

(No Model.)

4 Sheets—Sheet 1.

W. F. HUTCHINSON.
WOOD CUTTING MACHINE.

No. 507,499.

Patented Oct. 24, 1893.

Fig 1.

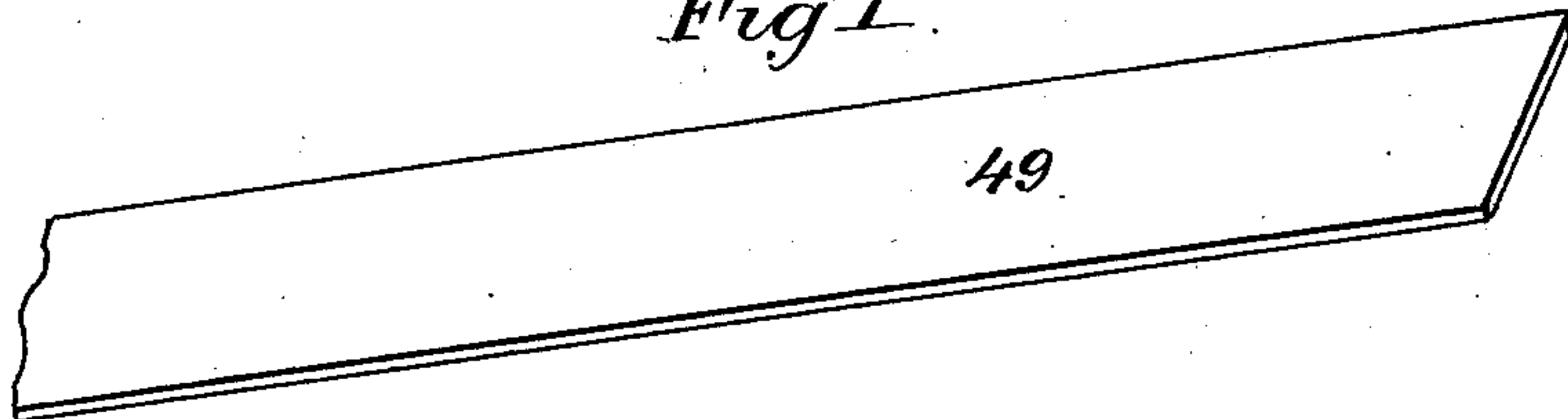
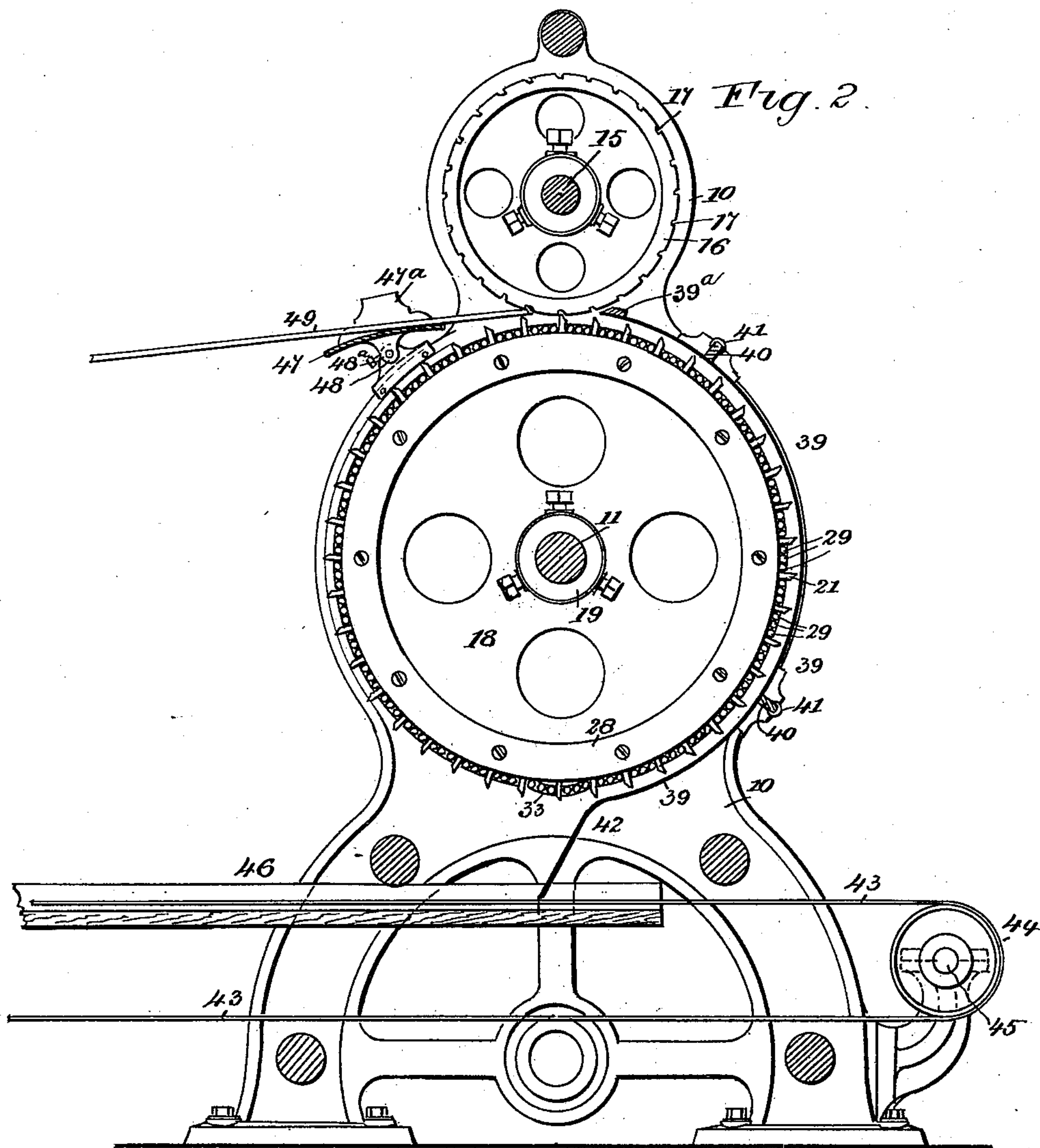


Fig. 2.



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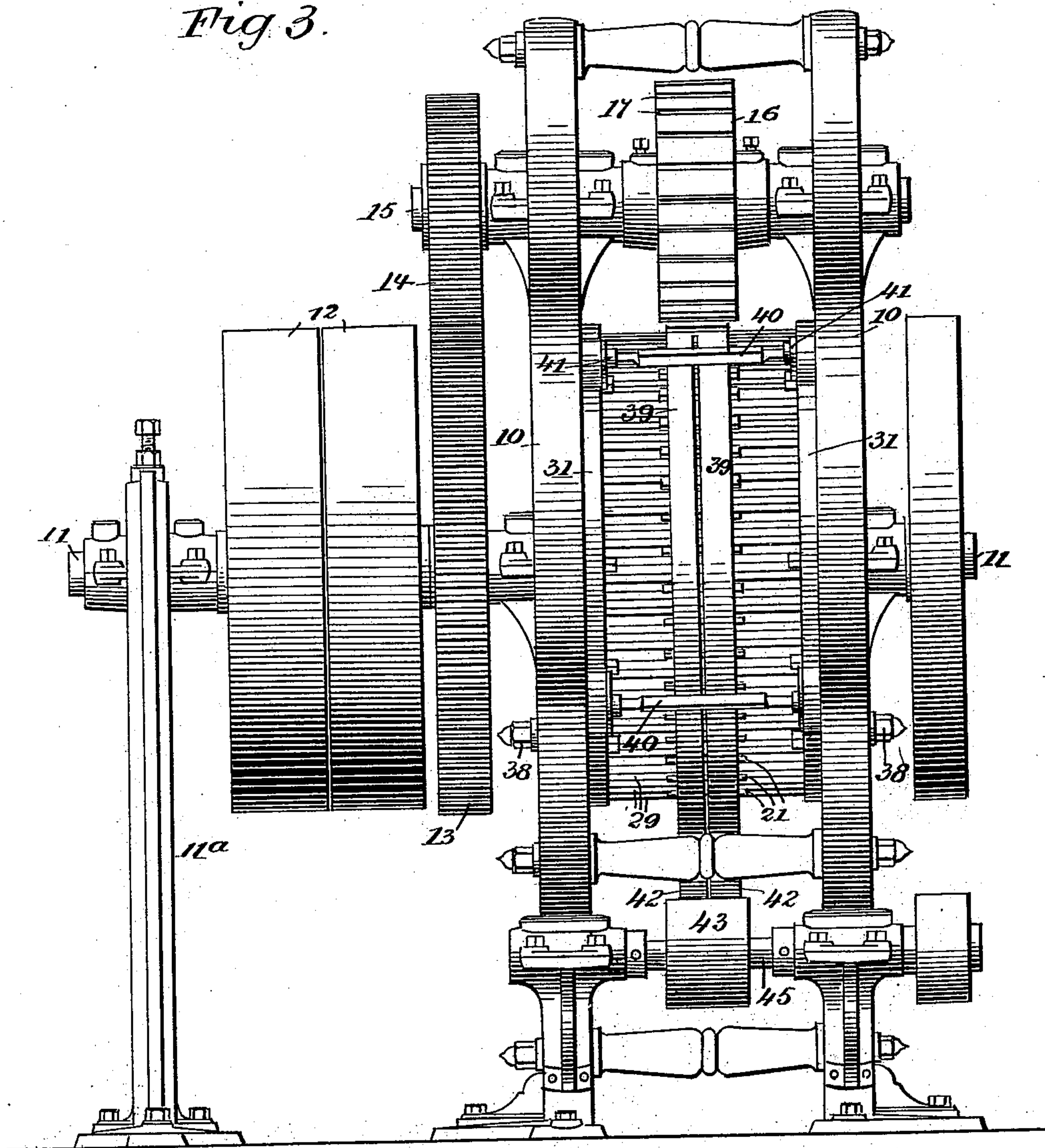
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Fig 3.



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Fig. 4.

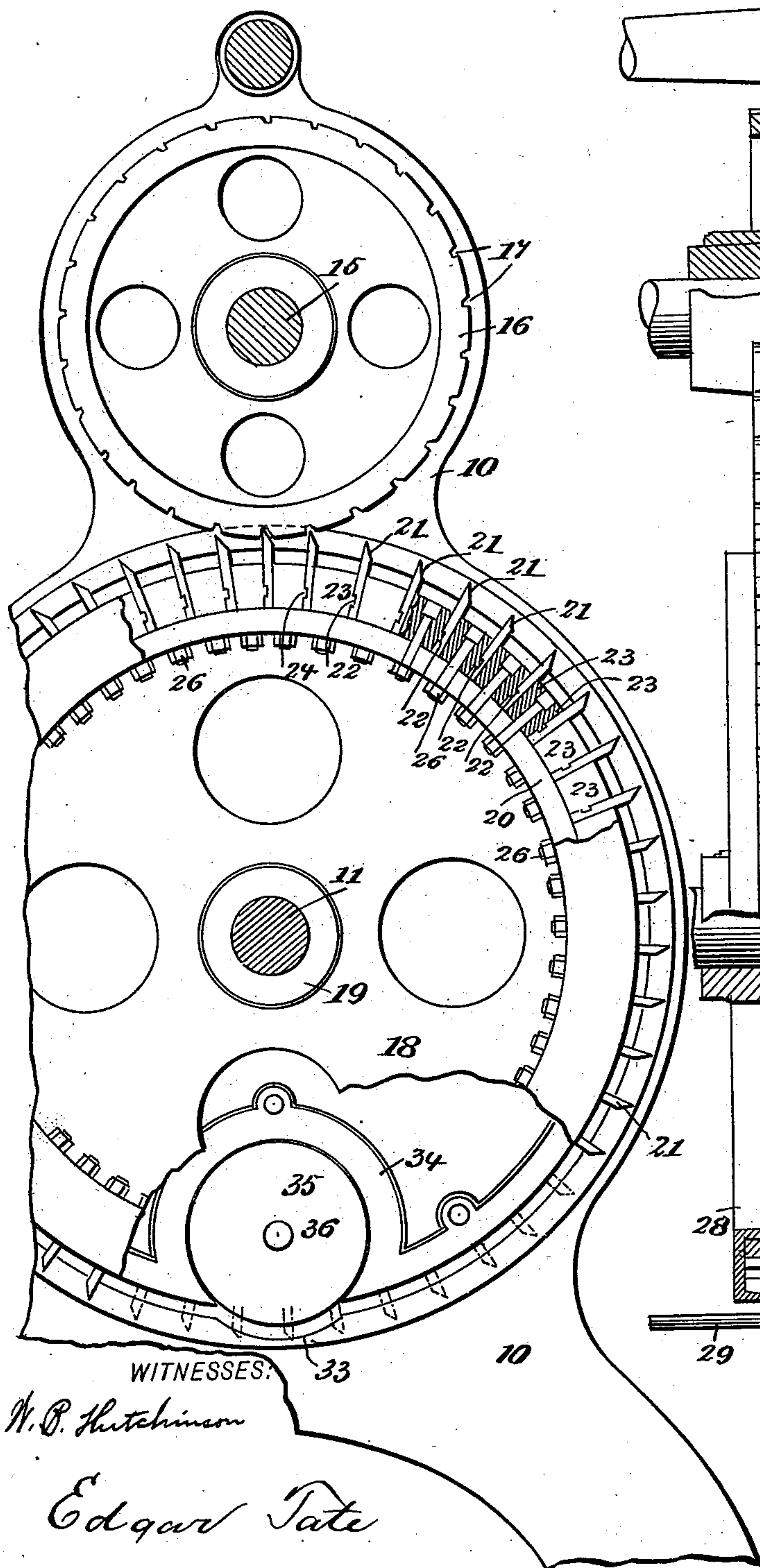
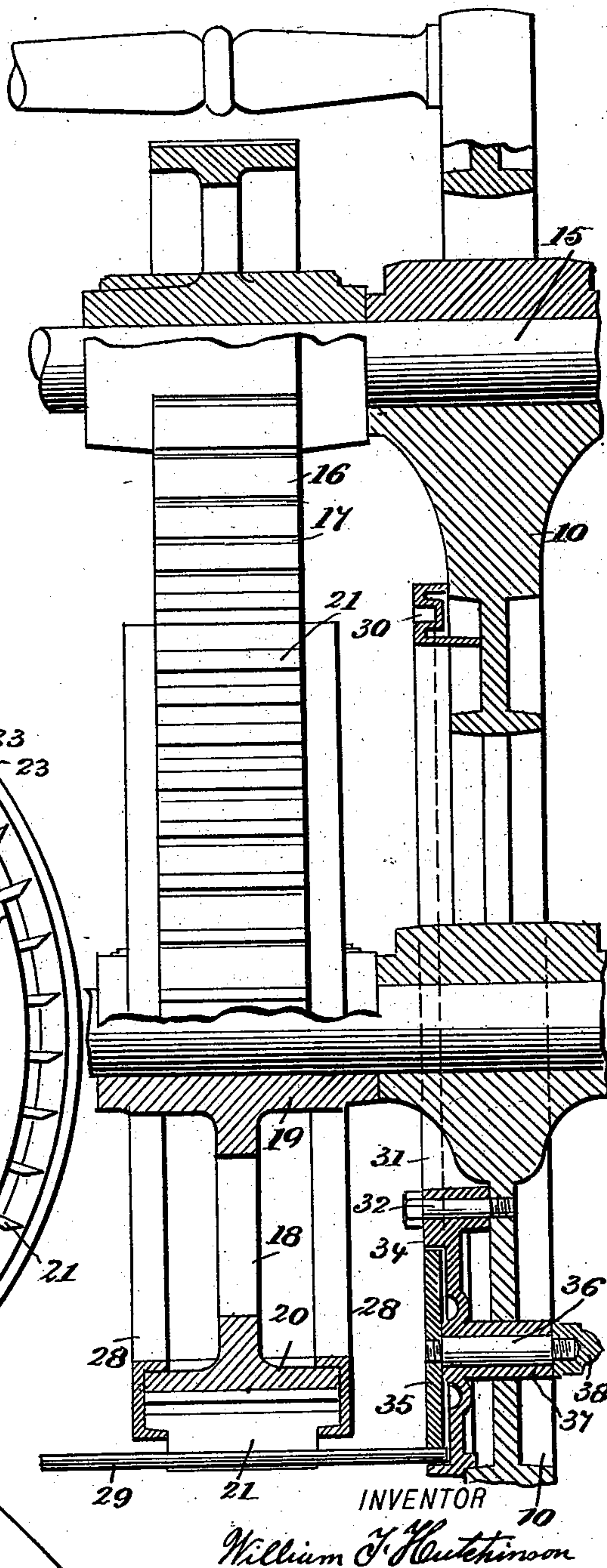


Fig. 5.



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Fig. 6.

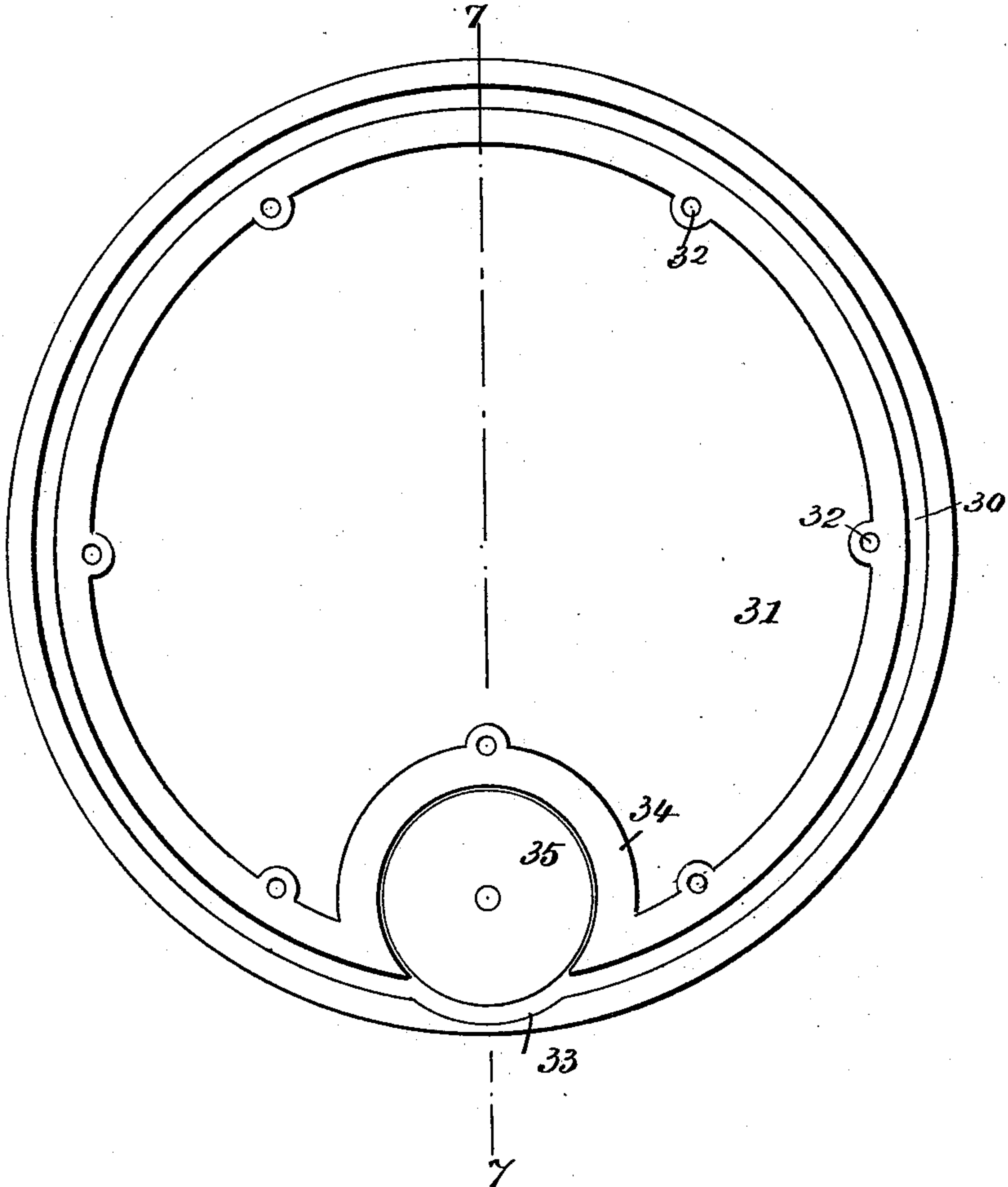


Fig. 7.

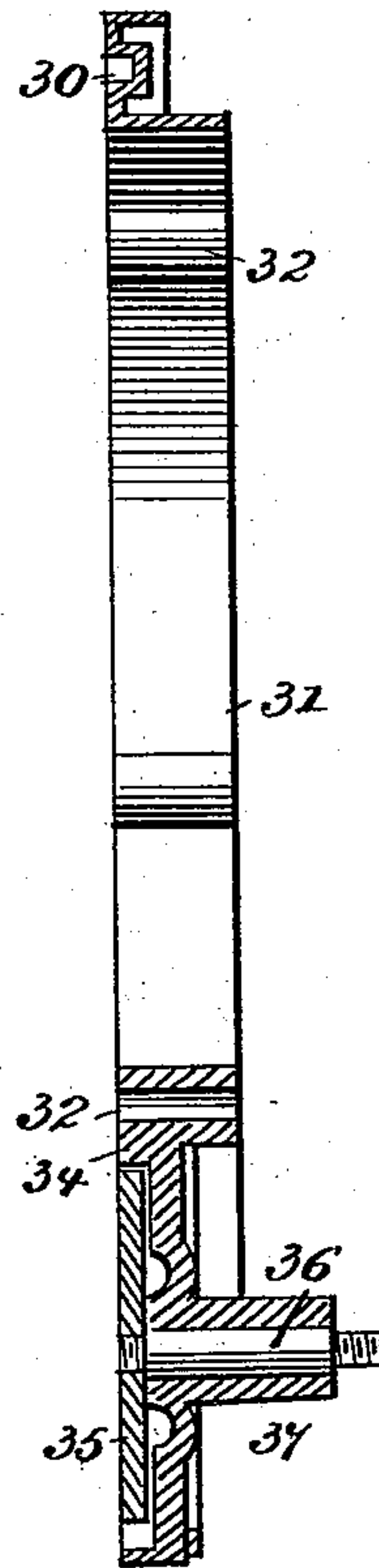


Fig. 8.

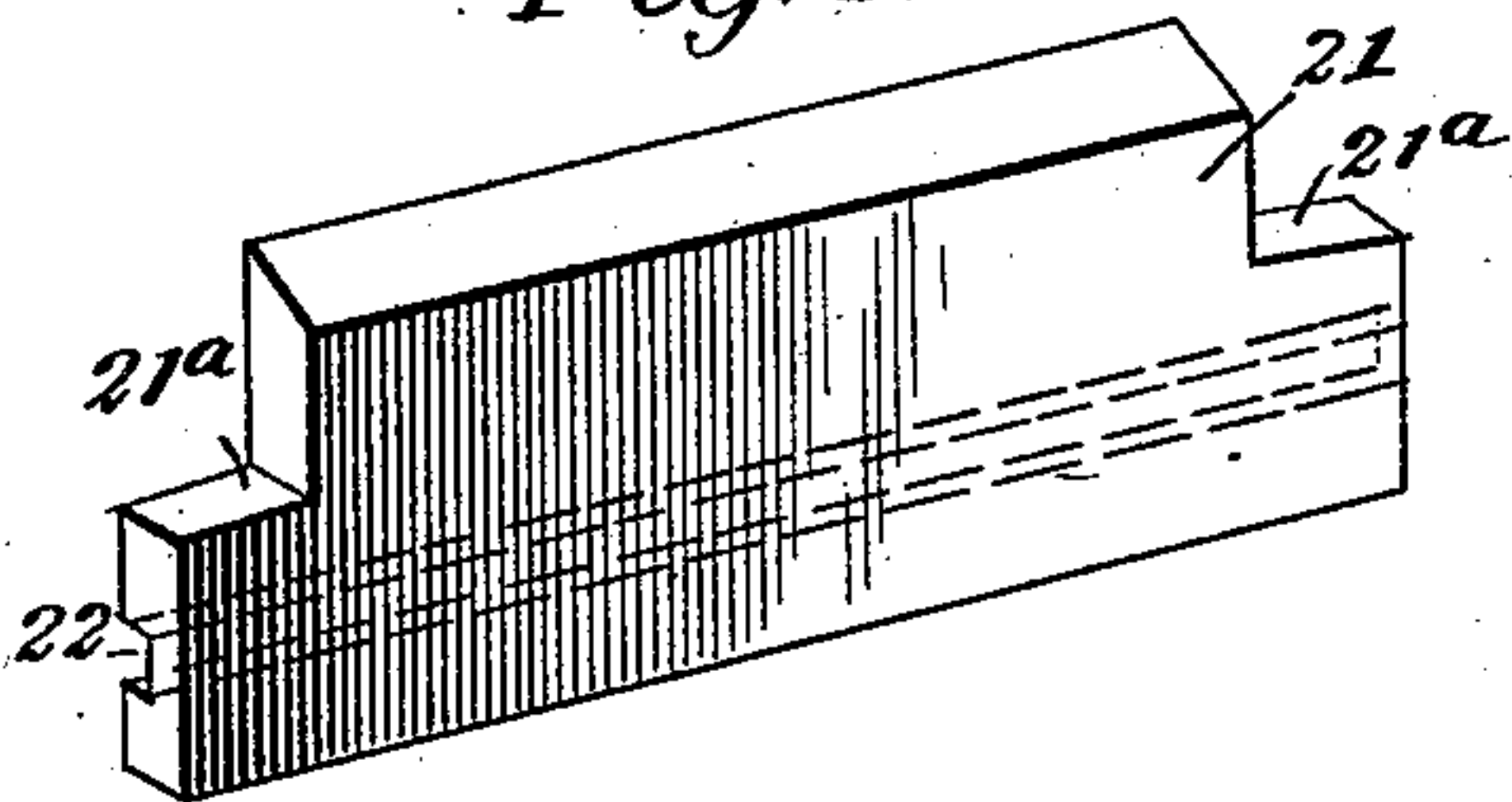
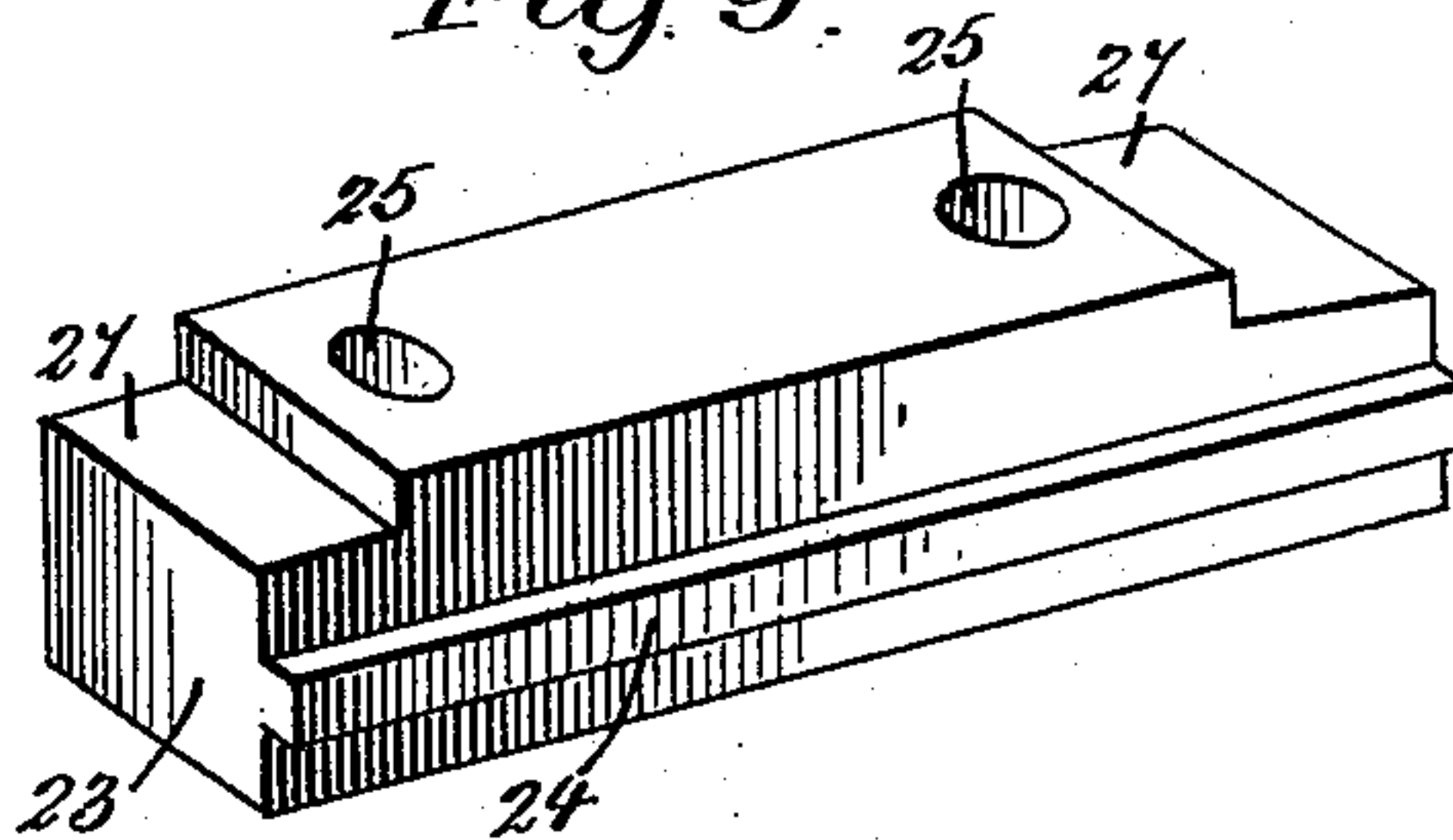


Fig. 9.



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WILLIAM F. HUTCHINSON, OF PASSAIC, NEW JERSEY.

WOOD-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 507,499, dated October 24, 1893.

Application filed August 13, 1892. Serial No. 442,952. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HUTCHINSON, of Passaic, in the county of Passaic and State of New Jersey, have invented certain
5 new and useful Improvements in Wood-Cutting Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in machines such as are adapted to cut strips of
10 veneer into blocks or smaller strips; and the object of my invention is to produce a machine by which a continuous or long strip of veneer may be very rapidly cut into small pieces of a uniform size and shape, which is
15 also adapted to hold the several pieces straight while they are in the machine, and which finally delivers them upon a carrier adapted to convey them to a desired locality, preferably a drier.

20 The machine, as shown in the accompanying drawings, is adapted to cut strips of veneer into kindling wood such as is tied up into bundles, but it will be understood that the machine may cut any other analogous articles such as pail, firkin or barrel staves,
25 shingles, or in fact, any articles which are of a substantially uniform width and thickness.

To these ends my invention consists in a wood cutting machine, the construction of
30 which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate
35 corresponding parts in all the views.

Figure 1 is a broken perspective view of a strip of veneer which is adapted to be cut into small pieces by the machine. Fig. 2 is a central vertical section of the machine. Fig. 3
40 is a rear elevation of the same. Fig. 4 is a broken enlarged sectional view, showing in detail the construction of the cutting drum, the manner in which the knives are fastened to the drum, and one of the ejecting rollers arranged at the side of the drum. Fig. 5 is
45 an enlarged detail sectional view, partly in elevation, showing the construction of the cutting drum and the detail construction of the ejecting mechanism. Fig. 6 is a detail inside elevation of the circular track in which
50 the ends of the ejecting rods are carried and the roller which extends into the path of the

rods. Fig. 7 is a vertical section on the line 7-7 in Fig. 6. Fig. 8 is an enlarged detail perspective view of one of the cutting knives; 55 and Fig. 9 is a perspective view of one of the spacers which is inserted between the knives.

The machine has a suitable and substantial frame 10, extending centrally and horizontally through which is a driving shaft 11, 60 the outer end of which is supported in a suitable post 11^a and the shaft is provided with tight and loose pulleys 12, although any suitable driving mechanism may be employed. The shaft carries a gear wheel 13 which engages a gear wheel 14 on a shaft 15, the latter being arranged above and parallel with the shaft 11, and to it is secured the upper or bearing drum 16 which is provided, on its face, with parallel grooves 17 adapted to receive the edges of the cutting knives 70 which are carried by the lower drum, as hereinafter described, and the upper drum is timed by means of the gearing just described, so that the grooves 17 will register 75 accurately with the knives. The lower drum is larger preferably than the upper drum, and has a central web 18 which terminates at the center in a hub 19 which is bolted or otherwise secured to the shaft 11. The outer portion of the web 18 merges into a flat bearing face 20 upon which the cutting knives 21 are arranged. These knives rest with their backs against the face 20 from which they radiate, and the knives are preferably regularly 85 spaced, although it is obvious that they may be irregularly spaced if it is desired to cut different sizes of wood at the same time.

Each knife is provided on one side with a longitudinal groove 22, as best shown in Fig. 90 4, and between the knives are spacers 23 which hold the knives the correct distance apart, and the spacers have on one side ribs 24 adapted to enter the grooves 22 of the knives, and the knives and spacers are thus 95 held firmly together. The spacers are provided with holes 25 near the ends, through which extend bolts 26, (see Fig. 4,) by which they are bolted to the face 20 of the drum, and the spacers have shoulders 27 at the ends 100 and upon the outer sides on which fit the outer flanges of the clamping rings 28. These clamping rings are circular, as shown in Fig. 5, and they fit firmly over the ends of the knives and

spacers, the knives having shoulders 21^a at the ends which register with the shoulders 27 of the spacers, and consequently the rings fit nicely upon the drum, knives and spacers.

5 The rings 28 have outer and inner flanges, as shown in Fig. 5, and they are bolted firmly to the edge 20 of the lower drum.

It will be seen from the foregoing description that the knives are thus held in a perfectly solid manner so that there is no chance for them to wiggle or work loose.

The knives 21 project far enough from the face of the lower drum to permit the severed wood to be forced between them and held between them, and the wood is ejected by the ejecting rods 29. These rods extend transversely across the lower drum and longitudinally between every pair of knives, there being preferably three rods between each pair of knives, although a greater or less number may be used. A plurality of rods between each pair of knives is essential, however, as this arrangement enables the rods to run smoothly over the ejecting rollers and to push the material from between the knives in a positive and easy manner. To this end the ejectors are caused to move successively over the cam wheels 35 thus starting the severed wood at one edge before ejecting it bodily.

30 The rods 29 are longer than the width of the lower drum and they project beyond the ends of the drum, and their ends are held to run in circular tracks or grooves 30 which are produced in the plates 31, as best shown in Figs. 6 and 7, and the plates 31 are provided with bolt holes 32 which enable them to be securely bolted to the ends of the frame 10 on the inner sides of the same and next the lower drum. This arrangement is shown clearly in Fig. 5,

40 the ejecting rods with one exception being omitted from this figure to clearly show the construction.

The tracks or grooves 30 describe a circle corresponding to the circle formed by the face of the lower drum at the point where the ejecting rods 29 rest upon it, and it will be seen that when the lower drum is rotated, the rods 29 will be carried around with it, and the ends of the rods will pass smoothly through the tracks or grooves 30. The tracks or grooves 30 are bent downward at the bottom, as shown at 33 in Fig. 6, and above this break in each groove is a casing 34 which is produced on the inner side of the plate 21, and in this casing is journaled a roller 35, the journal 36 of the roller being held to turn in a suitable box 37 which extends outward through the adjacent portion of the frame 10, (see Fig. 5), and the journal is held in place by a nut 38 secured to its outer end. The rollers 35 project a little below the normal circle of the tracks 30, as shown in Fig. 6, and consequently when the ejecting rods are made to pass beneath, the rollers are forced into the depressions 33 and this brings the rods to the outer edges of the knives, as shown clearly in Figs. 2 and 5, and this movement

pushes out the material which is held between the knives, and the material falls upon the carrier beneath. It will be seen that this arrangement provides for an easy movement of the ejecting rods, and the construction of the rollers and rods is very durable and never gets out of order.

To prevent any accidental spilling or premature falling out of the several pieces which are held between the knives, bands 39 are arranged just outside the edges of the knives and on the back side of the machine, these bands having at their upper ends a beveled strip 39^a which projects well beneath the upper drum 16, see Fig. 2, and the bands are held in place by cross pieces 40 which are fastened, as shown at 41, to the frame of the machine.

The lower ends of the bands extend well below the lower cross piece 40, and these ends have a slight spring action and are bent sharply downward, as shown at 42, so as to deliver upon a carrier belt 43. These bands thus serve to prevent the premature flowing out of the material between the knives, and the downward bends 42 occur at a point just beneath that where the ejecting rods are pushed downward, as shown clearly in Fig. 2, so that the bands serve to straighten the material and cause it to extend longitudinally across the carrying belt 43. By this means the cut articles are delivered in a perfectly parallel position upon the belt. The belt 43 runs over a pulley 44 which is journaled on a shaft 45 beneath the lower drum and on the back side of the machine, and the opposite end of the belt extends over a suitable driving pulley not shown but which may be arranged at any desired point. The belt runs between suitable guides 46 in the usual way, so as to prevent any accidental spilling of the wood.

On the front of the machine and at a point nearly opposite the meeting portions of the upper and lower drums, is a guide 47 having side flanges 47^a, and this guide is pivoted on supports 48 secured to the main frame, as shown clearly in Fig. 2. The guide may be adjusted and held in place by a screw 48^a and through the guide is run the strip of veneer 49 which is to be cut.

When the machine is set in operation both drums revolve rapidly, and the strip 49 is fed through the guide 47 between the drums, and the movement of the knives 21 serves to pull in and feed the strip so that it is rapidly cut into small blocks or sticks. These are held between the knives 21 until they reach the lower end of the straightening bands 39, at which point the rods or ejectors 29 are pushed downward by the wheels or rollers 35, and the cut wood is made to drop upon the bent ends 42 of the bands 39 and is delivered straight upon the carrying belt 43. It will be noticed that by this arrangement the wood may be very rapidly cut and the straightening bands and carrier keep it straight so

that it is delivered in a suitable condition for bundling.

Having thus described my invention, I claim as new and desire to secure by Letters

5 Patent—

1. A wood cutting machine, comprising a revoluble cutting drum having projecting peripheral fixed knives, a revoluble bearing drum having grooves to register with the
10 knives of the cutting drum, a plurality of ejectors arranged between each pair of knives, and mechanism to move the ejectors successively outward at a certain place during the revolution of the cutting drum, substantially
15 as described.

2. The combination with the revoluble cutting drum and the projecting knives arranged around its circumference, of a plurality of ejecting rods held between each pair of knives
20 and projecting from the ends of the cutting

drum, circular tracks arranged to receive the ends of the rods, said tracks having bends therein, and bearing rollers arranged opposite the bends in the tracks and adapted to press upon the ends of the ejecting rods in
25 succession, substantially as described.

3. In a wood cutting machine, the combination with the cutting drum having a flat bearing face, of knives arranged with their
30 backs to the bearing face, spacers arranged between the knives and having a dovetail or tongue and groove connection therewith, and clamping rings secured to the sides of the drum and held to embrace the ends of the spacers and knives, substantially as described.
35

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Witnesses:

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