

No. 619,359.

Patented Feb. 14, 1899.

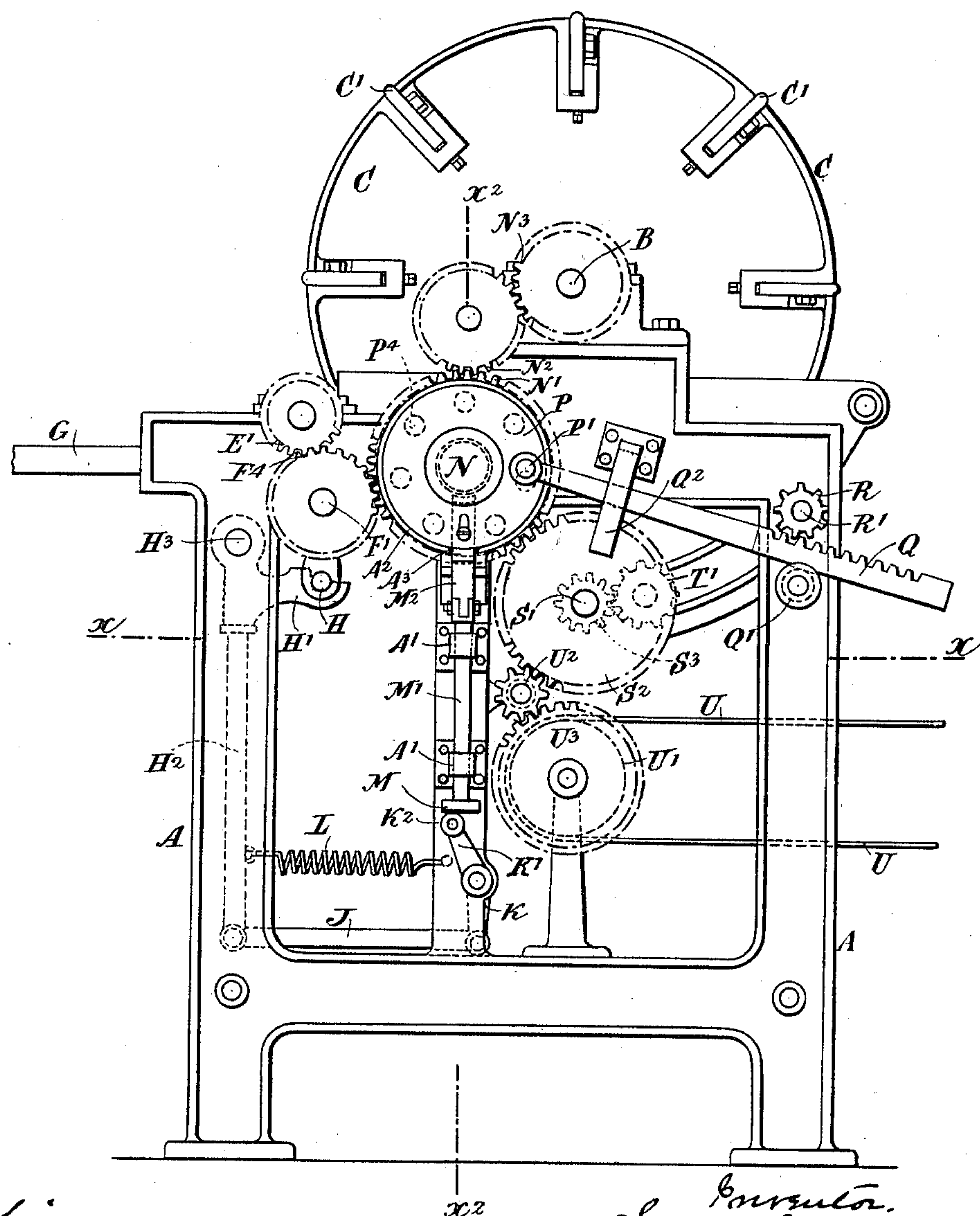
S. STANBRIDGE.
SCUTCHING MACHINE.

(Application filed Dec. 27, 1897.)

(No Model.)

3 Sheets—Sheet 1.

Fig 1.



Witnesses:
James M. Smith
L. M. M. M.

Inventor.
Samuel Stanbridge,
by
R. M. M. M.
Attorney.

No. 619,359.

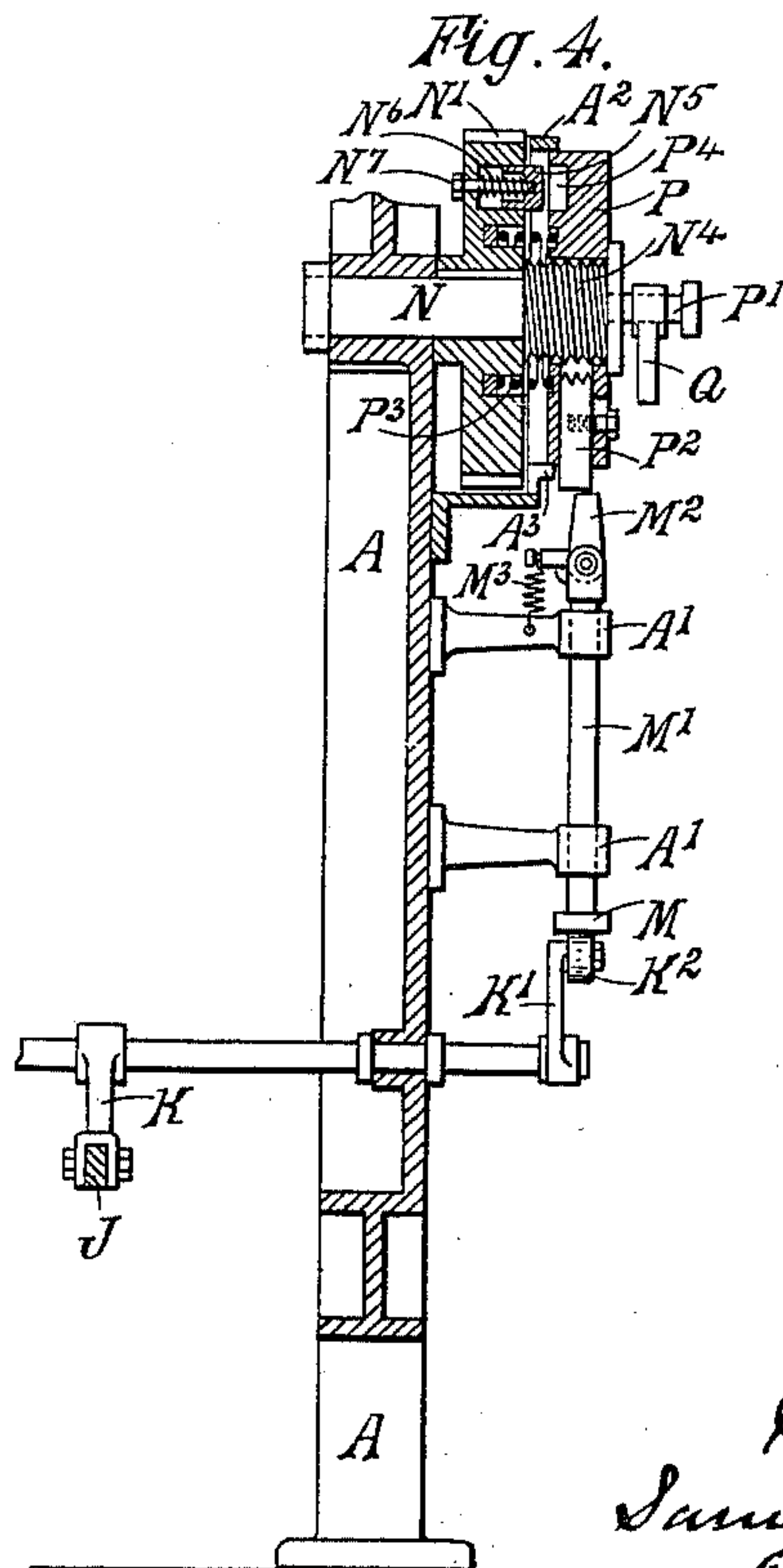
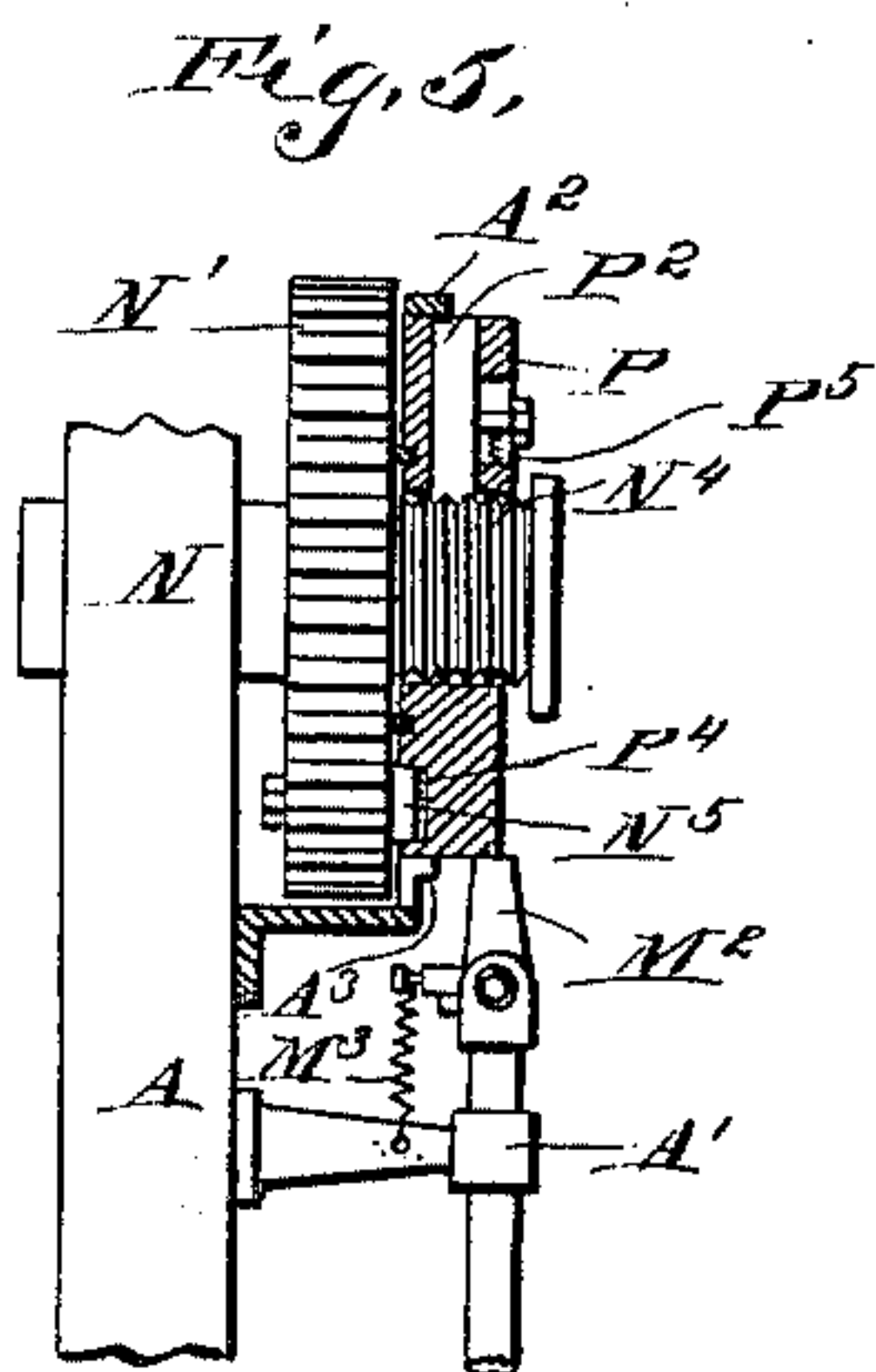
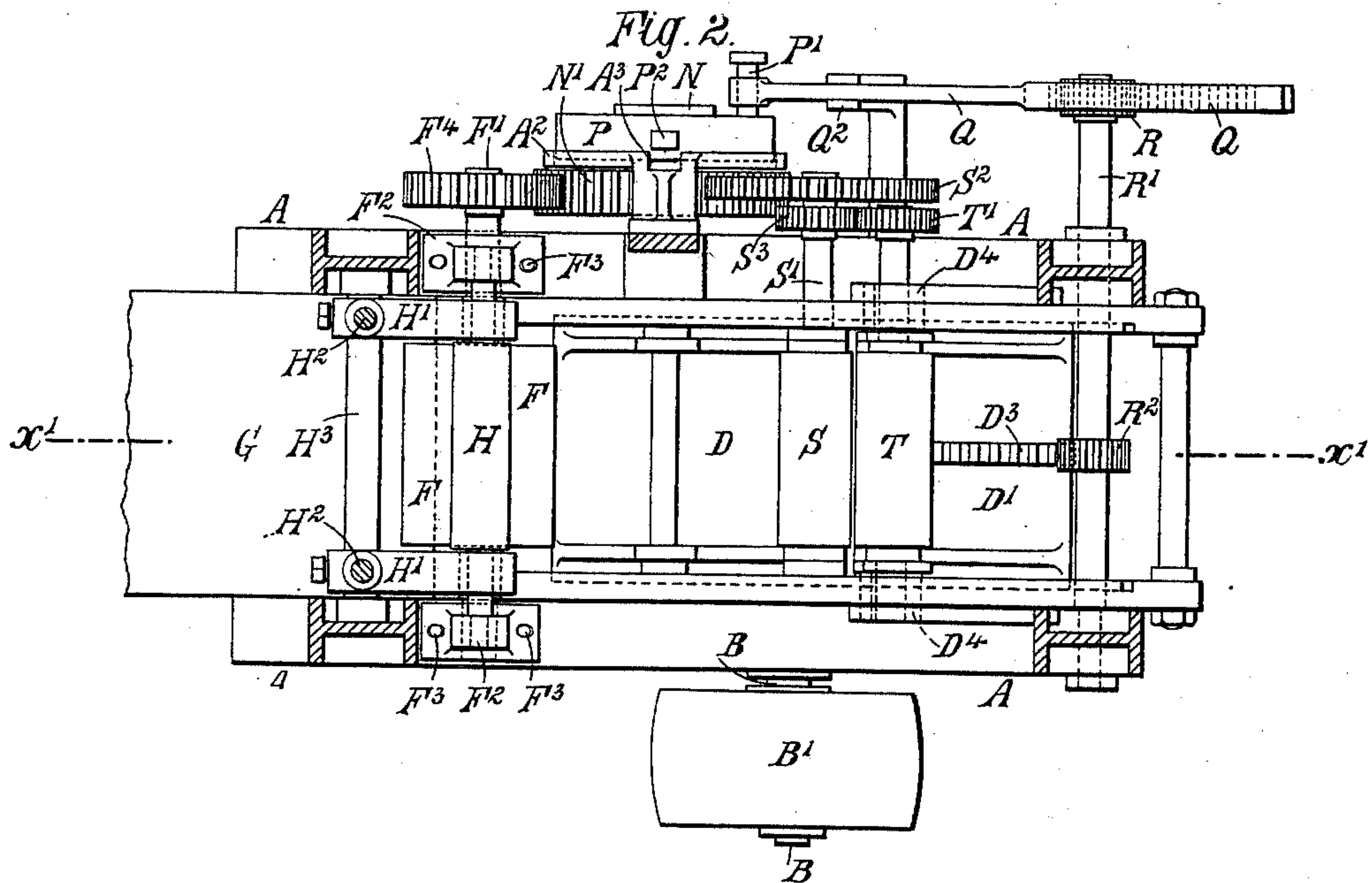
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(No Model.)

3 Sheets—Sheet 2.



Witnesses:
James Donald.
L. V. V. V.

Inventor:
Samuel Stanbridge
by R. M. M. M.
Attorney.

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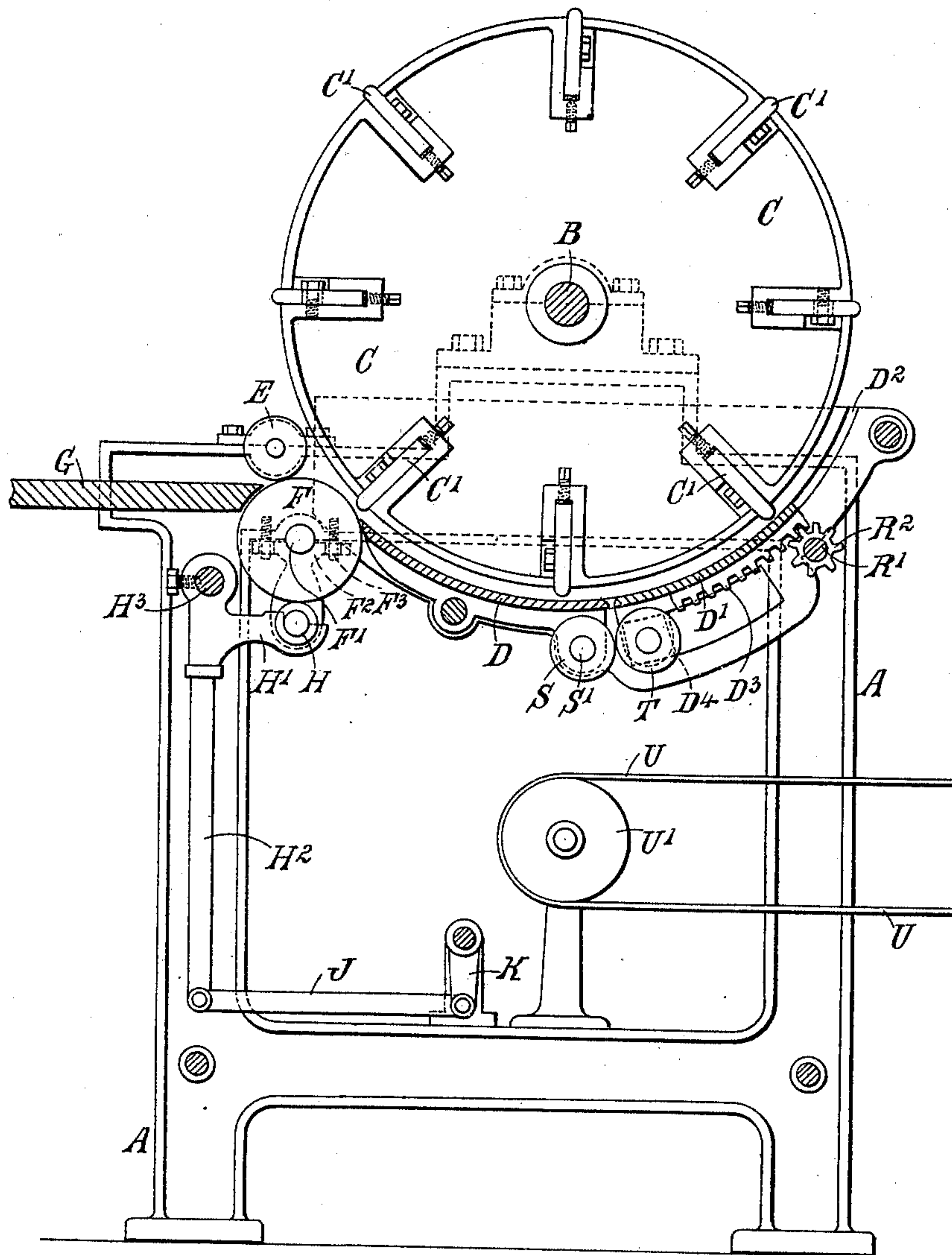
S. STANBRIDGE.
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(Application filed Dec. 27, 1897.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 3.



Witnesses:
James Donald
L. Ireland

Inventor.
Samuel Stanbridge
by R. C. Mitchell,
Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL STANBRIDGE, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF
TO SYDNEY SHORTER, OF SAME PLACE.

SCUTCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 619,359, dated February 14, 1899.

Application filed December 27, 1897. Serial No. 663,548. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL STANBRIDGE, engineer, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Scutching-Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation showing one form of my improved fiber cleaning or scutching machine. Fig. 2 is a horizontal section on the line $x x$, Fig. 1, looking from beneath. Fig. 3 is a vertical section on the line $x' x'$, Fig. 2, and Fig. 4 is a vertical section on the line $x^2 x^2$, Fig. 1, illustrating details of construction. Fig. 5 is a view similar to Fig. 4, showing the parts in different positions.

Like letters indicate corresponding parts throughout the drawings.

My invention relates to scutching-machines for extracting and cleaning vegetable fibers or preparing them for industrial uses, and is chiefly designed to provide means whereby in the treatment or scutching of fiber-bearing leaves or like substances the whole of each of the said leaves or the like can be operated upon by means of a single beating or scutching wheel in one operation and without the necessity for handling the leaves or the like after they have been fed into the machine. For this purpose I make the scutching-board in sections with an opening or gap between the same at a suitable distance from the feed-rolls, and I provide suitable means whereby when any leaves or the like are introduced between the feed-rolls one of the said sections will be automatically withdrawn or moved out of its normal position so as to enlarge or widen the said opening or gap in the scutching-board, so that the end of the beaten fibers will descend through the same before the leaves or the like are released from the said feed-rolls; and I also provide suitable means whereby the movable section of the scutching-board will at the proper time be automatically returned to its normal position, and the end of the beaten fibers will then be seized by another pair of rolls, whereby the said fibers will be drawn through the said opening or gap. In this latter operation the part of the leaves or the like not previously acted

upon by the beaters will be subjected to their action before being drawn through the opening or gap in the scutching-board.

I find it advantageous in some cases to employ two pairs of rolls for feeding the leaves or the like into the machine, those of one pair having smooth surfaces and those of the other pair surfaces which are toothed, corrugated, or otherwise more or less roughened, so that they will serve for crushing the leaves or the like.

Referring to the drawings, A is the frame of the machine. B is a shaft mounted in bearings thereon and carrying a beater-wheel C, provided with a suitable number of beaters C'. The shaft B is provided with a driving-pulley B', through which motion is imparted to the machine.

In the frame A, beneath the beater-wheel C, is mounted a fixed section D of the scutching-board and adjacent thereto a movable section D' of the said scutching-board. This section D' is adapted to slide in guideways D², formed on or attached to the frame A and concentric with the beater-wheel C in such a manner that the said movable section or board D' can be withdrawn to a suitable distance from the fixed section or board D to permit the introduction of the beaten ends of the leaves or the like between the discharge-rollers, as hereinafter described. This movement of the section or board D' is effected by mechanism controlled by one of the feed-rolls E F, which take the fibrous material to be cleaned from the feeding-table G. For this purpose the shaft F' of the lower roll F, which is preferably of larger diameter than the upper roll E, is mounted in bearings, the lower halves F² whereof are arranged to slide vertically on guide bars or studs F³ and are supported on a bar H, resting in seats or recesses in the arms H' of bell-crank levers H' H². These bell-crank levers are pivoted at H³ and are connected, by means of links J, to the arms K of another lever K K', the roll F being normally maintained in contact with the roll E by means of springs L, attached at one end to the arms H² of the levers H' H² and at their other ends to the frame A. The arm K' of the lever K K' is provided at its upper end with a roller K², bearing against a plate M on

the lower end of a bar M' , which slides in suitable guides A' on the frame A .

A shaft N is mounted in suitable bearings on the frame A and carries a spur-wheel N' , to which motion is imparted by means of spur-wheels N^2 N^3 from the main shaft B and which is connected by suitable gear-wheels F^4 E' to the feed-rolls E F . The shaft N is provided with a screw-threaded extension N^4 , on which a crank-disk P is free to slide to and fro. To the pin P' of this crank is connected a rack Q , which is supported at its under side by a guide-roller Q' and at its sides by means of a forked guide Q^2 and which engages with a pinion R , mounted on a shaft R' . This shaft also bears a pinion R^2 , which is geared with an arc-shaped rack D^3 on the movable portion D' of the scutching-board.

In order to provide a detachable clutch or driving connection between the crank-disk P and the gear-wheel N' , a block or piece P^2 , having a segmental screw-threaded end, is arranged to slide in a slot or guideway in the disk P and is adapted to be pressed upward by an arm M^2 , pivoted to the rod M' , into engagement with the screw-threaded extension N^4 of the shaft N , so that as the latter turns relatively to the disk P and segment P^2 the disk P will be drawn against the pressure of its spring P^3 toward the toothed wheel N' . The disk P is, moreover, provided with holes P^4 on its inner face, into one or other of which a driving-pin N^5 , projecting from the inner side of the gear-wheel N' , is adapted to enter, and thus positively connect the two parts together. In order to retain the segment P^2 in engagement with the screw N^4 during a complete revolution of the wheel N' , a flange or annular casing A^2 , provided with a slot A^3 , is secured to the frame A concentrically with the shaft N . When the segmental nut P^2 is moved into engagement with the screw N^4 , the lower end of the said segmental nut P^2 will be raised so that it engages thread N^4 , and it will be carried to the left and will enter within the flange A^2 as the disk P moves toward the spur-wheel N' , and the segmental nut P^2 will then be maintained by the said flange in engagement with the screw N^4 while the disk P is rotating until it again reaches the slot A^3 , when it drops through said slot and is then forced out to the right by the combined action of the spring P^3 and the screw-thread N^4 , the disk P being simultaneously moved away from the pin N^5 by said spring, so that it will no longer be driven by the wheel N' . When the block or nut P^2 is thus forced out, it engages the pivoted arm M^2 and pushes it outward to the right against the action of a spring M^3 , this spring returning the said arm to its original position, when by the rising of the feed-roll F the bar M' is allowed to descend. To permit of the disk P being moved inward when the driving-pin N^5 does not register with any of the holes P^4 , the said pin is so arranged that it is capable of sliding in a hole or seat in the wheel N' , and I

provide it with a spring N^6 , adapted to press it outward, its movement in this direction being limited by means of a bolt N^7 , the head of which presses against the outside of the wheel N' . If desired, a spiral spring P^5 may be provided for assisting the movement of the segmental nut P^2 away from the screw-thread N^4 , as shown in Fig. 5.

On the adjacent edges of the fixed and movable parts D D' of the scutching-board are mounted discharge-rollers S T , one of which, S , is stationary and is mounted on a shaft S' , having rotary motion imparted to it by means of a spur-wheel S^2 from the spur-wheel N' , while the other, T , moves with the part D' of the scutching-board, for which purpose it turns in bearings D^4 at the inner end thereof and has rotary motion imparted to it from the shaft S' by means of gear-wheels T' S^3 .

In order to receive and convey the cleaned fibers from the discharge-rollers S T , a conveyer-band U is preferably employed, passing over a pulley U' , to which rotary motion is imparted from the gear-wheel S^2 by means of a pinion U^2 and toothed wheel U^3 .

The operation of the improved apparatus is as follows, viz: When a batch of the fibrous material is introduced between the feed-rolls E F , the roll F is thereby depressed, the crank-disk P is thrown into gear with the toothed wheel N' through the medium of the lever K K' and the arm M^2 , and the movable part D' of the scutching-board is moved away from the stationary part D thereof through the medium of the rack Q . The fibrous material fed in over the scutching-board D by the action of the feed-rolls E F is meanwhile acted upon by the beaters C' . When the forward end of the batch of fibers reaches the end of the fixed section of the scutching-board, it falls through the space or gap between the said fixed part and the movable part of the scutching-board. When this has taken place, the movable part D' of the scutching-board returns to its original position, the disk P making one complete revolution, and the leading end of the batch of fibers is then gripped between the discharge-rollers S T , which draw out the cleaned fibers and deliver them onto the conveyer-band U . As soon as the rear or trailing ends of the fibers pass out from between the feed-rolls E F they are thrown by the beaters C' over the movable section D' of the scutching-board and are beaten and cleaned before being finally drawn out by the rollers S T and delivered onto the conveyer-band U . A fresh batch of fibers is then inserted between the rollers E F , and the above-described operations are repeated as often as may be desired.

In cases where several of the above-described machines are to be employed they may be advantageously coupled by means of the shaft B and driven by means of a single pulley, gear-wheel, or the like.

It is obvious that, if desired, any other suitable mechanism can be employed for sepa-

rating and bringing together the two portions D D' of the scutching-board, so as to enable the leading end of the fibers to be introduced between the discharge-rollers S T, and other devices may, if desired, be used for withdrawing the beaten fibers from the machine.

I can, if desired, somewhat further modify the construction of my apparatus without departing from the nature of my said invention.

10 What I claim is—

15 1. A scutching-machine comprising a scutching-board made in parts or sections one of which is adapted to be automatically moved out of its normal position to permit the passage of the beaten fibers through an opening or gap between the said movable section and a fixed section of said board, in combination with means for drawing the beaten fibers out of the machine through said opening or gap, 20 substantially as, and for the purposes, hereinbefore described.

25 2. The combination, with the feed-rolls and beaters, of the divided scutching-board, and means, substantially such as above described, whereby the withdrawal of the movable section of the said scutching-board to permit the passage of the beaten ends of the fibers between the same and the fixed section of the said scutching-board, will be automatically 30 effected by the separation of said feed-rolls when the fibers are introduced between them, substantially as, and for the purposes, hereinbefore described.

35 3. In a scutching-machine, the combination, with the beater-wheel, of a divided scutching-board comprising a fixed section and a movable section in combination with operating

mechanism whereby said movable section is automatically moved away from and toward said fixed section, for the purposes above 40 specified.

4. In a scutching-machine, the combination with the beater-wheel of a divided scutching-board comprising a fixed section and a movable section, discharge-rolls carried by the 45 adjacent edges of said fixed and movable sections, feed-rolls, and operating mechanism actuated by one of said feed-rolls, whereby said movable section is moved away from and toward said fixed section, substantially as, and 50 for the purposes, above specified.

5. In a scutching-machine, the combination with the beater-wheel of a divided scutching-board one of the sections whereof is movable 55 relatively to the other, feed-rolls one of which is movable away from and toward the other, operating mechanism actuated by the movable feed-roll, whereby the movable section of said scutching-board is moved backward and forward to permit the beaten ends of 60 the fibers to pass between them, and means whereby, when said movable section has been moved forward, the beaten ends of the fibers will be drawn through between said sections, substantially as, and for the purposes, above 65 specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL STANBRIDGE.

Witnesses:

DAVID YOUNG,
ALEXANDER W. ALLEN.