(No Model.)

O. PIPER.

PICKING MECHANISM FOR LOOMS.

No. 515,533. Patented Feb. 27, 1894.

Fig. 2.

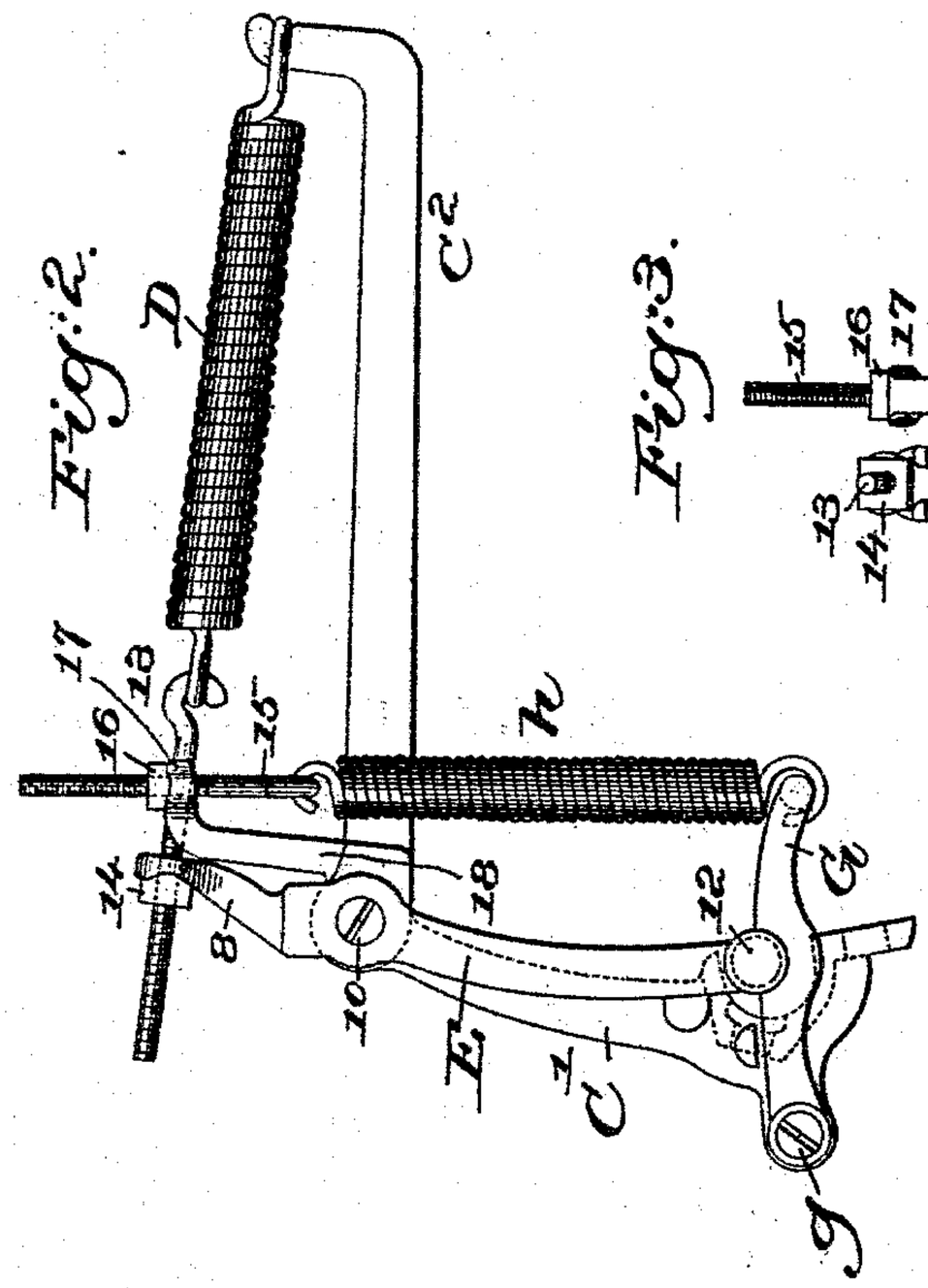


Fig. 3.

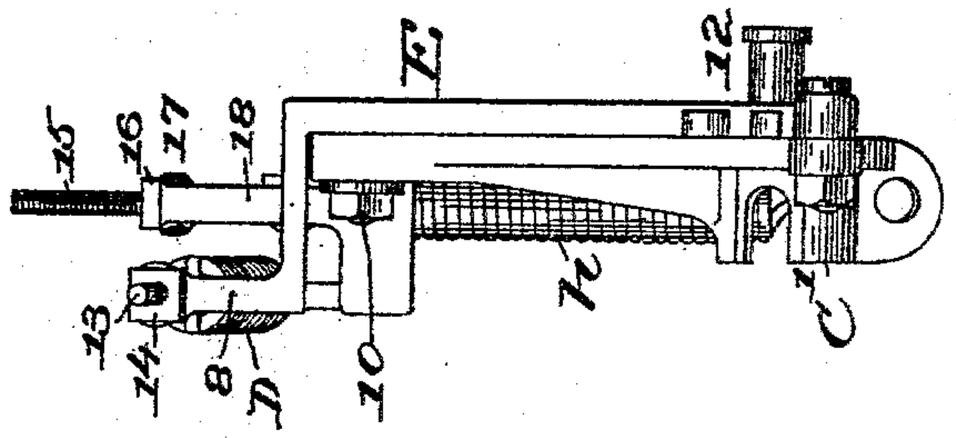


Fig. 4.

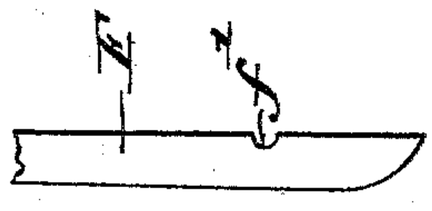
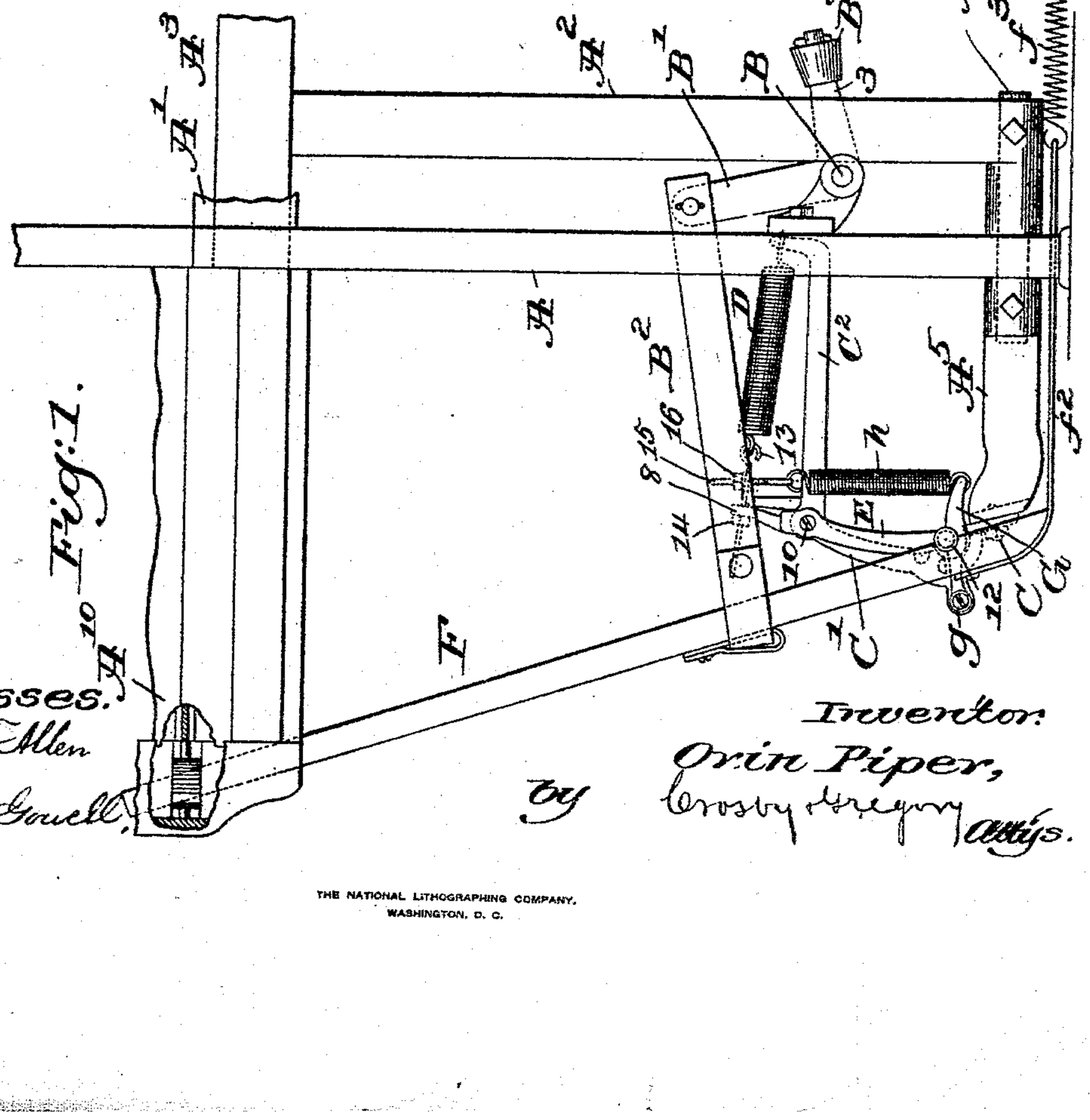


Fig. 1.



Witnesses.
Edward F. Allen
Louis R. Gaucll.

Inventor:
Orin Piper,
by Crosby & Gregory Attys.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ORIN PIPER, OF MANCHESTER, NEW HAMPSHIRE.

PICKING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 515,533, dated February 27, 1894.

Application filed May 19, 1893. Serial No. 474,801. (No model.)

To all whom it may concern:

Be it known that I, ORIN PIPER, of Manchester, county of Hillsborough, State of New Hampshire, have invented an Improvement in Picking Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In looms using shifting shuttle boxes it frequently happens that the boxes fail to be shifted properly or the shuttle gets "trapped" as it is called and the picker actuated by the upper end of the picker-stick, instead of taking its full inward sweep or stroke, is arrested by the shuttle box or by the shuttle. When this happens, the stick or some other part of the picking mechanism is broken. Attempts have been made to so support the lower end of the picker-stick that it may give or slip with relation to its fulcrum, but in all these cases the operator has, before the loom can be again started, to remount the picker-stick on its carrier.

In my invention I have devised means whereby the fulcrum of the stick will yield whenever the upper end of the stick is obstructed, and at the same time the said fulcrum will be automatically restored into working position as the loom is turned back to correct the fault which caused the stick to be arrested.

One part of my invention consists in the combination with a picker-stick, its movable fulcrum, and a spring-held catch to retain the said fulcrum in its normal position, of restoring devices to automatically restore the said fulcrum into its normal position after having been shifted from its normal into its abnormal position by reason of obstruction interposed at the upper end of the stick.

Other features of my invention will be hereinafter described and made subject of claims at the end of this specification.

Figure 1, in elevation, shows a sufficient portion of a loom with my improvements added to enable my invention to be understood, said figure showing the shuttle-box end of the lay broken out with part of the shuttle box. Fig. 2 is an enlarged detail of the stick fulcrum and its co-operative parts; Fig. 3, a view of the devices shown in Fig. 2 looking at the same from the left of said figure, and Fig. 4, a detail of the picker-stick.

The loom frame A, the breast beam A′, the lay sword A^2, its race beam A^3, the lay fulcrum A^4, the stand A^5, the picker actuating rock-shaft B, having arms B′, 3, the former connected to the stick strap B^2, while the arm 3 has a roller B^3, the strap being operatively connected to the picker-stick F between the ends of the latter, the roll in practice being adapted to be acted upon by a cam of usual construction, and the shuttle box frame A^{10}, are and may be all as usual in looms using shifting shuttle-boxes.

I have erected on the stand A^5 by a bolt C, a fulcrum stand C′ represented as having an extended arm C^2, said arm as herein shown being suitably shaped to have attached to it one end of a strong spring D, constituting the essential element of the restoring device, the opposite end of said spring being suitably connected to the short arm 8 of the fulcrum carrier E, pivoted at 10 on the stand C′ and carrying at or near its lower end the fulcrum 12 for the foot or lower end of the picker-stick F, it being notched at its side near its lower end, as at *f*′. The connection between the restoring device D and the fulcrum carrying lever will preferably be effected by or through a suitable screw hook or eye 13 and nut 14, the nut preferably rocking on the lever as needs be when the lever E is moved.

The stand C′ has pivoted on it at *g* a catch G having a suitable notch to engage a part of the fulcrum 12 and constitute a holding catch for said fulcrum, a spring *h*, connected to said catch and to a rod 15 having a nut 16 seated on an ear 17 of a stand 18 attached to the arm C^2 of stand C′, the spring *h* acting to keep the catch G up in the position shown in the drawings, thus holding the fulcrum 12 in its normal position.

The picker-stick F will be thrown to throw the shuttle by the strap B^2 and its actuating parts, and the picker-stick will in practice be moved outwardly as shown in Fig. 1, by full lines, so as to be out of the way of the shifting shuttle boxes, only partially shown, in their movement. The upper end of the picker-stick may be moved outwardly or away

from the loom frame by a strap f^2 and a spring f^3 interposed between the end of the stick and the floor, all as common and well known in loom construction. Now let it be assumed that the loom is running, and for some cause the upper end of the stick F is obstructed so that it fails to be moved toward the center of the loom when to be drawn in that direction by the strap B^2. Under such circumstances, the fulcrum 12 of the picker-stick will be drawn to the right viewing Figs. 1 and 2, and said fulcrum will be drawn out from the notch of the catch G or so as to occupy an abnormal position. The spring D is considerably stronger than the spring *h*, and the latter spring is of such strength that it will hold the catch and keep the fulcrum 12 in abnormal position unless the strain or shock of the picker-stick is such as to otherwise break the parts. The fulcrum having been released from the catch G the loom will be stopped through the operation of its usual stop motion devices. Now, assuming that the fulcrum 12 has been pulled to the right from its position Figs. 1 and 2, it will be obvious that during such movement of the fulcrum the strong spring D is stretched and made even more powerful. As soon as the operator starts to rotate the loom to release the picker-stick, the spring D acting on the upper end of the fulcrum carrier E will cause it to move the fulcrum 12 back along over the surface of the catch G and into engagement with the catch G.

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

1. In a loom, a picker-stick, and a yielding fulcrum carrier therefor, combined with a restoring device comprising a spring connected with said carrier and adapted to return the fulcrum to normal position with relation to the picker-stick when the latter has been displaced, substantially as described.

2. The picker-stick, the yielding fulcrum carrier and its attached strong spring, combined with a catch having a weaker spring, said catch being adapted to maintain the picker-stick fulcrum in its normal position, but yield in case the movement of the upper end of the picker-stick is unduly obstructed, substantially as described.

3. The lay, its connected stand supporting the stud 10, combined with the yielding picker fulcrum carrier, and a catch co-operating with and holding said fulcrum in one position while the picker-stick is unobstructed in its movements, substantially as described.

4. The lay; its connected stand supporting the stud 10, and the yielding picker fulcrum carrier, and catch, combined with the co-operating springs and their adjusting devices, to operate, substantially as described.

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

ORIN PIPER.

Witnesses:

HENRY E. BURNHAM,

GEO. H. WARREN.