

(No Model.)

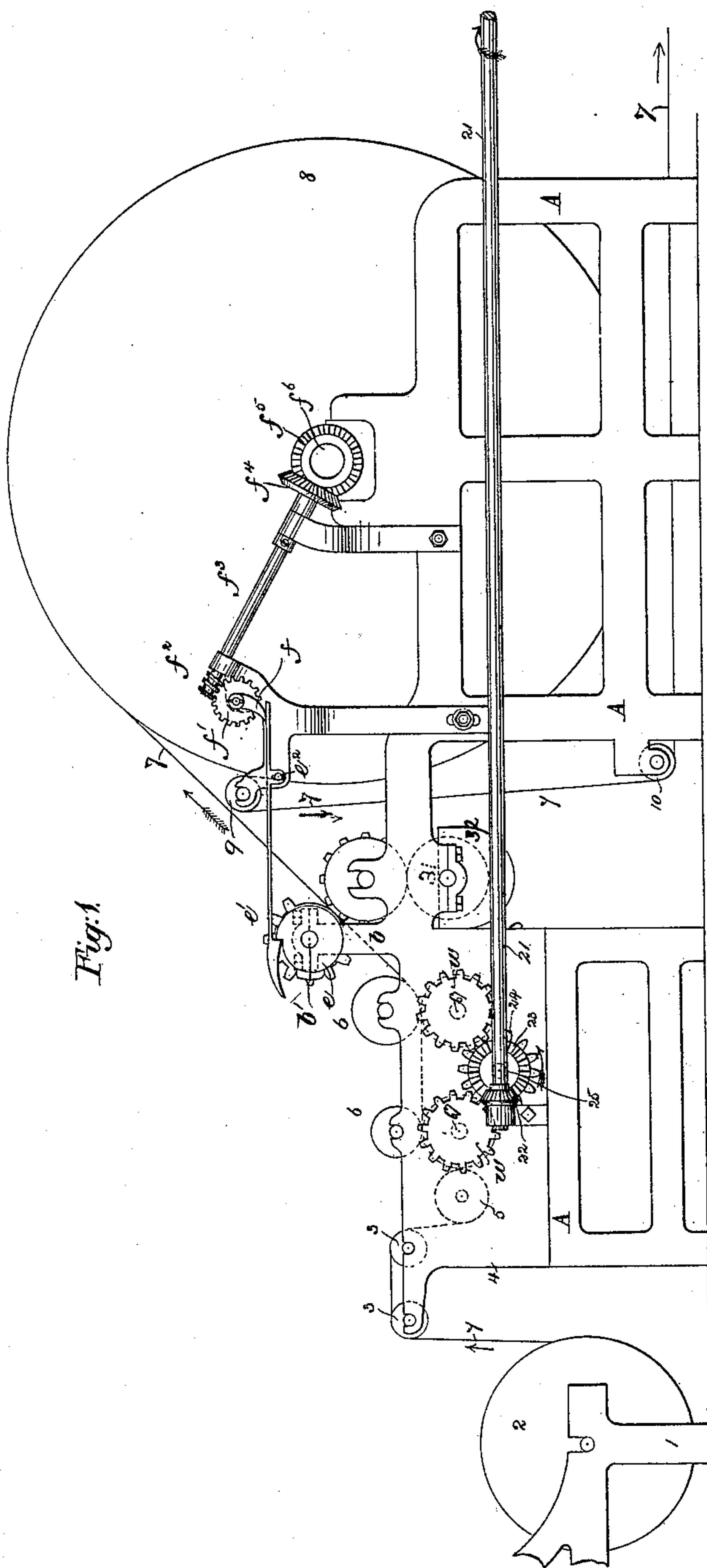
2 Sheets—Sheet 1.

W. C. LOVERING.

CUT MARKER FOR WARP SIZING AND DRYING MACHINES.

No. 432,535.

Patented July 22, 1890.



Witnesses:
Edgar A. Goddin
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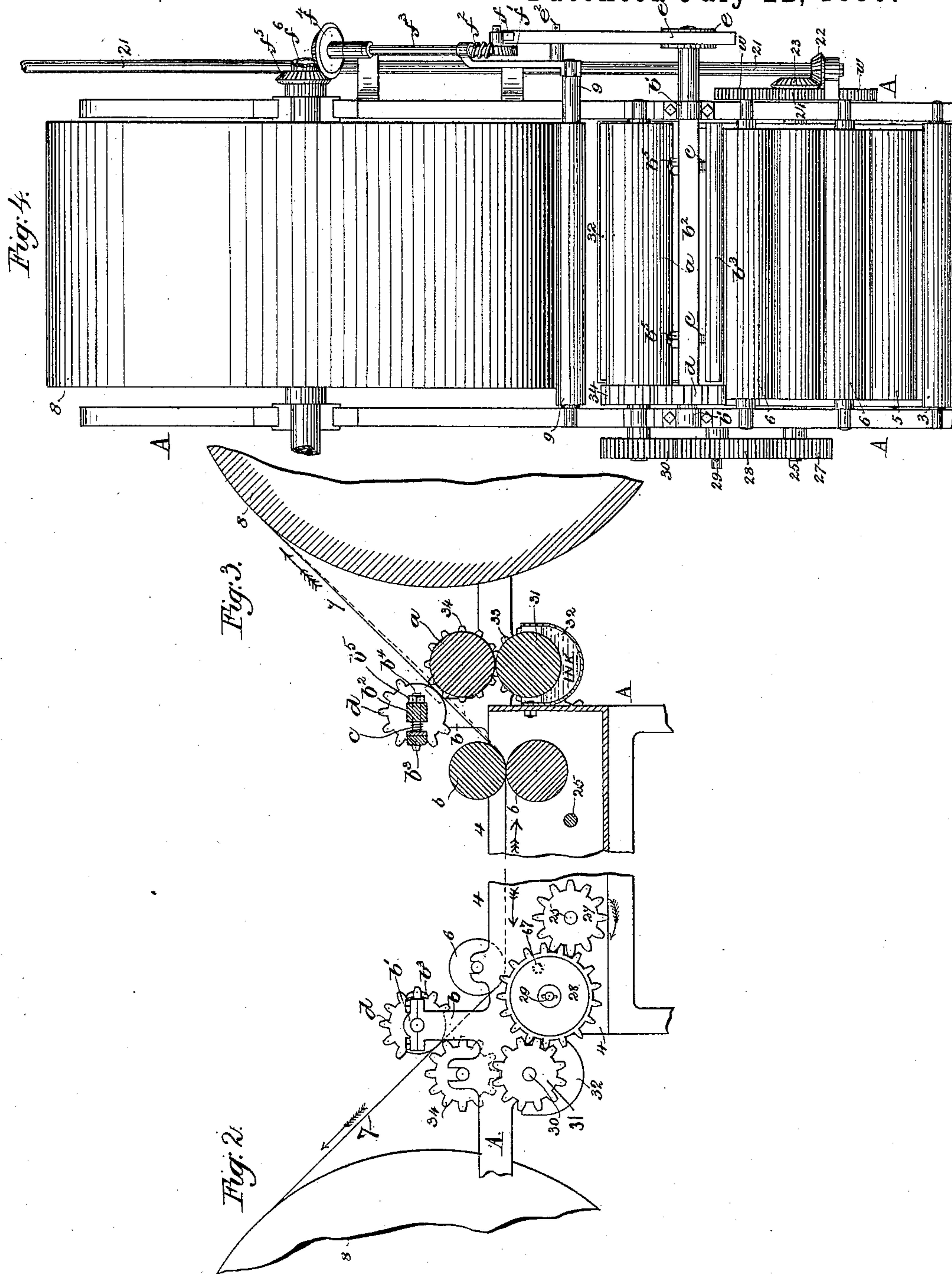
Inventor:
William C. Lovering,
by Lemby Gregory attys.

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UNITED STATES PATENT OFFICE.

WILLIAM C. LOVERING, OF TAUNTON, MASSACHUSETTS.

CUT-MARKER FOR WARP SIZING AND DRYING MACHINES.

SPECIFICATION forming part of Letters Patent No. 432,535, dated July 22, 1890.

Application filed October 10, 1889. Serial No. 326,626. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. LOVERING, of Taunton, county of Bristol, State of Massachusetts, have invented an Improvement in Cut-Markers for Warp Sizing and Drying Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 In the manufacture of cloth upon looms the weavers are paid by the "cut," and the manufacturer estimates the product of the loom by the cut. To designate these cuts the warp as it is being sized and dried in the sizing and
15 drying machine, or as it is being otherwise prepared for the loom, has some of its threads, especially those which are to appear in the selvage of the woven cloth, marked at intervals to designate the cut. At the present time
20 manufacturers are subjected to very considerable loss, for frequently a weaver will tear off one end of the cut after it has been woven and is ready to be removed from the loom. The manufacturer has no means by which
25 to detect this loss unless the cut be actually measured when handed in; but this, it will be seen, is impracticable, because of expense. As now practiced each weaver receives warp sufficient for a number of cuts, and is sup-
30 posed to return its equivalent in cloth; but a weaver may tear a number of yards of cloth from any cut and defy detection, unless at very considerable cost. In my efforts to guard against this loss of cloth I have devised a
35 method of marking the warps prior to weaving the same, whereby such loss may be obviated, and have described the same in another application, Serial No. 326,627. In accordance with my said method the warp dur-
40 ing the sizing and drying operation, or before it is put into the loom to be woven into cloth, is provided with a cut-mark of such width, length, shape, or character that when the warp so marked is woven into cloth the cut-
45 mark, together with the filling, produces a "cut-figure" of such width, length, or shape that when the cloth is severed through the cut-figure to remove a cut from the loom a part of the cut-figure will be left at the last
50 or finished end of one and at the first or commencement end of the next cut. In this way it is impossible for the weaver to retain any

cloth without discovery, for the ends of each cut delivered must show parts of the cut-figures, which may be matched, if desired. It
55 has been found that the cut-figures in the woven cloth vary very considerably, even when the cut-marks in the warp are substantially the same, and in practice this variation is sufficient to enable the manufacturer, 60
should he so desire, to positively match the ends of any two consecutive cuts. The form of the cut-mark on the warp, and thus of the cut-figure, may be variously modified, thus
65 enabling each manufacturer to readily tell his own cloth or to tell the cloth woven in any particular mill.

My present invention has for its object the production of a machine by which a warp may be "cut-marked" in such manner that when
70 subsequently woven into cloth the cloth will present a well-defined cut-figure, parts of which, when the cloth is cut through the cut-figure, will appear at the ends of the cut. The warp is marked by an impression-pad, herein
75 shown as a bar carried by a transverse shaft having co-operating with it a printing-roll, to which is supplied suitable ink or color mixture, the warp being cut-marked at intervals
80 as the warp passes between the pad and roll. Suitable means are provided for automati-
85 cally effecting the movement of the marking devices at predetermined or regular intervals, according to the number of yards in the cut.

Figure 1 shows in side elevation a portion of a slasher of usual construction provided with marking devices embodying my invention; Fig. 2, a partial rear side view of the machine, chiefly to show the marking devices; 90
Fig. 3, a sectional detail, chiefly to show the marking devices or apparatus shown in Fig. 2; and Fig. 4 is a plan view of a portion of a slasher and the marking devices shown in Fig. 1.

95 My invention is applicable to any usual slasher or warp dressing or sizing machine; but herein I have selected a machine substantially such as represented in United States Patent No. 346,639, with which to em- 100
body my invention.

Referring to the drawings, A represents the frame-work, which may be of any suitable shape to support the working parts.

The section-beam stand 1, which in practice supports any desired number of section-beams 2 to contain threads to constitute the warp 7 to be acted upon, the guide-rolls 3, 9, 5 and 10, the immersing-roll 5, the two pairs of squeezing-rolls 6, between which the warp is passed, the size-vat 4, in which the said rolls operate, the drying-cylinder 8, the shaft 21, and the devices (not here shown) for rotating the said cylinder and shaft, are and may be all as shown in the patent referred to. In practice the drying-cylinder 8 may be rotated either as described in the said patent or in any other usual or suitable manner, and if the drying-cylinder should be rotated by the warp then the squeeze-rolls might be rotated only by the warp passing between them. It will however be assumed that the shafts 67 of the lowermost rolls of the pairs of rolls 6 in the size-vat are provided with like pinions *w* outside the size-vat, as represented in Fig. 1, and that the said pinions are engaged by a pinion 24, immediately back of a bevel-gear 23 on a shaft 25, the end of which is shown by dotted lines in Fig. 1, and that the bevel-gear 23 is engaged by a bevel-gear 22 on the shaft 21, and that the lowermost rolls 6 are thus rotated positively in the direction of the travel of the warp.

The parts so far referred to are old and common, and instead of the devices shown or referred to for rotating the rolls 6, I may employ any other well-known or suitable mechanism.

The mechanism illustrated in the drawings, which has been so far described, is not claimed by me.

I have applied to the slasher or sizing-machine, between the point at which the warp is sized and the point at which it is dried, cut-marking mechanism or devices, one form of which I will now describe.

The shaft 25 referred to is represented as extended through the size-vat, and at its end farthest from shaft 21 it is provided with a pinion 27, (see Fig. 2,) which engages an intermediate pinion 28, loose on a suitable stud 29, the said intermediate pinion 28 engaging a pinion 30 on the journal of and rotating the ink-roll 31, the lower surface of which is shown as turning in an ink well or supply 32. The journal of the ink-roll 31, just inside the frame of the machine, has attached to it (see Fig. 3) a second toothed pinion 33, of the same size as the pinion 30 and directly behind it. The pinion 33 engages a pinion 34 fast on the journal of and rotating the printing-roll *a*. The surface of this printing-roll is in contact with the inked surface of the inking-roll, so that the printing-roll has applied to it a thin film of ink.

I do not desire to limit my invention to supplying the printing-roll with ink or coloring-matter in the exact manner described, as it may be inked by other usual equivalent devices.

Rising from the size-vat, or from some other

rigid part of the machine, are standards *b*, which form bearings for the journals *b'* of a marker, herein shown as composed of a shaft *b*² and an impression pad or bar *b*³. The impression pad or bar *b*³, as herein shown, has near each end threaded rods *b*⁴, which are extended loosely through suitable transverse holes in the shaft *b*², the said rods being thereafter provided with nuts, as *b*⁵, to prevent their withdrawal from the bar. The pad or bar is normally pushed out radially from the shaft *b*² by springs, herein shown as spiral springs *c*, which surround the rods *b*⁴ between the pad or bar *b*³ and shaft *b*², the said springs serving to hold the pad or bar in such manner that it may yield as the pad or bar in its rotation with the shaft *b*² meets the warp 7, the said pad or bar acting at such time to press the warp against the inked surface of the printing-roll *a*, thus printing upon the said warp a cut-mark, the size and shape of which may be varied as represented in my said application, that depending upon the shape of the face of the pad or bar of the marker. The shaft *b*², as shown, has fixed to it at one end a mutilated pinion *d*, which may be thrown into mesh with the pinion 34, as will be described, whenever the marker is operated to form a cut-mark. The shaft *b*² has also fixed upon it a notched plate *e*, which is normally engaged by a latch *e'*, pivoted at *e*², as best shown in Fig. 1, the said latch *e'*, when in engagement with the notched plate *e*, keeping the pad or bar in elevated position and at rest. The latch *e'* will in practice be acted upon at one end by a finger or projection, as *f*, it forming a slowly-moving part of any usual so-called "clock mechanism," as *f'*, containing usual gearing, whereby the finger may be actuated to make one rotation for each cut, the said clock mechanism, as herein represented, deriving its motion from a worm *f*² on a shaft *f*³, having a bevel-gear *f*⁴, which is in mesh with and is rotated by a bevel-gear *f*⁵ on the shaft *f*⁶ of the drying-cylinder 8; or the clock mechanism may be operated in any usual manner from some moving part of the machine.

In general the construction of the so-called "clock mechanism" or "counting mechanism" may be of any suitable or usual construction, such as employed in mules and other machines to record movements.

Whenever the finger or projection *f* of the clock mechanism acts to lift the forward end of the latch *e'* from the notched disk *e*, the pad or bar *b*³ by gravity drops and comes in contact with the warp 7, and in falling brings the teeth of the mutilated pinion *d* into engagement with the teeth of the rotating pinion 34, which latter pinion thereafter acts to rotate the shaft *b*² until, as herein shown, the pad or bar *b*³ passes the top center of the shaft *b*², when it begins to drop by gravity, and thereafter its descent is arrested by the latch *e'* engaging the notched plate *e*. While the pinion 34 and the mutilated pinion *d* are

in engagement the impression pad or bar and inking-roll are moved in unison, and the surface speed of the inking-roll is substantially the same as the speed of movement of the warp. That portion of the impression pad or bar which acts upon and bears the warp against the inked surface of the inking-roll will be of such shape as to cut-mark the warp from at or near one selvage to at or near the opposite selvage, the cut-mark being of such size and shape that when the warp is woven in a loom the cut-mark so made upon the warp will produce what I denominate a "cut-figure," so that when the cloth is divided in order to remove a cut from the loom a portion of the cut-figure will be on the removed cut and its other portion will be upon the cloth or cut remaining in the loom.

I claim—

1. The printing-roll, combined with the impression pad or bar and shaft carrying it, and with means to revolve the said shaft at predetermined intervals to print a cut-mark on the warp-threads from at or near one edge to at or near the other edge, substantially as described.

2. A printing-roll, an impression pad or bar, and means to supply color to the printing-roll, combined with means for holding said im-

pression-pad in inoperative position and for releasing it, and means to rotate the said impression pad or bar when so released and cause it to co-operate with the printing-roll to produce cut-marks upon the interposed warp, substantially as described.

3. The printing-roll and the inking-roll combined with an impression pad or bar and a shaft to which it is attached loosely, and with means, substantially as described, for revolving said shaft at predetermined intervals, as set forth.

4. The printing-roll and the inking-roll combined with an impression pad or bar, a shaft to which it is attached, a mutilated pinion fixed to said shaft, means, substantially as described, for holding and releasing said shaft, and with a driving-pinion to engage the said mutilated pinion and revolve the shaft carrying the impression pad or bar at predetermined intervals, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM C. LOVERING.

Witnesses:

JAS. H. CHURCHILL,
B. DEWAR.