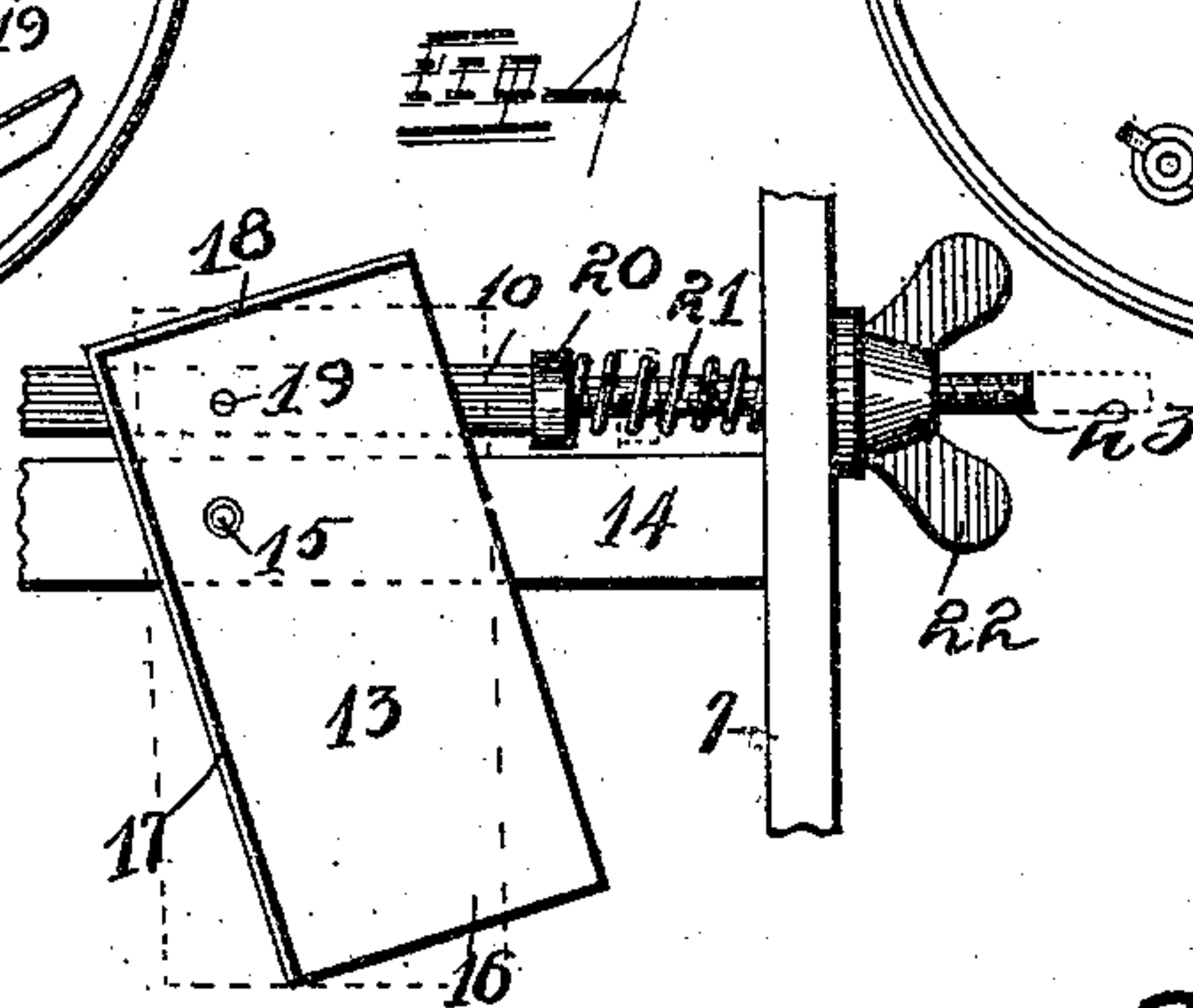
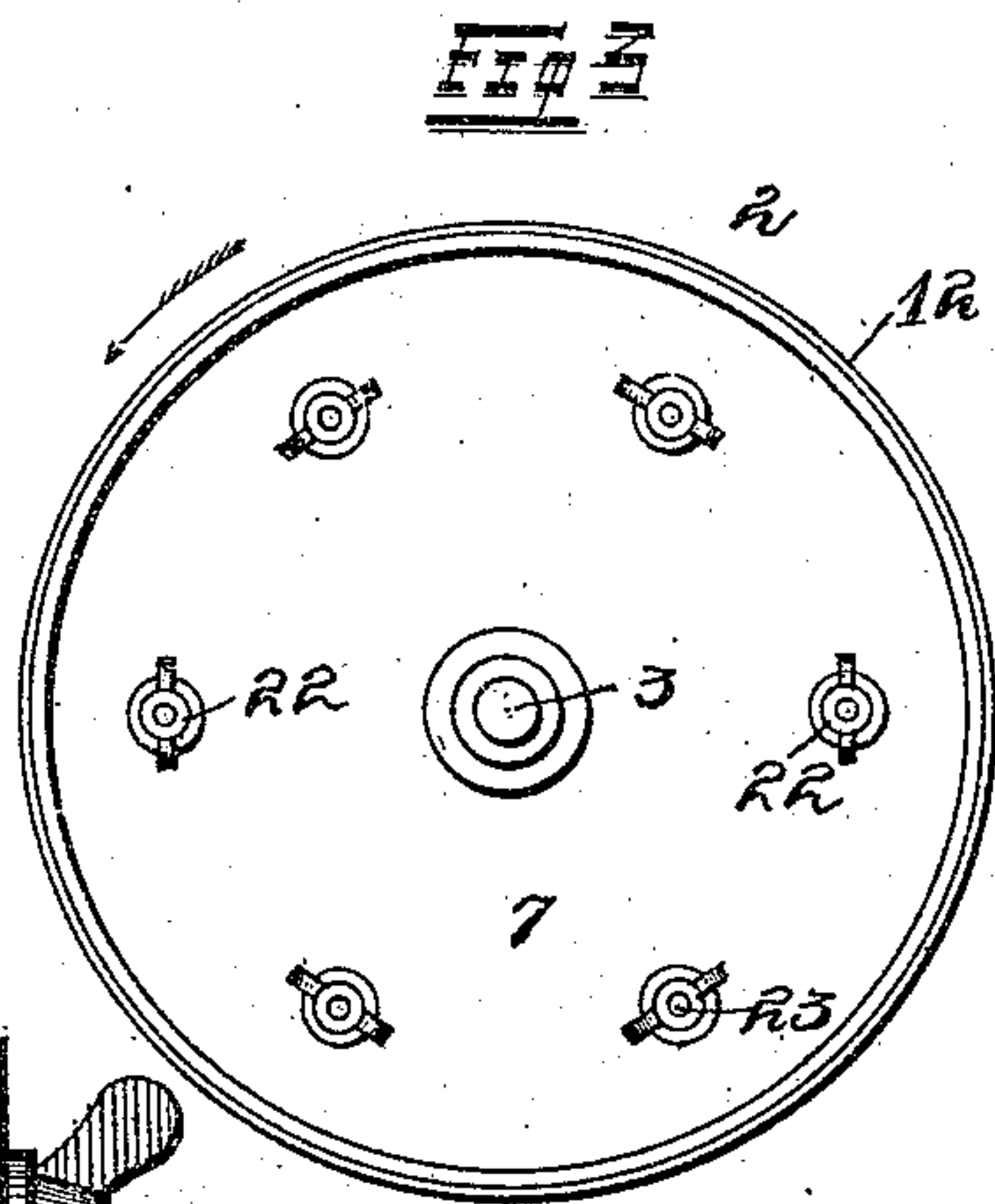
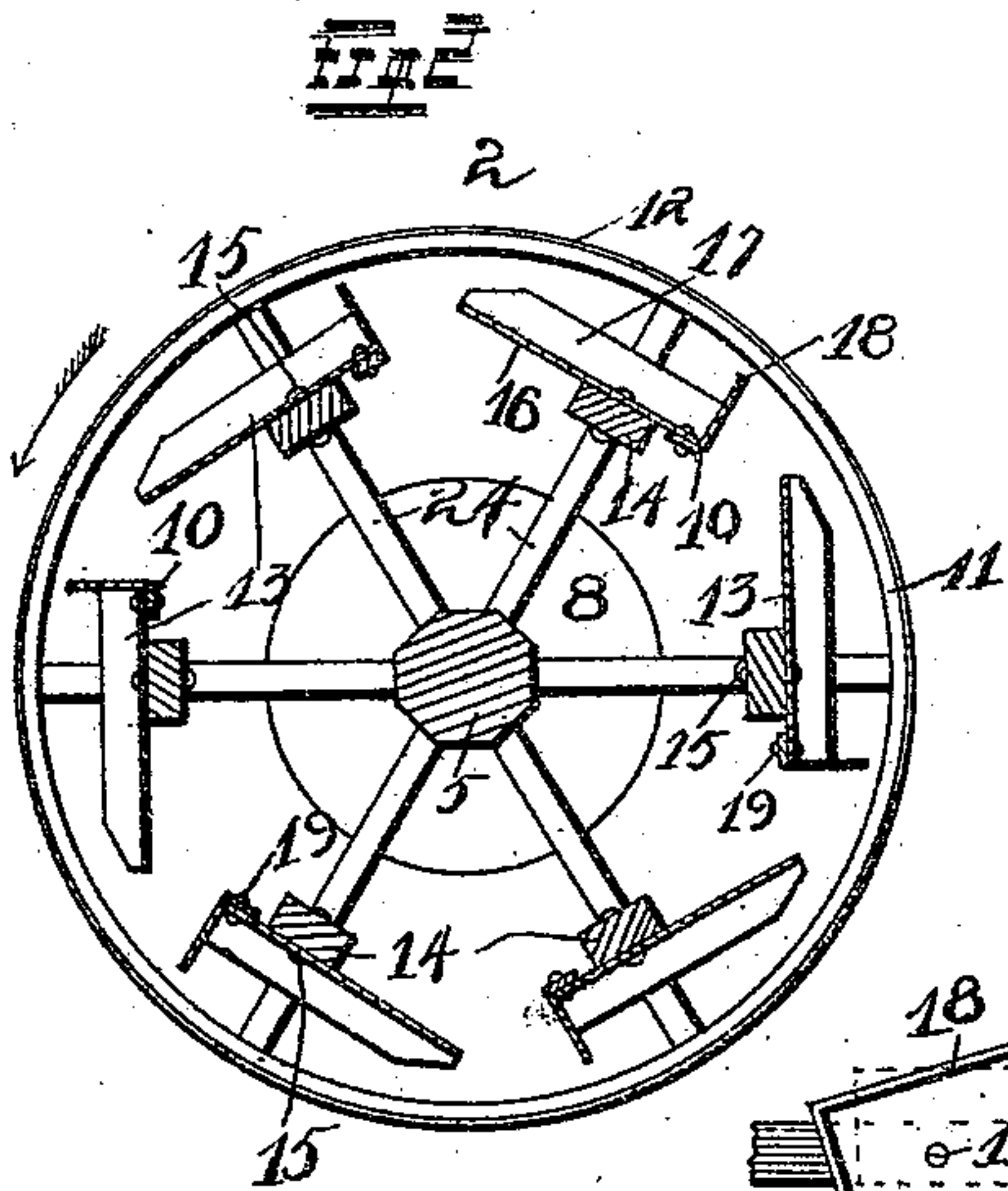
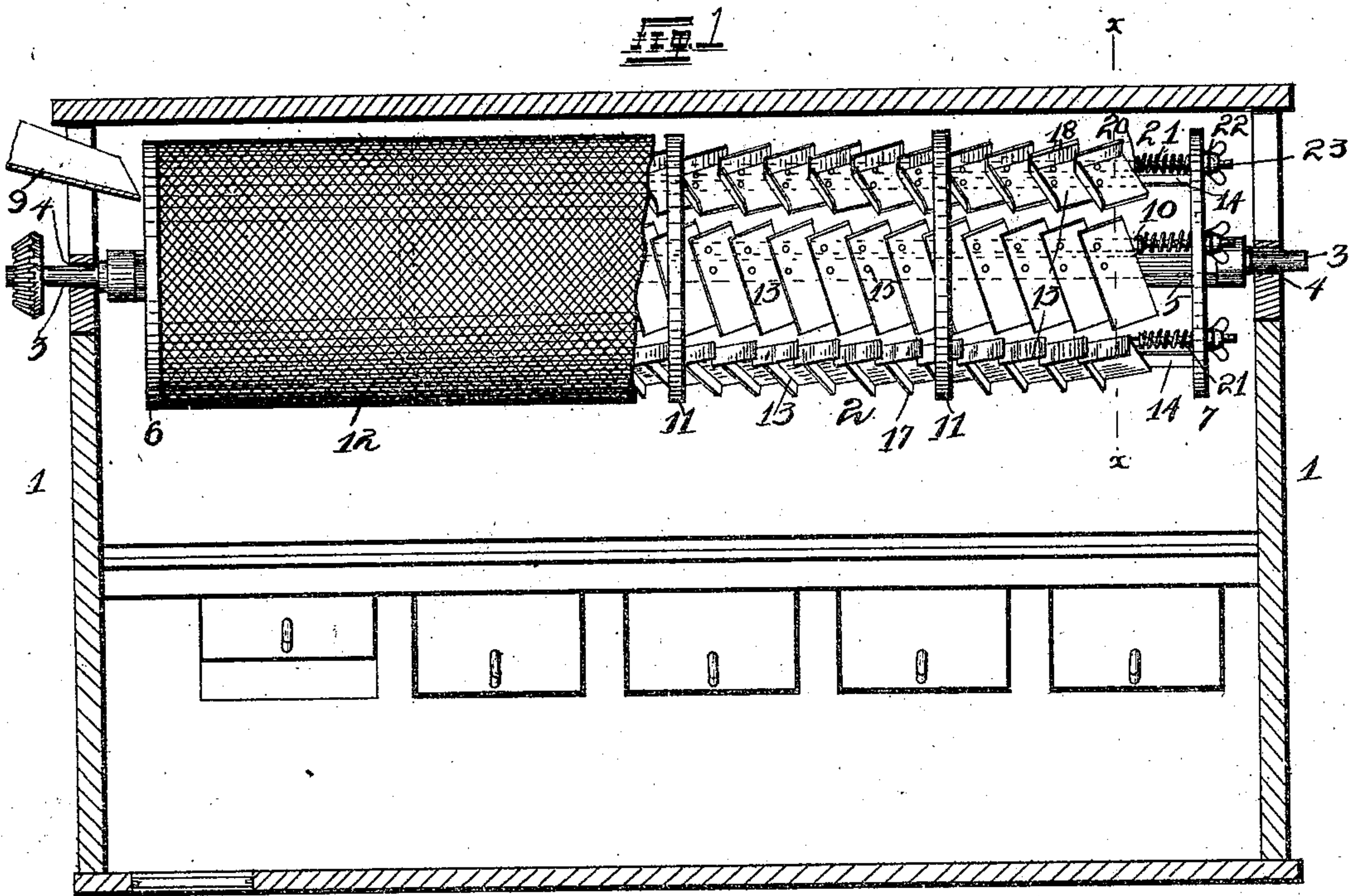


(No Model.)

F. J. SCHUPP.
BOLTING REEL.

No. 501,898.

Patented July 18, 1893.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK J. SCHUPP, OF MARSHALL, MISSOURI.

BOLTING-REEL.

SPECIFICATION forming part of Letters Patent No. 501,898, dated July 18, 1893.

Application filed September 3, 1892. Serial No. 444,995. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK J. SCHUPP, of the city of Marshall, in Saline county, Missouri, have invented certain new and useful
5 Improvements in Bolting-Reels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in
10 "bolting-reels," and consists in the novel arrangement and combination of parts as will be more fully hereinafter described and designated in the claims.

The object of my invention is to provide
15 improved machinery for the bolting of flour, and in carrying out the principle of same I have combined several features which will be more fully hereinafter described. These features include the carrying of the ground material from the receiving to the discharging
20 end of the reel, at the same time agitating the entire contents, and the use of series of annularly arranged buckets, which are laterally adjustable, to regulate the speed with which
25 the ground material is passed through the reel.

In the drawings: Figure 1 is a vertical sectional view of a bolting-chest, and a bolting-reel mounted therein, with a part of same shown with the bolting cloth removed in order to more clearly define the interior construction of the reel. Fig. 2 is a sectional
30 view taken on a line xx in Fig. 1. Fig. 3 is a detail elevation of the tail-head of the reel. Fig. 4 is a detail view with parts broken away
35 showing the adjustable sliding rod, and the bucket secured thereto, both being made use of in carrying out my invention.

Referring to the drawings: 1 indicates the chest having mounted therein a bolting-reel
40 2. Said bolting-reel 2 is provided with a central shaft 3 mounted in proper bearings 4 in the end frames of said chest 1, and a suitable gearing for the revolving of said reel is provided upon one end of said shaft 3. The reel
45 is provided with a longitudinal center bar 5, octagon shaped in cross-section, and having the shaft 3 mounted in and projecting from each end thereof, outside of the reel 2. Said bar 5 is preferably constructed of wood as an
50 iron shaft run therein, would materially deteriorate the process of bolting. However,

this is a well known and accepted fact and needs no explanation.

The reel is provided with heads 6 and 7, the receiving head 6 being provided with a
55 suitable opening 8 for the reception of the ground material from the spout 9, and the tail-head 7 being provided with a number of perforations in a radial relation with the center of said head 7 and through which adjustable rods 10 pass, as will be more fully hereinafter described. The reel 2 is also provided with a number of circumferential bands or hoops 11 upon which the bolting cloth 12
60 is stretched, and as these bands 11 are immediately placed between the heads 6 and 7, they serve to hold the bolting cloth 12 in an even and rigid horizontal position.

I may state before going farther with my descriptions, that the arrangement and combination of the parts of a reel constructed after the method of my invention, obviate the necessity of locating the bolting-reel at an incline within the bolting-chest. Therefore, it
70 will be understood that the bolting-reel herein described, revolves in a horizontal plane.

I will now describe the construction and mounting of the buckets or cups 13, which as before stated, are arranged in annular series, upon longitudinal bars 14 which are arranged
80 in a radial position from the center bar 5, and the ends of which are secured respectively to the heads 6 and 7. These buckets 13 are pivoted to said bars 14 in such a way as to allow of their movement in a lateral direction, without any undue vertical motion, and said pivots indicated by the numerals 15 are placed
85 through the bottoms 16 of said buckets 13 and a little to one side of the center of same. Said buckets consist of oblong-shaped bottom pieces 16 and having one side and one end surrounded by upwardly projecting flanges 17 and 18, the heel-flange 18 extending upwardly higher than the edge of the flange 17
90 in order to present a scooping surface, the purposes of which will be more fully hereinafter set forth. Said buckets 13 are also pivoted to the horizontally adjustable bars 10, the pivotal connection being made adjacent to the heel-flange 18, and the pivot 19 being
95 in alignment vertically, with the pivot 15.

By referring to Fig. 2 in the illustrations,

in which the longitudinal bars 14 and 10 are shown in section, it will be seen that the horizontally adjustable bar 10 is under the back portion of the bucket 13, and the bar 14 a short distance therefrom and more toward the center of said bucket 13. The horizontally adjustable bars 10 are shorter than the inside length of the reel 2, in order that there may be play-room in the feeding end of said reel for the adjusting of said bar 10. The ends of said bars 10, which are preferably six in number, that project through the perforations in the tail-head 7, are exteriorly screw-threaded and said ends also project outwardly from said tail-head 7. Inside of the tail-head 7 and upon said adjustable bars 10, are provided shoulders 20 which control the tension of an ordinary coil-spring 21 which is placed upon said bars 10, with one end of said spring 21 adjacent the shoulder 20 and the other end adjacent the inner surface of the head 7, thus having the function of keeping the rods 10 strained toward the feeding head 6. An ordinary thumb nut 22 is adjusted upon the exterior screw-threads of the projecting ends 23 of the bars 10 and by the use of said thumb nuts, the position of the bars 10 may be changed, in order to throw the buckets 13 at an incline. The similarity in the adjustment of each bucket 13 to the horizontally adjustable bar 10 affects the position of each bucket 13 when the bars 10 are changed by the manipulation of the thumb nut 22.

The stationary horizontal bars 14 are properly secured to a series of radially arranged arms 24 which are secured upon the inner surfaces of both the receiving head 6 and the tail-head 7, the relative position of said arms 24 being shown in Fig. 2 of the illustrations. By reason of the pivotal connection of the buckets 13 to the stationary bars 14, it will be seen that the adjustably mounted bars 10 having their connection with the buckets at a point nearer the end of said buckets, than the bars 14, allows of the changing of the incline laterally of the buckets 13, when said bars 10 are longitudinally adjusted. The operation of this detail will be more fully understood by referring to the dotted lines in Fig. 4, the same denoting the position of the buckets 13 if the same were in a vertical relation to the heads 6 and 7, and also showing in dotted lines, the relative position of the parts by means of which said buckets 13 and the bars 10 to which they are pivoted, are made horizontally adjustable.

In order to change the lateral incline of the buckets 13 it is only necessary to turn the thumb nut 22 in either direction thus also changing the position of the bars 10.

If it is desired to render the buckets 13 inclined at an increased angle, the thumb nut 22 is released, or backed off of the threads upon the projecting ends 23 of the bars 10, and the spring 21 confined between the shoulder 20 and the inner surface of the head 7 forces said bars 10 inwardly and consequently

changes the lateral incline of the buckets 13. If the buckets 13, arranged as they are in an annular series, were to have their side flanges 17 in annular alignment, the buckets 13 would not convey the ground material from the receiving end to the discharging end and consequently it would clog up the receiving end. But by laterally inclining said buckets 13 the material is thrown from one to the other, in their horizontal series and the more incline that is given to the buckets 13, the faster and farther the material will be thrown toward the tail end, and will be thrown against the bolting cloth with greater force.

In the illustrations the reel is revolving in the direction as shown by the arrows and as the material is discharged into the feeding end of the wheel through the circular aperture 8, the same is picked up upon the backs or bottoms of the buckets 13 and conveyed a certain distance upwardly, when it falls off of the same and strikes the bolting cloth 12. The backs 18 of the buckets 13 scoop up the material and it is carried over inside of the buckets 13 until it gravitates off of said buckets by its own weight, when the buckets have reached a certain point in their travel. Thus it will be seen that the material inside of the reel 2 is being constantly agitated and carried by the different portions of the buckets 13, the bottom 16 and back 18 being used for scooping up the material and the open end and side of each bucket allowing the forward movement of the material from one bucket to the next.

In placing the buckets 13 upon the bar 14, said buckets are slightly lapped over each other, that is, when the first bucket at the receiving end, is secured thereto, the next bucket is placed so that the closed side of same laps slightly over the open side of the first bucket which was secured on said bar 14, and this arrangement is continued throughout the series of buckets. This arrangement guarantees the passage of the material from the receiving to the discharging end, and as before stated, the speed which the material assumes in forwarding, is regulated by the incline which the sides 17 of the buckets attain. In this construction I preferably use six rows of the buckets 13, as this not only balances the wheel in weight, but also serves to keep the material constantly agitated.

One of the peculiar and principle advantages of my construction is the material reduction in the speed of the reel. In former reels a high speed was necessarily maintained on account of the use of longitudinal, horizontal agitators, there being no conveying properties or rather function in the operation of said agitators or paddles. But by the use of what might be termed a combined conveyer and agitator the necessity for this high speed is obviated, and some idea of the difference may be gained from the results obtained by me in practical experiments wherein I found that the reel constructed after the

method of my invention and under different adjustments did the same amount of work at twelve revolutions per minute that it took other reels to do at from sixty to two hundred and fifty revolutions per minute, and an improved product was found to be the result of the operation at slow speed.

Having fully described my invention, what I claim is—

- 10 1. In a bolting reel, the combination, with a revoluble reel, of a series of buckets each comprising a flat bottom, 16, arranged approximately parallel with the periphery of said reel, a flange, 17, projecting from the side of
15 said bottom nearest to the receiving end of the reel, and a flange, 18, projecting from the distal end of the bottom, and of greater depth than the flange 17; substantially as and for the purpose set forth.
- 20 2. In a bolting reel, the combination, with a revoluble reel provided with a series of longitudinally and radially-arranged, fixed bars, 14, of a series of overlapping buckets pivoted thereto and provided with a flanged end
25 and side, bars, 10, pivoted to the under sides of the respective buckets and in rear of the bars 14, and means for adjusting said bars 10 longitudinally; substantially as and for the purpose set forth.
- 30 3. An improved bolting-reel having horizontal series of laterally adjustable conveying buckets, said conveying buckets over-lapping each other, substantially as set forth.
- 35 4. An improved bolting-reel having a number of conveying buckets 13 having one side and end open, and the closed end and side of

the next adjacent bucket over-lapping said open side, substantially as set forth.

5. An improved bolting-reel having a number of adjustable conveying buckets, provided with one side flange 17, a heel-flange 18 upon one end, said heel flange projecting upwardly above said side flange 18 and presenting a scooping surface, and said buckets 13 over-lapping each other, substantially as set forth.

6. An improved bolting-reel having a number of radially arranged horizontally adjustable bars 10, said bars 10 projecting through aligned perforations in the tail-head 7, said projecting ends 23 and a portion of said rods 10 interior of said head 7, provided with exterior screw-threads, a shoulder 20 on each of said horizontally adjustable bars 10 a spring 21 normally held between said shoulder 20 and the inner face of said head 7, and a thumb nut 22 mounted on the threaded end of the bars 10, substantially as set forth.

7. An improved bolting-reel having a number of horizontally adjustable bars 10, having screw-threaded ends 23 projecting beyond the outer face of the tail-head 7, thumb nuts 22 adjustable on said screw-threads, to horizontally adjust the position of said bars 10 and the buckets 13, pivotally mounted thereon, substantially as set forth.

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

FREDERICK J. SCHUPP.

Witnesses:

HERBERT S. ROBINSON,
ALFRED A. EICKS.