May 27, 1930. H. HAYWOOD 1,760,236

LET-OFF MOTION FOR NARROW FABRIC LOOMS

Filed June 10, 1929 2 Sheets-Sheet 1

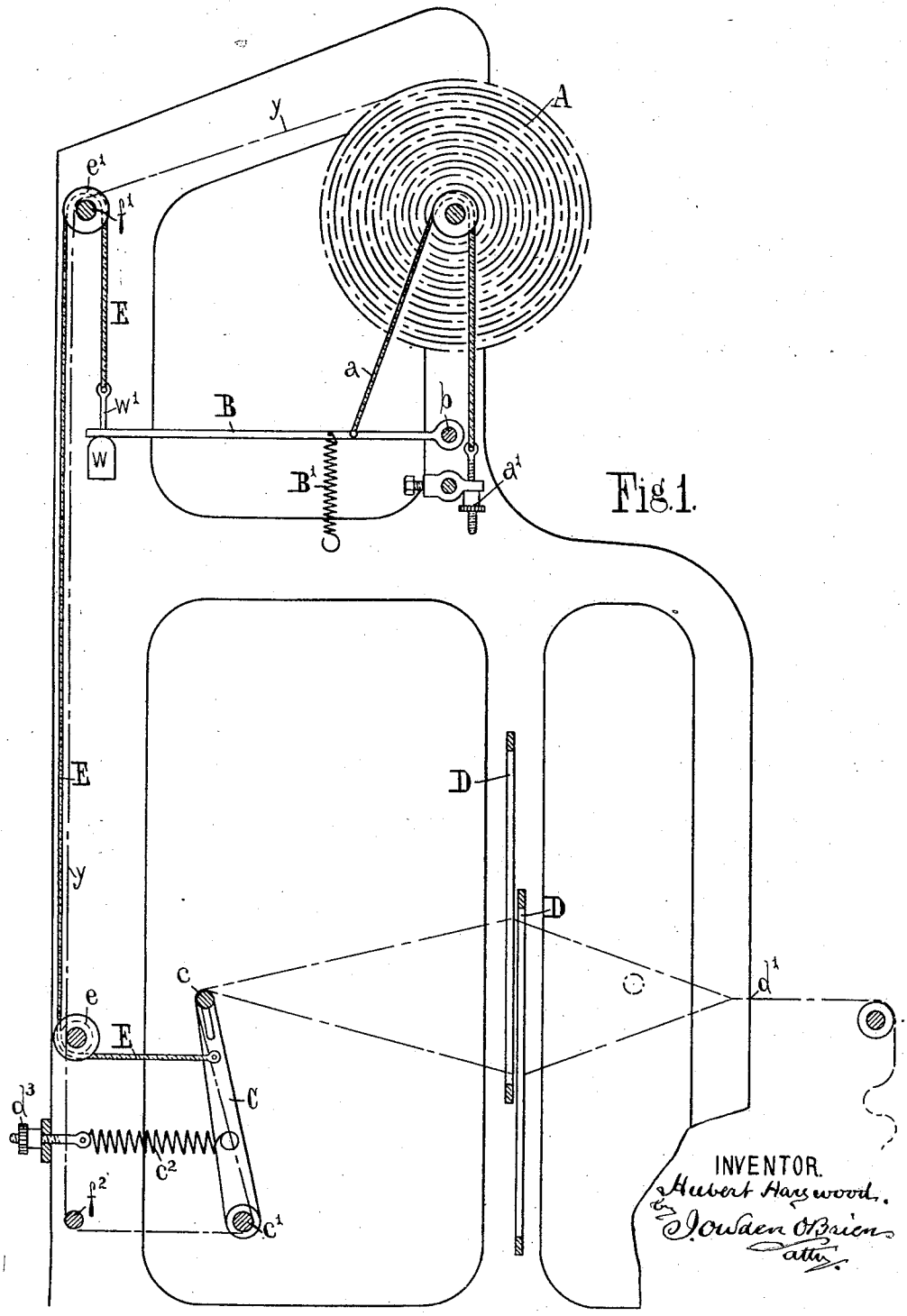


Fig. 1.

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LET-OFF MOTION FOR NARROW FABRIC LOOMS

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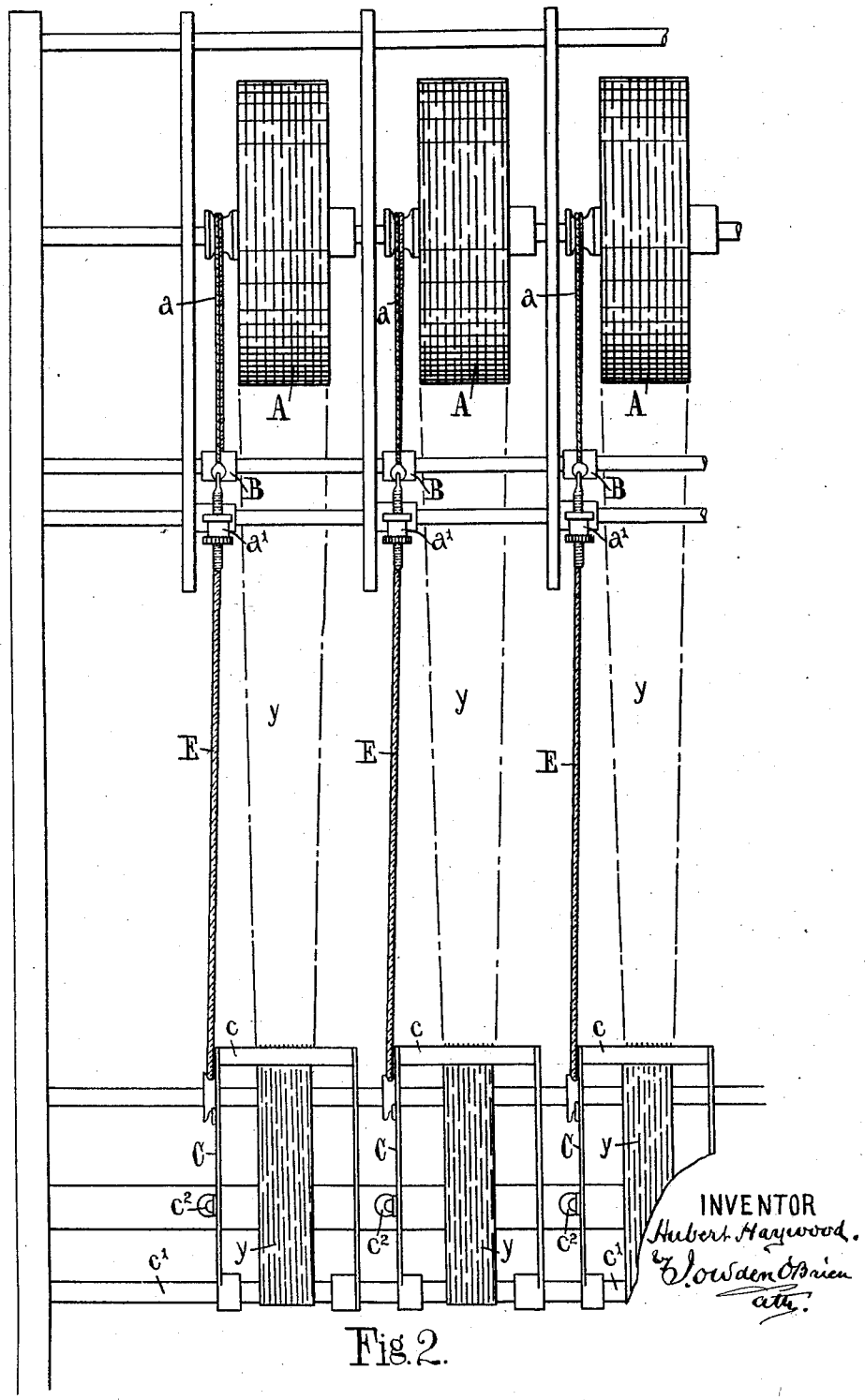


Fig. 2.

Patented May 27, 1930 1,760,236

UNITED STATES PATENT OFFICE

HUBERT HAYWOOD, OF WIRKSWORTH, ENGLAND

LET-OFF MOTION FOR NARROW-FABRIC LOOMS

Application filed June 10, 1929, Serial No. 369,567, and in Great Britain July 11, 1928.

This invention relates to smallware or narrow fabric looms and more particularly to improvements in the warp "let off" mechanism thereof.

The object of the invention is to provide a more even and steady feed of the warp yarn than that obtained by the usual method of rising and falling heavy weights working in conjunction with the top castles.

According to the invention the warp "let off" mechanism is automatically governed by the delivery of the woven fabric and acted on by the shedding motion of the loom.

The invention will be described with reference to the accompanying drawings:—

Fig. 1 is a side elevation of narrow fabric loom with the invention applied thereto.

Fig. 2 is a front elevation showing three heads of the loom each having the invention applied thereto.

Each warp creel or bobbin A is mounted in the framing of the loom in the usual way and a cord a is passed around the boss of the creel or bobbin. One end of the cord a is attached to an adjusting screw a^1 and the other end is attached to a lever B pivoted to the framing of the loom at b and under the tension of a light spring B^1. The lever B acts as a release lever in a similar manner to the release lever of the ordinary smallware loom.

A vibrator C is arranged at a suitable distance behind each of the shedding heddles D, the upper parts of which carry a bar c which is in line with the centre line d^1 of the warp shed. Each vibrator C is pivoted at its lower end on a bar c^1 and is controlled by a spring c^2 anchored at one end to the frame by the adjusting screw d^3.

The vibrator C is connected by the cord E to the weight w provided with a short rod w^1 which can slide through a slot in the release lever B, the cord passing round the pulleys e, e^1. Or it may be connected directly thereto by a light steel rod.

The warp yarn y passes from the creel or bobbin A over the bars f^1 and f^2 to the bar c^1 at the bottom of the vibrator and thence around the bar c at the top thereof which is in line with the centre line of the shed.

The action of the mechanism is as follows:—

The warp yarn y after passing around the bars f^1 and f^2 is directed under the bar c^1 and then over the bar c at the top of the vibrator to the heddles D of the loom. The action of dividing the warps in shedding causes a slight forward movement of the top of the vibrator C which after the shed has closed is returned to its normal position by the spring c^2, the weight w and the spring B^1 controlling the release lever B.

Assuming the loom to be in action, the delivery of the fabric as it is woven tends to bring the top of the vibrator C forward. The limit to the forward position which the vibrators can be brought is determined by the adjusting screw d^3 to which the spring c^2 is attached.

When the vibrator C has reached its extreme forward position the cord E on the light steel rod which connects the vibrator with the release lever B moves the weight w upwards so that it engages the end of the lever B and raises the latter so that the grip on the boss of the warp bobbin or creel A is released. It thus follows that when the grip on the warp is released, the vibrators C can draw off the warp yarn. As the vibrator C is always nearer to the heddles D when the "shed" of the warps is open, the release of the warp yarn is only momentary, for with the closing of the "shed" the release ceases, due to the vibrators having moved to the rear under the action of the springs c^2 so that it is only a small fraction of an inch of yarn that is released at once.

The purpose of the adjusting screws a' which are attached to each of the cords a of the release lever B is to facilitate the setting of the vibrators C in their correct working position.

The warp let-off motion is thus actuated by the movement of the vibrators C which control the feed of the warp yarn by acting on and controlling the release levers B, and the direct connection with, and between vibrators and release levers, thereby causing the action of shedding, and the delivery of the woven fabric to automatically govern the

feed of yarn to the loom from the warps without the agency of either rising and falling heavy weights, ratchets, or clutches, and dispensing with "top castles".

The springs c^2 which tension the vibrators C are stronger than the springs B^1 of the release levers B so that they can easily overcome the latter and so permit the vibrators to draw off the yarn when the release of the grip on the warps occur.

What I claim as my invention and desire to protect by Letters Patent is:—

A warp let off motion for narrow width looms comprising in combination a creel mounted on the top of the loom, a boss on the creel, a flexible band passing over said boss to apply tension thereto, a pivoted release lever to which one end of the flexible device is attached, a vibrator over which the warp yarn passes, a flexible connection between the vibrator and the pivoted release lever so that as the vibrator moves forward by the delivery of the woven fabric the pivoted release lever will be actuated to remove the tension on the boss of the creel and allow a small length of yarn to be unwound therefrom, an adjusting screw attached to the end of the flexible band to facilitate the setting of the vibrator, a spring connected to the vibrator, an adjusting screw for adjusting the tension of said spring and a lighter spring connected to the release lever so that the vibrator spring will overcome the release lever spring.

In testimony whereof I have hereunto set my hand.

HUBERT HAYWOOD.