

J. E. GOODWIN.

LOOM.

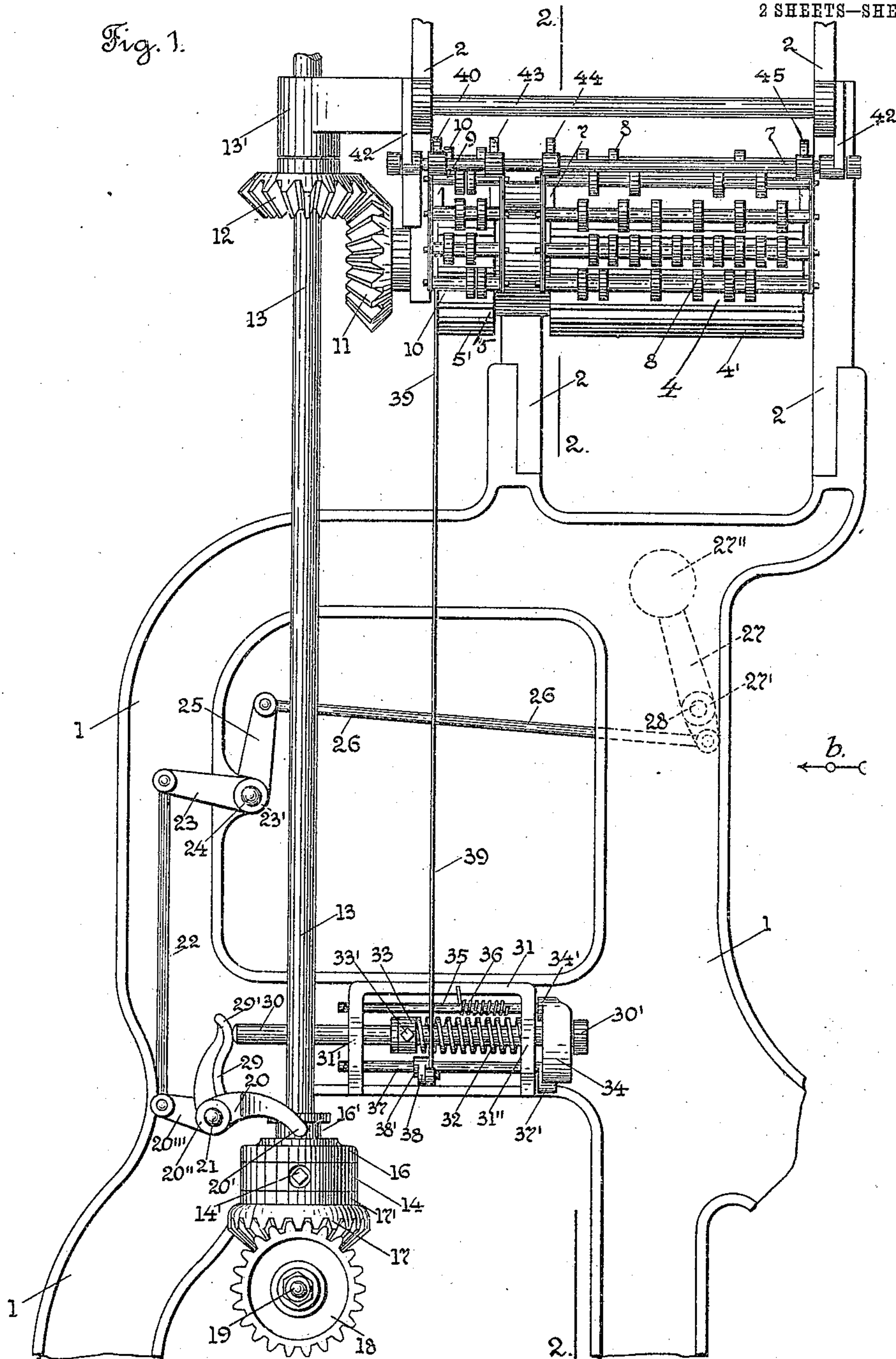
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2 SHEETS—SHEET 1.

Fig. 1.



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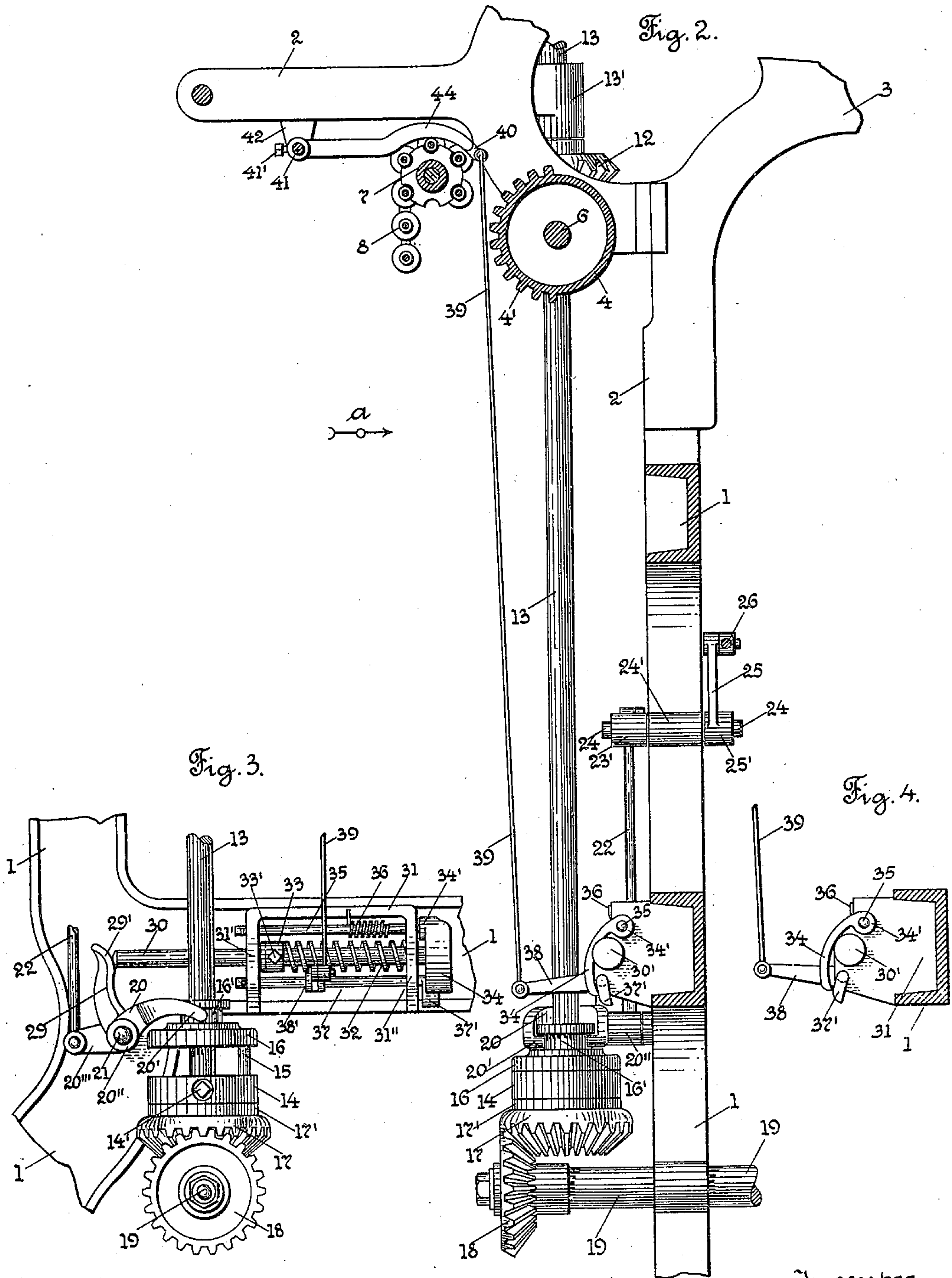
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UNITED STATES PATENT OFFICE

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LOOM.

949,629.

Specification of Letters Patent.

Patented Feb. 15, 1910.

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To all whom it may concern:

Be it known that I, JAMES E. GOODWIN, a citizen of the United States, residing at Cumberland Gap, in the county of Claiborne and State of Tennessee, have invented certain new and useful Improvements in Looms, of which the following is a specification.

My invention relates to looms, and to that class of looms shown and described in U. S. Reissue Letters Patent, No. 7,784, and particularly to a stop mechanism, to be combined with the clutch mechanism of the upright driving shaft of a loom of the class referred to, by means of which the head motion will be automatically stopped, when a pattern chain fails to properly run upon its cylinder.

The object of my invention is to provide a stop mechanism of simple construction and operation, which can be readily attached to a loom of the class referred to.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawings a detached portion of a loom of the class referred to, and particularly of the head motion, and driving mechanism of said loom, with my improvements combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a side view of the head motion, and driving mechanism of a loom of the class referred to, with my improvements combined therewith, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 shows the parts shown in the lower portion of Fig. 1, detached, with some of the parts in a different position, and Fig. 4 shows the mechanism shown at the lower part of Fig. 2, detached, and in a different position.

In the accompanying drawings, 1 is a portion of the loom side or end frame, 2 the stands secured upon the upper part thereof, on which the several parts of the

head motion are supported, 3, Fig. 2, is the end of one arch, 4 is the lower cylinder gear of the harness operating mechanism, and 5 the lower cylinder gear of the shuttle box operating mechanism, having the tooth portions 4', and 5', respectively, and both fast on the shaft 6, to operate the shuttle boxes and harnesses in the usual way.

7 is the pattern chain cylinder for the harness pattern chain 8; and 9, Fig. 1, is the pattern chain cylinder for the box pattern chain 10. The pattern chains are made up of rolls and tubes, and operated in the usual way.

On the inner end of the cylinder gear shaft 6 is fast a bevel gear 11, which meshes with and is driven by a bevel gear 12, fast on the upright shaft 13, which has a bearing 13' at its upper end. The upright shaft 13 has at its lower end a collar 14, secured thereon by a set screw 14', and having a hole therethrough to receive a pin 15, which extends down from a disk 16, which forms one member of the clutch mechanism. The disk 16 is loose on the shaft 13, and has a vertical movement thereon. The pin 15 is adapted to extend through the guide collar 14, and to enter a hole in the hub 17' of the bevel gear 17, which gear forms the second member of the clutch mechanism. The gear 17 is loosely mounted on the shaft 13. When the pin 15 extends in the hub of the bevel gear 17, said bevel gear will be clutched to the shaft 13, to cause the revolution of said shaft. The bevel gear 17 meshes with and is driven by a bevel gear 18, fast on a driven shaft 19.

The upper reduced portion of the disk 16 has an annular groove 16' therein, to receive the forked end 20' of a lever 20, which has its hub 20'' loosely mounted on a stud 21 secured to the loom side 1. The lever 20 has an extension 20''' thereon, which is connected, through a link 22, with a lever 23, which has its hub 23' fast on a short rock shaft 24, mounted in a bearing 24' on the loom side, see Fig. 2. On the opposite end of the shaft 24 is fast the hub 25' of a lever 25. The lever 25 is connected by a link 26, in this instance to the hand-operating lever

27, shown by broken lines in Fig. 1, which lever has its hub 27' pivotally mounted on a stud 28 on the loom frame 1. The lever 27 has an enlarged end or knob 27'', for the operator to move said lever, and to clutch or unclutch the driving mechanism of the upright shaft 13.

All of the above-mentioned parts are of the usual and well known construction in the class of looms referred to.

I will now describe my improvements for operating the clutch mechanism above referred to, and automatically stopping the loom, when a pattern chain fails to properly run or move upon its pattern cylinder.

Extending upwardly from the hub 20'' of a clutch lever 20, is in this instance an arm 29, which has an engaging end 29' extending in the path of and adapted to be engaged and operated by the end of a horizontally extending longitudinally moving rod 30. The rod 30 is loosely mounted in bearings 31' and 31'' on a stand 31 secured to the loom side 1. A helically coiled expansion spring 32 encircles the rod 30, and bears at one end against the bearing 31'', and at its other end against a collar 33, secured on the rod 30 by a set screw 33'. The spring 32 acts to move the rod 30 toward the left in Figs. 1 and 3. The other end of the rod 30 has an enlarged head or collar 30' thereon, which is adapted to be engaged by a downwardly-hanging latch 34, which latch holds said rod 30 in the position shown in Fig. 1. The latch 34 has its hub 34' fast on a rock shaft 35, which is loosely mounted in the bearings 31' and 31''.

A helically coiled torsion spring 36 encircles the shaft 35, and is attached thereto at one end, and bears against the stand 31 at its other end, see Figs. 1 and 3, and acts to yieldingly move downwardly the latch 34, to lock the rod 30 in the position shown in Fig. 1.

A second rock shaft 37 is in this instance located below the rod 30, and is loosely mounted in the bearings 31' and 31'', and has one end provided with a lug or finger 37', which extends under and is adapted to engage the free end of the latch 34, see Figs. 2 and 4.

A lever 38 has its hub 38' fast on the rock shaft 37, and is connected, through a link or wire 39, with the end of lever 40, see Fig. 2, which has its hub secured by a set screw 41' on a horizontally extending rock shaft 41, mounted in suitable bearings in brackets 42 secured to the stands 2, see Fig. 1. The end of the lever 40 in this instance rests upon one end of the box pattern chain 10.

Upon the rock shaft 41 are in this instance also secured the hubs of three other levers 43, 44, and 45, see Fig. 1, which levers rest upon the ends of the pattern chains 8 and 10.

From the above description in connection with the drawings, the operation of my improvements will be understood by those skilled in the art.

When the loom is in operation and running normally, the clutch mechanism for the upright driving shaft 13 is in the position shown in Fig. 1, and will remain in this position as long as the pattern chains operate properly.

In case one of the pattern chains overruns, or does not operate properly, so that a tube on the end of a bar of the chain fails to enter a notch in the cylinder head, one of the indicating levers 43, 44, or 45 will be raised, and cause the shaft 41 to rock, and through lever 40 and link 39, raise the lever 38 and rock the shaft 37, to cause the lug or finger 37' to lift, or move outwardly the latch 34, as shown in Fig. 4, to disengage said latch from the head 30' on the rod 30, and allow said rod, through the action of the spring 32, to be moved to the left, to engage and move the arm 29, and through the clutch lever 20 raise the clutch disk 16, to unclutch the shaft 13 from the bevel gear 17, shown in Fig. 3, to automatically stop the head motion, and the movement of the pattern chains.

It will be understood that the details of construction of my improvements may be varied if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a loom, a pattern cylinder, a pattern chain thereon, a lever or arm to be engaged by said pattern chain, cylinders for operating the shuttle boxes and the harnesses, driving mechanism for operating said last-mentioned cylinders, said driving mechanism including therein clutch mechanism, connections intermediate said clutch mechanism, and said lever or arm, to automatically disconnect the clutch mechanism if a pattern chain fails to operate in a proper manner.

2. In a loom, pattern cylinders, pattern chains thereon, levers or arms to be engaged by said pattern chains, cylinders for operating the shuttle boxes and the harnesses, driving mechanism for operating said last-mentioned cylinders, said driving mechanism including therein clutch mechanism, connections intermediate said clutch mechanism and one of the levers or arms engaged by a pattern chain, to automatically disconnect the clutch mechanism if a pattern chain fails to operate in a proper manner.

3. In a loom, pattern cylinders, pattern chains thereon, levers or arms to be engaged by said pattern chains, cylinders for operating the shuttle boxes and the harnesses, driving mechanism for operating said last-mentioned cylinders, said driving mechanism in-

cluding therein a clutch mechanism and a clutch operating lever, a longitudinally moving spring-actuated rod to engage and move said clutch lever, means for holding said rod
5 in its inoperative position, means for releasing said rod to allow it to move into its operative position, and connections interme-

diating said means, and a lever or arm engaged by the pattern chain.

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Witnesses:

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