

No. 679,339.

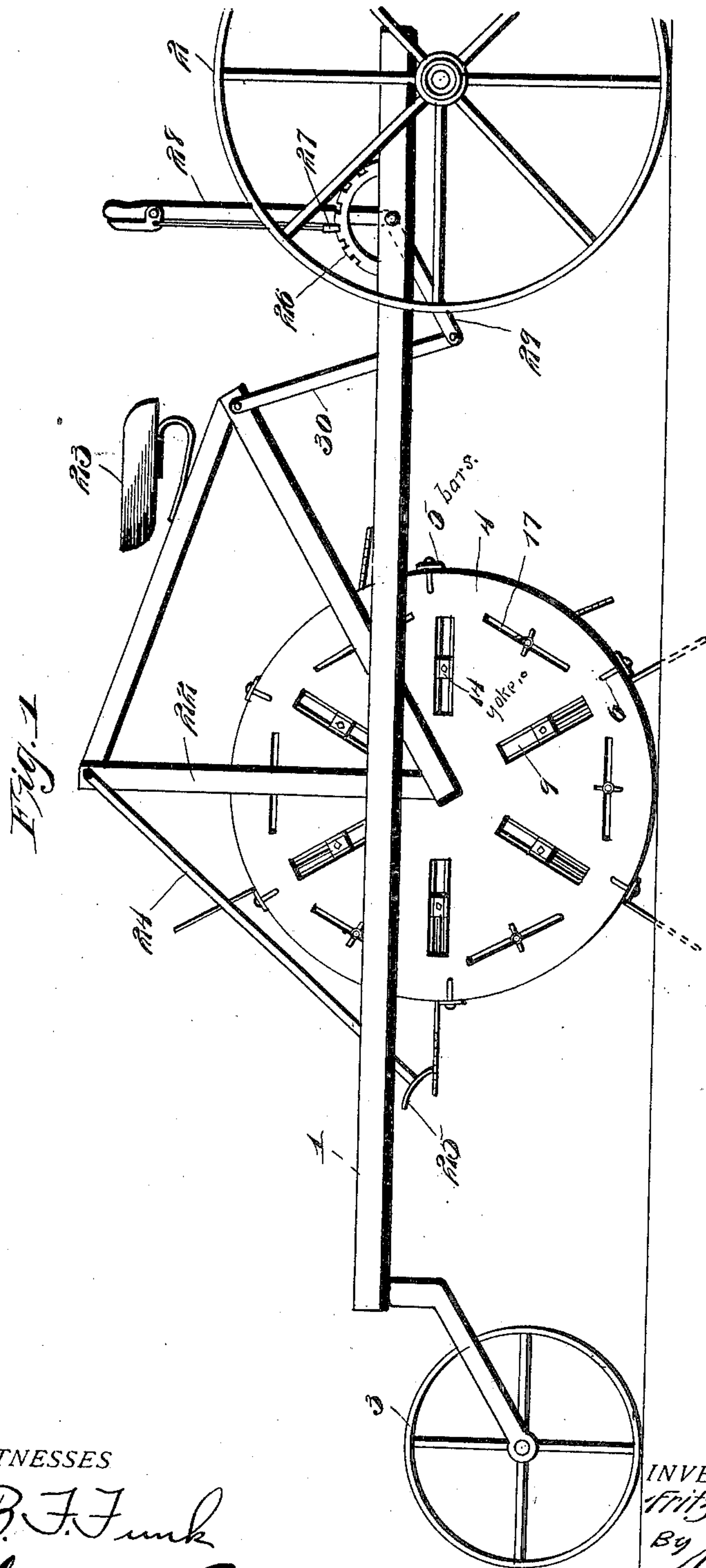
F. A. SANDBERG.
ROTARY PLOW.

Patented July 30, 1901.

(No Model.)

(Application filed Sept. 12, 1900.)

3 Sheets—Sheet 1.



WITNESSES

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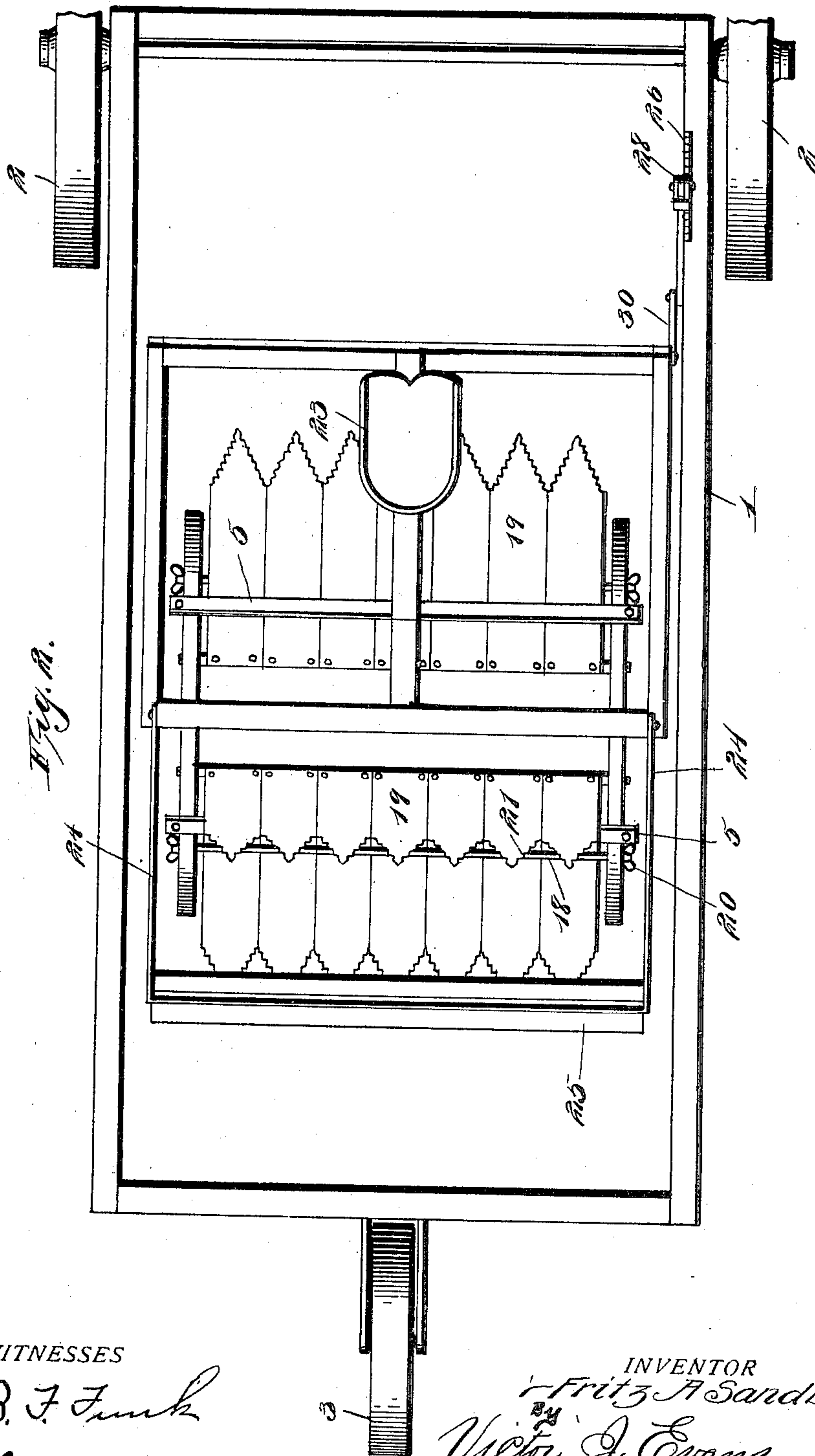
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Fig. 3.

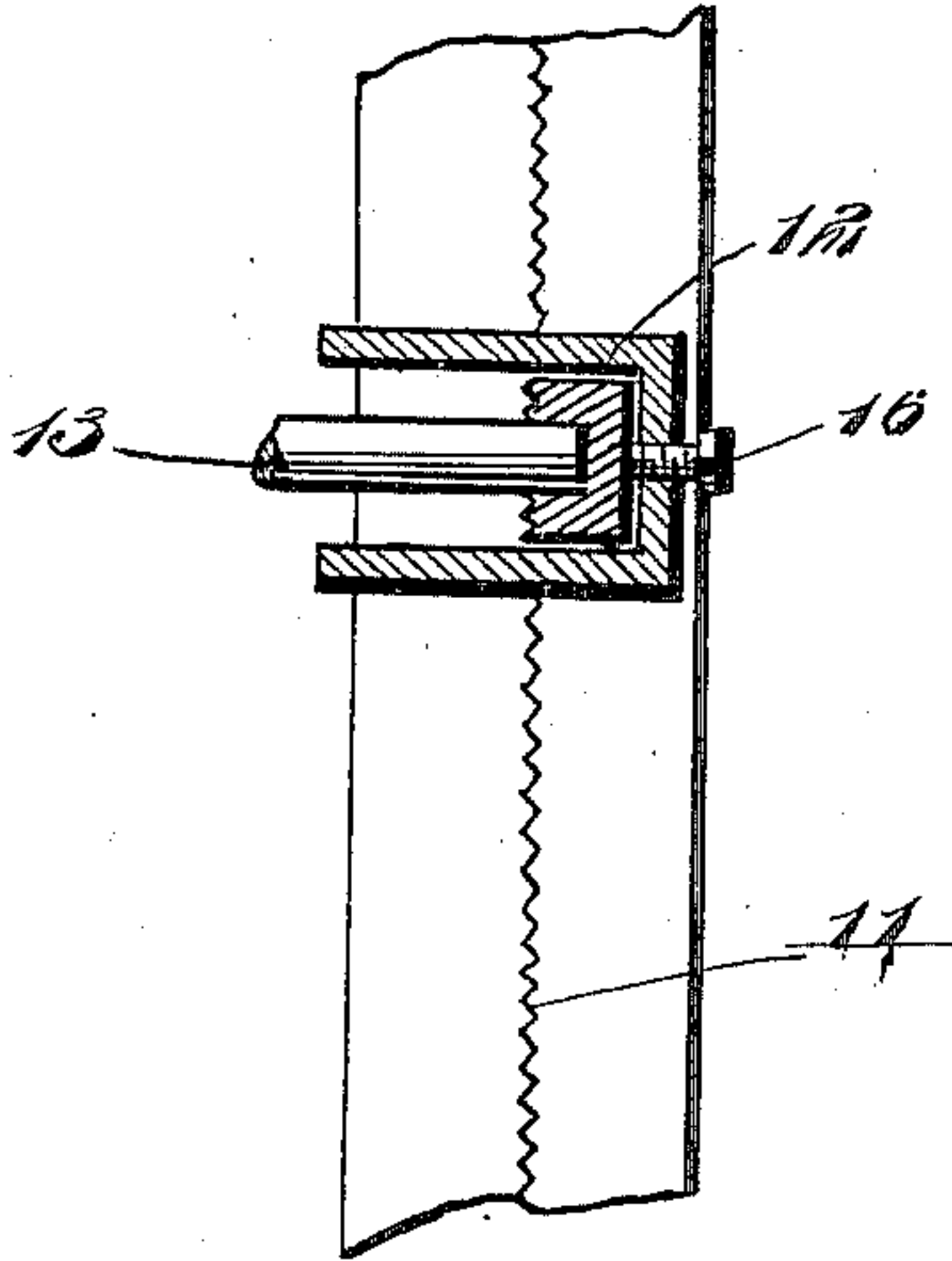


Fig. 4.

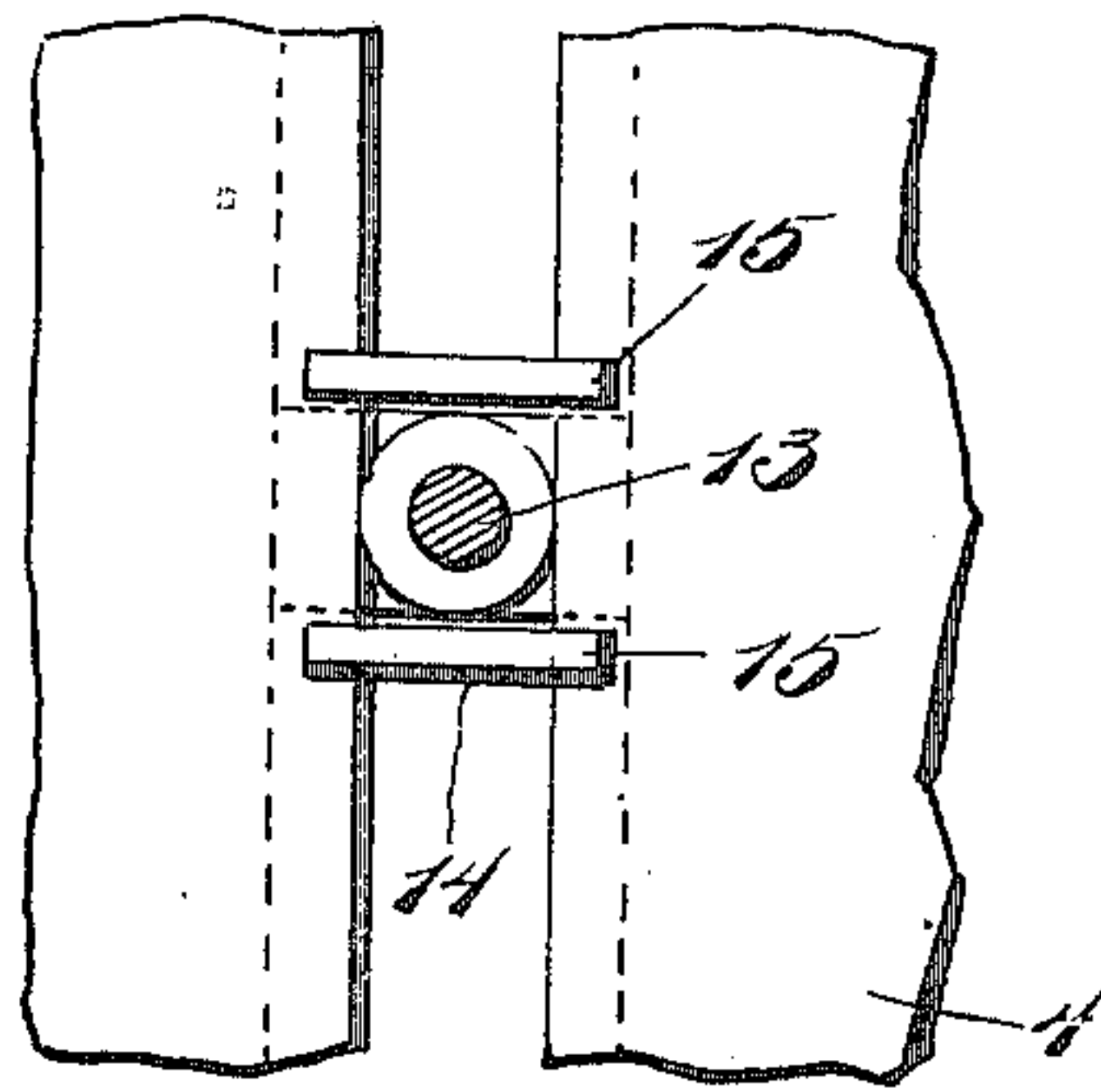


Fig. 6.

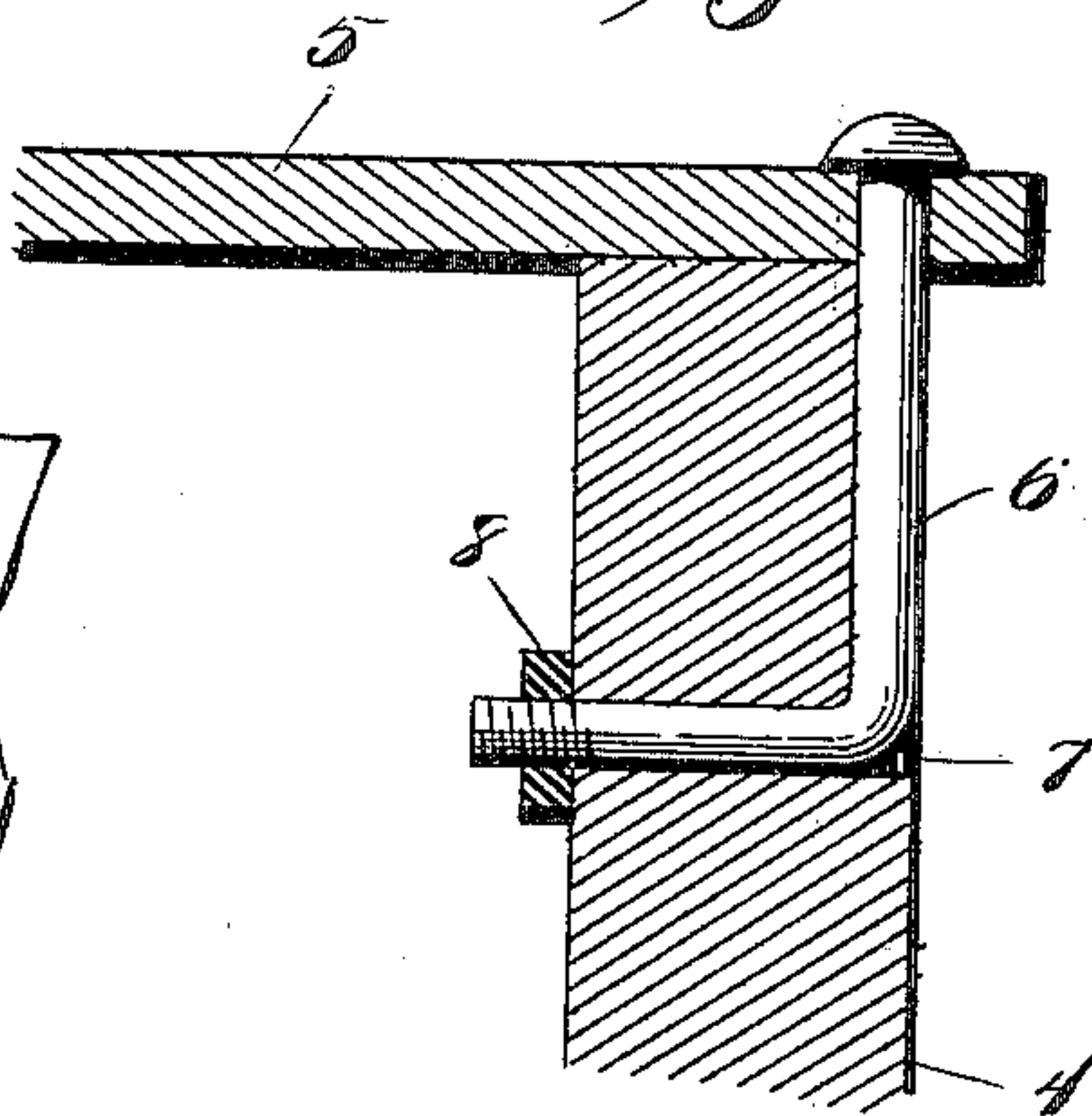
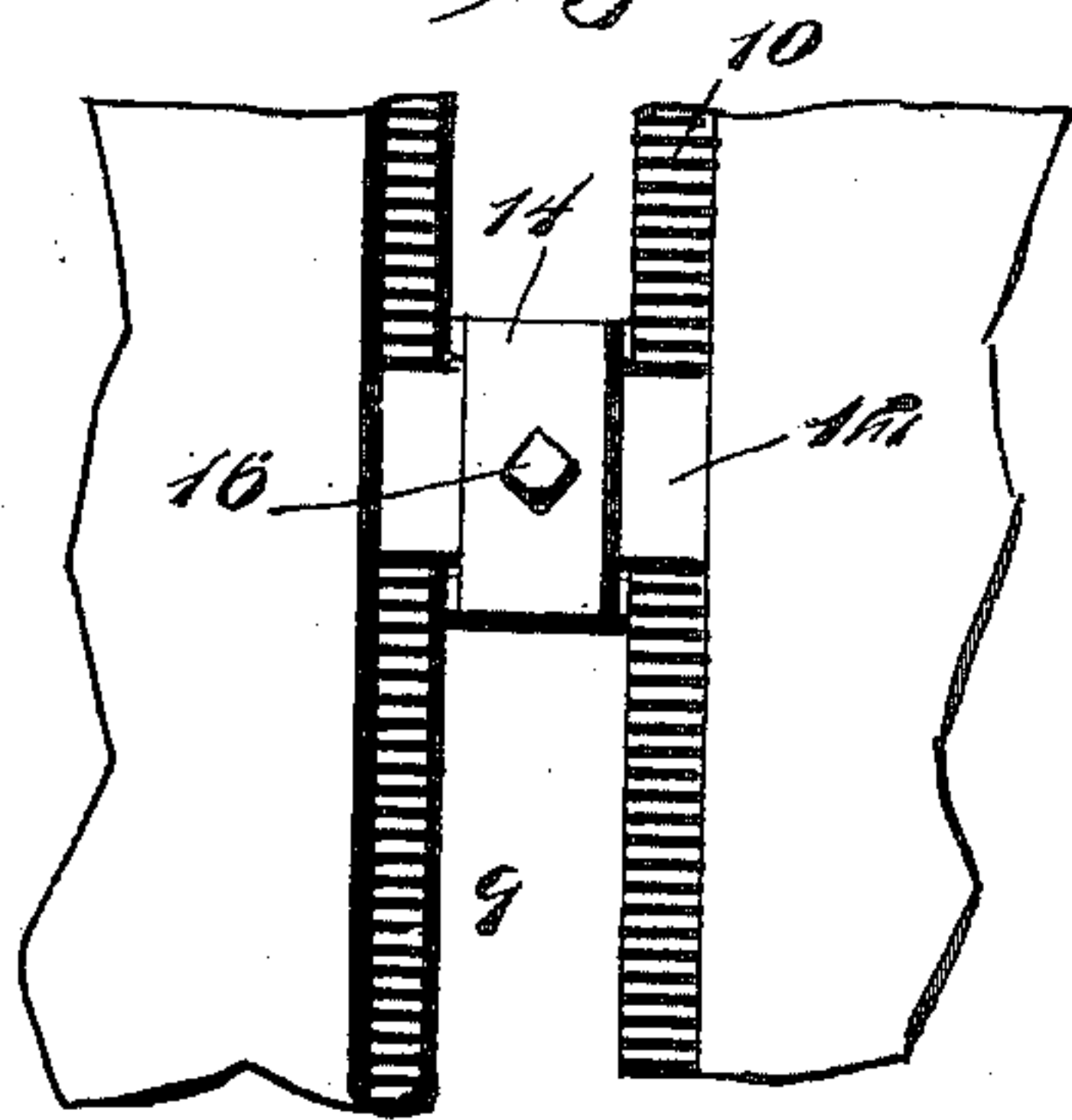


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRITZ ALBERT SANDBERG, OF BRIGHTON, MINNESOTA.

ROTARY PLOW.

SPECIFICATION forming part of Letters Patent No. 679,339, dated July 30, 1901.

Application filed September 12, 1900. Serial No. 29,835. (No model.)

To all whom it may concern:

Be it known that I, FRITZ ALBERT SANDBERG, a citizen of the United States, residing at Brighton, in the county of Nicollet and State of Minnesota, have invented new and useful Improvements in Rotary Plows, of which the following is a specification.

This invention relates to new and useful improvements in rotary plows; and its primary object is to provide a device of this character requiring the minimum amount of power to operate the same and having means whereby the cutting-blades may be readily adjusted so as to contact with the ground at any desired angle.

Other objects are to employ a blade of peculiar construction and to provide means whereby clogging of the machine by rubbish, &c., will be prevented.

To these ends the invention consists in providing a frame, at opposite sides of which are mounted disks connected by longitudinally-extending strips which are adapted to prevent movement of the plow-spades in one direction. These disks are provided with slots running from the center thereof at regular intervals and within which are adjustably secured longitudinally-extending rods to which are secured the spades of the device. These rods are revoluble within the adjustable bearings within the slots. Slots are arranged adjacent to the peripheries of the disks at points between the transversely-extending slots, and within these are secured the rods which serve as stops to limit the forward movement of the spades. A scraper is secured to the lower ends of rods, which are pivoted to the supporting-frame of the disks, and this scraper is adapted to bear upon the ranks of spades as they are brought successively into contact therewith. The scraper slides outward upon the spades, and thereby removes the rubbish therefrom.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a side elevation of the device. Fig. 2 is a top plan view thereof. Fig. 3 is an elevation of a part of one of the side walls

of a transversely-extending slot of a disk, showing in section the adjusting mechanism for the spade-rod. Fig. 4 is an inner elevation of said slot and the adjusting mechanism. Fig. 5 is an elevation of the outer face of said slot and the mechanism therein, and Fig. 6 is an enlarged section through a portion of a disk and a connecting-bar and showing means for securing the two together.

Referring to the figures by numerals of reference, 1 is the frame of the machine, which is mounted upon wheels 2 of ordinary construction and is provided at its rear end with a smaller wheel or caster 3. Within the frame, at each side thereof, is a disk 4, which is adapted to contact with the ground, and these disks are connected at their edges by longitudinally-extending bars 5. These bars are secured to the disks by means of L-shaped bolts 6, which extend transversely through the bars and lie within grooves 7 in the disks. Said bolts then pass transversely through said disks and are locked thereon by means of nuts 8 or in any other suitable manner. Each disk is provided at regular intervals with transversely-extending slots 9, which are in alinement with the center of the disks. Each slot is countersunk in its outer face, as shown in Figs. 1 and 5, and the bottom 10 of the recessed portion of each slot is provided with teeth or serrations 11, which are adapted to engage similar teeth formed upon a T-shaped block 12, which extends through the slot and serves as a bearing for the end of a rod 13. A yoke 14 extends through the slot and over the block 12, before referred to, and the ends of this yoke have lateral extensions which engage the edges of the slot and prevent the yoke from being drawn outward through the slot within which it is fitted. A set-screw 16 engages that portion of the yoke which extends over the block 12, and it is adapted to contact with the block. It is obvious that when said screw is forced inward the block will be firmly clamped into engagement with the teeth 11 of slot 9, and thereby prevent the rod 13 from sliding out of adjusted position. It is of course obvious that both ends of each rod 13 are provided with adjusting mechanism, such as hereinbefore described.

Slots 17 are arranged within the disks be-

tween the slots 9, before referred to, and extend from points adjacent to the outer ends of said slots. These slots 17 receive the ends of rods 18, which serve to limit the forward movement of spades 19, of peculiar construction, secured in ranks or rows to the revolvable rods 13, before referred to. The rods 18 are adapted to be secured in their slots by means of thumb-nuts 20, and it is obvious that these rods can be readily adjusted from one end of the slot to the other.

The spades 19, before referred to, are preferably formed of heavy sheet metal substantially rectangular in form, and the cutting edge of each of which is stepped outward toward the center, as shown at 21. The forward edges of each of these steps form cutting edges and are adapted to cut the rubbish, &c., with which they come into contact, and thereby prevent the same from slipping inward to the bottom of the recesses formed between the spades, as would occur were smooth cutting edges employed.

The disks 4 are journaled at the center to a triangular frame 22, which extends above the frame 1, before referred to, and serves to support the seat 23 of the operator. As this triangular frame is pivotally secured to the frame 1, it is obvious that the weight of the rider will be applied direct to the disks 4. Rods 24 are pivoted to the upper portion of the frame 22 and extend downward in rear of the disks 4 and are connected at their lower ends by a scraper 25, as shown. This scraper is adapted to be contacted by the rows of spades as they emerge successively from the ground, and the scraper will obviously slip outward toward the cutting edge as the upward movement of the spades continues, and will thereby remove therefrom all rubbish, &c., which may have accumulated thereon.

A toothed segment 26 is secured upon the frame 1 and is adapted to be engaged by a pawl 27, secured to a lever 28, which is pivoted to the frame 1. This lever is provided at its lower end with an arm 29, which extends therefrom at an angle thereto and which is connected to the frame 24 by means of a link 30, as shown.

As the machine travels forward the disks 4 will be revolved by the ground with which they contact. The ranks of spades which are not in contact with the ground and which are between the descending sides of the disks will rest upon the rods 18. It is obvious that by adjusting these rods back and forth within their slots the angle at which the spades will strike the ground may be readily regulated. As the disks continue in their movement the spades will be forced into the ground and the stepped cutting edges thereof will cut through the soil and rubbish. The spades will be held in contact with the ground by the cutting-strips 5, before referred to, and these strips will also serve to support them after they have passed upward from the ground and until they again begin their down-

ward movement. It will be understood that by adjusting the rods 13 back and forth within their slots the depth of the furrow may be readily regulated.

As before described, the spades as they travel upward from the ground are contacted successively by the scraper 25, and any rubbish which may have accumulated thereon is promptly removed thereby.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations as fairly fall within the scope of my invention.

I claim—

1. A rotary plow comprising connected disks; spades pivotally mounted between the disks; adjustable means for limiting the forward movement of the spades upon their pivots and adjustable pivots to the spades.

2. A rotary plow comprising similar connected disks; rows of cutting-spades therebetween, adjustable pivots for said rows, means for locking the rows in adjusted position; means for limiting the backward movement of the spades and adjustable means for limiting the movement thereof in the opposite direction.

3. The combination with a frame; of disks mounted therebetween, strips connecting the disks; L-shaped bolts engaging the strips and disks and adapted to bind the same together; slots within the disks; blocks adjustably secured within the slots; rods journaled within the blocks; cutting-spades secured thereto and adapted to be limited in their movement in one direction by the connecting-strips; and adjustable rods connecting the disks and adapted to limit the movement of the spades in the opposite direction.

4. The combination with a frame; of disks mounted therebetween and having slots therein in alinement with the center; teeth within the slots; blocks adapted to engage the teeth; yokes inclosing the block and extending through the slots; extensions to the yoke adapted to engage the slot; a set-screw within each yoke and bearing upon the blocks; rods journaled within the blocks; cutting-spades secured to the rods; and means for limiting the movement of the spades.

5. The combination with a frame; of disks journaled therebetween; countersunk slots within the disks and in alinement with the centers thereof; teeth within the slots; blocks adapted to engage the teeth; yokes extending over the blocks and through the slots; extensions to the yoke engaging the walls of the slots; set-screws within the yokes adapted to lock the blocks in engagement with the teeth within the slots, rods journaled within the blocks, spades secured to the rods, strips connecting the disks and adapted to

limit the backward movement of the spades, adjustable rods within the disks for limiting the movement of the spades in the opposite direction, rods pivoted to the frame and extending in rear of the disks, and a scraper connecting said disks and adapted to contact with the spades.

6. The combination with a main frame; of a triangular frame mounted therebetween; a lever pivoted to the main frame; a link connection between said lever and triangular frame; disks journaled between the lower ends of said triangular frame and having slots therein in alinement with the center thereof, rods within the slots of the disks; means for locking said rods in adjusted position within their slots; spades secured to the rods, adjustable rods connecting the disks and adapted to limit the forward movement of the spades, means for limiting the movement of the spades in the opposite direction, a scraper in rear of the disks and adapted to contact successively with the spades, and pivot-rods connecting said scraper to the frame.

7. A rotary plow comprising connected disks, spades pivotally mounted between the disks and adjustable means for limiting the

forward movement of the spades upon their pivots.

8. A rotary plow comprising disks, spades pivotally mounted between the disks, means for limiting the forward movement of the spades upon their pivots and adjustable pivots to the spades.

9. The combination with a frame, of disks mounted therebetween, strips connecting the disks, means for binding the strips and disks together, blocks adjustably secured within slots in the disks, a rod journaled within said blocks, spades secured to the rod and means for limiting the movement of the spades.

10. In a rotary plow, the combination with a disk having a slot therein, of teeth within the slot, a block adapted to engage the teeth, a yoke inclosing the block and extending through the slot, extensions to the yoke adapted to engage the slot and means for binding said yoke upon the block, said block forming a bearing for the pivot of a spade.

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

FRITZ ALBERT SANDBERG.

Witnesses:

S. J. SWENSON,
HENRY N. BENSON.