No. 612,218. Patented Oct. 11, 1898.

S. C. WEIKE.

MATCH BUNCHING MACHINE.

(Application filed Sept. 27, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

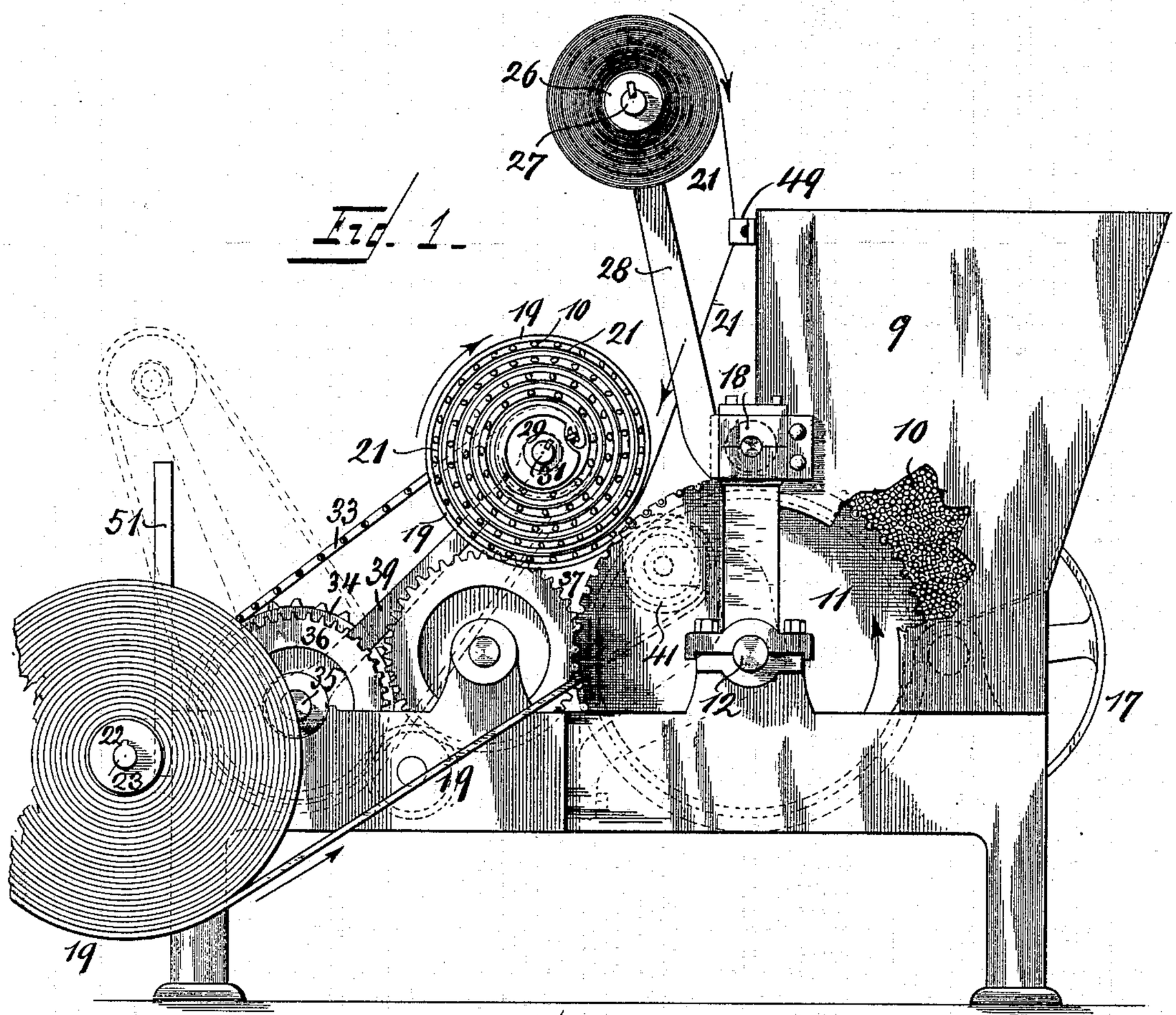

Fig. 2.

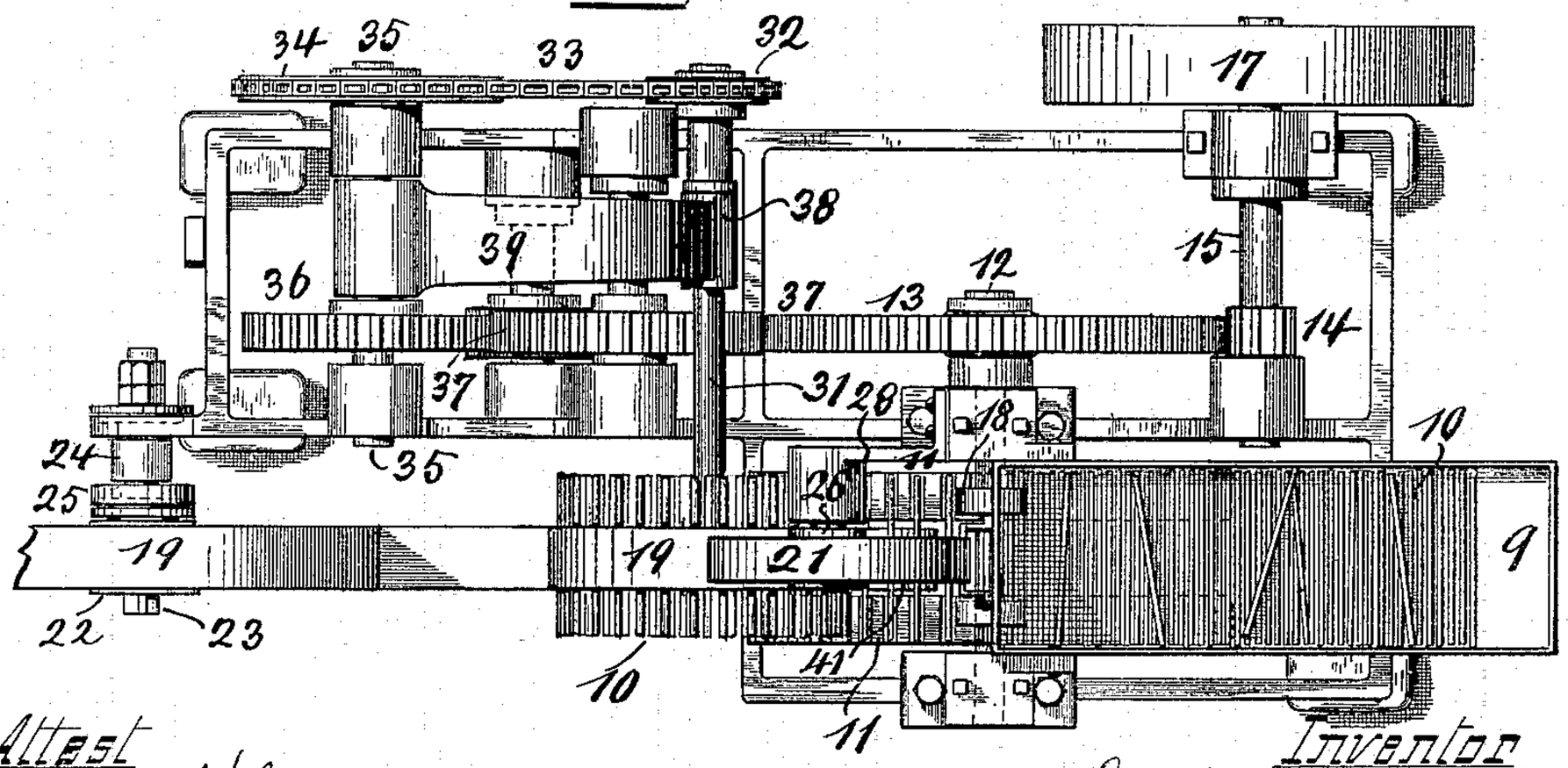

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Fig. 3.

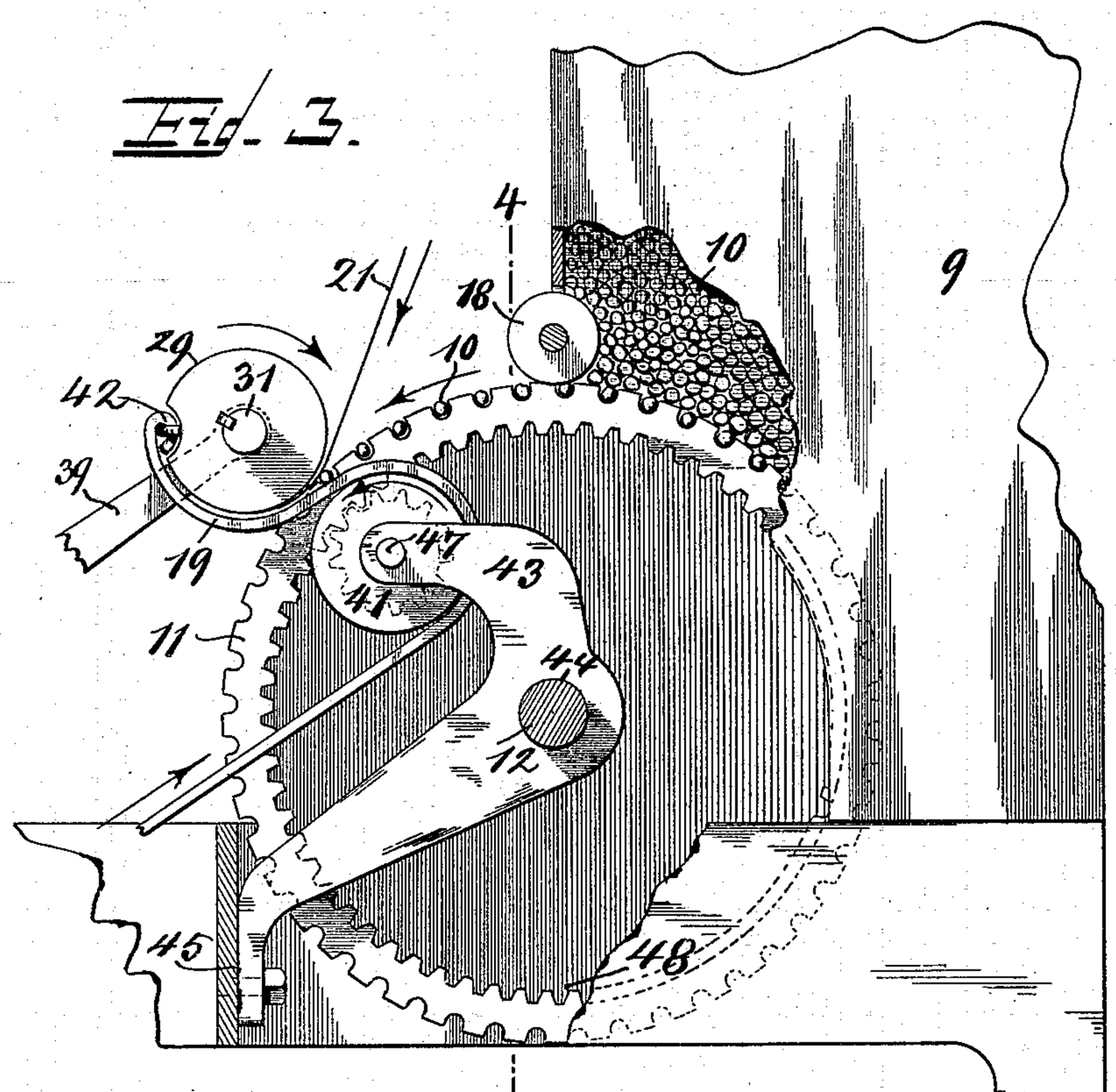
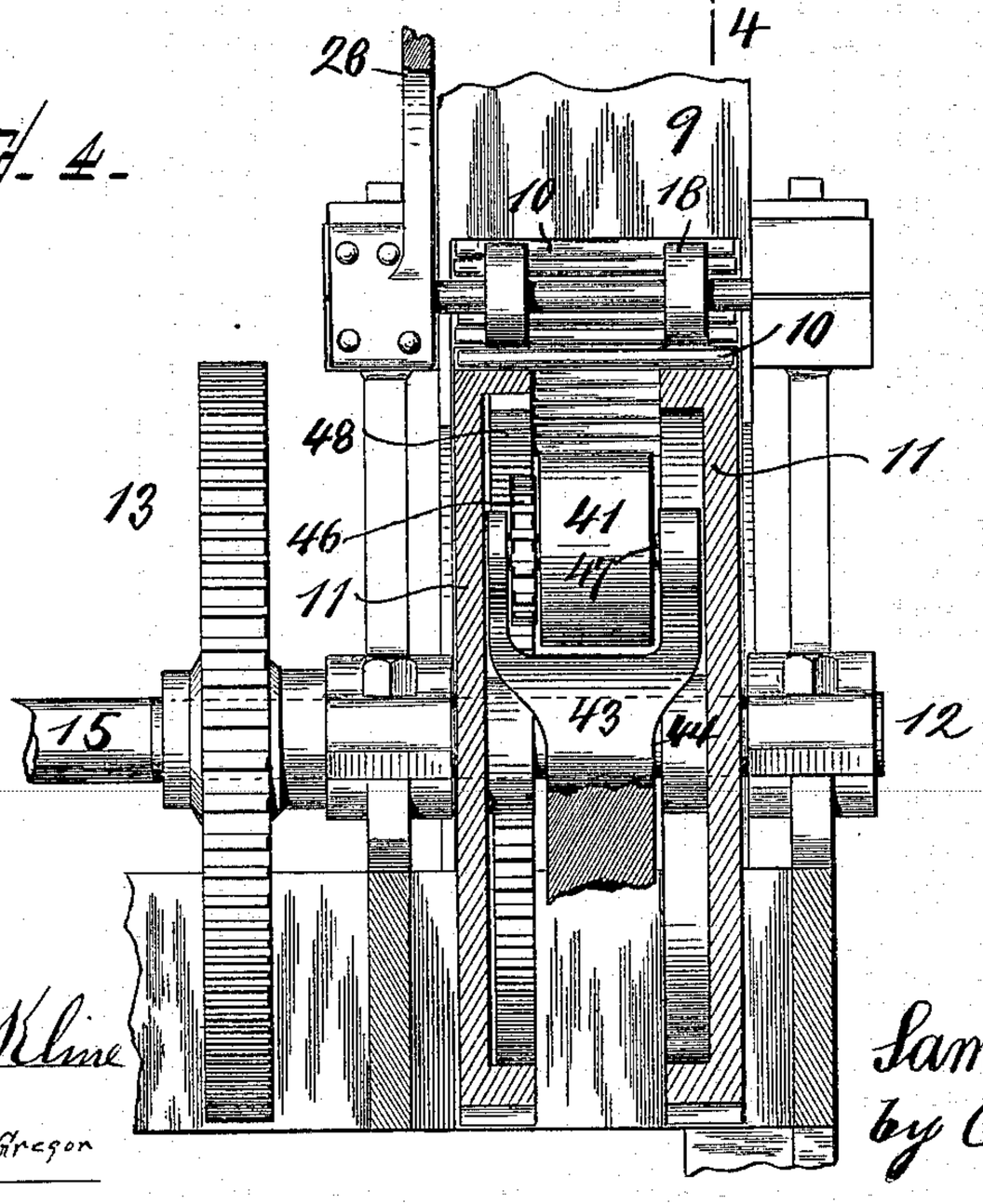


Fig. 4.



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UNITED STATES PATENT OFFICE.

SAMUEL C. WEIKE, OF AURORA, INDIANA.

MATCH-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 612,218, dated October 11, 1898.

Application filed September 27, 1897. Serial No. 653,242. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL C. WEIKE, a citizen of the United States, and a resident of Aurora, Dearborn county, State of Indiana, have invented a certain new and useful Match-Bunching Machine; and I do declare the following to be a clear, full, 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, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form a part of this specification.

This invention relates to improvements in match-bunching machines, which are machines used in the manufacture of matches. Their particular function is to deliver the wooden sticks called "splints" in a manner that they are received between two bands or ribbons, which are then wound around a hub and coiled upon themselves with the splints between. The width of these bands is less than the length of the splints, so that the ends of these latter project beyond the bands and which ends are also all in a level plane, so that while so held in a bunch a large number of splints may at once be quickly and conveniently dipped for the purpose of providing them with igniting-heads. After the splints have become sufficiently dry the coils are unwound and the matches are released from the bands, which latter become then again available for reuse. For such purpose they are reeled up and placed on the machine, after which their free ends are connected and started to receive again splints between them, as mentioned before.

The improvements relate to means and features of specific construction whereby many parts considered hitherto absolutely necessary in the construction and operation of such machines are entirely dispensed with, whereby their manufacture is greatly simplified and correspondingly reduced as to cost.

In the following specification and particularly pointed out in the claim is found a full description of the invention, its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the machine with parts in operation. Fig. 2 is a top view of the same. Fig. 3 is an enlarged longitudinal section of the central portion of the machine. Fig. 4 is a vertical section on line 4 4 of Fig. 3.

9 is the hopper, which receives the splints 10.

11 are the delivery-wheels, mounted side by side upon a shaft 12 with a space between and grooved on their faces, which grooves are opposite and in line with each other, as shown. They receive rotation from a gear-wheel 13, driven by a pinion 14 on driving-shaft 15, which receives power from a pulley 17. These wheels are further so located as to rotate partly through and within a part of the lower part of hopper 9, forming to that particular extent a part of the bottom for closure of the latter and against the grooved faces of which the splints are lying. These grooves are of a depth which retains a splint when once received, so that as the wheels pass through the hopper they readily receive and advance the lowermost splints which rest against them. The splints so caught by the grooves of the delivery-wheels are now carried beyond the confines of the hopper, a pair of rollers 18 holding back such which are not resting in grooves. Of the two bands between which they are received one band, 19, is of considerable thickness to give to the coiled bunch when completed sufficient rigidity to permit handling without collapse. The other, 21, is merely a tape, being thinner and narrower and only required for the purpose of holding the splints to the band first mentioned. For use this latter is wound upon a hub 22, which is carried on a spindle 23, mounted in a bearing 24, formed on the machine-frame and provided with a suitable tension device 25 to prevent it from unwinding too freely or in advance of the action of the machine. The other is mounted on a similar hub 26 and in a similar manner on a spindle 27, supported at the upper end of an arm 28, secured in any suitable manner to the machine-frame.

The bunch is formed by winding band and tape, with the splints between, around a hub 29, supported upon a winding-spindle 31. Action for the latter is obtained by a sprocket-wheel 32, connected by a chain 33 to a sprocket-wheel 34, mounted on a shaft 35. This latter is driven by a cog-wheel 36, the proper speed

and direction of rotation for which are obtained by a gear-train 37, driven from cog-wheel 13.

Winding-spindle 31 is carried in a bearing 38 at the upper end of an arm 39, which is loosely mounted on shaft 35, so that as the bunch increases on hub 29 the latter may yield to give room for the accumulation. Sprocket-wheel 32 is mounted by frictional contact only, so that the speed of the winding-spindle may accommodate itself to the varying circumferential speed of the increasing bunch.

Fig. 3 shows the position of the parts at the beginning. The end of band 19 is brought around a roller 41 and connected to a loop 42, set into a cut-out in the periphery of hub 29. The end of tape 21 is now brought down, and as soon as caught between hub 29 and band 19 the machine is ready for operation. As will be seen, the grooves in the periphery of the delivery-wheels bring the splints right into the converging space between tape and band and produced by the particular location of roller 41, and as the two approach each other they take the splints one after the other out of the grooves and transfer them onto the bunch as it is formed by coiling tape and band around hub 29 and around each other. When band and tape have been exhausted and the bunch is formed, the machine is stopped, the ends of the former are secured to prevent unwinding, the bunch is taken off, and another band and tape are placed on spindles 23 and 27, respectively, after which the machine is ready to resume action. Roller 41 is supported on a bracket 43, fixedly connected between the delivery-wheels. For such purpose a bearing 44 is formed in bracket 43, whereby it is supported on shaft 12, which passes loosely through it. It is then extended downwardly and at 45 connects to the machine-frame. It is preferable that this roller revolve at a peripherical speed equal to the speed of the delivery-wheels at their periphery. This rotation is obtained by a cog-wheel 46, mounted upon the roller-spindle 47 and driven by an internal gear 48, formed on the inside of the face of one of the delivery-wheels.

49 is a guide around which tape 21 passes, so as to cause the same to maintain its proper angular position with reference to the band.

As will be seen, there is a clear and open space between the delivery-wheels and below the hopper, permitting short sticks, splinters, sawdust, &c., to drop through.

51 is a support for arm 28 to rest against when the winding-spindle is not in use.

Having described my invention, I claim as new—

In a match-bunching machine, the combination of a receiving and coiling hub 29, two delivery-wheels 11, a hopper 9 through the lower part of which they rotate, a guide-roller between them, a cog-wheel 46 to rotate it, an internal gear 48 to drive cog-wheel 46, said gear being formed on the inside of the rim of one of the delivery-wheels 11, and a coiling-band which, guided by the guide-roller is caused to operate in a manner and for the purpose described.

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

SAMUEL C. WEIKE.

Witnesses:

ABRAHAM EPSTEIN,

JNO. A. CONWELL.