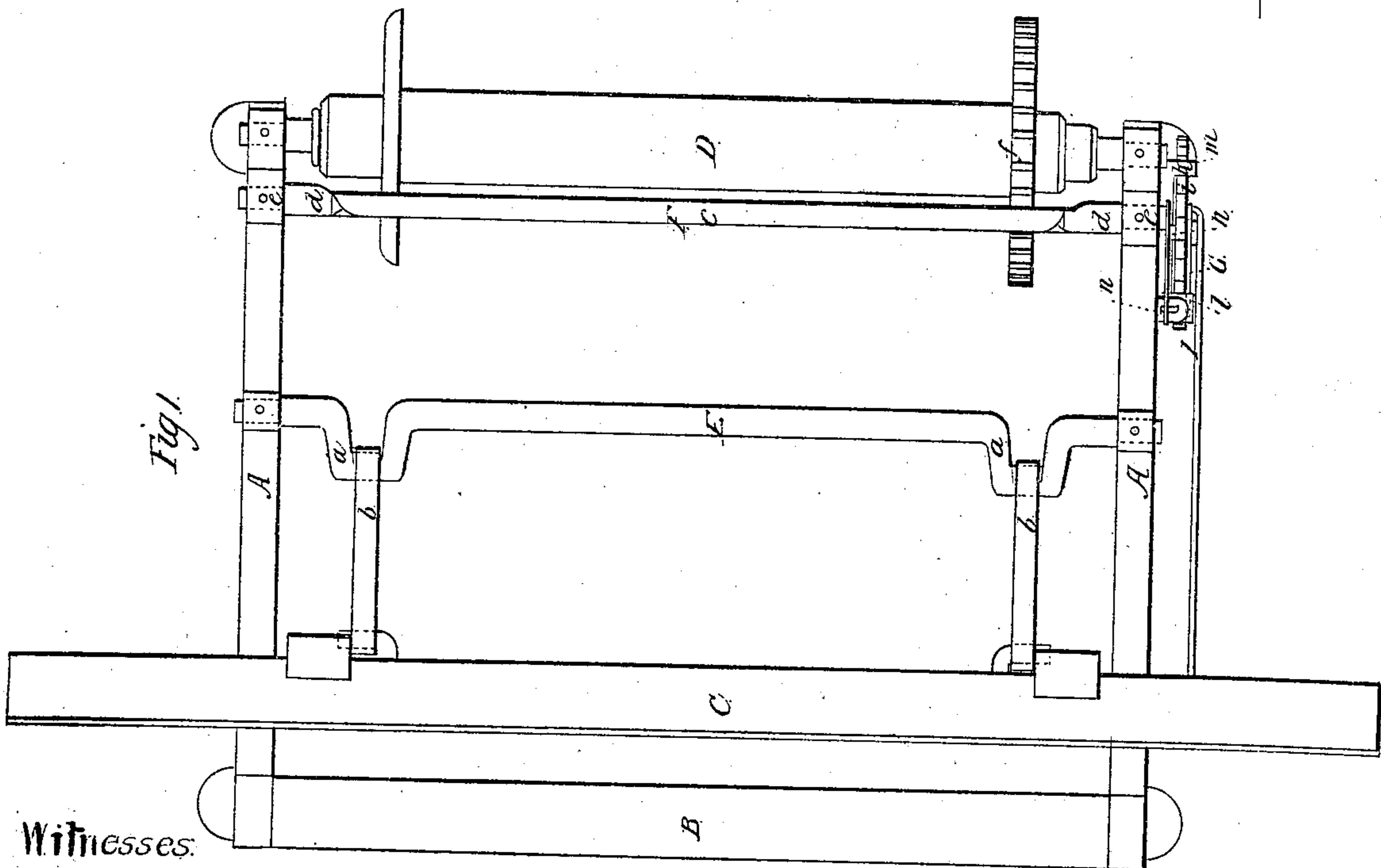
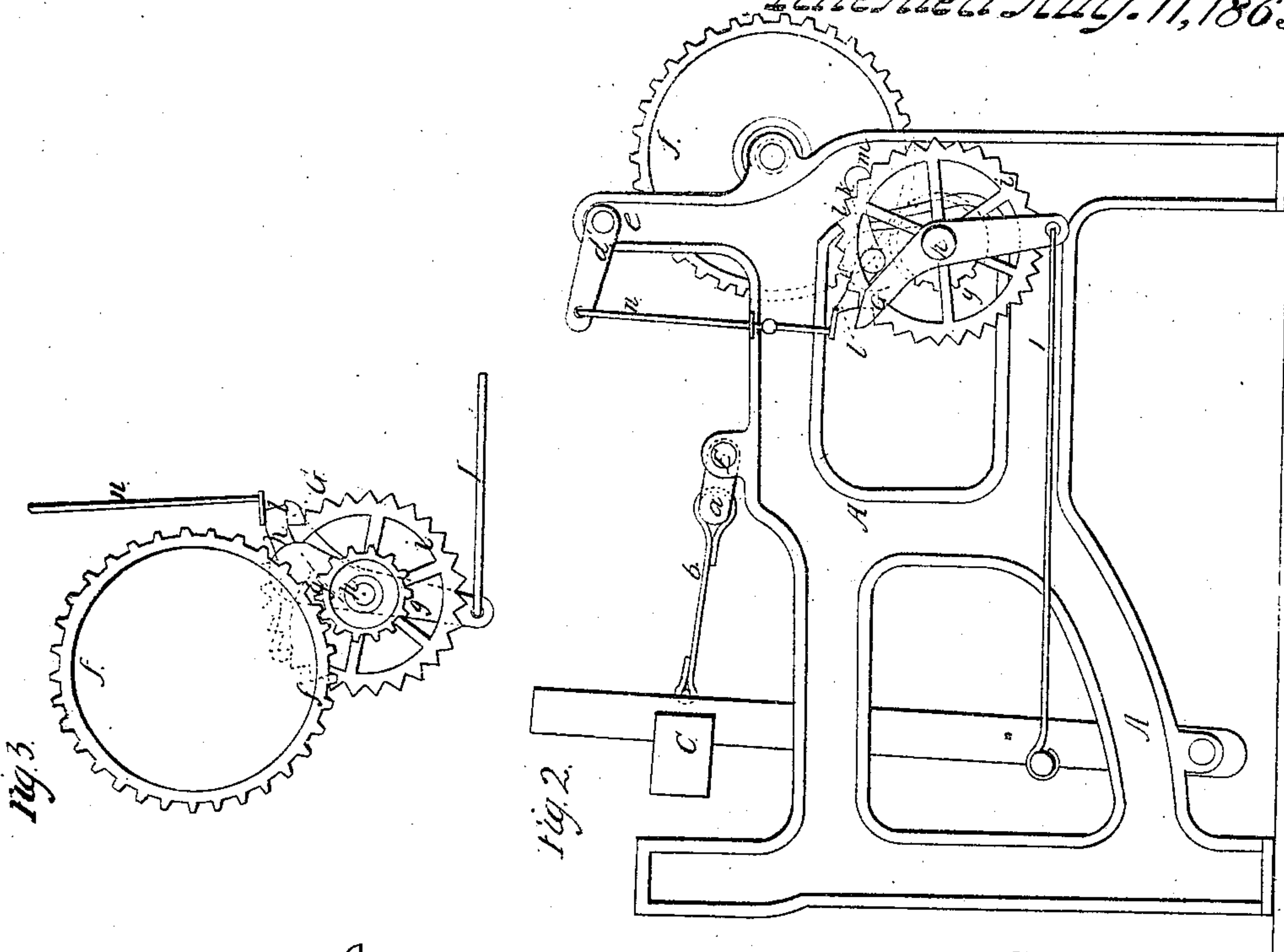


G. Draper Let-Off for Loom.

N^o 39,469.

Patented Aug. 11, 1863.



Witnesses:

J. O. Hale Jr.
Frederick Curtis

Inventor:

Geo. Draper
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R. H. Eddy

UNITED STATES PATENT OFFICE.

GEORGE DRAPER, OF MILFORD, MASSACHUSETTS.

IMPROVEMENT IN LET-OFF MECHANISM FOR LOOMS.

Specification forming part of Letters Patent No. 39,469, dated August 11, 1863.

To all whom it may concern:

Be it known that I, GEORGE DRAPER, a resident of Milford, in the county of Worcester and State of Massachusetts, have made a new and useful invention having reference to what is termed an "Escapement Let-Off Mechanism" for a Loom for Weaving Cloth; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, and Fig. 2 an end elevation, of a loom or certain parts thereof, as furnished with my invention, the nature of which is a combination consisting not only of an escapement or detent lever, its wheel, and an apparatus for depressing or operating the said lever, but of a stopping mechanism to be operated by the lay or while the lay may be beating up, the whole being substantially as hereinafter specified.

There may be other ways or means for operating the "stopper" of the stopping mechanism than by a connecting-rod leading from the lay, as hereinafter specified. Such means may be considered as a mechanical equivalent for such connecting-rod and lay.

The stopper (to arrest the motion of the detent-lever) and the means of actuating the stopper and holding it firmly in position are a feature or element of my invention, the remaining features or elements of it being shown in the United States Patent numbered 36,029, and granted to Silas Shepard on the 29th day of July, A. D. 1862.

The object of my addition to the loom and the escapement let-off mechanism is to prevent the beats of the reed of the lay against the cloth from operating to cause the let-off mechanism to deliver yarn from the yarn beam faster than may be desirable in the process of weaving. My said addition not only completely arrests the action of the let-off mechanism at the period of beating of the reed against the woven cloth, but on recession of the lay permits the said let-off mechanism to be operated by the strain of the warps and cloth. The mechanism of the said Shepard is operated by the combined actions of the said strain and the blow of the beat of the reed, and consequently the yarn will be often let off by such means or forces too fast, whereby uneven or improper

weaving will be the result. With my invention the strain of the warps and cloth incident to the weaving process is all the force in action on the escapement to effect the delivery of the warps.

In the drawings, A denotes the frame of a loom, while B is the breast-beam, C the lay, and D the yarn-beam thereof. The cranked shaft for operating the same is shown at E as having its bell-cranks *a a* connected to the lay by the two pitmen *b b*. In their passage from the yarn-beam D to the reed and breast-beam the warps pass over a guide, F, which for the escapement let-off mechanism has usually been a "whip-roller" having its journals supported by two arms projecting from a horizontal shaft. In the accompanying drawings the equivalent for such whip-roller and shaft is shown as a long and a narrow plate, *c*, curved transversely and provided with journals *d d* or shaft portions projecting from its opposite ends, the whole being so that while the warps may be passing across the plate *c* their pressure on it will cause it to turn or exert a leverage on an arm, *d'*, projecting from one of the journals, the said journals being supported in bearings in two standards, *e e*, making part of the loom-frame.

The above-mentioned mode of making the guide F is not to be considered as having been invented by me, and therefore I make no claim to it, although I have shown it as a substitute for the whip-roll and its shaft, as represented in the patent hereinbefore mentioned. A gear, *f*, of the yarn-beam engages with a pinion, *g*, (see Fig. 3, which is an inner side view of the escapement mechanism,) affixed on one end of a short shaft, *h*, on which is affixed an escapement-wheel, *i*. A double detent-lever or escapement, *k*, like that of a clock-pendulum, works on the escapement-wheel, and is arranged as shown in Figs. 1, 2, and 3. While one of its pallets, *l m*, is out of engagement with the escapement-wheel the other is in engagement therewith. A rod, *n*, rests on the pallet *l* and depends from the arm *d*.

The lever-guide F, the arm *d*, the rod *n*, the detent-lever or escapement *k*, the wheel *i*, the shaft *h*, the pinion *g*, and the gear *f* constitute the escapement let-off or yarn-delivering mechanism, or the main part of such, as is exhibited in the said patent. To render it complete, it

may have the counter-weight (shown in Shepard's patent) applied to the guide F for elevating it during the slackening of the yarn.

In carrying out my invention I have combined with such escapement let-off mechanism a lever or stopper, G, and its actuating mechanism, which, as shown in the drawings, is a rod, I, jointed to the lower arm of such stopper, and also to the lay, the same being so that during the vibrations of the lay the lever or stopper G will be turned or vibrated on its fulcrum, which is the shaft *h*. The upper arm of the lever projects directly underneath the pallet *l* of the detent lever *k*, and at the period of the beat of the lay or the reed thereof up against the cloth will be drawn up to the pallet, so as to prevent any depression of the latter, and consequently any rotary movement of the escapement-wheel during such time. On recession of the reed a counter movement of the stopper G will take place and leave the escapement-wheel detent-lever free to be acted on by the contractile power of the cloth and the warps extending between the breast beam and the yarn-beam.

As I have hereinbefore stated, the escapement mechanism without my addition will be operated by the compound forces of the beat

of the reed and the strain of the warps and cloth, the effect being to cause the warp to be loosened as the beat may become harder. My addition prevents the force of the beat of the reed from having any effect whatever on the escapement, because the strain on the warps cannot so operate on the escapement mechanism as to cause yarn to be let off or delivered until the reed may have receded from the cloth.

I do not claim the escapement let off or yarn-delivering mechanism as described in the aforesaid patent; but

What I do claim as my invention is as follows, viz:

A combination consisting not only of the escapement detent-lever *k*, its wheel *i*, and the apparatus as described for depressing or operating such detent-lever, but of a stopping mechanism (viz., the lever G and its connecting-rod I) to be operated by the lay or while the lay may be beating up, the whole being arranged substantially as and for the purpose specified.

GEORGE DRAPER.

Witnesses:

R. H. EDDY,

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