

No. 753,808.

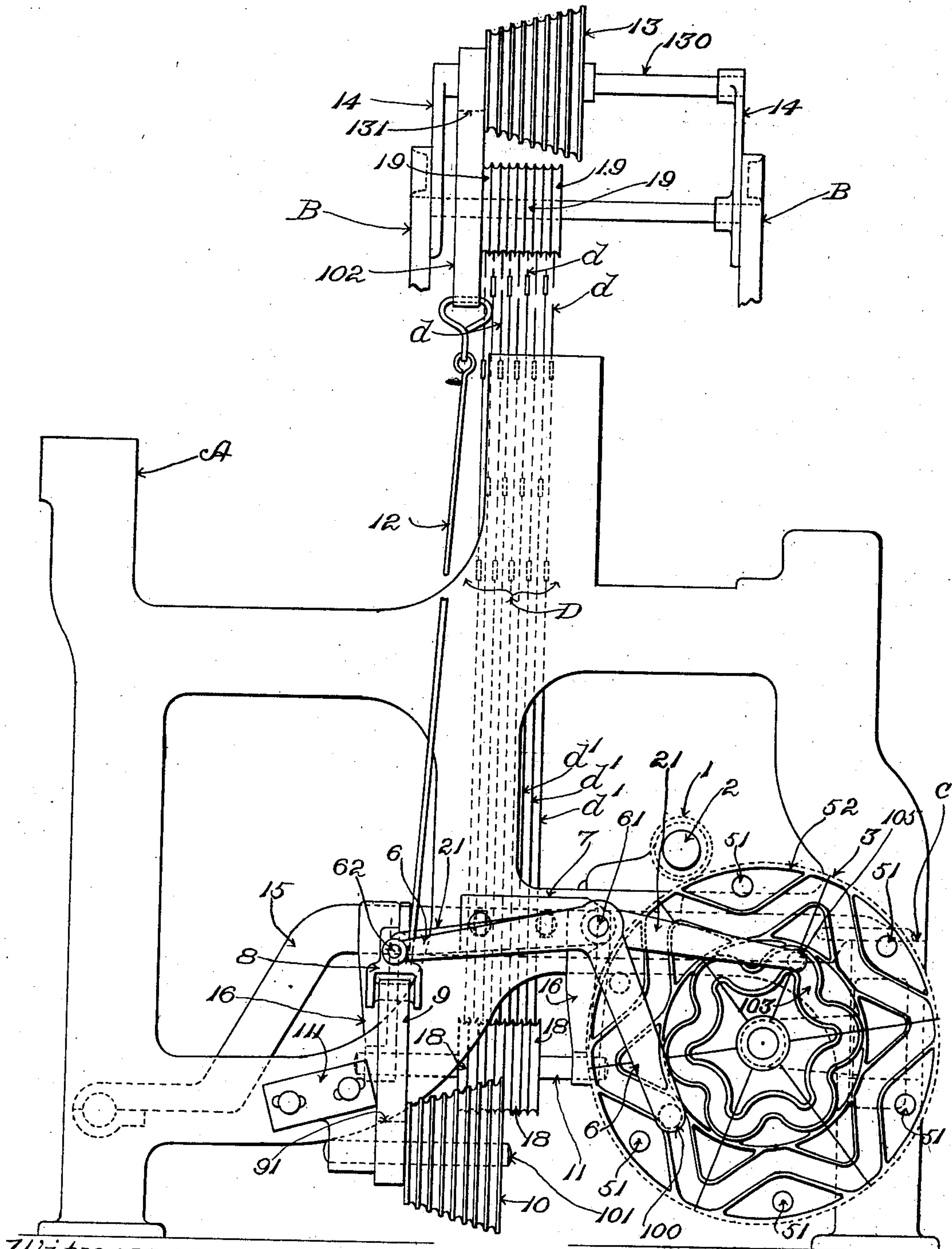
PATENTED MAR. 1, 1904.

A. R. PATTEN.  
SHEDDING MECHANISM FOR LOOMS.

APPLICATION FILED OCT. 24, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

Oscar F. Hill  
Edith J. Anderson.

Fig. 1. *George R. Patten*  
Inventor:  
By *MacLeod Calver & Randall*  
Attorneys.

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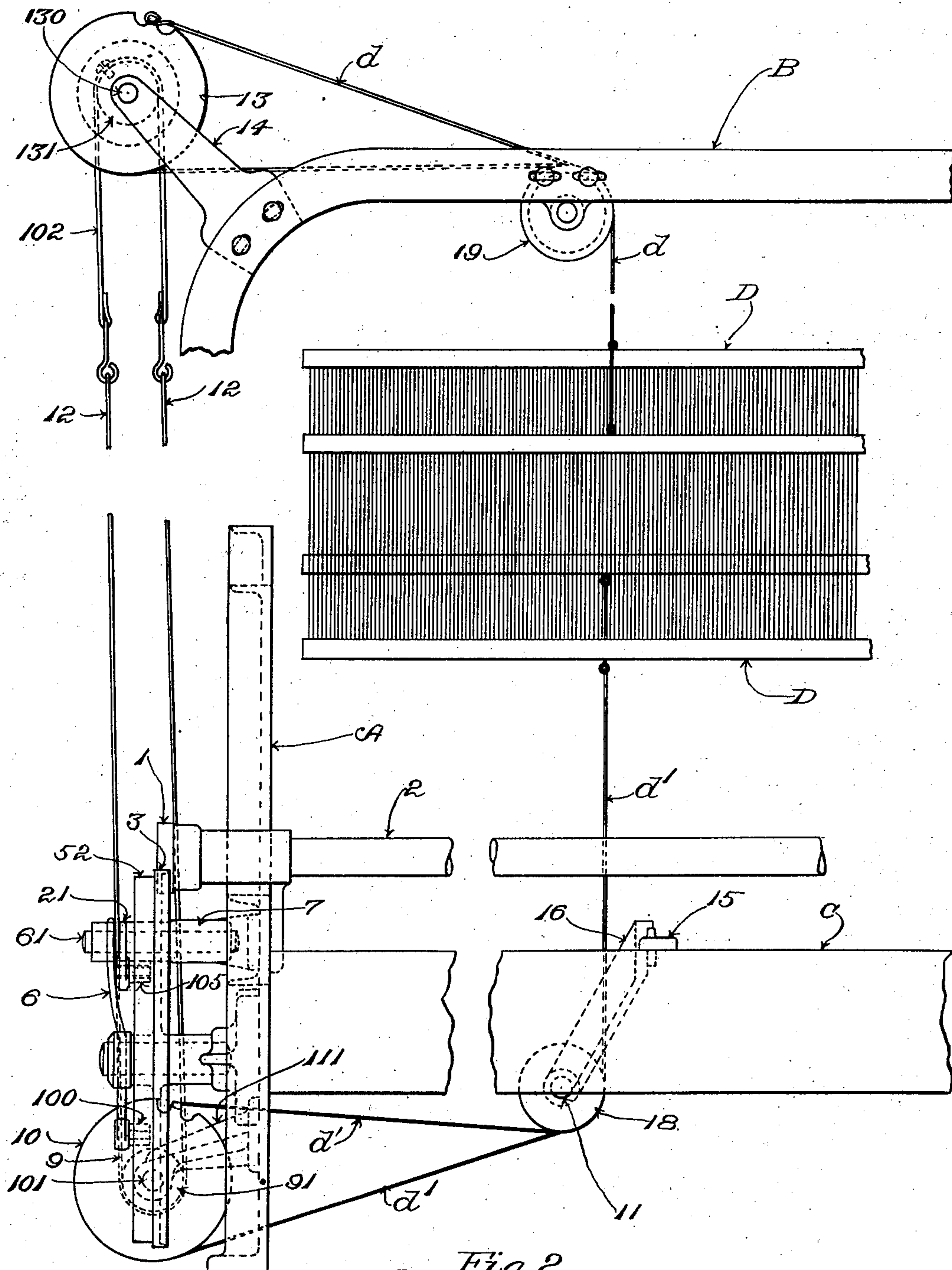


Fig. 2.

Witnesses:

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# UNITED STATES PATENT OFFICE.

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## SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 753,808, dated March 1, 1904.

Application filed October 24, 1902. Serial No. 128,527. (No model.)

*To all whom it may concern:*

Be it known that I, ALONZO R. PATTEN, a citizen of the United States, residing at Hyde Park, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Shedding Mechanism for Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to shedding mechanism for looms. It is designed specially for use in the weaving of certain classes of fabrics containing large numbers of warp-threads.

15 The invention consists in the improved shedding mechanism herein described and shown, in which the warp-threads for each of the planes of a shed in the warps are divided among two or more harness-frames, which latter are arranged to move together, the effect  
20 produced in the weaving by applying the warp-threads of each of the respective divisions of the warps to the heddles of two or more harness-frames moving in unison being the same as if all of the warp-threads of each division  
25 were passed through the heddle-eyes of a single harness-frame.

30 The objects of the invention are mainly to provide a novel and improved construction and combination of parts for use as aforesaid of convenient and practical character and which shall admit of readily being changed whenever required to produce goods which contain one, two, three, or more picks of weft in a shed.

35 In the accompanying drawings, illustrating my invention, Figure 1 shows in side elevation part of a loom-frame having the invention applied thereto. Fig. 2 is a view in rear elevation, showing the parts which are represented in Fig. 1.

40 Only such parts are represented in the drawings as are necessary to be shown in order to convey a clear idea of the nature and relations of the invention.

45 At A is shown one of the side frames of a loom, B being the arch, and C the cross-girth at the rear of the loom.

A series of harness-frames is represented at D D D, &c., and the harness-cording which is

connected with the said harness-frames for the purpose of supporting and operating the latter is indicated at  $d d d$ , &c., and  $d' d' d'$ , &c. The harness-cording  $d d d$ , &c., extends upwardly from the harness-frames and passes over and around sheaves 19 19 19, &c., supported in usual manner by the arch B of the loom. The harness-cording  $d' d' d'$ , &c., extends downwardly from the harness-frames and passes around sheaves 18 18 18, &c., mounted upon a supporting rod or pin 11, which latter is carried by depending arms or brackets 16 16, attached to a cross-girth 15, extending in a direction from front to rear in the loom and at mid-widths of the loom. The respective ends of the harness-cording  $d d d$ , &c., are connected with the respective divisions of an actuating grooved cone 13, which cone is mounted upon a supporting pin or rod 130 at one side of the loom, the latter being carried by stands or brackets 14 14, which are secured to the arch of the loom at the said side. The respective ends of the cording  $d' d' d'$ , &c., are connected with the respective divisions of the grooved cone 10, which last is mounted at the same side of the loom below the cone 13 upon the pin or rod 101, carried by the stand 111, the latter being bolted to the loom side A. The number of grooves in the respective cones 13 and 10 may correspond with the largest number of harness-frames which is intended to be employed in the loom at any time, and the manner and means of mounting the said cones and providing bearings for the latter may vary in practice as may be preferred. For the purpose of raising and lowering the harness-frames in order to produce the required sheds in the warp the cones 13 and 10 are caused to oscillate in unison upon their respective axes at the required times in the operation of the loom. For the purpose of dividing the harness-frames into groups and causing those of one group to move in unison in one direction simultaneously with the movement in unison in the opposite direction of those harness-frames which pertain to the other group certain of the ends of the harness-cording  $d d d$ ,



&c., are passed from the sheaves 19 19 19, &c., to the corresponding grooves of the upper cone 13 above the axis of the latter, and the remainder of the said ends of harness-cording *d d d*, &c., are passed from the said sheaves 19 19 19, &c., to the corresponding grooves of the upper cone 13 below the axis of the said upper cone, and a corresponding arrangement is made in the case of the harness-cording *d' d'*, &c., and the lower cone 10. For the purpose of oscillating the two cones 13 and 10 at the required times and in unison an operating-lever 6 is employed. The said lever is pivoted at 61 upon a stand 7, which is bolted to the loom side A. One arm of this lever has connected pivotally therewith at 62 a strap-swivel 8, to which latter is connected a strap 9, one extremity of the said strap being wrapped partly around the periphery of a roll 91, that is fast with the lower cone 10, the said extremity of the strap being attached to the said periphery. A suitable connection 12, usually made of wire, has the lower end thereof connected with the swivel 8, the upper end thereof being connected with a strap 102, the said strap 102 having one extremity thereof wrapped partly around a roll 131, made fast to the upper cone 13, the said extremity being fastened to the said periphery.

For the purpose of actuating the lever 6 I provide a cam-carrier, which in the present instance is constituted by a large gear 3, the latter being engaged and driven by a small gear or pinion 1 on the cam-shaft 2. The cam-carrier 3 is provided with a cam 52, engaging with the cam-roll 100, with which the inner arm of the lever 6 is provided, the said cam being in the present instance a grooved cam and the roll 100 being received in the groove or cam path thereof, as shown in the drawings.

In the case of some fabrics it is desired to put one pick of weft-thread into each shed in the warps, in other fabrics it is desired to put two picks of weft-thread in each shed of the warps, in others still it is desired to put three picks of weft-thread in each shed of the warps, and so on. In order to provide readily for securing the required change in the working of the harness-frames, I make the cam removable and replaceable, so as to enable me to apply to the cam-carrier a cam having a path or contour corresponding with the character of shedding which is required. Preferably I construct the cam of a number of segments which are held to the cam-carrier 3 by means of bolts 51 51, &c. This construction enables the segments which are in use at any time to be readily removed and replaced by a set of segments corresponding with the required action of the harness-frames. It will of course be understood that the relative speed of the cam-carrier 3 must correspond with a multiple of the number of picks which is desired to introduce into each shed. Thus in the illustrated construction the gearing 1

and 3 is proportioned to cause one revolution of the cam-carrier 3 for six revolutions of the cam-shaft 3—that is to say, one revolution of the cam-carrier 3 is produced for each twelve picks. Hence either two, three, four, or six picks may be introduced into each shed of the warps, according to the arrangement of the grades of the cam.

The selvage-harnesses are operated from a lever 21, which is mounted upon the pin 61 alongside the lever 6 and provided with a roll 105, working in the cam path or groove 103, which latter preferably is provided upon the cam-carrier 3 and also formed on the segments of the cam 52. The selvage-harness frames are not shown, but in practice may be arranged and connected as preferred.

I claim as my invention—

1. The improved shedding mechanism for looms comprising, essentially, in combination, a plurality of harness-frames for each of the planes of the shed to be produced in the warps, the cones 13 and 10 located one above the other at one side of the loom, the upper and lower sheaves 19, 18, the harness-cording *d, d', d'*, passing from the harness-frames around the sheaves 19, 18, and also passing in different directions around the respective cones, the harness-cording from the harness-frames which move in unison being passed in the same direction around the cones, the operating-lever 6, connections between the said lever and the cones whereby the latter are operated in unison, the cam actuating the said lever and adapted to be removed and replaced to vary the number of picks of weft received in the sheds, and means for operating the said cam, substantially as described.

2. The improved shedding mechanism for looms comprising, essentially, in combination, a plurality of harness-frames for each of the planes of the shed to be produced in the warps, the cones 13 and 10 located one above the other at one side of the loom, the upper and lower sheaves 19, 18, the harness-cording *d, d', d'*, passing from the harness-frames around the sheaves 19, 18, and also passing in different directions around the respective cones, the harness-cording from the harness-frames which move in unison being passed in the same direction around the cones, the operating-lever 6, connections between the said lever and the cones, whereby the latter are operated in unison, the cam-carrier, means for rotating the same, and the sectional cam actuating the said lever, removably connected with said cam-carrier, and replaceable to vary the number of picks of weft received in the sheds, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALONZO R. PATTEN.

Witnesses:

CHAS. F. RANDALL,

WILLIAM A. COPELAND.