

N. E. LAROCQUE.
MECHANISM FOR FORMING FINGER NOTCHES IN BOX TOPS.
APPLICATION FILED NOV. 8, 1909.

968,368.

Patented Aug. 23, 1910.

3 SHEETS—SHEET 1.

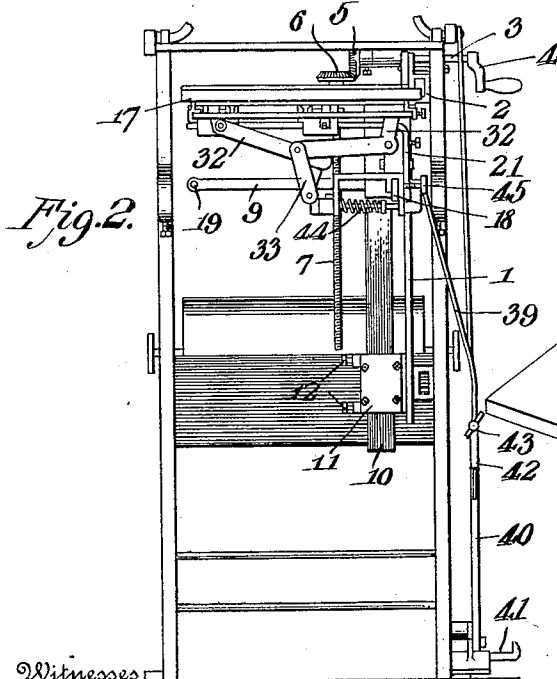
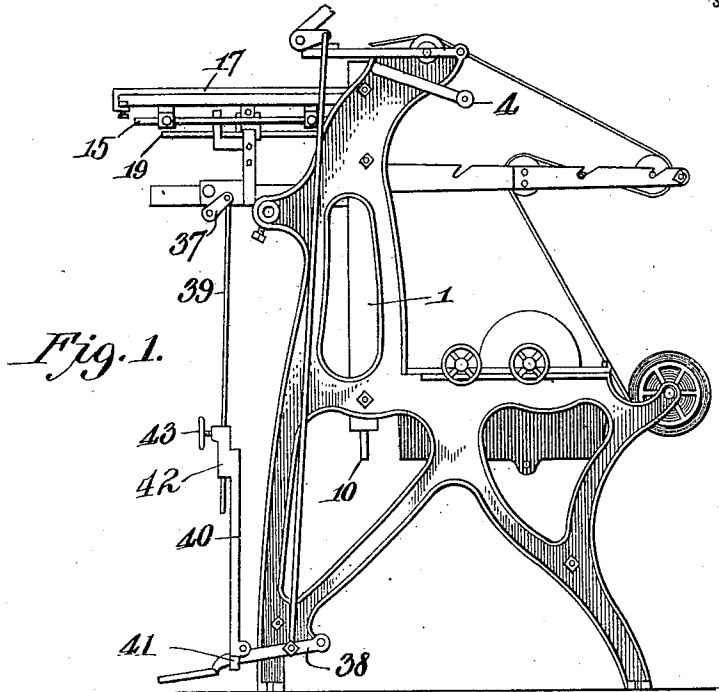
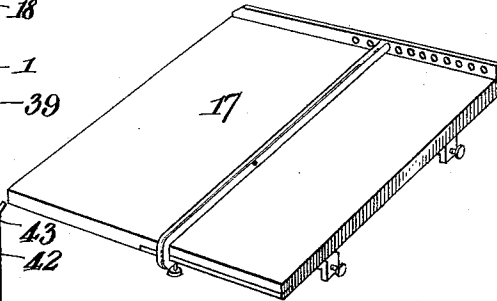


Fig. 3.



Witnesses

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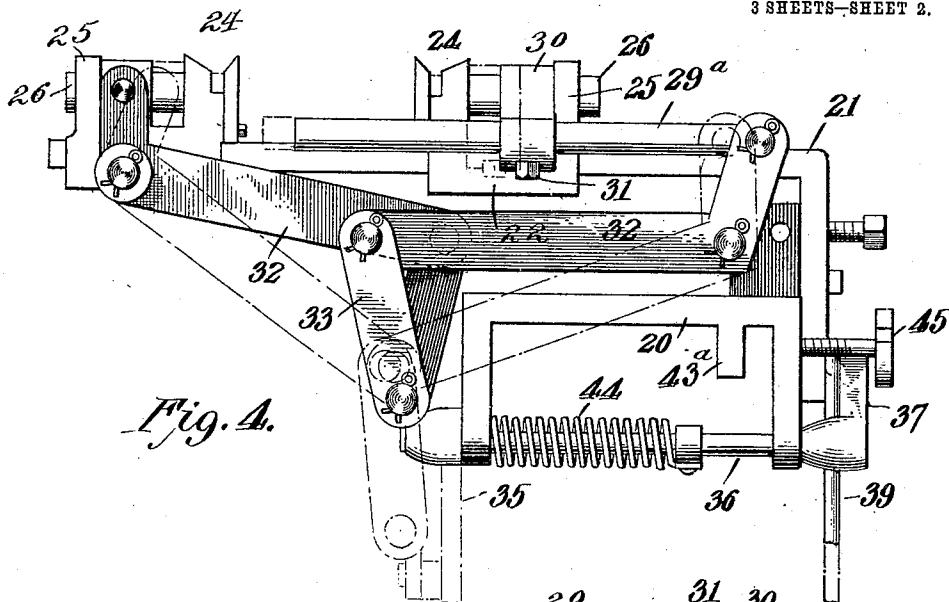


Fig. 4.

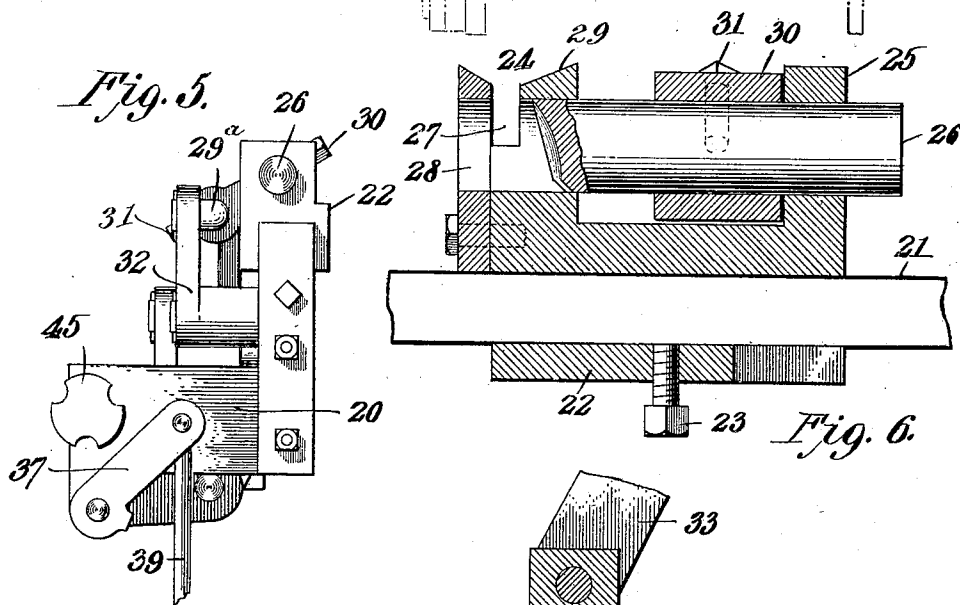


Fig. 5.

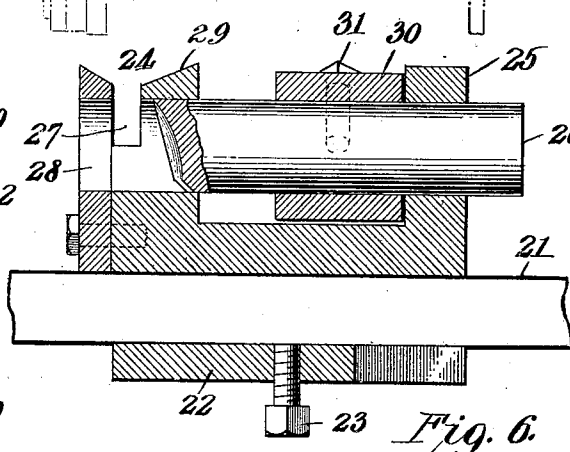


Fig. 6.

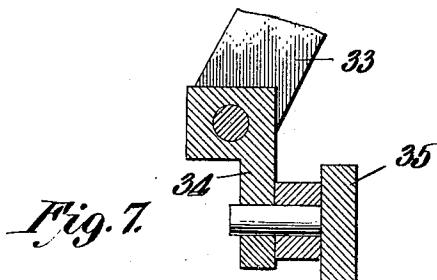


Fig. 7.

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3 SHEETS—SHEET 3.

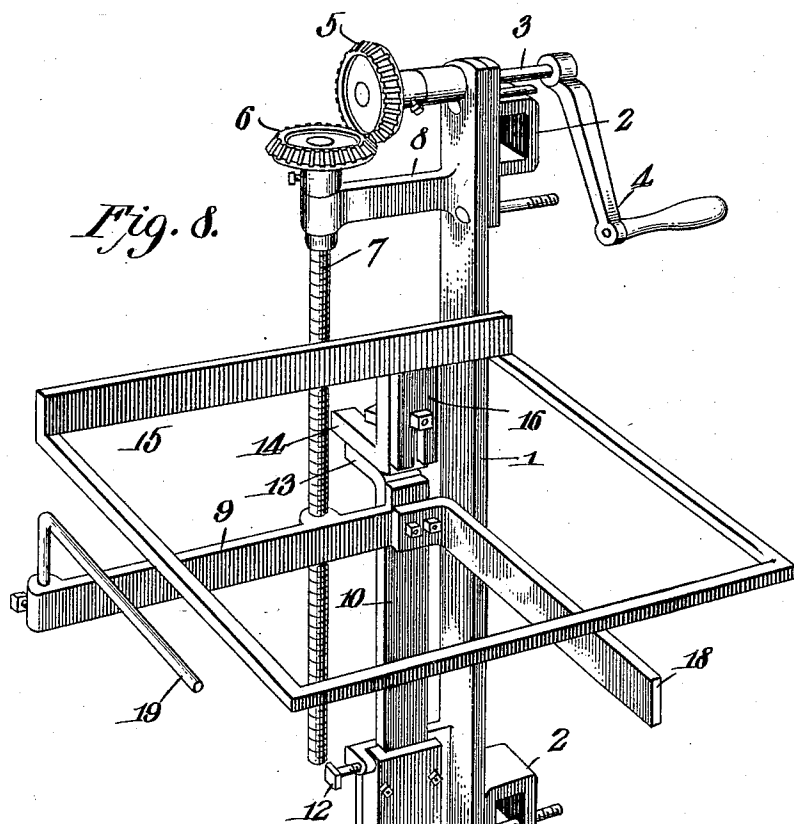


Fig. 8.

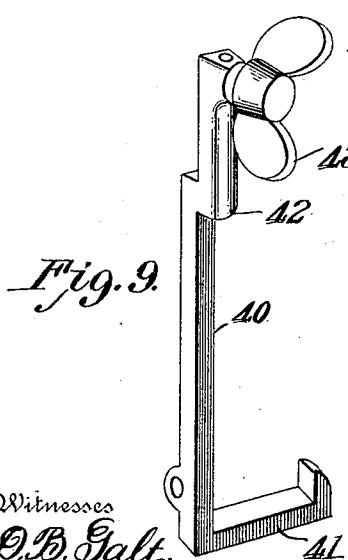


Fig. 9.

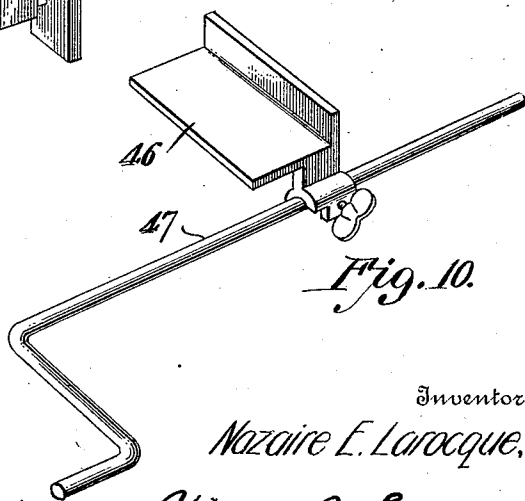


Fig. 10.

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UNITED STATES PATENT OFFICE.

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MECHANISM FOR FORMING FINGER-NOTCHES IN BOX-TOPS.

968,368.

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Application filed November 6, 1909. Serial No. 526,620.

To all whom it may concern:

Be it known that I, NAZAIRE E. LAROCQUE, a citizen of the United States, residing at Putnam, in the county of Windham and State of Connecticut, have invented new and useful Improvements in Mechanism for Forming Finger-Notches in Box-Tops, of which the following is a specification.

This invention has for its object primarily to provide a novel mechanism for forming finger notches in box covers and also to adapt said mechanism to be used as an attachment for box topping machines, whereby both the topping and the notching may be performed simultaneously by one machine, thereby saving time, simplifying the operation and materially reducing the cost of manufacture.

According to the method generally in vogue a special machine is employed for performing the operation known in the trade as topping pasteboard boxes, and such boxes as have the top or cover provided with finger notches necessitate the employment of a separate machine for forming the finger notches, thereby requiring a double handling of the boxes besides the expense of two machines for performing the separate operations.

The present invention provides means which may be mounted in any manner and used separately for forming finger notches in box covers or which may be applied to a box topping machine, whereby the latter in addition to performing the work of topping is also adapted for notching, the attachment being so constructed and mounted as to be thrown into or out of operative position when fitted to a topping machine, whereby the latter may be used either for topping or for notching or for both operations according to the nature of the work in hand.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the specification, Figure 1 is a side view of a box topping machine of known construction provided with a box notching mechanism embodying the invention, said notching mechanism being lowered so as not to interfere with the machine when adapted for topping solely. Fig. 2 is a

front view of the machine with the parts in the same position as indicated in Fig. 1. Fig. 3 is a perspective view of the table fitted to the framework of the notching mechanism when the latter is in lowered position, so that the machine may be used solely for topping. Fig. 4 is a front view of the upper portion of the notching mechanism, showing the same on a larger scale. Fig. 5 is a side view of the parts shown in Fig. 4. Fig. 6 is a sectional view of one of the cutters, the work holder cooperating therewith and the mountings. Fig. 7 is a detail view of the means for connecting the arm of the power operated shaft with the links of the power transmitting bell cranks. Fig. 8 is a detail perspective view of the framework of the notching mechanism stripped of the working parts. Fig. 9 is a perspective view of the lower member of the connection between the treadle and the power operated shaft. Fig. 10 is a perspective view of another form of work support and mounting therefor.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

The topping machine illustrated is shown to demonstrate the application of the invention and is of ordinary construction and forms no part of the present invention. It is to be understood that the notching mechanism is of such construction as to be readily adapted to any topping machine by modifications and changes which will suggest themselves to the skilled artisan when equipping a topping machine with the mechanism for notching the box tops or covers. The attachment may be used independently of the topping machine when desired for notching tops solely.

The attachment comprises a standard or upright 1, which is adapted to be secured to the framework of the topping machine in any substantial and convenient way. The standard 1 is provided at or near its ends with sockets or keepers 2, whereby it may be fitted to a support attached to a bench or other structure. A horizontal shaft 3 is mounted upon the upper portion of the standard 1 and is provided at its outer end with an operating crank 4 and at its inner end with a bevel gear wheel 5, the latter meshing with a bevel gear wheel 6 fastened to the upper end of a feed screw 7 mounted

in an arm 8 projected laterally from the standard 1. The feed screw 7 has screw thread connection with a horizontal bar 9, which extends laterally from a vertical bar 10, which is slidably mounted in a guide 11 at or near the lower end of the standard 1. The feed screw 7 has swivel connection with the arm 8, thereby enabling the companion gears 5 and 6 to remain in mesh at all times without binding. Upon operating the shaft 3 the bar 9 and part 10, connected thereto or forming a part thereof, move vertically so as to raise or lower the notching mechanism. The guide 11 may be provided in any manner and receives the vertical bar 10, the latter being secured in the adjusted position by means of set screws 12 threaded into openings formed in a side of the guide. The vertical bar 10 is provided at its upper end with a horizontal extension 13 upon which an angle bracket 14 is mounted and adapted to be adjusted laterally. A frame 15 provided with a vertical extension 16 has adjustable connection with the vertical member of the bracket 14. It will thus be seen that the frame 15 may be adjusted vertically with reference to the bar 10 and also laterally with the bracket 14. The frame 15 is adapted to receive a table 17 when the topping machine is to be used solely for applying tops to box covers. The table 17 is removed when the notching mechanism is used in conjunction with the topping mechanism. An arm 18 projects horizontally from the upper portion of the vertical bar 10 about at a right angle to the bar 9 and is adapted to receive the notching mechanism. A rod 19 is adapted to receive and support a table of different form from that shown in Fig. 3 according to the style of the box to be constructed.

The notching mechanism and adjunctive parts are mounted upon a framework comprising a U-shaped bar 20 and a bar 21, the two bars being connected in any substantial way. Two frames 22 are adjustably mounted upon the bar 21 and are adapted to be secured in the adjusted position by any means, such as set screws 23, which are threaded into openings formed in the respective frames 22. Each of the frames 22 is of substantially U-form and is provided at one end with a work holder 24 and at the opposite end with a guide 25. A cutter 26 is mounted in each frame 22 and is adapted to receive a reciprocating movement. The cutters 26 are of like form, their cutting ends slanting and being hollowed so as to provide sharp edges to operate by a shearing action and make a clean and smooth cut. The frames 22 align so as to cut the finger notches in the top or cover of the box at opposite points and by reason of the adjustable mounting of the frames the notching mechanism may be readily adapted to

tops or covers of different sizes. The work holder has a space 27 to receive the lower portion of the side or rim of the cover, said space being formed between a die 28 and a stop 29. The upper ends of the die and stop are oppositely inclined so as to direct the cover or top into proper position when placing the top in place preliminary to operation of the notching mechanism. The die 28 is of tempered steel and by preference detachably connected to the frame 22 to admit of its removal either to be sharpened or to be replaced by a new one in the event of mishap. Both the die 28 and the stop 29 are formed with openings in line with the opening of the guide 25 so as to receive the cutter 26. A rod or bar 29^a is adjustably connected with each cutter 26 by means of an arm 30, the latter being adjustably connected with the rod 29^a by means of a set screw 31. The rod or bar 29^a forms part of the power transmitting means for operating the cutter and is pivotally connected to one member of a bell crank 32, it being understood that a bell crank is provided for each rod 29^a and that the two bell cranks have an opposite arrangement, as shown most clearly in Fig. 4. The horizontal members of the bell cranks 32 extend inwardly and are connected by means of links 33 with a coupling 34, which in turn is pivotally connected to an arm 35 fastened to one end of the power operated shaft 36, which is mounted in the pendent members of the U-shaped bar 20. The opposite end of the shaft 36 is provided with a crank arm 37, which is connected to the operating treadle 38 by means of an adjustable connection. The adjustable connection consists of a rod 39 and a bar 40, the latter being connected at its lower end to the treadle and having adjustable connection at its upper end with the rod 39, thereby admitting of the connection being lengthened or shortened or separated so as to throw the notching mechanism out of operation when the machine is to be used for topping solely. The bar 40 is provided at its lower end with a horizontal extension 41, which comes beneath the treadle 38 and is formed at its upper end with an offset portion 42, in which a vertical opening is provided to receive the lower end of the rod 39, the latter being secured in the adjusted position by means of a set screw 43. The treadle 38 is the one provided upon the machine for operating the topping mechanism. The cutters and their operating mechanism are returned to normal position by means of a spring 44, which is of the helical type and mounted upon the power operated shaft 36, one end being secured to said shaft and the opposite end fastened to the frame 20 in any manner. The coupling 34 has pivotal connection with the lower ends of the links 33 and with the

crank arm 35. When the treadle 38 is depressed the bell cranks 32 are simultaneously operated and through the connecting means herein stated operate both cutters 26, thereby notching opposite sides of the top or cover at one operation.

When the notching mechanism is fitted to a topping machine it may be elevated into working position by means of the feed screw 7 and when not required for immediate service the notching mechanism may be lowered so as to be out of the way, the table 17 being placed upon the frame 15, whereby the topping machine may be used solely for topping box covers. By placing a different table in position upon the frame 15 and elevating the notching mechanism the machine may be used simultaneously both for topping and notching. It is also contemplated to use the notching mechanism independently of a topping machine and for this purpose the frame 20 is provided with a pendent portion 43^a, which is spaced from an end bar so as to receive a bar attached to a bench or other support, a set screw 45 being provided to secure the mechanism when properly positioned.

Fig. 10 shows a form of table 46, which may be advantageously used for box tops or covers of a definite size, said table being supported upon a rod 47 which may be fitted to the bar 9 in any manner.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. A finger notching mechanism for box tops or covers comprising a support, a frame adjustable vertically with reference to said support, a second support having said frame mounted thereon and adjustable with reference to the first mentioned support, a feed screw mounted upon the first mentioned support and having screw thread connection with said second support, and operating means for the feed screw, the said frame adapted to receive a table and said second supporting means, adapted to receive the notching mechanism.

2. In a finger notching mechanism for box tops or covers, the combination of a standard, a bar mounted upon the standard and vertically adjustable, a frame connected

with said bar and adapted to receive a table, a second support having connection with said vertical bar, a feed screw mounted upon the standard by means of a swivel connection and having screw thread connection with said support, and a shaft mounted upon the standard and geared to the feed screw to effect vertical adjustment of the said vertical bar and attached parts.

3. In mechanism of the character described, the combination of a standard, a vertical bar adjustably mounted upon the standard, a bracket laterally adjustable upon the vertical bar, a frame having adjustable connection with said bracket to be moved vertically independently of the vertical adjustment of said vertical bar, a feed screw mounted upon the standard by means of a swivel connection, operating means for said feed screw, and a support connected with said vertical bar and having screw thread connection with the said feed screw.

4. A mechanism of the character described comprising a standard, a vertical bar adjustably mounted upon the standard, a frame mounted upon said vertical bar and adapted to be adjusted both horizontally and vertically, a support, a feed screw having threaded connection with said support and mounted upon the standard by means of a swivel connection, and a shaft mounted upon the standard and geared to said feed screw for operating the latter.

5. In finger notching mechanism for box tops or covers, the combination of a pair of cutters, means adjustably supporting said cutters, oppositely disposed bell cranks, links pivotally connected with the inner ends of the horizontal members of the bell cranks, a power operated shaft having a crank arm and a coupling having pivotal connection with said crank arm and with each of said links.

6. In combination a support, frames adjustably mounted upon the support and provided with work holders, cutters mounted in said frames, power transmitting rods or bars, arms having adjustable connection with said power transmitting rods and with the cutters, bell cranks oppositely disposed and having connection with said power transmitting rods, and actuating means for said bell cranks.

7. In mechanism of the character described, the combination of a bar, frames of substantially U-form adjustably mounted upon the bar and provided with work holders, cutters mounted in the frames, rods, connecting means between the cutters and the rods having adjustable connection with the latter, bell cranks having connection with said rods, and actuating means for the bell cranks.

8. In mechanism of the character described, the combination of cutters relatively

adjustable toward and from each other, rods having adjustable connection with said cutters, oppositely disposed bell cranks connected with said rods, links pivotally connected with the horizontal members of the bell cranks, a power operated shaft having a crank arm, a coupling connecting said crank arm with the said links, a helical spring mounted upon the power operated shaft for returning the parts to normal

position, a second crank arm secured to the power operated shaft, a treadle, and connecting means between the treadle and said second crank arm.

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

NAZAIRE E. LAROCQUE.

Witnesses:

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