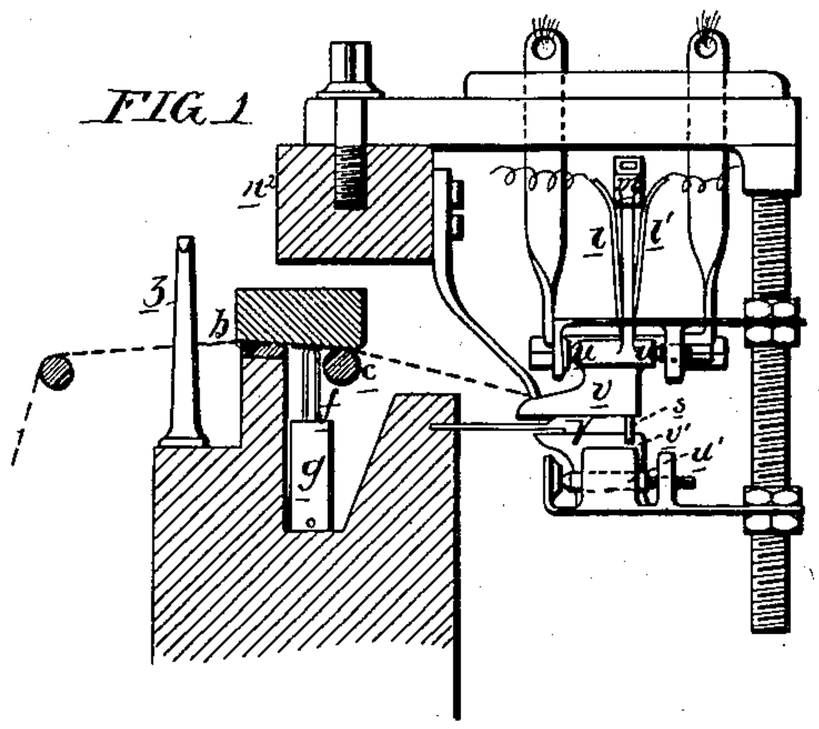
G. F. LUFBERY.

Electrical Stops for Looms, &c.

No. 142,925. Patented September 16, 1873.

FIG. 1



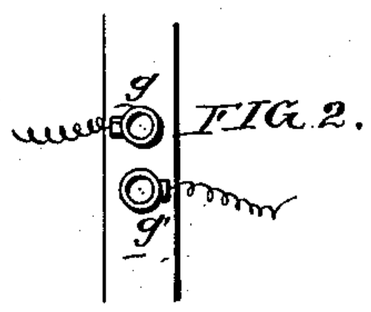


FIG. 2.

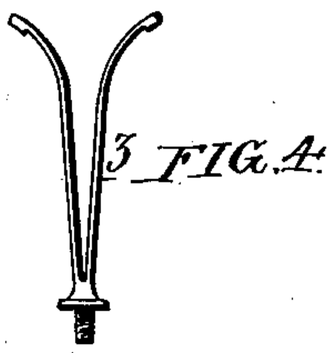


FIG. 4.

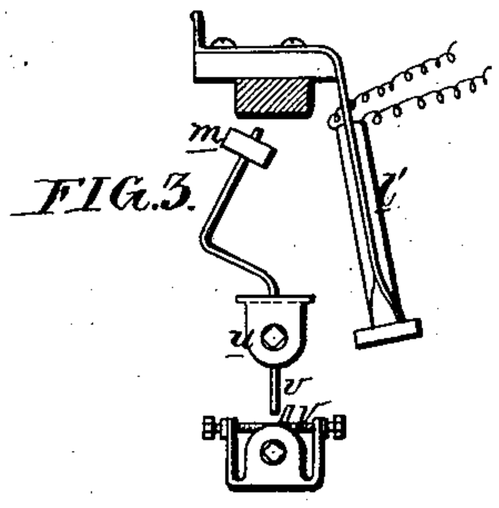


FIG. 3.

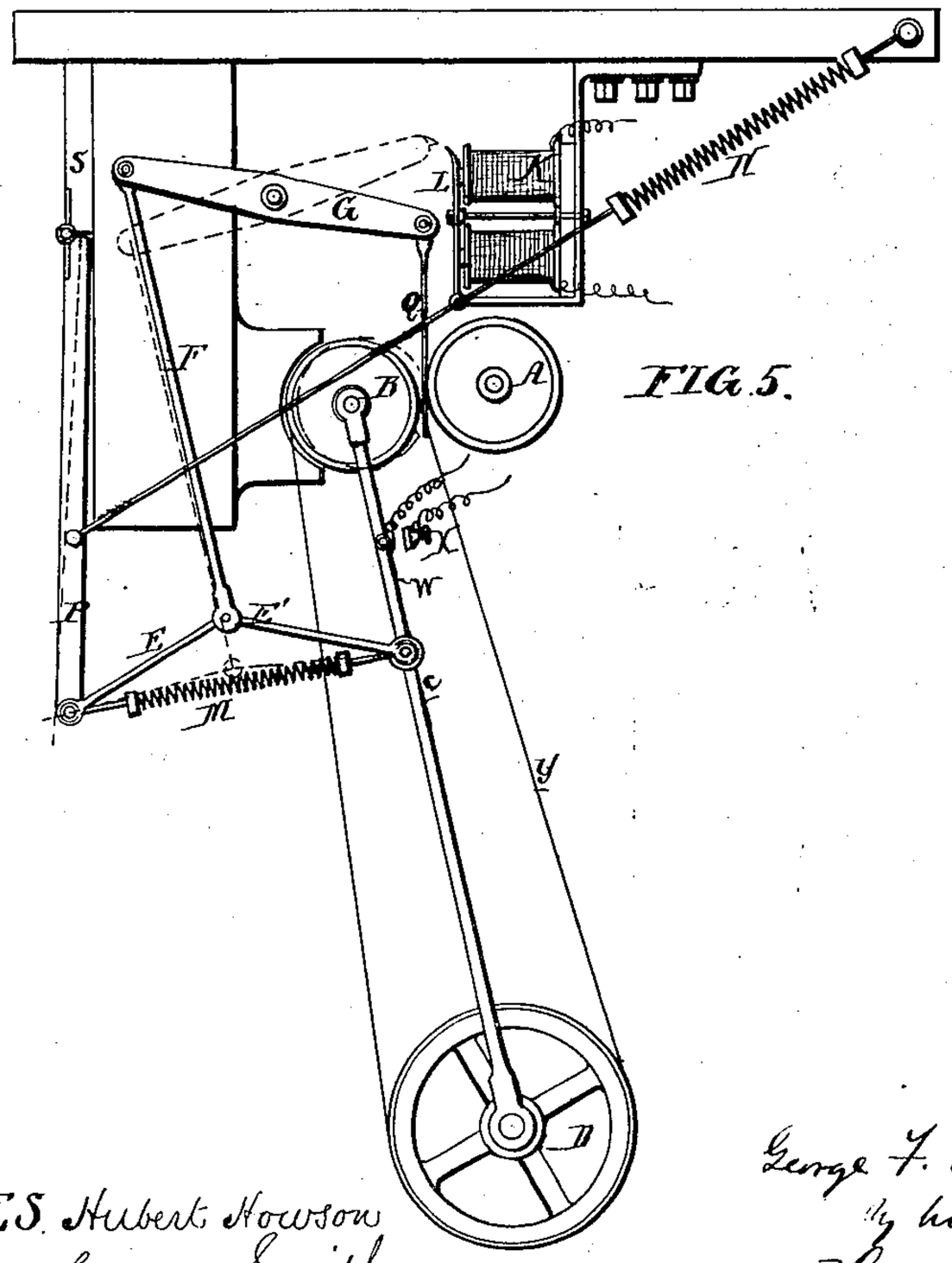


FIG. 5.

WITNESSES. Hubert Howson
Harry Smith

George F. Lufbery
by his attys.
Howson and Son

UNITED STATES PATENT OFFICE.

GEORGE F. LUFBERY, OF MONTARGIS, DEPARTMENT OF LOIRET, FRANCE.

IMPROVEMENT IN ELECTRICAL STOPS FOR LOOMS, &c.

Specification forming part of Letters Patent No. **142,925**, dated September 16, 1873; application filed May 1, 1873.

To all whom it may concern:

Be it known that I, GEORGE FREEMAN LUFBERY, of Montargis, Department of Loiret, France, have invented a system or device for throwing out of gear stockinet or other machines, of which the following is a specification:

My invention consists of a stop-motion for looms, or knitting or other machines, in which an electric current is made the means of stopping the machine when a knot occurs in a thread, the latter is broken, a needle becomes bent, or other part is disarranged.

The invention is represented in the drawing as applied to an ordinary stockinet-machine, the construction of which is too well known to need either description or illustration of any parts other than those with which the improved stop-motion is directly connected.

Each thread of the machine, after it leaves the bobbin, or warp-beam, passes between the diverging arms of a split bar, *z*, thence over a friction-pad, *l*, of rubber or its equivalent, and over a guide, *c*. A bent wire or yoke, *f*, is hung upon the thread between the points *b c*, the ends of the wire extending into cells *g g'*, each of which is partly filled with mercury, and is connected by a wire to one of the poles of a battery. Should the thread break or the bobbin become empty, the wire *f*, no longer supported, will fall and establish a communication between the two cells and complete the electric circuit, causing the application of a break, and throwing the driving-shaft out of gear, as described hereafter. Should there be a knot in the thread it will prevent the passage of the same through the split standard *z*, so that it will break and cause the completion of the circuit, as just described. To the guide-bar n^2 is secured a frame, on which are supported two small rock-shafts, *u u'*, having projections *v v'*, between which there is space just sufficient to permit the passage of the barbed ends of the needles. A projection, *s*, from the upper shaft extends downward, so that the lower shaft cannot be turned without oscillating the upper shaft, and with it a hammer, *m*. Should a needle be bent either upward or downward it will strike the projection of one of the shafts and turn the same, so as to depress the hammer *m* and force it between two blades, *l l'*, isolated from each other, and each connected to one of the poles of a battery, the introduction of the hammer completing the circuit, and causing the application of the break, and throwing the driving-shaft out of gear.

The stopping mechanism is illustrated in Figure 5, in which A represents a pulley on the crank or cam shaft of the machine; B, a friction driving-pulley hung to a vibrating frame, C, and E E' arms of a toggle-joint connected at one end to the frame C and at the other to a strip, P, jointed to any stationary part of the machine. A rod, F, is connected to the center of the toggle-joint and to a trip-lever, G, from the other end of which is suspended a blade, Q. A catch, L, arranged to support the outer end of the lever G in an elevated position is also the keeper of an electro-magnet, K, to which the wires leading from the cells *g g'* and plates *l l'* are connected. A spring, M, tends to draw together the strip P and frame C, and is retracted when the joint is in a horizontal position, the lever G and plate Q are elevated, and the pulley B, operated from the driving-shaft. is in frictional contact with the pulley A.

When, however, on the breaking of a thread, bending of a needle, or disarranging of any important part of the machine, the magnet K becomes active, the keeper is drawn back, and the lever G falls until the plate Q is grasped between the pulleys B B', by which it will be drawn farther downward until the toggle-joint is raised sufficiently to permit the spring M to draw back the frame C, a spring, N, drawing forward the strip P, and maintaining the pulleys B A in contact until the blade Q is well depressed. When the frame C is drawn back the periphery of the pulley B is brought in frictional contact with the recessed shoe H, by which the further rotation is arrested.

When the pulleys A B are in frictional contact, a plate, W, on the frame C is in contact with a plate, X, and maintains the circuit, the latter being broken when the motion of the machine is arrested, so as to prevent waste of material in the battery.

It will also be apparent that the stopping mechanism described and illustrated in Fig.

5 may be applied to various machines and apparatus.

I claim—

1. The combination, in a knitting-machine or loom, of a series of wire yokes, *f*, each hung upon a thread above the separated mercury-cups *g g'*, forming part of a circuit, which is completed upon the descent of the yoke, as set forth.

2. The combination of the split bars *z*, cells *g g'*, and yokes *f*, supported by threads above the cells, as specified.

3. The combination, with the needles or other part of the machine, of a lever or levers so arranged as to be struck by such part when out of position, and to complete or break an electric current, as specified.

4. The combination, with the pulley A, of the driving-pulley B, the lever G, supported by the keeper L of a magnet, and devices described, or their equivalents, by which the pulleys are separated on the movement of the keeper.

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

GEO. F. LUFBERY.

Witnesses:

A. DELINE,

EMILE RICHARD.