

(No Model.)

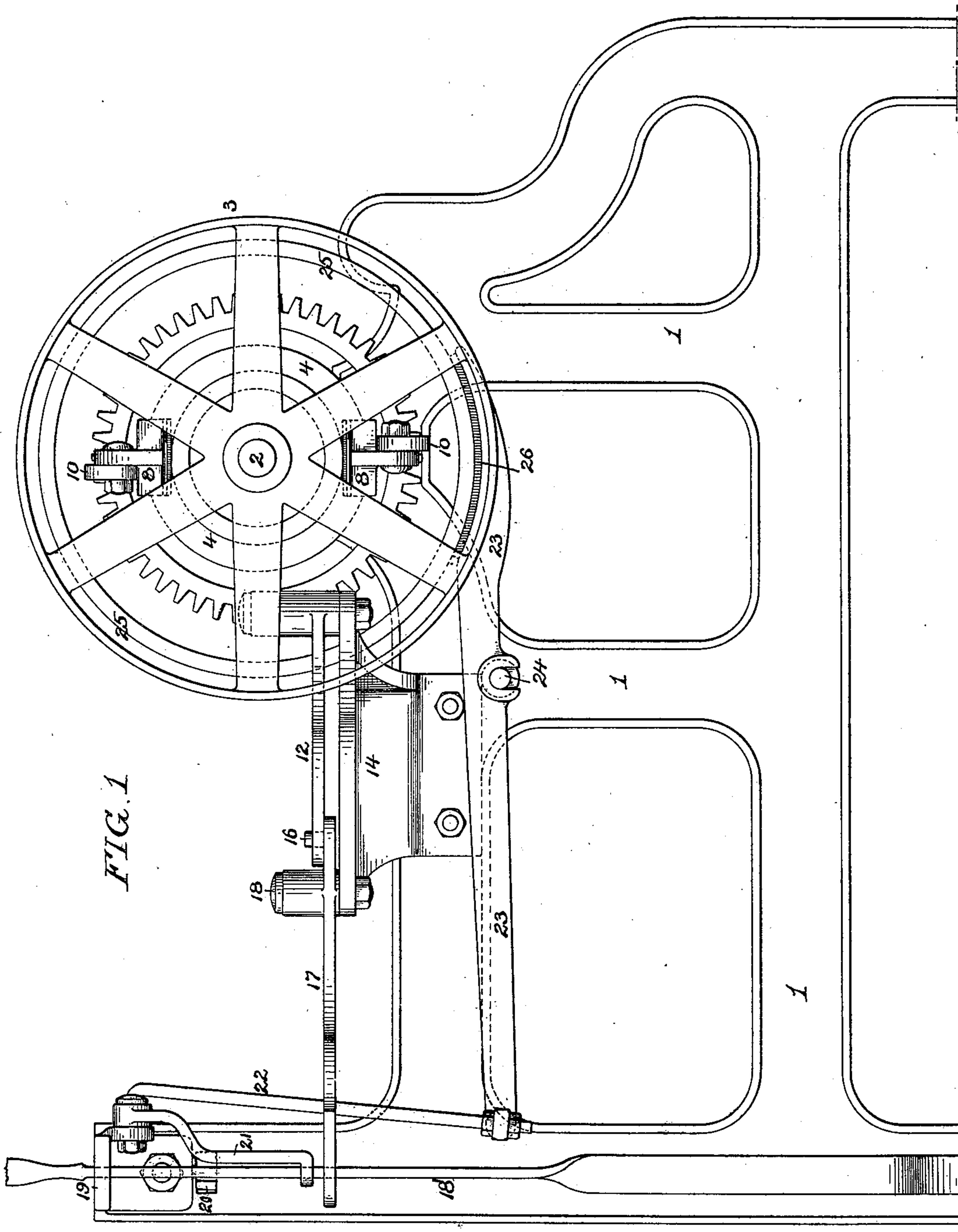
2 Sheets—Sheet 1.

E. INGRAHAM.

CLUTCH AND BRAKE MECHANISM FOR LOOMS.

No. 592,731.

Patented Oct. 26, 1897.



Witnesses:
Hamilton D. Turner.
Charles De Leon.

Inventor:
Edmund Ingraham.
by his Attorneys
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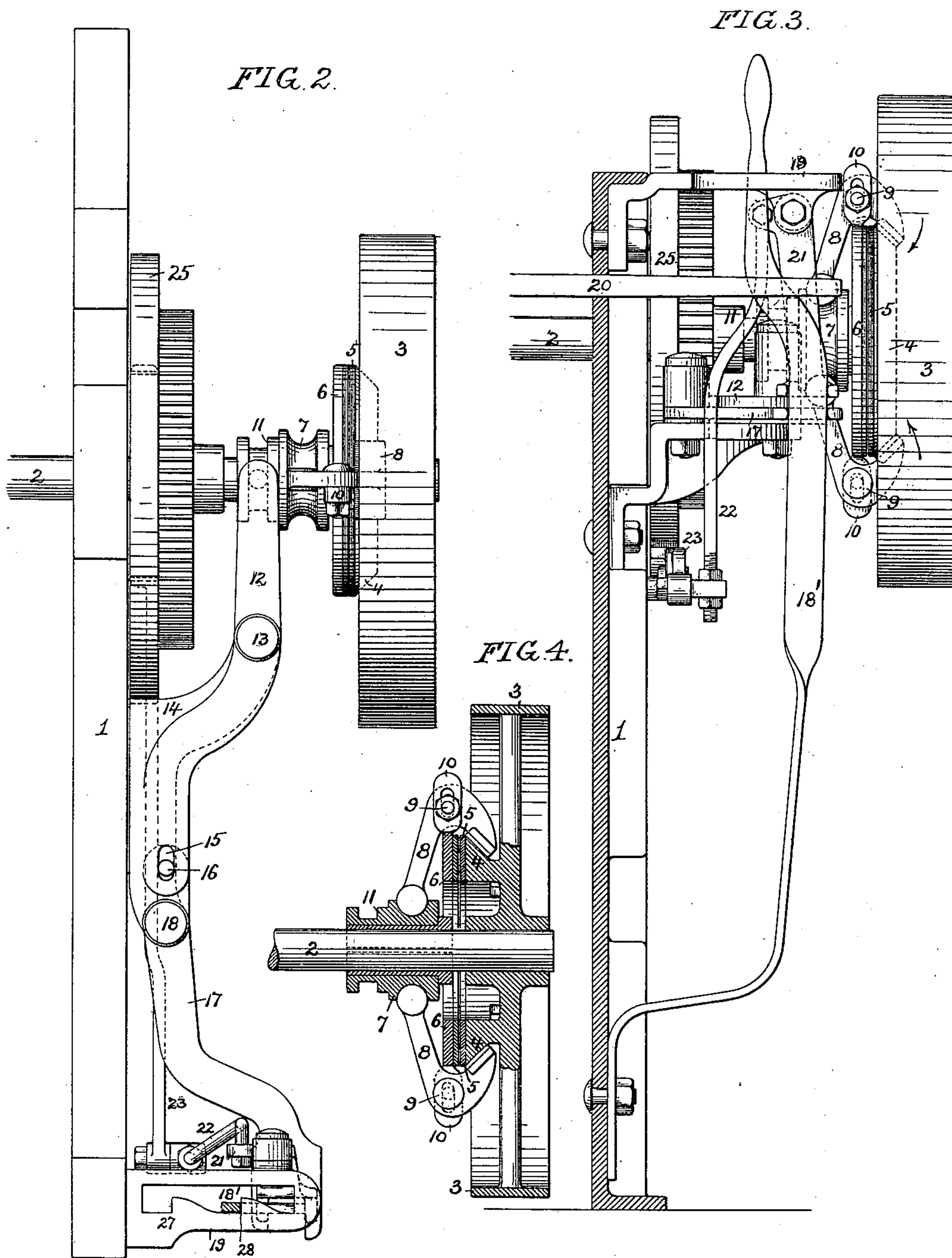
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UNITED STATES PATENT OFFICE.

EDMUND INGRAHAM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO THE FAIRMOUNT MACHINE COMPANY, OF SAME PLACE.

CLUTCH-AND-BRAKE MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 592,731, dated October 26, 1897.

Application filed May 8, 1896. Serial No. 590,730. (No model.)

To all whom it may concern:

Be it known that I, EDMUND INGRAHAM, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Clutch-and-Brake Mechanism for Looms, of which the following is a specification.

The object of my invention is to provide an efficient form of clutch and brake for looms
10 whereby the loom can be quickly stopped when necessary, the mechanism being such that the brake can be removed without throwing the clutch into action in order to permit the loom to be readily turned backward by
15 hand for the removal of defective picks or for other purposes.

In the accompanying drawings, Figure 1 is a side view of sufficient of a loom to illustrate my improved clutch and brake therefor.
20 Fig. 2 is a plan view of the same. Fig. 3 is a front view with the loom-frame shown in section, and Fig. 4 is a section through the clutch.

One of the side frames of the loom is represented at 1, and to suitable bearings in said side frame is adapted the driving-shaft 2 of the loom, said shaft having mounted upon its outer end, so as to turn freely thereon, a pulley 3 for receiving the driving-belt. This
30 pulley has secured to it a flaring clutch-rim 4, having its outer flat face covered with leather or other equivalent frictional material 5, this face of the clutch-rim being opposed to the similarly-covered face of a disk or collar 6, which is keyed or otherwise rigidly secured to the shaft 2.

On the hub of the disk 6 is adapted to slide a grooved collar 7, engaging with the inwardly-extending arms of levers 8, which are
40 hung by means of bolts 9 to slotted brackets 10, projecting from the periphery of the disk 6.

The outwardly-extending arms of the levers 8 overhang the clutch-rim 4 and are shod with leather or other frictional material, so that when the grooved collar 7 is moved
45 away from the disk 6 it will effect movement of the levers 8 in the direction of the arrows, Fig. 3, so as to press the outer arms of the same firmly against the clutch-rim 4 and at
50 the same time press the latter toward the disk 6, so that there is a double frictional

hold, the first being a direct frictional contact between the adjoining faces of the clutch rim and disk and the second a frictional contact between the clutch-rim and the shoes 55 of the levers 8.

Secured to or forming part of the grooved collar 7 is another grooved collar 11, with which engage pins carried by a lever 12, hung to a stud 13 on a bracket 14, projecting from
60 the side frame of the loom, said lever having a slot 15 for receiving a pin 16, carried by the short arm of a lever 17, hung to another stud 18 on the bracket 14, the long arm of said lever 17 being forked so as
65 to embrace the usual spring shipper-arm 18', which engages with a notched bracket 19 on the loom-frame and is under control of the usual knock-off lever 20, the latter being actuated by the ordinary shuttle and weft
70 stop-motions of the loom in order to press the shipper-arm 18' out of its retaining-notch in the bracket 19 whenever a defect in the operation of the loom requires a stoppage of the same. The shipper-arm 18' is also em-
75 braced by the forked lower end of the long arm of a bell-crank lever 21, which is hung to a lug on the bracket 19 and has its short arm connected by a rod 22 to one arm of a lever 23, the latter being pivoted upon a
80 stud 24, projecting from the bracket 14. The other arm of the lever 23 is curved concentrically with the periphery of a wheel or disk 25, which is secured to the shaft 2, said curved arm of the lever 23 being provided
85 with a shoe 26 of leather or other available material.

The bracket 19 has two notches 27 and 28, the latter being located outwardly beyond the notch 27, and when the loom is running the
90 shipper-arm 18' rests in the notch 27, the effect of which is to release the brake-shoe 26 from contact with the periphery of the brake-disk 25 and to draw the grooved collar 7 inwardly on the hub of the disk 6, so as to press
95 the shoes of the levers 8 onto the clutch-rim 4 and the latter into contact with the clutch-disk 6, thereby clutching the driving-pulley 3 of the shaft 2. When, however, the knock-off bar 20 is operated, it pushes the shipper-
100 arm 18' out of the notch 27, and the spring of the arm thereupon immediately carries it to

the outer end of the slot in the bracket 19, thus imparting such movement to the levers 17, 12, and 23 as to release the clutch-rim 4 from the action of the levers 8 and apply the
5 brake-shoe 26 firmly to the periphery of the brake-disk 25, thereby quickly stopping the loom.

If it is desired to turn the loom by hand for any purpose, the shipper-arm 18' is drawn in-
10 ward until it rests in the outer notch 28 of the bracket 19, this movement being sufficient to withdraw the brake-shoe 26 from contact with the brake-disk 25, but not being enough to cause action of the levers 8 upon the clutch-
15 rim 4. Hence the loom will be free from the influence of the brake, but will not be clutched to the driving-pulley, the latter operation requiring the movement of the shipper-arm 18' to its full inward position, where it rests in
20 the inner notch 27 of the bracket 19.

If the driving-pulley occupies a fixed longitudinal position on the shaft 2, the clutching operation may be effected by the simple engagement of the clutch-rim of the pulley
25 and the clutch-levers 8, but it is preferable in all cases to bring into action the additional clutching-surface presented by the disk 6.

Having thus described my invention, I claim and desire to secure by Letters Pat-
30 ent—

1. The combination of the driving-shaft

having a brake-disk and a clutch-disk thereon, the driving-pulley, a clutch for connecting the same to the disk, lever mechanism for operating said clutch, a shipper-arm engaging
35 with said lever mechanism, a brake-lever independent of the clutch-lever mechanism, and swinging in a plane at right angles thereto, and lever-and-rod mechanism interposed between said brake-lever and the shipper-arm,
40 whereby the brake-lever is caused to move in a plane at right angles to the movement of the shipper-arm, substantially as specified.

2. The combination of the clutching mechanism, the braking mechanism, the shipper-
45 arm, interposed connections whereby the brake-lever is released in advance of the tightening of the clutch, and a retainer for the shipper-arm having two notches, one of which receives said shipper-arm when the latter is
50 adjusted so as to release the brake, the other notch receiving the arm when the same is adjusted so as to tighten the clutch, substantially as specified.

In testimony whereof I have signed my
55 name to this specification in the presence of two subscribing witnesses.

EDMUND INGRAHAM.

Witnesses:

F. E. BECHTOLD,
JOS. H. KLEIN.