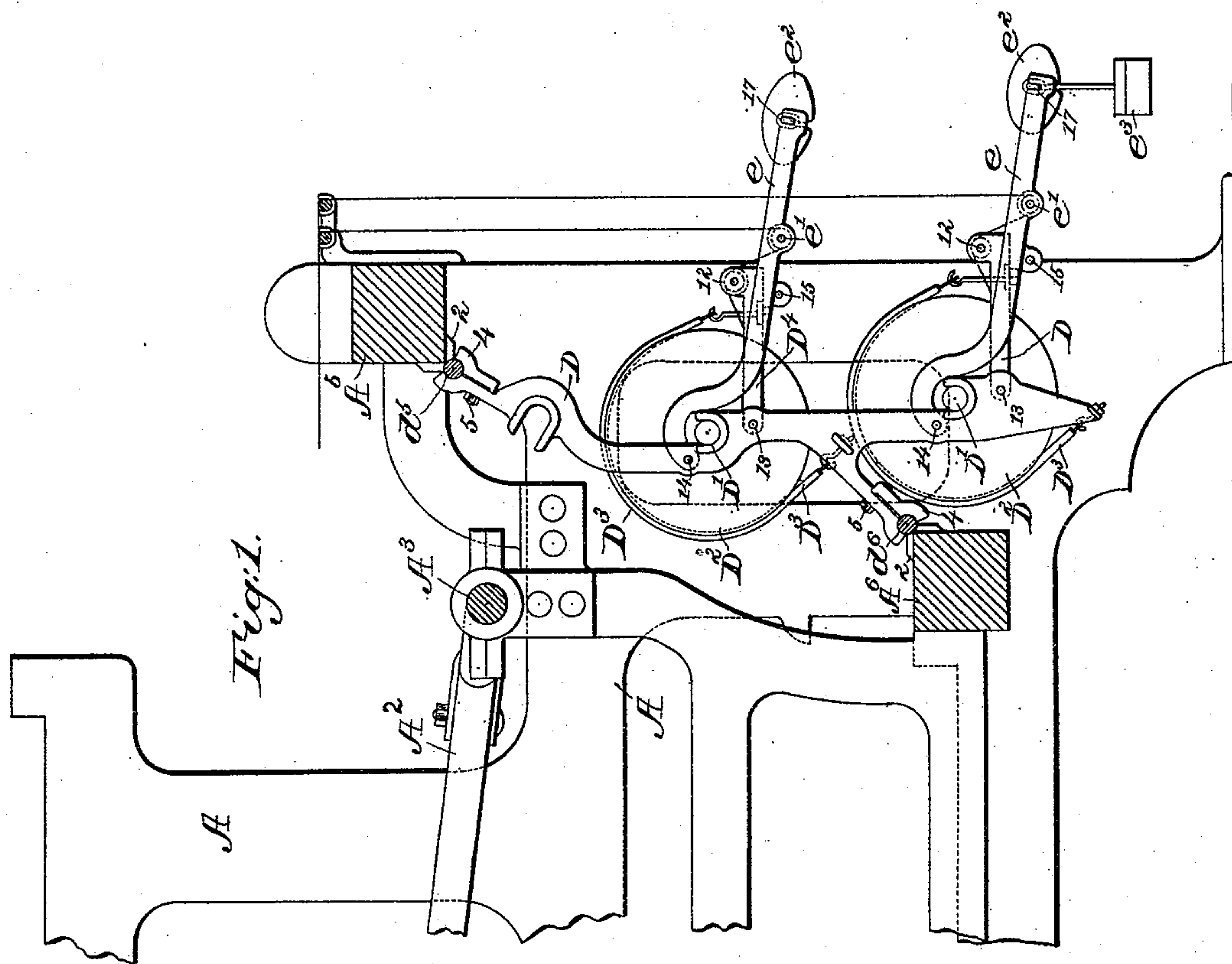
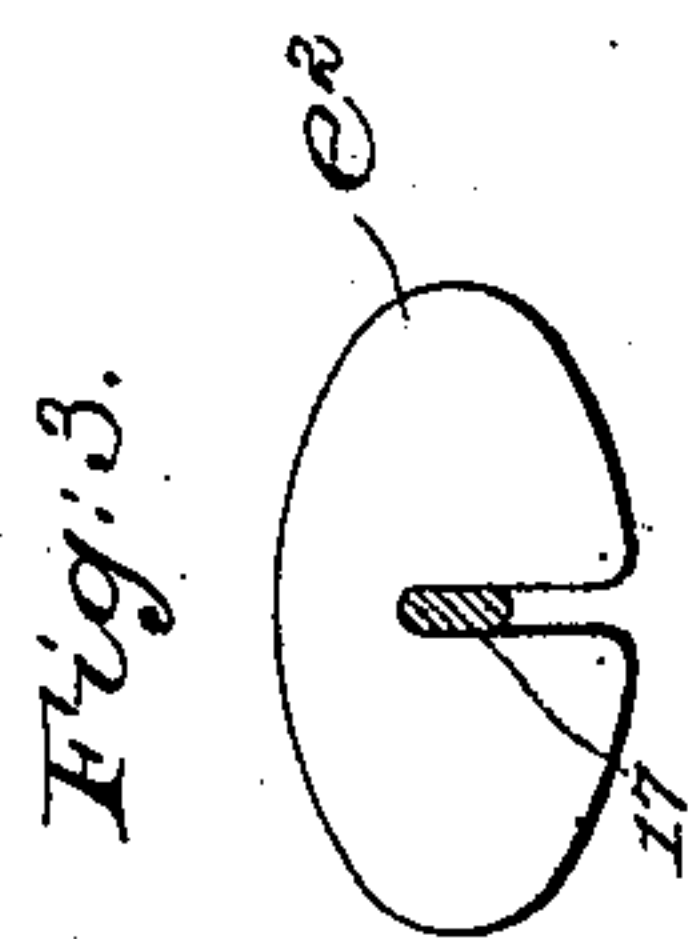
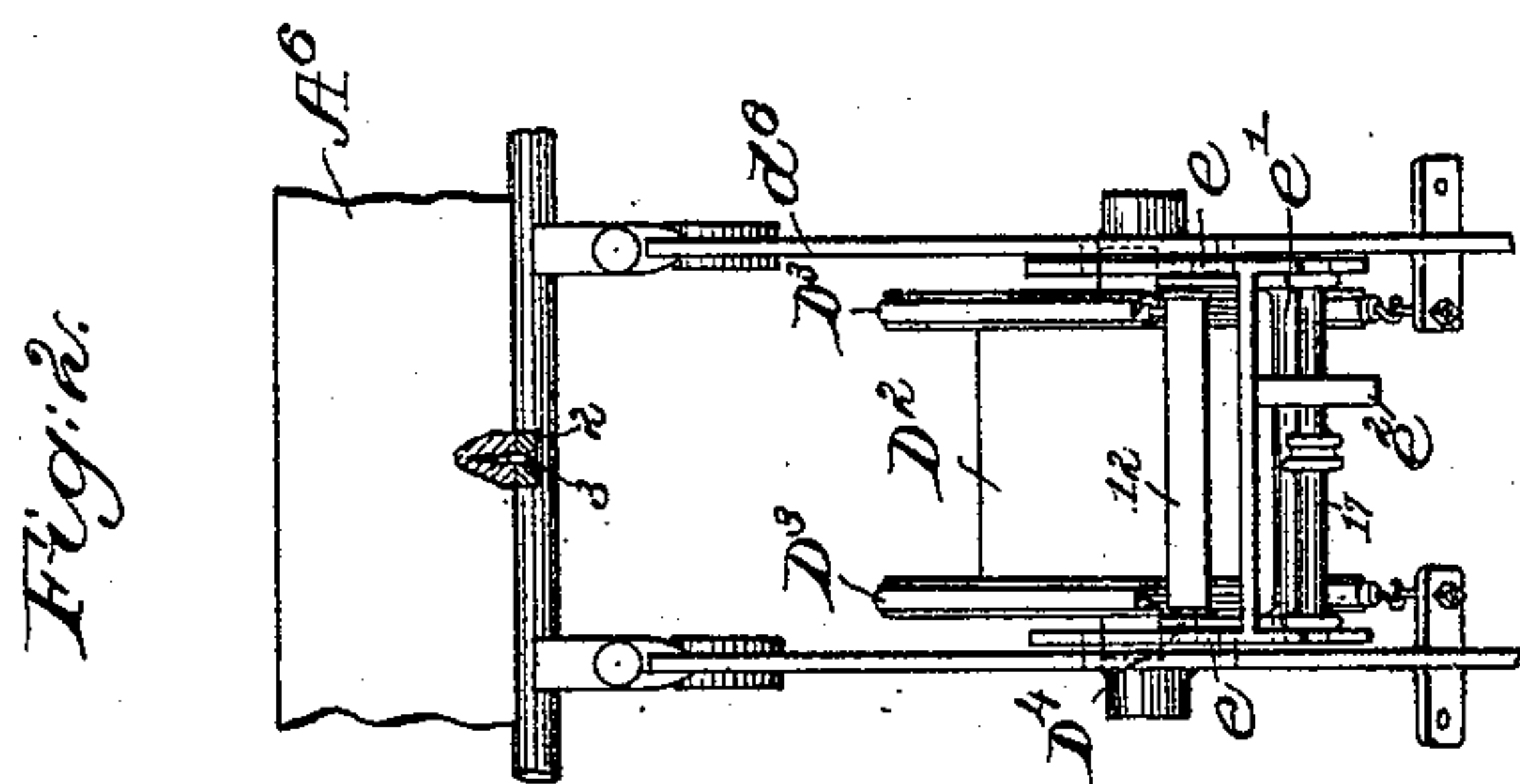


(No Model.)

H. WYMAN & A. A. GORDON.
FRICTION LET-OFF FOR LOOMS.

No. 459,355.

Patented Sept. 8, 1891.



Witnesses.

Fred. S. Gunkel
Oscar F. Hill

Inventors

Horace Wyman.
Albert A. Gordon
by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

HORACE WYMAN AND ALBERT A. GORDON, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO THE CROMPTON LOOM WORKS, OF SAME PLACE.

FRICITION LET-OFF FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 459,355, dated September 8, 1891.

Application filed June 6, 1891. Serial No. 395,332. (No model.)

To all whom it may concern:

Be it known that we, HORACE WYMAN and ALBERT A. GORDON, both of Worcester, county of Worcester, State of Massachusetts, have
5 invented an Improvement in Friction Let-Offs for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like
10 parts.

This invention is an improvement in narrow-ware looms whereby the stands upon which the spools are mounted are provided at each end with a clamping device attached
15 to ways supported by girts, so that the said stands may be adjusted sidewise to adapt them to receive spools of different widths, according to the width of the web to be woven, and although we prefer the shape of way shown
20 yet any other way and clamp which will permit an unobstructed adjustment sidewise will be within the scope of our invention.

Another part of the invention consists of forming the usual let-off levers for the warp-
25 beams of such looms so that the beam may be removed from the stands without severing or cutting the warps, as has hitherto been necessary with the usual form of let-off levers; and it consists in forming the lever, which is
30 usually made in the form of a yoke, so that it will be above the shaft upon which the beam is supported, thereby permitting the beam and its warp-threads to be removed by lifting the yoke sufficiently high to show the
35 shaft of the beam. Said yoke may be used with any of the usual arrangements of rolls or bars connected with the friction-cord, which passes around the beam-head, the warp passing from the under side of the beam over the
40 bar or roller of the friction-lever and thence under the bar or roller carried in the let-off lever, thence upward to the back rail, the let-off lever being weighted to produce sufficient strain on the bar and friction-cord to hold the
45 beam properly for the process of weaving. Instead of a roller being carried in the yoke-like lever, it may be a bar attached directly to the friction-cords, as it has sometimes been arranged, and operate successfully without
50 the improved yoke passing above the beam-

shaft. These stands are very desirable and are quite essential for use in connection with narrow-ware looms, where a pair of webs are being woven at the same time.

Figure 1, in vertical section, shows a sufficient portion of the rear end of a loom embodying our invention to enable the same to be understood. Fig. 2 is a detail looking from the right in Fig. 1, and Fig. 3 is a detail showing the weight applied to the outer end of the
55 lever *e*. 60

The let-off device consists, essentially, of yokes, one of which is provided with a roll under which the warp is passed, while the other yoke carries a roll over which the warp
65 is passed, the latter yoke being connected with a friction-strap extended over the head of the spool. The weighted yoke is raised during the process of weaving by the woven web being drawn forward by any usual form
70 of take-up roll or by the action of the reed upon the filling when beating at the fell, the said weighted yoke having a projection which when the weighted yoke is lifted to a certain
75 position acts upon the yoke, which is connected with a friction-strap, and lifts the latter yoke sufficiently to release the friction-strap and let the spool turn to deliver warp,
80 the weight upon the weighted yoke acting immediately thereafter to pull the warp from the spool. The weighted lever referred to is pivoted above the bearing for the spool and the friction-lever, as here shown, for the purpose of illustrating the invention below
85 the said bearing, so that by lifting the weighted yoke the bearing for the spool will be readily uncovered to permit the spool, with its warp end in the eyes of the usual harness, to be removed from the stands without severing or cutting the warps. 90

Referring to the drawings, A represents the loom-frame; A³, the crank-shaft; A², the usual connecting-rods to join it with the lay, and A⁵ A⁶ cross-girts at the rear of the lay and connecting the side frames of the loom, but
95 one side frame being shown in the drawings, because the other is just like it. The cross-girts referred to are provided, respectively, with guide-rods *d*⁵ *d*⁶, preferably of cast metal, and have suitable ears, as 2, which may be 100

bolted or secured to the said cross-girts by screws 3, one of which is shown in Fig. 2. The stands D have suitable open bearings for the reception of journals D' of the warp-spools D². The stands D are so shaped at their upper and lower ends that in connection with ears 4, bolted thereto by bolts 5, the ends so formed are adapted to embrace the rods d⁵ d⁶, which latter may be of any suitable shape in cross-section, and, constructed as described, these stands may be moved laterally on the said rods to place the stands at any desired distance apart, according to the size of the warp-spool, and also to adapt the stands for the reception of any number of warp-spools, according to the number of warp-spaces and shuttles used in the narrow-ware loom containing the said stands. Each spool has one or both of its heads of such shape as to be embraced in usual manner by a friction-band, as D³, said band having one end thereof fixed, preferably, to some part of the said stand or to a screw thereon and the other end to a yoke-like lever D⁴, pivoted at its inner end to the two adjustable stands, the outer end of the said yoke-like lever, which I shall hereinafter denominate as the "friction-lever," having a bar or roll 12, over which the warp passes from the spool d² on its way to and over the girt a⁵ to the harnesses and the reed. (Not shown.) Each friction-lever D⁴ has its pivots 13 located below the bearings for the journals of the spools. The yoke-like lever e, provided with a bar or roll e', has its pivots at 14 on the stands D above the bearings for the journals D' of the spool with which it co-operates, as thereby whenever the yoke or weighted lever e is raised sufficiently to uncover the bearings for the spool-journals the said warp-spools may be readily removed from their bearings. The warp passes from the spools over the reed or roll 12 of the friction-lever, passing under the bar or roll e' of the weighted lever, the latter hanging upon the warp by a force due to the weight e² and taking up any slack therein between the spool and the weaving-point. As the cloth is being woven the weighted lever e is gradually raised, and when the warp should let off a

projection 15 on the weighted lever e, as here- in shown, strikes a portion of the friction-lever D⁴, raises it, and releases the friction-strap sufficiently to let the warp-spool rotate in its bearings. Instead of the weighted yoke lifting the friction-lever through the projection described, the said projection may be removed and the tension upon the friction-yoke be relieved by elevating the weighted yoke so high that the pressure of the yarn upon the yoke will be sensibly diminished and let the spool turn. The weighted lever e at its outer end has a cross-bar 17, (shown best in Figs. 2 and 3,) preferably oblong in cross-section, so that the slotted weight e² may be easily placed thereon and be kept in position, which could not be done if the bar was round. Applying the weights directly to the horizontal bar of the lever, as described, obviates the employment of usual scale-beam weights and their objectionable swinging motion.

We claim—

1. In a loom, horizontally-arranged guides d⁵ d⁶ and means to support them between the loom-sides, combined with stands having bearings for the warp-spools, the said stands being adjustable laterally upon the said guides, substantially as described.

2. The stands having bearings for the journals of the warp-beams, a friction-cord to act upon the warp-beam, and a tension bar or roller located under the warp-threads and operatively supported by said friction-cord, combined with a let-off lever adapted to cover the said bearings and keep the journals of the warp-beams therein, said lever having a bar or roll adapted to act upon the upper portions of the warp-threads, to operate substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HORACE WYMAN:
ALBERT A. GORDON.

Witnesses:

JUSTIN A. WARE,
SAMUEL B. SCHOFIELD.