

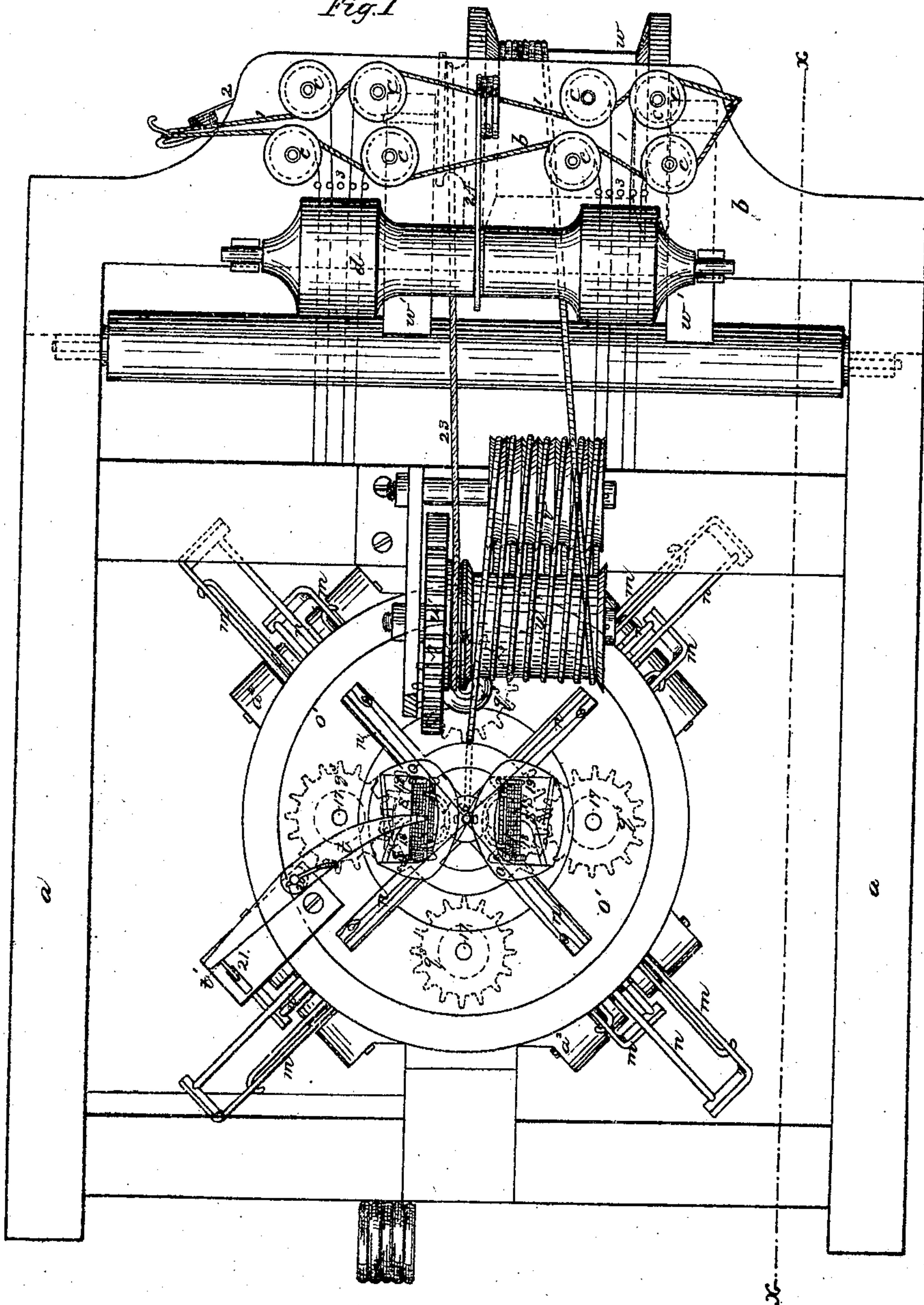
J. Buser.

Loom for Circular Weaving.

N<sup>o</sup> 72362

Patented Dec. 17, 1867.

Fig. 1



Witnesses  
Chas. Schmidt  
Geo. D. Maerker

Inventor  
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per L. M. Penell  
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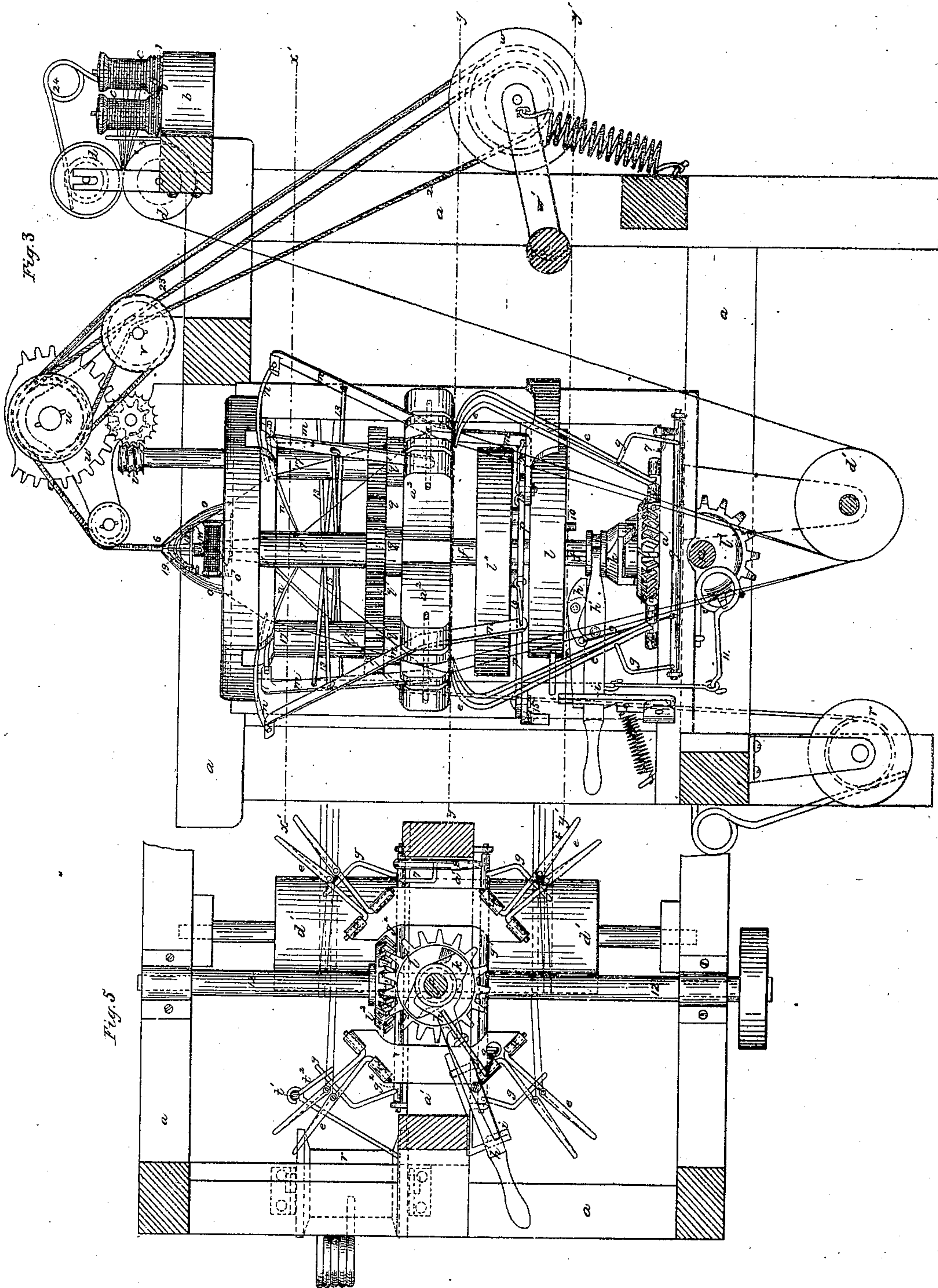


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Witnesses

Chas. Schmidt

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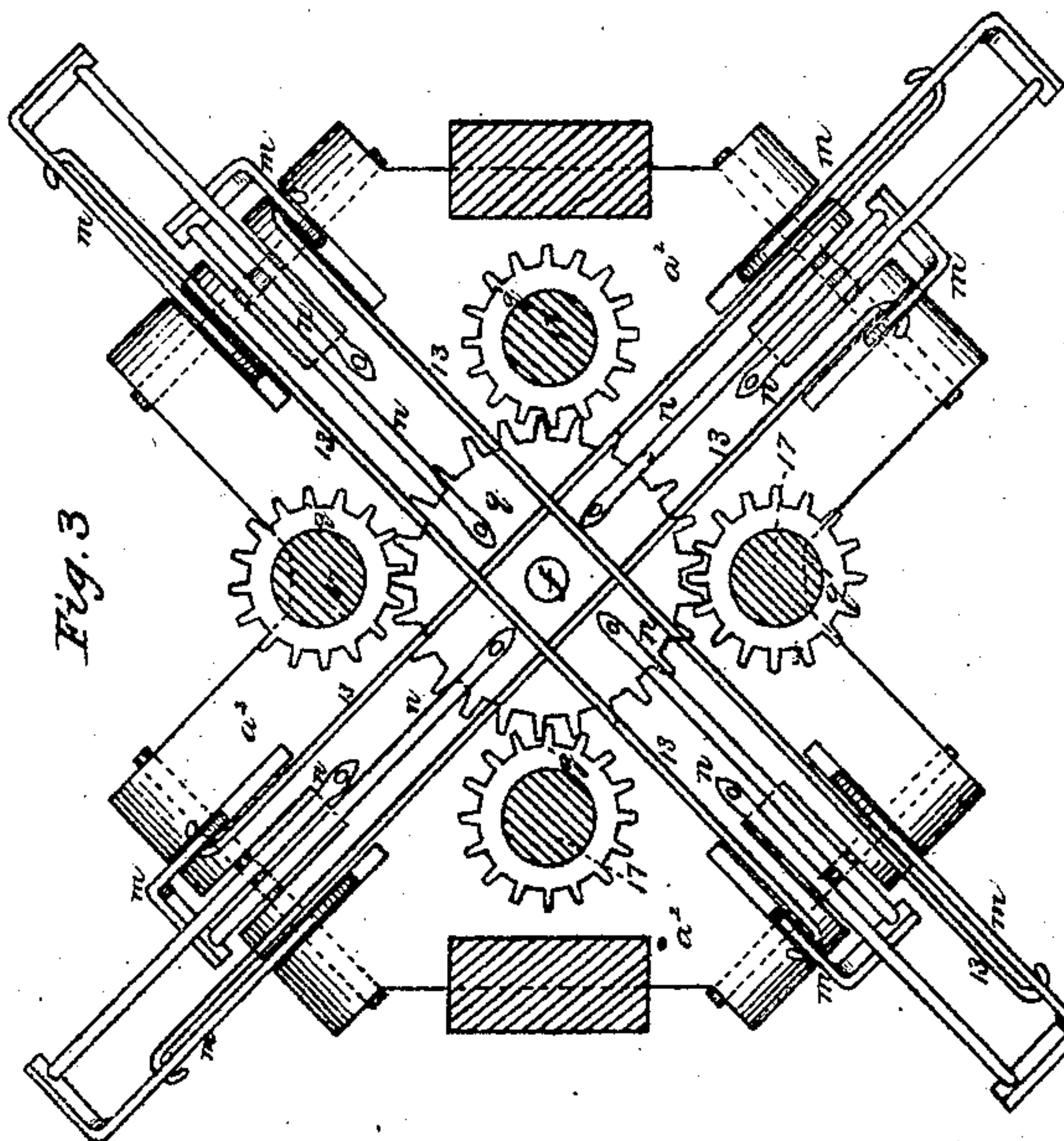
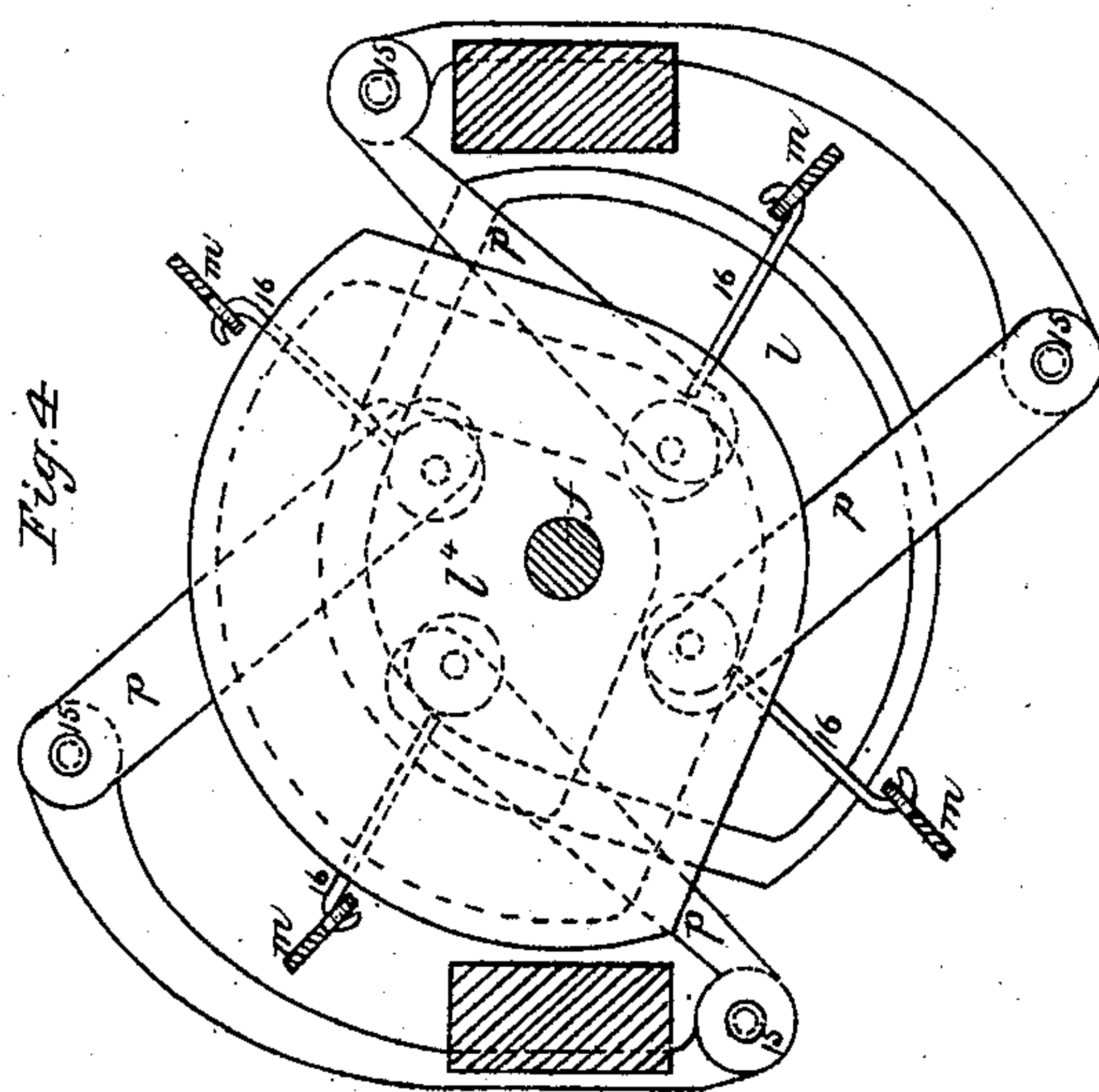
Att.

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Loom for Circular Weaving.

N<sup>o</sup> 72362

Patented Dec. 17, 1867.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN BUSER, OF NEW YORK, N. Y.

## IMPROVEMENT IN LOOMS FOR CIRCULAR WEAVING.

Specification forming part of Letters Patent No. 72,362, dated December 17, 1867.

*To all whom it may concern:*

Be it known that I, JOHN BUSER, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Looms for Weaving Cylindrical Articles; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1 is a plan of the machine, with the guide-roller over which the cord passes removed. Fig. 2 is an elevation, the frame being removed at the line  $x x$ . Fig. 3 is a sectional plan at the line  $x' x'$ . Fig. 4 is a similar plan at the line  $y y$ ; and Fig. 5 is a sectional plan below the line  $y' y'$ , Fig. 2.

Similar marks of reference denote the same parts.

The object of my invention is to weave a covering for shade-cord, or to weave any character of circular covering or cylindrical articles; and said invention consists in a series of warp-movers standing radially, in combination with a shuttle revolving around the article being formed. I also make use of a peculiar stop-motion that prevents a further movement of the parts when either a warp-thread or the shuttle-thread breaks.

In the drawing,  $a a$  are the frames of the machine, of suitable size and character.  $b$  is a table, upon which the warp-spools  $c c$  are placed, and kept from turning too freely by a cord, 1, and spring 2, acting on the grooved pulleys of the spools, or in any other convenient manner. 3 3 are guide-wires, between which the threads from the warp-spools  $c$  pass to the friction-rollers  $d d$ , kept together by a spring, 24, and the friction regulates the tension of the warps. I cover one or both of the rollers  $d$  with felt or other elastic material, so as to give a better hold upon each of the warp-threads. The warps pass below the guide roller or drum  $d'$ , and up through eyes at the ends of arms  $e e$ . These arms are hinged at their lower ends 4 to the bed-block  $a^1$ , and stand radially around a center shaft,  $f$ , running upward and outward. The threads, drawing in toward the weaving-point 6, hold these arms  $e$  up; but in case of any warp being loose its arm moves sufficiently to

take up the slack. If a thread breaks, its arm  $e$  falls and strikes upon one of the levers  $g$ , projecting from the shaft  $g^1$  or  $g^2$ , giving the same a partial rotation. 7 is a lever on the shaft  $g^2$ , acting upon a lever, 8, on the shaft  $g^1$ , so as to communicate motion from one to the other. From the shaft  $g^1$  a link, 9, connects with a latch,  $h$ , upon the clutch-lever  $h'$ , so that when either of the shafts  $g^1$  or  $g^2$  is turned the latch  $h$  is raised so as to be acted upon by a pin, 10, projecting down from the under side of the cam  $l$ , and press back the latch  $i$ , that holds up the clutch-lever  $h'$ , and allow its spring 11 to draw down the outer end of said lever, and lift the coupling or clutch  $k$  from connection with the pinion  $l^1$ , and thereby stop the rotation of the machine if a thread breaks. The pinion  $l^1$  is to be driven by the pinion  $l^2$  on the shaft 12, or in any desired manner. The clutch-lever  $h'$  has a projecting handle, by means of which it may be raised to connect the power, and held up by the latch  $i$ . The bed  $a^2$  is provided with forked bearings around its edges for the warp-moving levers  $m m$ . Each of these is provided with a curved warp-mover,  $n$ , with an eye at its inner end. These levers  $m m$  are connected across by wires 13, so that motion only has to be given to one of the levers in each pair. The warp-threads pass from the eyes on  $e e$  through the eyes on  $n$  up to the point of weaving, 6, and the warp-movers  $n$  being changed each passage of the shuttle, the weaving is performed of the usual character, the shuttle or shuttles being driven around in a circular raceway in the bed  $o'$ , as hereafter set forth, and, passing between the warps, deposit the weft-thread, and the bed  $o'$  is slotted radially to allow for the play of the warps.

The levers  $m$  are moved at the proper time by the cams  $l$  and  $l^4$  acting upon rollers at the ends of arms  $p p$ , swinging upon fulcrum-studs 15, and connected by links 16 to the said levers  $m$ .

The shaft  $f$  extends up to the gear  $q$ , that drives the gears  $q^1$  and shafts 17, which have their journals in the beds  $a^2$  and  $o'$ , and carry at their upper ends gears  $q^3$ , (shown by dotted lines in Fig. 1,) which act upon teeth in the base of the shuttle-frame  $o$ , to propel the same around in its circular raceway in  $o'$ , the gears



$g^3$  all traveling in the same direction, and being placed so that one gear takes the teeth on the shuttle-base before the previous gear ceases to act on the same. Where a cord is covered, the said cord is supplied from a reel,  $r$ , with a spring-friction, and the same passes up through a tube,  $r'$ , in the center of the bed  $o'$ ; thence to the point of weaving, 6. The shuttle-frames taper toward the same point, and the weft-thread is led off through a hole at the apex.

The bobbin  $s$  in the shuttle-frame  $o$  has a spring-friction,  $s'$ , applied thereto, and the weft-thread leads behind the spring-bow axis 18 and in front of the spring-bow 19, so that when the weft-thread is in place the spring-bow 19 is inside the shuttle-frame  $o$ ; but if said thread runs out or breaks, a little spring coiled inside the frame  $o$  turns the bow 19 out, and in the revolution of the shuttle this bow 19 comes into contact with a lever,  $t$ , on a fulcrum, 20, and the other end of the lever  $t$  presses a bar,  $t^1$ , aside, so that it is no longer supported by a notch in its side, taking the plate 21, and falls. The bar  $t^1$  has an arm,  $t^2$ , that, coming into contact with one of the levers  $g$ , moves that and the shafts  $g^1$  and  $g^2$ , and causes the disconnection of the clutch  $h'$  and the stopping of the machine.

The material as it is woven is drawn away by the barrels  $u$  and  $v$ , acted upon by the

worm-pinion  $v'$  and wheel  $u'$ , to the barrel  $u$ , and the material is coiled on a spool or reel,  $w$ , set in a swinging frame,  $w'$ , and driven by a belt, 23. A spring,  $x$ , added to the weight of the spool  $w$  and frame, causes sufficient friction of the belt 23 to turn the spool  $w$  as the woven article is supplied to it.

This machine may be fitted to weave with any desired number of warps by multiplying the parts.

What I claim, and desire to secure by Letters Patent, is—

1. A series of warp-movers acting radially and moved by the mechanism shown, in combination with a shuttle revolved between the warp-threads by the gearing, arranged and operating as set forth.

2. The arms  $e$ , in combination with the shafts  $g^1$   $g^2$  and disengaging mechanism for stopping the machine if a warp-thread breaks, substantially as set forth.

3. The bow 19, applied in the shuttles, in combination with the disengaging mechanism, substantially as set forth.

In witness whereof I have hereunto set my signature this 6th day of May, A. D. 1867.

JOHN BUSER.

Witnesses:

GEO. D. WALKER,  
CHAS. H. SMITH.