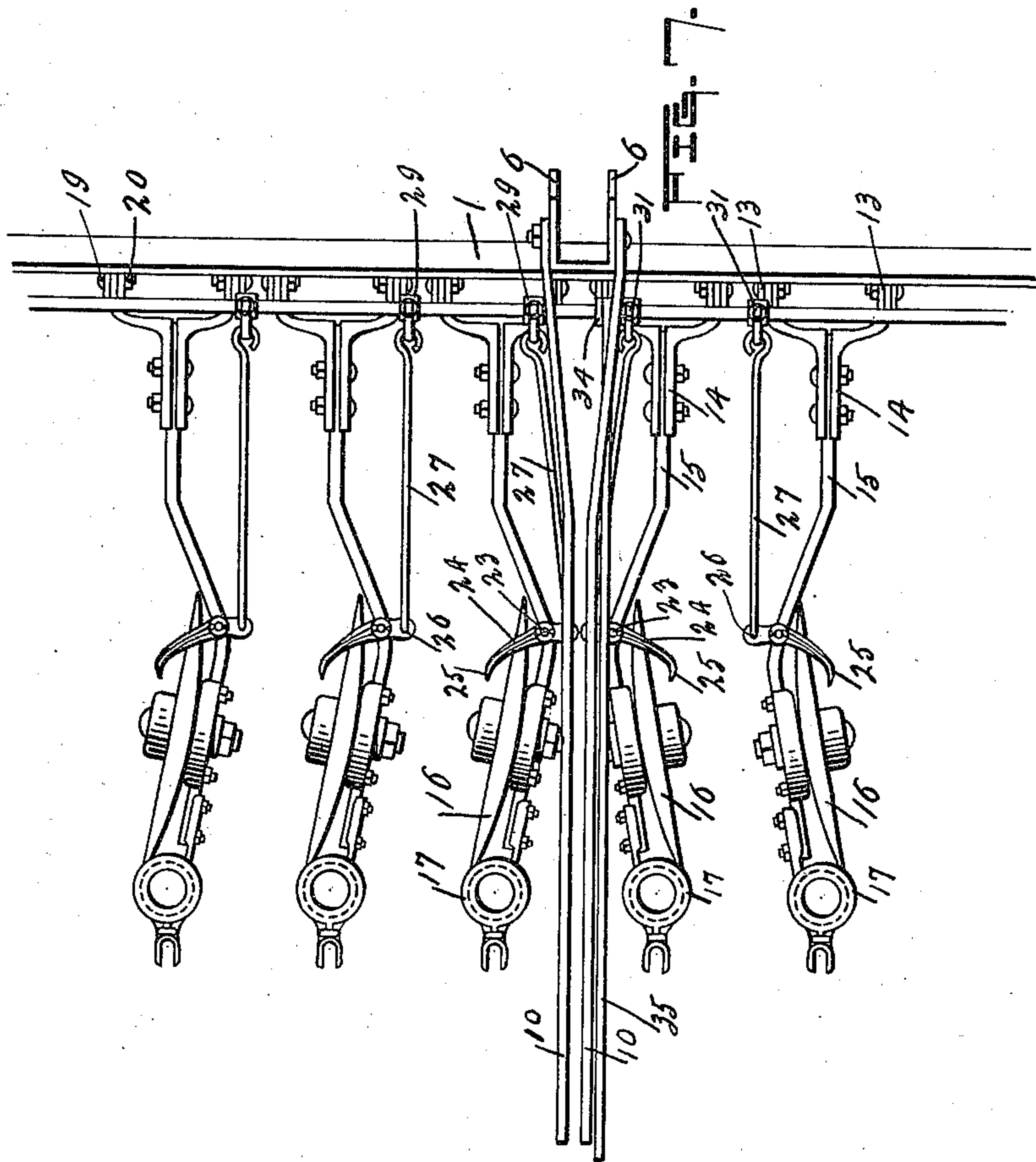
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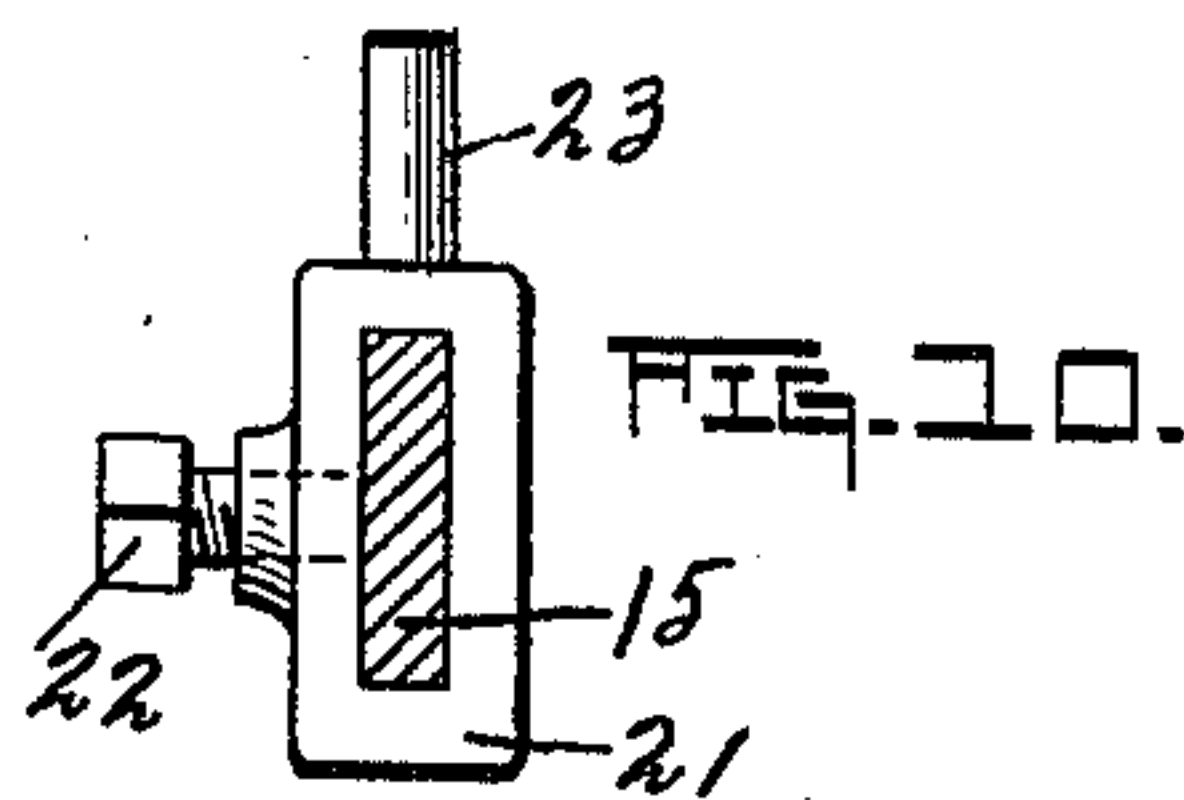
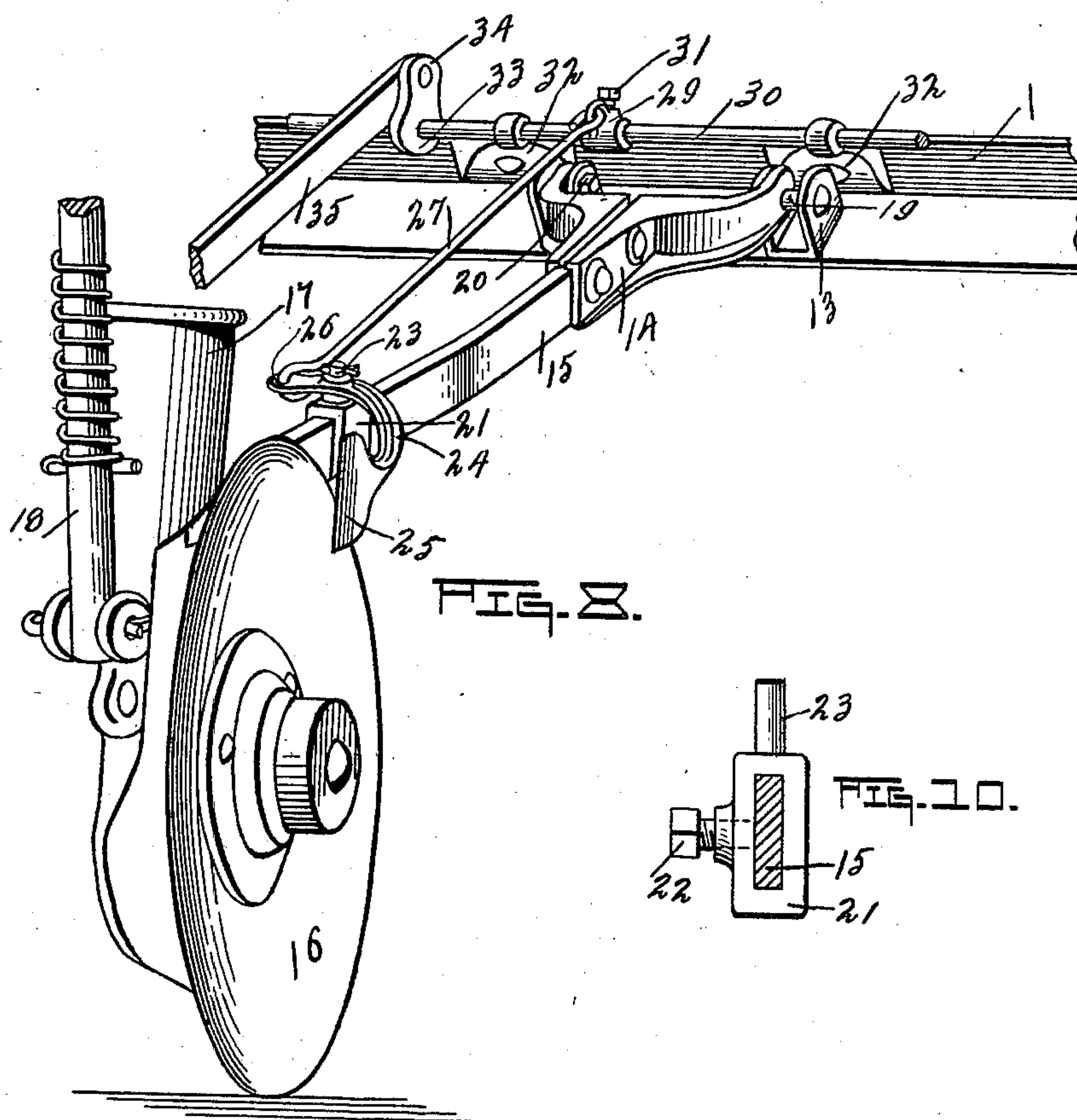
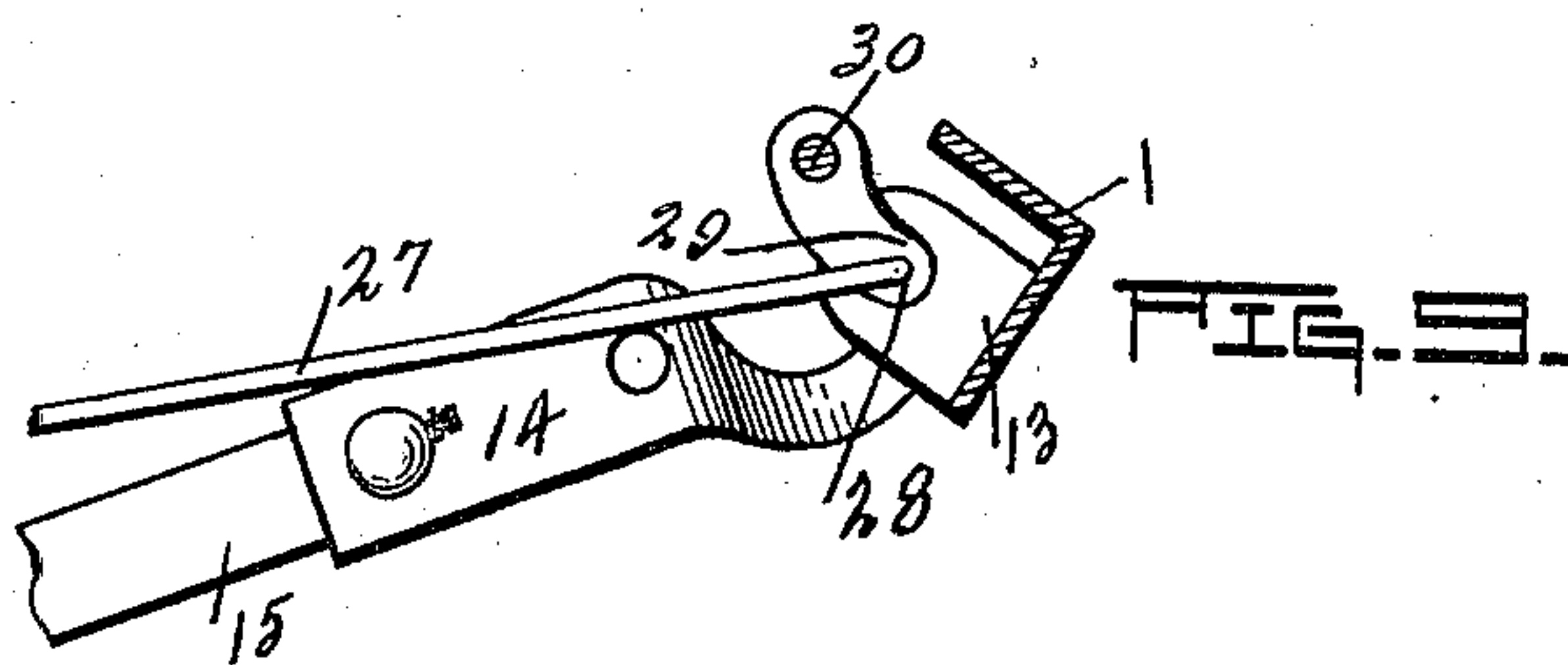
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

LUTHER E. ROBY, OF PEORIA, ILLINOIS.

GRAIN-DRILL.

997,703.

Specification of Letters Patent. Patented July 11, 1911.

Application filed September 19, 1908. Serial No. 453,893.

To all whom it may concern:

Be it known that I, LUTHER E. ROBY, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Grain-Drills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to certain new and useful improvements in grain-drills, particularly that type of drill using a disk, combined with a conductor for the grain.

The invention, improvement in grain-drills, relates not to the structure of the grain-drill itself, that is to say, the disk furrow opener, the conductor, or parts of the frame, but rather to a new and improved scraping mechanism employed in connection with each disk, normally inoperative or out of contact with the disks, but capable of being moved into engagement with the disks, whenever desired, for cleaning the same from adhering lumps of earth, grass, weeds, etc.

One of the objects of the present invention is to pivotally connect a scraper to each draw-bar or other similar disk support of a grain-drill, and to operate each and all of said scrapers from a point at or adjacent to the common pivotal center from which said disks are swung; said scraper operating means being operatively connected with means under the control of an operator, who may, whenever desired, cause said scrapers to simultaneously move into engagement with their respective disks.

For a further and full description of the invention herein and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is an elevation, partly in section, showing in a general way the construction of one type of grain drill, with my invention, improved scraping mechanism applied thereto; Fig. 2 is a view on a somewhat

larger scale than is shown in Fig. 1, showing the support for the scraper operating means and a connection leading to one of the scrapers; Fig. 3 is a view somewhat similar to Fig. 2, but with the scraper operating means made prominent and in its normal position; Fig. 4 is a view similar to Fig. 3, but with the scraper operating means moved into a position, such as would cause the scraper to engage the disk; Fig. 5 is a view similar to Fig. 2, except that there is shown the connection with the scraper operating means, which is under the control of the operator, for operating said scrapers; Fig. 6 is an enlarged detail perspective view, showing a scraper and the mode of connecting the same to the draw-bar; Fig. 7 shows in plan the arrangement of a plurality of disks, their supporting draw-bars and grain conductors, with my improved scraping mechanism applied thereto; being a plan of parts as they are assembled in Fig. 1, except that unimportant parts of the drill are removed; Fig. 8 is a perspective view showing a portion of a drill frame, a draw-bar, a disk and grain conductor connected therewith and my improved scraping mechanism associated therewith and an operating connection showing how the scraper is operated, from a point at or adjacent to the common pivotal center from which the disk is swung; Fig. 9 is a view similar to Fig. 3, but showing a slight modification in the arrangement of the scraper operating means, and Fig. 10 is a sectional detail showing the manner of supporting the members on the draw-bars which have pivotally connected thereto, the scrapers.

Like numerals of reference indicate corresponding parts throughout the figures.

In the drawings, particularly Fig. 1, enough of a grain-drill is illustrated to show the practical application of my invention, improvements in scraper mechanism, applied thereto; Fig. 2 being employed to show that the disks are arranged in gangs, each pivotally connected to the frame of the drill to be operated independently or capable of rising and falling independent of the other disks of the gang and with the scraping mechanism so arranged that an operator may cause the several scrapers to be moved simultaneously into contact with their respective disks. No attempt will be made to describe each and all of the re-

spective disks and their supports nor the connection of each scraper with each disk, as it will be understood that the disks are arranged in gangs, each having a scraper to coact therewith, and that all of said scrapers are operated from a common means within reach of the operator.

The front cross-frame of the drill is indicated as 1, connected at its opposite ends, in a suitable manner, to the end frame parts 2, only one of which is shown, and 3 is a brace which extends between the frame parts 2, which not only strengthens the frame, but which also serves as a connection for a bracket 4, to which is connected the inner end of a tongue 5 which extends out over the cross-frame 1 and braced therefrom by means of straps 6. An axle 7 is also shown, which carries the ordinary ground wheels, not shown, by means of which the drill is moved from place to place and which supports the frame in working position. Extending parallel with the brace 3 and frame part 1, but in the rear of the drill frame, is a rock shaft 8 which supports arms 9, serving a purpose to be hereinafter referred to. No means is shown for operating the rock-shaft 8, as no claim is made on this part of the drill. The frame of the drill further comprises the braces 10, the forward ends of which are secured to the straps 6 and their inner ends secured to a bracket 11 carried by the rock shaft 8. From the bracket 11, as well as the braces 10, is supported a driver's seat 12.

The cross-frame 1, is preferably an angle-iron frame, as shown, and to this frame is connected a plurality of pairs of ears 13 and to each pair of ears, which are placed at suitable distances from each other, are pivotally connected hangers 14, and said hangers are secured to draw-bars 15, which at their lower inner ends support in a suitable manner disks 16, and grain conductors 17. The nature of the hangers and draw-bars and the manner of connecting the disks and grain conductors thereto is immaterial, because it is possible, as will become apparent, to attach or associate my invention, improvements in scraper mechanism, to all of the various types of grain-drills.

To enable the operator to depress or raise the disks 16, connection is made between the arms 9 and the draw-bars, by means of the rods 18, usual in constructions of this character.

It will be observed that not only is the construction such that an operator can raise or lower the disks and with them the draw-bars, which, as stated, have a pivotal connection with the ears 13, or during the movement of the machine, but that the disks and draw-bars may move up or down independent of each other to accommodate themselves to the unevenness of the ground.

The hangers 14 are pivoted to the ears 13 by means of the bolts 19 and the nuts 20, although it must be understood that a rod could be used to take the place of the bolts on which the hangers could be carried or short stems substituted, either of which would serve the same function of the bolts and nuts referred to.

To each draw-bar 15, is adjustably secured a bracket 21; each bracket adapted to be fixed in adjusted positions by means of a set screw or bolt 22. From each bracket 21 projects a stem 23 on which is pivotally mounted an arm 24 provided with a scraping blade 25, which may be formed integral with the arm, as shown, or made separate and secured thereto. The arms 24 have the eye 26 with which is connected one end of a rod 27, preferably by being looped through the eye, while the opposite ends of said rods 27 are connected to an eye 28 formed on a collar 29, which is adjustably secured on a rock-shaft 30, by means of a set-screw or bolt 31 provided for the purpose. The rods 27 are connected to the eyes 28 formed on the collars 29, preferably by being looped through the eyes, as shown.

The rock-shaft 30 is journaled in brackets 32 secured to the cross-frame, with the rock-shaft 30 positioned as near to the pivotal center from which the disks are swung, as it is possible to place the same, unless a rock-shaft similar to 30 was employed on which to mount the hangers 14, on which the collars 29 would then be placed, the only advantage of which, would be to obviate any motion which would be imparted to the scrapers, moving them outwardly and from the disks when the draw-bars and disks were raised; however, this is not a disadvantage, for the scrapers, as will be described, are normally held in an inoperative position, away from the disks and when in working position, the scrapers would assume a position relative to the disks to be easily brought into engagement with the same when it was desired to so operate them; or if the collars 29 were adjusted on the rock-shaft 30, as shown in Fig. 9, with the connection of the rod 27 with the collar at a point in axial alinement with the pivotal connection of the draw-bar 15 with the ears 13, then when the disk and draw-bar were raised, there would be no perceptible movement of the scraper from the normal position in which it should be held. With such a construction as shown in Fig. 9, the hanger 14, if such were used, would need to be modified somewhat in the manner shown.

With the brackets 21 adjustable on the draw-bar 15 and the collars 29 adjustable on the rock-shaft 30, it will be observed that each scraper may be so adjusted with respect to the face of the disk with which it

will contact, so that when operated they will be caused to simultaneously assume a position for engagement with the disk to clean the same of earth, grass, weeds, etc.

5 At a suitable point on the rock-shaft 30, preferably, centrally of the machine, is secured a collar 33, having an ear 34 and to the ear 34 is pivotally connected one end of a bar 35, which, at its rear end is shown pivotally connected to a foot-lever 36, which in turn is pivotally connected to an ear depending from the bracket 11. While I have shown a foot lever by means of which the rock-shaft 30 may be rocked in its bearings, and the same so located that an operator may operate the same by pressure of the foot, it is understood that a hand lever may be substituted for the foot lever without departing from the spirit and scope of the invention.

For holding the scrapers normally away from the disks and inoperative, a spring 37 is secured to the bar 35, and to a bracket 38 attached to the braces 10. When it is desired to move the scrapers into engagement with their respective disks, the foot-lever 36 is depressed or moved in the direction indicated by the arrow in Fig. 1, which will in turn move the bar 35 in the direction of the arrow, shown in the same figure, rocking the shaft 30 and moving each rod 27 in the direction indicated by the arrow, also in said figure, oscillating the arms 24 and causing the blades 25 to engage with the faces of the disks. Immediately upon the release of the lever 36, the spring 37 will return the bar 35 to that position shown in Fig. 1 and by such movement cause the rock-shaft 30, rods 27 and arms 24 to also assume their normal and inoperative positions.

The grain box is shown supported by the frame but it has not been thought necessary to show the feed tubes usually employed leading from the grain box to the several grain conductors.

I am aware that it is not new to employ a scraper in connection with a disk, either on a grain-drill or disk harrow, and that not only have such scrapers been adjustably supported with respect to the disks, but that on disk harrows they have been mounted in gangs, normally held from contact with the disks and adapted to be simultaneously moved to engagement with the faces of the disks. But on disk harrows, the conditions are decidedly different from what they are on grain-drills. In the first place, the mounting of the disks are such that there is no independent movement of each disk, so far as their rising and falling is concerned, and when one is moved, the entire gang moves; then again, the scrapers can be mounted on the frame of the harrow above the disks, either on a rod which will be moved lengthwise to shift the scrapers

laterally toward and from the disk or pivotally supported and operated by a lever within reach of an operator. I am not aware, however, of scrapers ever having been employed on a grain drill, where the scrapers were pivotally mounted on the disk support and operated from a point at or adjacent to the common pivotal center from which the disks are swung, with the disk operating means associated with or connected to means under the control of an operator who could move the scrapers at will to engage the disks.

While I have shown and described my improved scraping mechanism as applied to and more particularly applicable to grain-drills, I wish it to be understood that I do not thereby place any limitation upon the use to which the invention may be put. I have in mind that the invention may be applied substantially in the same manner as herein described, to disk harrows, and to that type of harrow where the disks are carried by draw-bars which are pivotally connected to a support at their forward ends. In this connection, that is in applying the invention to disk harrows, it may be found advisable to pivot the scraper on the side of the draw-bar or other disk support, so that the scraper blades would engage the disks and be capable of being moved to and from the center and periphery of the said disks. It has not been thought necessary to illustrate such application of the invention to disk harrows, as it will be readily understood that such modification can be made for the purpose of applying the invention to disk harrows in this manner.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent of the United States, is:—

1. In a grain drill, the combination with the front cross-frame and the draw-bar pivotally connected thereto and supporting a disk and grain conductor, of a scraper pivotally and adjustably attached to the draw-bar, scraper operating means connected with said cross-frame, means for actuating said scraper operating means, and means for normally holding the scraper from contact with the disk.

2. In a grain drill, the combination with a plurality of pivotally supported draw-bars, each having a disk and a grain conductor connected thereto, of scrapers pivotally and adjustably attached to said draw-bars a rock-shaft, a rod connected with each of said scrapers and also adjustably connected with said shaft, means for actuating said shaft, and means for normally holding said scrapers from contact with their respective disks.

3. In a grain drill, the combination with a plurality of pivotally supported draw-bars, a scraper pivotally attached to each

draw-bar, a rock-shaft disposed transverse to the line of draft of said disks, rods connected with said scrapers and with said shaft, a bar operatively connected with said shaft, a lever operatively connected with said bar, and means for normally holding said scrapers from contact with their respective disks.

4. In a grain drill, the combination with a plurality of pivotally supported draw-bars, of members adjustably carried on said draw-bars, an arm pivotally connected with each member and having a scraper connected therewith, a rock-shaft disposed transverse to the line of draft of said disks, rods connected with said arms and said rock-shaft, a bar connected with said rock-shaft, a lever connected with said bar, and means for normally holding said scrapers from contact with their respective disks.

5. In a grain drill, the combination with the frame thereof, of a plurality of draw-bars pivotally connected at their forward ends with said frame and supporting disks at their opposite ends, a scraper pivotally connected with each of said draw-bars in proximity to said disks, a rock-shaft journaled in suitable bearings supported by the frame and in proximity to the point of pivotal connection of the draw-bars therewith, rods connected at one end with the scrapers, and at their opposite end with said rock-shaft, a bar connected with said rock-shaft and extending to the rear of said disks, a lever operatively connected with said bar,

and means also connected with said bar for normally holding the bar and the scrapers connected therewith, in an inoperative position.

6. In a grain drill, the combination with a plurality of pivotally supported draw-bars, each supporting a disk, a scraper pivotally and adjustable connected with each draw-bar, a rock-shaft disposed transverse to the line of draft of said disks, a plurality of collars adjustably carried by said rock-shaft, a connection between each scraper and one of said collars, a bar connected with said rock-shaft and extending rearwardly therefrom, a lever pivotally connected with said bar, and yielding means for normally holding said bar and its connections in an inoperative position.

7. In an implement of the character described, in combination, a concave convex disk disposed obliquely to its line of draft, a member supporting the journal for the disk and pivotally hung at its forward end, a bracket adjustable on said member, a scraper pivoted to said bracket and normally out of contact with the concave face of the disk, operating means for the scraper near the pivot of the member, and means for actuating said means.

In testimony whereof I affix my signature, in presence of two witnesses.

LUTHER E. ROBY.

Witnesses:

CHAS. W. LA PORTE,
LAURA E. CLAYPOOL.