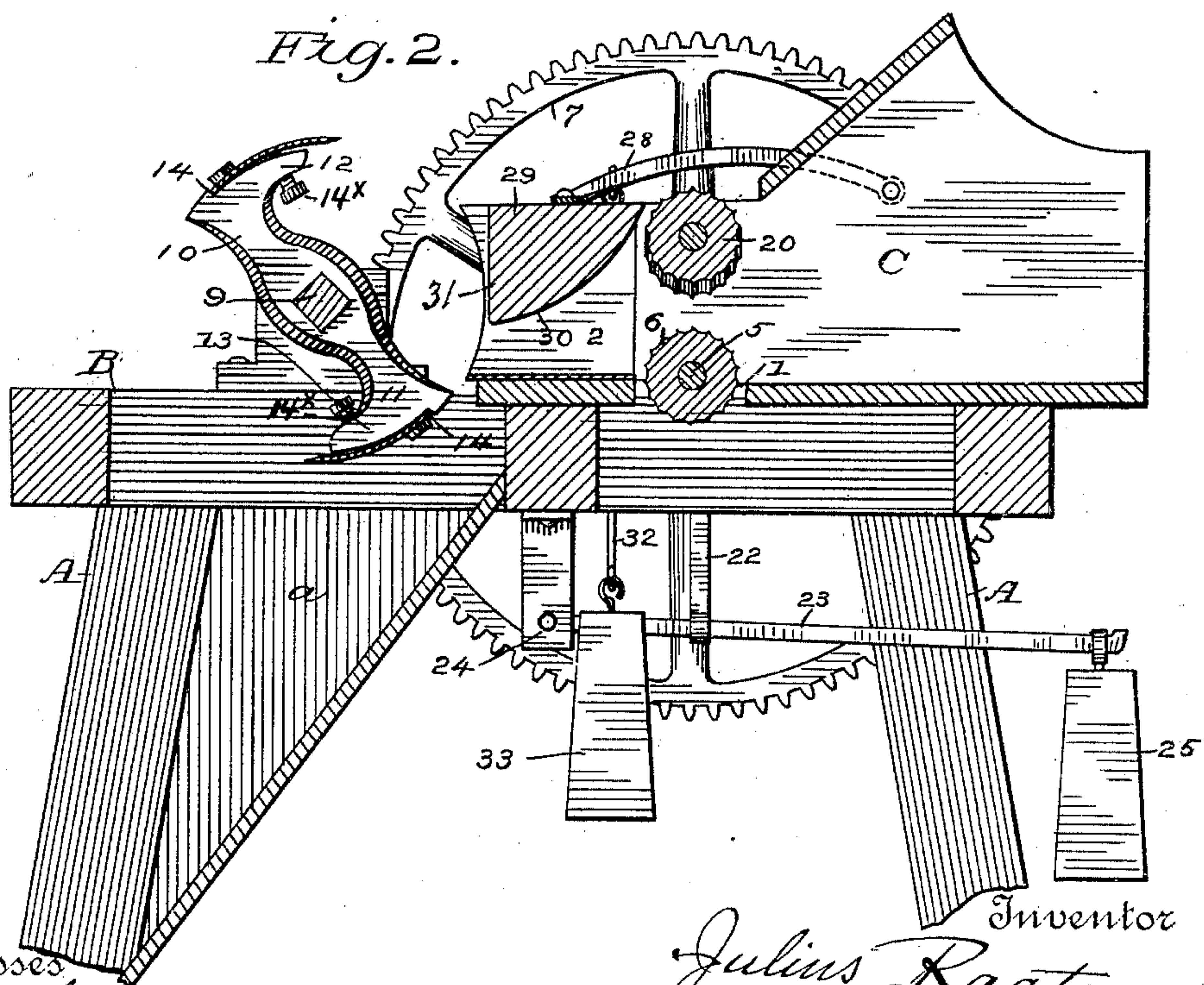
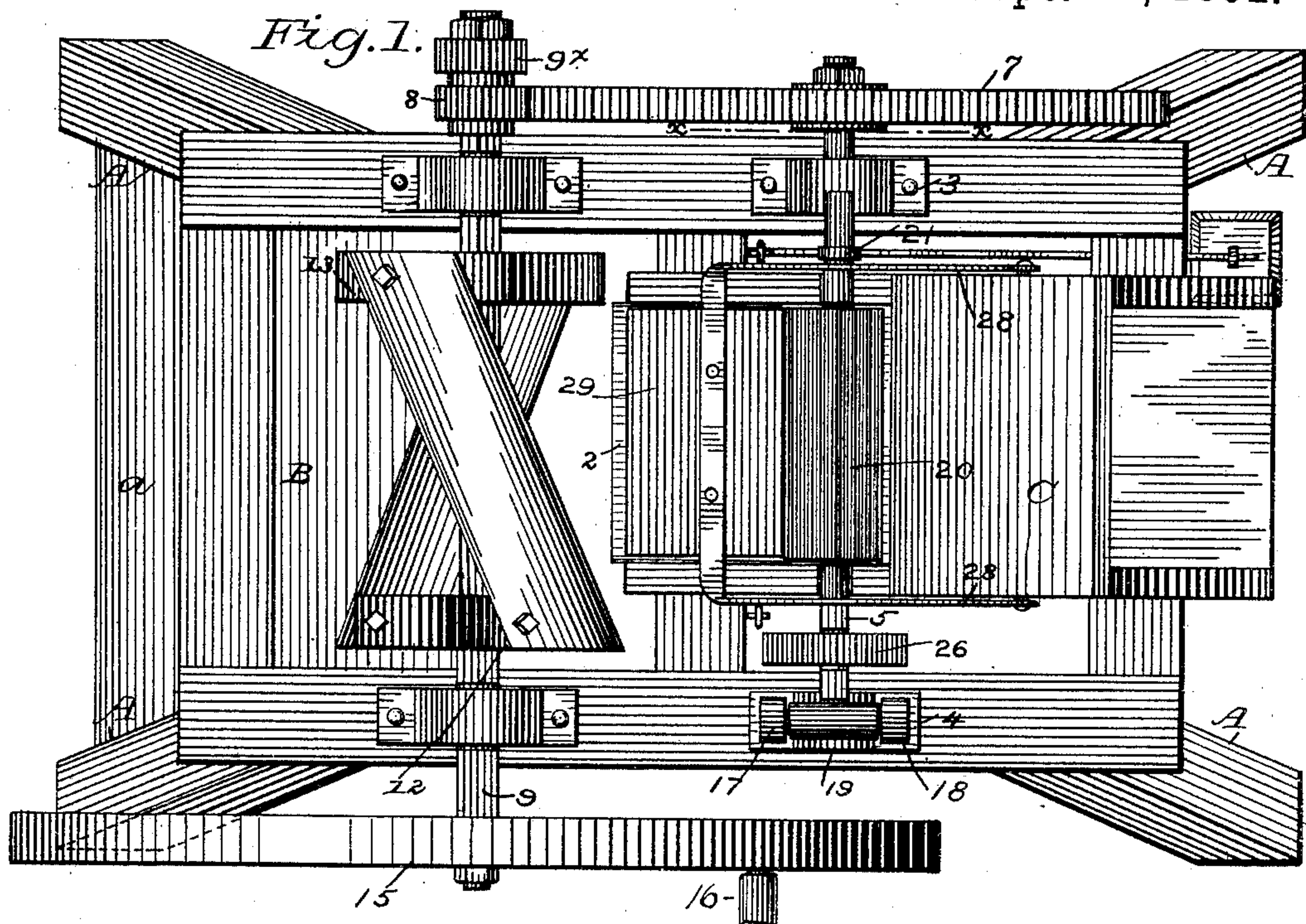


J. RAATZ.
STRAW CUTTER.

No. 482,413.

Patented Sept. 13, 1892.



Witnesses
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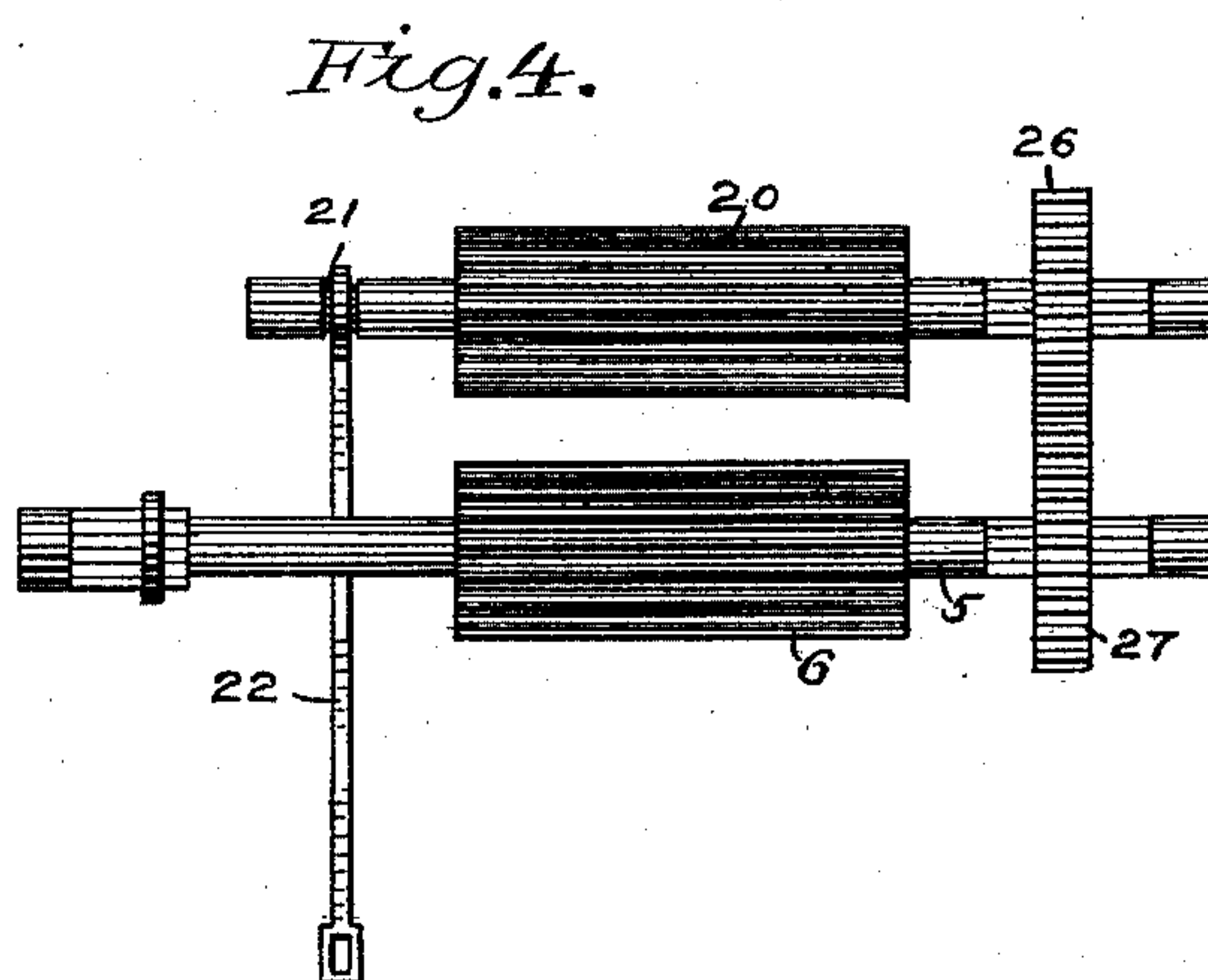
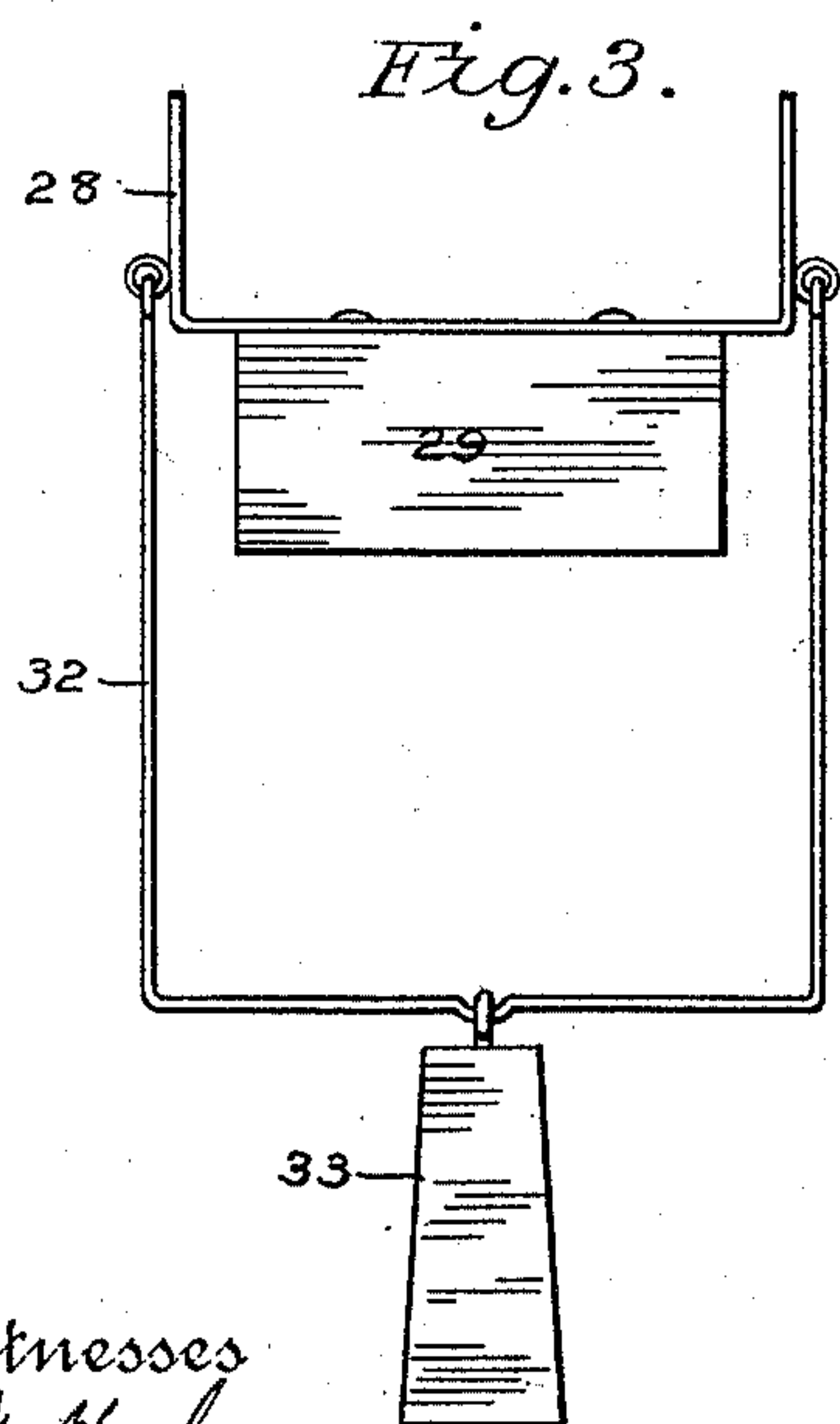
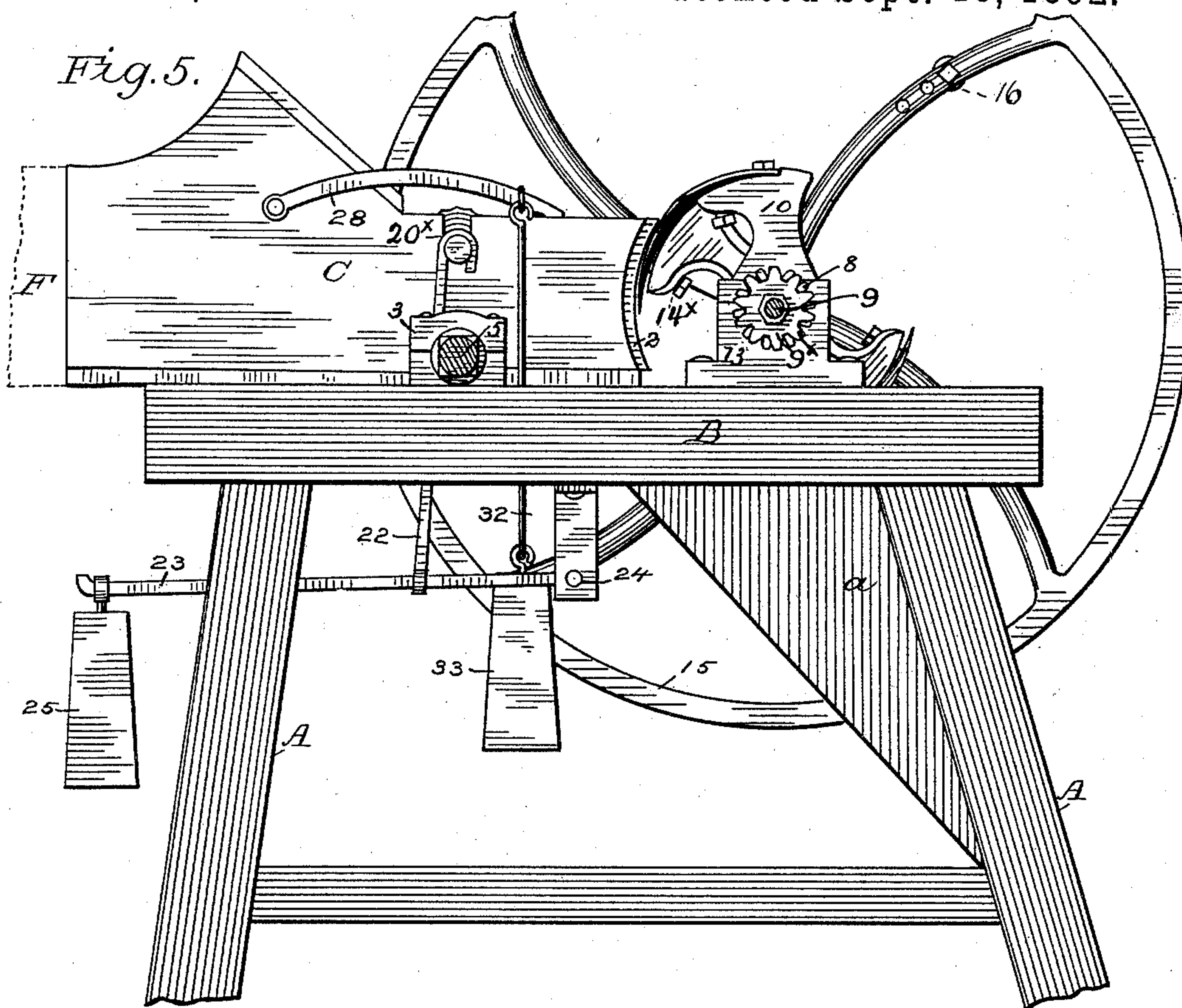
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JULIUS RAATZ, OF MANISTEE, MICHIGAN.

STRAW-CUTTER.

SPECIFICATION forming part of Letters Patent No. 482,413, dated September 13, 1892.

Application filed December 5, 1891. Serial No. 414,164. (No model.)

To all whom it may concern:

Be it known that I, JULIUS RAATZ, a citizen of the United States of America, residing at Manistee, in the county of Manistee and State of Michigan, have invented certain new and useful Improvements in Straw-Cutters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to improvements in straw-cutters, and the object is to provide means in a machine of this kind for adjustably and automatically regulating the feed, and another object is to provide a machine of the above character which shall be simple and cheap in construction and durable and efficient in use and operation.

With these ends in view my invention consists in certain novel features and elements of the construction and the aggroupments or combinations of parts, as will be hereinafter described, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a plan view of the machine. Fig. 2 is a central longitudinal vertical sectional view. Fig. 3 is a detail of the presser-block. Fig. 4 is a detail of the feed-rollers; and Fig. 5 is a side elevation, partly in section, taken on the line *xx* of Fig. 1, showing the weighted lever for bearing down the top feed-roller.

A designates standards, on which is mounted a substantial frame B, whereon the straw-box and cutting mechanism are arranged. A chute *a* leads from the straw-box to deliver the cut straw below. The straw-box C is of the shape and construction shown in the drawings, having an opening 1, in which the lower feed-roller runs or projects. The front ends of the side pieces of the straw-box are concaved in vertical direction, and in the front portion is secured a metal lining 2, covering the bottom and extending up the sides and having the side pieces concaved to the curve of the stroke of the rotary knives.

In the bearings 3 4 on the frame is a shaft 5, carrying the lower feed-roller 6.

On the extended end of the shaft 5 is mounted a large gear-wheel 7, which meshes with a small gear-wheel 8 on the shaft 9, on which the cutters are secured.

To vary the length of the cut, the gear-wheel 8 is made detachable, so that it may be removed and replaced or exchanged for a similar gear-wheel 9^x, having a different number of teeth, and by this change the cut of the material is made shorter or longer, the smaller gear or pinion causing the shorter cut.

The knife-frame consists of arms 10 11, formed with oppositely-directed bearing-pieces 12 13, on the faces of which are formed seats 14. The arms are arranged out of line with each other, as shown in the drawings, and the cutters are bent spirally, as shown, and given a shearing cut on the material. The ends of the cutters are secured on the seats 14 by screw-bolts, and to adjust the cutting-edge adjusting-screws 14^x are let through the pieces 12 and 13, which bear with their ends against the knives, and by this means the edges may be set to suit the cut. On the end of the shaft 9 is mounted a fly-wheel 15, having a handle 16, by which the power is applied to operate the machine.

On the side rail of the frame are mounted standards 17 18, in which is journaled a cross-piece 19, having a bearing formed therein in which is journaled one end of the shaft of the top feed-roller 20, the other end of the feed-roller shaft resting in a bearing 20^x, formed in the side of the box, the shaft being extended and turning in a bearing 21 in a vertically-movable rod 22, the other end of the rod being connected to a lever 23, fulcrumed at 24 to the under side of the frame, and carrying a weight 25, adjustable on the lever. On the shaft of the upper feed-roller is a gear-wheel or pinion 26, meshing with a similar pinion 27 on the shaft of the lower feed-roller, whereby the upper feed-roller is rotated in unison with the lower one. By mounting the upper feed-roller in the rocking bearing or cross-piece 19 and arranging the other end in a yielding bearing the roller

is given the function of automatically adapting itself to different quantities of straw or fodder as it passes through the cutters. Since different quantities of material may
 5 move through the feed-rollers and they automatically adapt themselves to the varying thickness of the passing material, it is essential that the element or part which operates upon the material after it leaves the
 10 feed-rollers to maintain pressure thereon for the cutters to effectively cut shall also be arranged to operate adjustably and automatically to adapt itself to the quantity of the material in the straw-box. For this purpose
 15 I have devised the following-described mechanism to produce a uniform adjustable pressure on the material after passing the feed-rollers and while being presented to the action of the cutters.
 20 On the sides of the straw-box are pivotally secured the arms of a bail 28, to the cross-bar of which is rigidly secured a presser-block 29, having a curved under face 30, arranged with its lower part in the direction of
 25 the cutters, as shown in the drawings. This pressure-block sets between the rollers and the cutters, and has its outer face 31 arranged to escape the cut of the knives without contact.
 30 To the forward part of the arms of the bail 28 is connected a swinging bail 32, which passes under the straw-box and has a weight 33 hung on it, as shown, whereby the presser-block is at all times drawn down on the
 35 straw or fodder with a regular yielding force. The illustrations show the short-straw box; but to the rear of this in practice is connected

and arranged a straw-box F, into which is deposited the straw or fodder which is fed to the feed-rollers. 4c

The operation is readily perceived from the foregoing description, but may be rehearsed at this place, as follows: The material being deposited in the straw-box is pushed forward until it is engaged by the rollers, the upper 45 one of which being yielding, as described, automatically adjusts itself to the thickness of the body of the material, and is carried forward by the action of the feed-rollers under the presser-block, which also automatically 50 adjusts itself to the thickness of the material and permits the same to be fed to the action of the knives.

Having thus described my invention and stated its principle and mode of operation, as 55 required by the statute, I now particularly specify what I claim, and desire to secure by Letters Patent, as follows:

In a straw-cutter, the combination, with the straw-box, the rotating knife-wheel, and the 60 feed-rollers, of the bail 28, having its arms pivotally secured to the sides of the straw-box, the presser-block 29, arranged between the feed-rollers and the knife-wheel, and rigidly secured to the cross-bar of said bail, and 65 the weighted bail 32, pivotally suspended from the forward end of the bail 28, substantially as and for the purpose specified.

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

JULIUS RAATZ.

Witnesses:

A. O. WHEELER,
 S. BEDFORD.