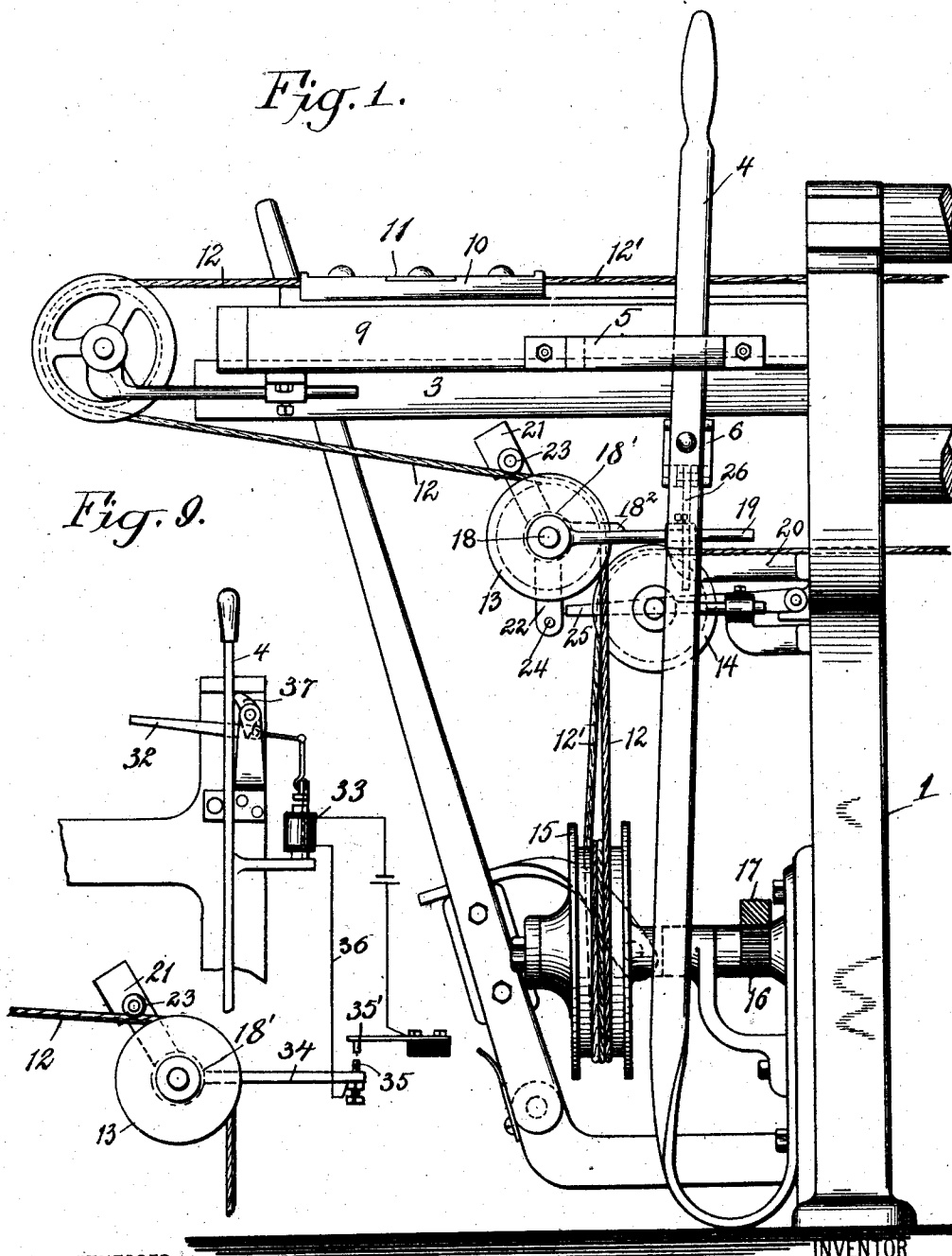


S. B. CUTTING.
 PILE CUTTER STOP MOTION FOR PILE FABRIC LOOMS.
 APPLICATION FILED DEC. 16, 1907.

907,131.

Patented Dec. 22, 1908.
 3 SHEETS—SHEET 1.



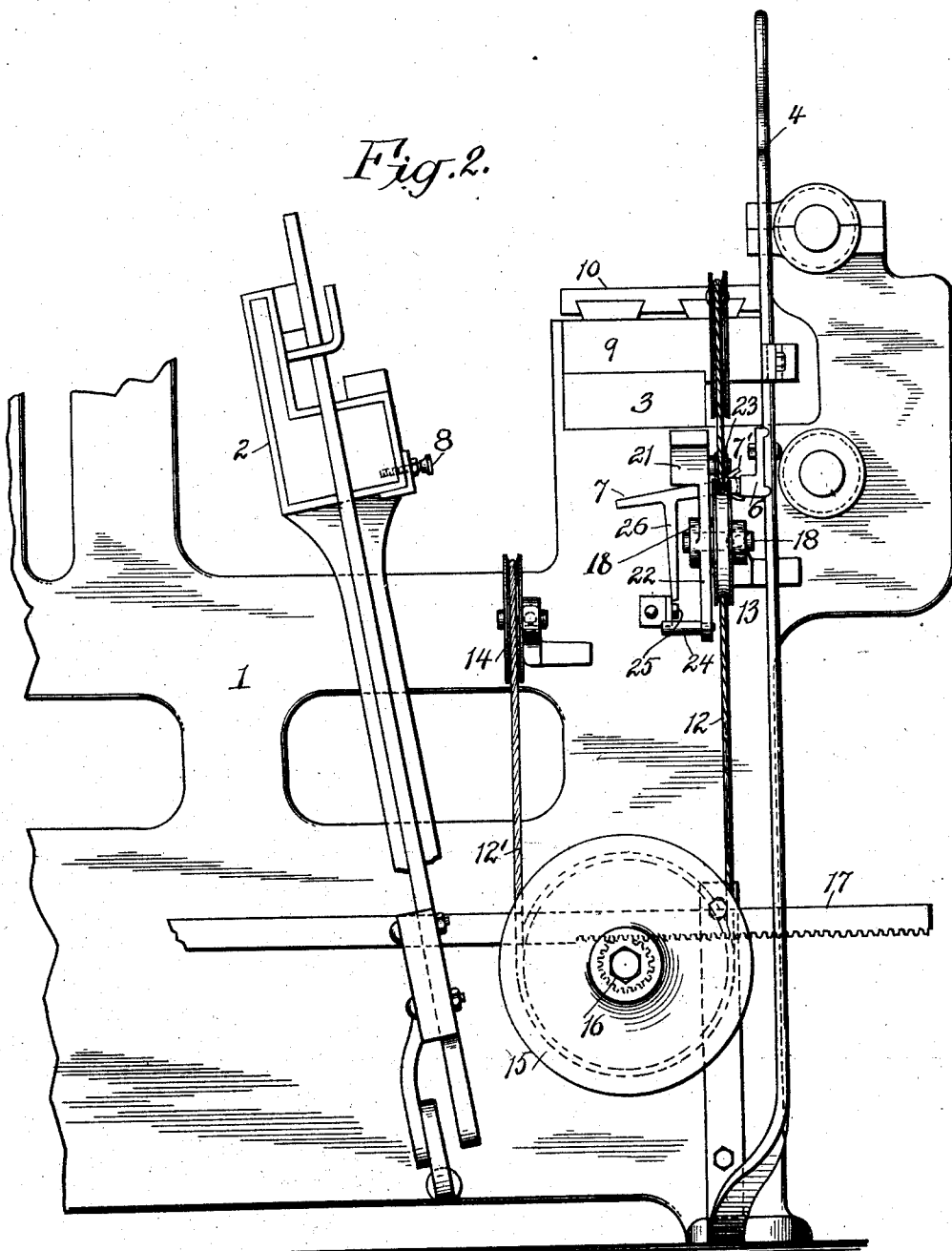
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3 SHEETS—SHEET 2.



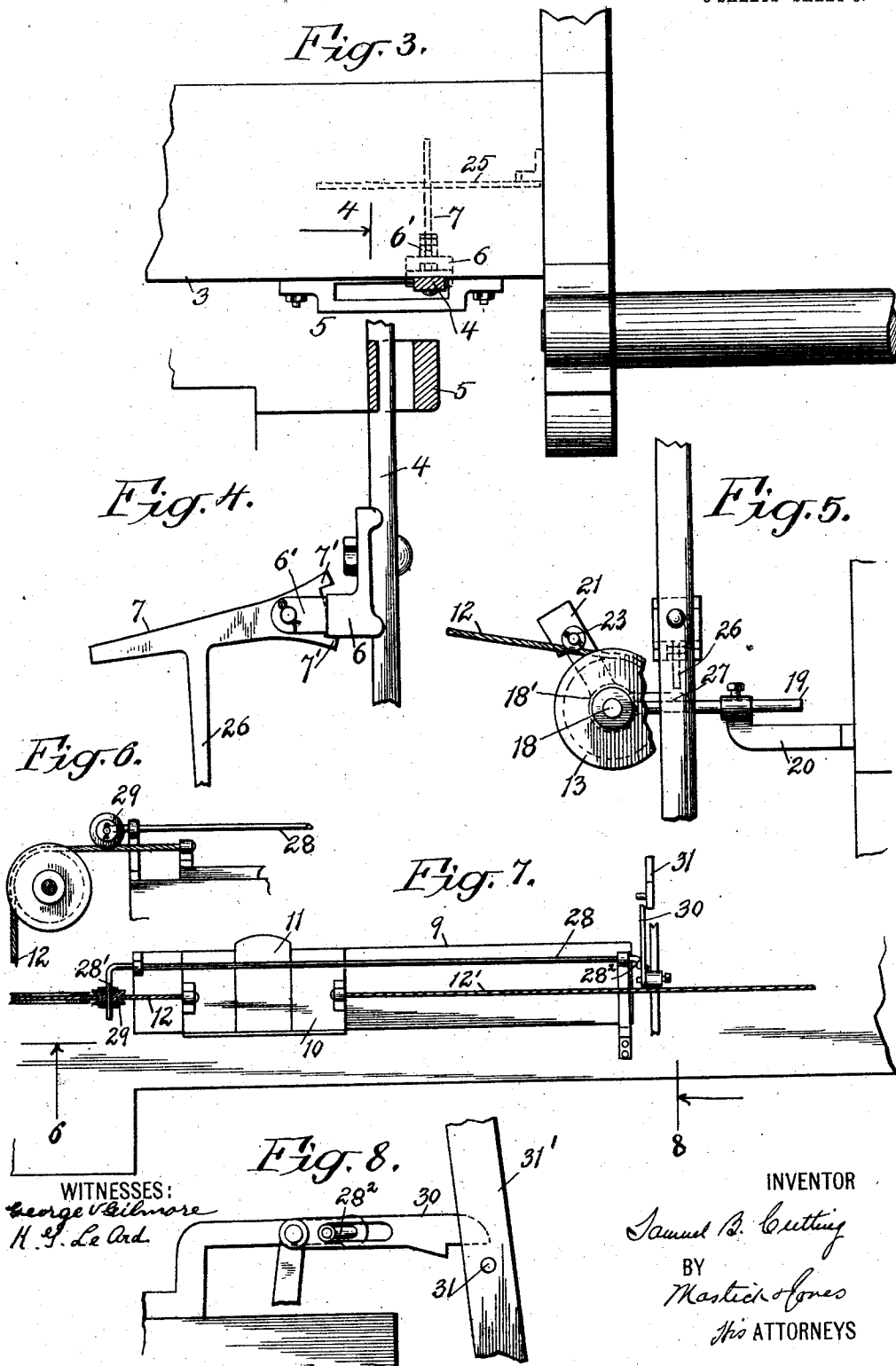
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UNITED STATES PATENT OFFICE.

SAMUEL B. CUTTING, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE SALT'S TEXTILE MANUFACTURING COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

PILE-CUTTER STOP-MOTION FOR PILE-FABRIC LOOMS.

No. 907,131.

Specification of Letters Patent.

Patented Dec. 22, 1908.

Application filed December 16, 1907. Serial No. 406,813.

To all whom it may concern:

Be it known that I, SAMUEL B. CUTTING, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Pile-Cutter Stop-Motions for Pile-Fabric Looms, of which the following is a specification.

My invention relates to a stop motion for looms and more particularly to a pile fabric loom. In that type of loom the pile is cut by a knife which is given a very rapid movement across the loom through the medium of a train of gears which rotates a drum alternately in opposite directions, the knife carriage being connected by cords to said drum. In case of breakage of the knife cords the movement of the knife is stopped and a fault is liable to occur before the weaver is aware of such breakage or before he can stop the loom. I have devised the present stop motion to automatically set the stopping mechanism in operation when either of the knife cords breaks. The knock-off lever may be set either by purely mechanical means or by energizing a magnet the circuit of which is closed when either of the knife cords breaks.

Generally stated, the invention comprises a weighted arm or lever which is held by the normal tension of one of the knife cords, said arm being adapted when it falls through the breakage of the knife cord to position the knock-off lever by acting directly upon said lever, or through an intermediate lever, or by closing a circuit which includes a magnet the armature of which is adapted to set the knock-off lever.

The invention will be understood by reference to the accompanying drawings in which—

Figure 1 is a front elevation of the left-hand side of a loom showing the application of my invention thereto; Fig. 2 an end elevation of Fig. 1; Fig. 3 a top view; Fig. 4 an elevation, partly in section looking in the direction of the arrow 4 in Fig. 3, showing the knock-off lever and its manner of attachment to the shipper lever; Fig. 5 a detail elevation showing a modification; Fig. 6 a detail elevation of a modification, the view being taken at the left of Fig. 7 looking in the direction of the arrow 6; Fig. 7 a plan view; Fig. 8 a detail elevation

looking in the direction of the arrow 8 in Fig. 7; and Fig. 9 an elevation showing an adaptation of the invention by which the knock-off lever is set by the closing of a circuit.

Similar numerals of reference indicate similar parts in the several views.

Referring to the drawings, the numeral 1 designates the loom frame, 2 the lay, 3 the breast beam, and 4 the shipper lever which as usual engages a shoulder in a bracket 5 secured to the breast beam when the loom is running, and when freed from said shoulder is shifted by a spring to stop the loom in a well-known manner. On the lever 4 is clamped a bracket 6 having a bifurcated head 6' (see Figs. 3 and 4) on which the knock-off lever 7 is pivoted, said lever being normally in such position that upon each beat-up of the lay it will escape a bunter 8 mounted on the lay or some other moving part of the loom, but when moved, in the manner hereafter described, into such position as to be impinged upon by the face of said bunter the shipper lever will be released from the shoulder on bracket 5 and the loom stopped. To limit the movements of the knock-off lever I provide it with rearwardly extended lugs 7' adapted to engage the upper and lower sides of bracket 6.

Mounted on the breast beam is a knife rail 9 over which the carriage 10 is adapted to travel, the knife 11 being secured to said carriage in any suitable manner. The one end of the carriage 10 is secured a cord 12 and to the other end thereof a cord 12'. These pass respectively around pulleys 13 and 14 and their ends are secured on opposite sides of a drum 15. This drum is mounted on a shaft having a pinion 16 which is engaged by a rack 17, the latter being connected to a train of gears to rotate the drum alternately in opposite directions to thereby drive the knife carriage for cutting the pile, all in the usual and well-known manner. The application of my invention to a loom of the type above described may assume various forms.

In Figs. 1 to 4 I have shown one adaptation for setting in motion the stopping mechanism upon the breaking of either of the knife cords. In this form I mount the pulley 13, over which the cord 12 passes, on a stud 18 on the end of rod 19 which rod is supported in a bracket 20 secured to the loom

frame (Figs. 1 and 5). Rotatably mounted on stud 18, alongside of pulley 13, is a hub 18' having integral therewith two arms 21 and 22. The arm 21 is weighted and carries a roller 23 under which the cord 12 passes, and the lower arm 22 carries a pin 24. Pivoted to a bracket on the loom frame is a lever 25 projecting outwardly beneath an arm 26 which extends downwardly from the knock-off lever 7. Under the normal tension of the knife cord 12 the arms 21 and 22 will be supported in the position indicated in Fig. 1; that is, with the pin 24 out of engagement with lever 25. Should, however, said cord break the arm 21 will be no longer supported and, being weighted, will drop so as to rotate the hub 18' and thereby arm 22 to bring the pin 24 into engagement with the under side of lever 25. When that occurs lever 25 will be raised sufficiently to strike against the end of the depending arm 26 thereby raising the knock-off lever 7 into the position to be impinged upon by bunter 8 on the next beat-up of the lay. When the knock-off lever is thus impinged upon the shipper lever will be released and the loom stopped. As shown in Fig. 1 the hub 18' is provided with an extension 18² which rests upon the rod 19 and serves as a stop to prevent any jumping movement of the arm 21. Should the cord 12' break the cord 12 will slacken sufficiently to permit arm 21 to drop.

In Fig. 5 I have shown the hub 18' as having the arm 21 as heretofore described, and also as provided with an extension 27 which under the normal tension of cord 12 will rest upon the rod 19. In this form of the invention I utilize the extension 27 as the means for raising the knock-off lever 7 through the medium of arm 26.

It will be readily understood that when arm 21 of Fig. 5 drops, the rotation of hub 18' will cause the extension 27 to strike against the end of the depending arm 26 to thereby position knock-off lever 7. The extension 27, moreover, serves as a stop to prevent the jumping upward of arm 21 when the direction of travel of the knife carriage is reversed. There should, therefore, be sufficient clearance between the end of the depending arm 26 and the extension 27 to prevent the knocking off of the loom under normal conditions.

In Figs. 6, 7 and 8 I have shown another adaptation of my invention designed to act through the usual weft fork slide. In this form I mount a rock shaft 28 in brackets above the knife rail 9. This shaft has at one end a crank 28² which engages a slotted arm 30 pivotedly mounted on the weft fork slide. When shaft 28 is rocked by the falling of roller 29 when the cord 12 breaks, or slackens when the cord 12' breaks, the crank 28²

depresses the free end of arm 30 into the path of a pin 31 on the vibrating weft hammer 31'. This effects the movement of the weft fork slide to stop the loom through the medium of the usual knock-off and shipper levers.

Fig. 9 shows an adaptation of the invention in which a dagger 32 is connected to the armature of an electromagnet 33 and is adapted to be moved into knocking off position when said magnet is energized. As in the other forms of my invention, I make use of the weighted arm 21 which is integral with hub 18'. The latter is also provided with an integral arm 34 which carries a terminal post 35, included in the magnet circuit 36, which terminal is adapted to contact with a terminal 35' to thereby close the circuit. The closing of the circuit is effected when the arm 21 drops by reason of the breakage of cord 12, or the slackness of said cord when the cord 12' breaks. Pivotedly supported upon pins or studs in a bracket secured to the loom frame is a knock-off lever 37 attached at its lower end to dagger 32 and adapted at its upper end to engage the shipper lever. When magnet 33 is energized the dagger 32 will be moved into such position as to be impinged upon by a bunter as heretofore described, thereby moving the knock-off lever and freeing the shipper lever to stop the loom.

In all of the above forms of the invention the primary object is to set the loom stopping mechanism in operation as soon as either of the knife cords breaks, and believing myself to be the first to accomplish that result, I desire to claim the same broadly without reference to any specific embodiment of the invention.

What I claim and desire to secure by Letters Patent is:—

1. In a pile fabric loom the combination of mechanism for cutting the pile, loom stopping mechanism, and means for connecting said two sets of mechanism which upon the breakage of the former will set in motion the stopping mechanism.

2. In a pile fabric loom the combination of a knife carriage, cords connected thereto, means for moving the knife to effect the cutting of the pile, loom stopping mechanism, and means for setting said mechanism in operation when either of the knife cords breaks.

3. In a pile fabric loom the combination of a knife carriage, cords connected thereto, means for moving the knife to effect the cutting of the pile, loom stopping mechanism, means adapted to be held quiescent by the normal tension of the knife cords, and mechanism actuated by said means when either of the cords breaks to set the stopping mechanism in operation.

4. In a pile fabric loom the combination of

a knife carriage, cords connected thereto, means for moving the knife to effect the cutting of the pile, loom stopping mechanism, an arm supported by the normal tension of the knife cords, and means actuated by said arm when either of the knife cords breaks to set the stopping mechanism in operation.

5. In a pile fabric loom the combination of a knife carriage, cords connected thereto, means for moving the knife to effect the cutting of the pile, a weighted arm adapted to be supported by the normal tension of the knife cords, loom stopping mechanism comprising a knock-off lever, and means actuated by said arm when either of the knife cords breaks to position said lever, and a bunter on a moving part of the loom adapted to impinge against said lever.

6. In a pile fabric loom the combination of a knife carriage, cords connected thereto, means for moving the knife to effect the cutting of the pile, rotatable arms supported

by the normal tension of the knife cords, and loom stopping mechanism comprising a knock-off lever, one of said arms being adapted to engage and set said lever when either of the knife cords breaks. 25

7. In a pile fabric loom the combination of a knife carriage, cords connected thereto, means for moving the knife to effect the cutting of the pile, a hub having arms integral therewith, one of said arms being weighted and supported by the normal tension of the knife cords, and loom stopping mechanism adapted to be set in operation by engagement therewith of the other of said arms when either of the knife cords breaks. 30 35

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

SAMUEL B. CUTTING.

Witnesses:

ALFRED HOLROYD,
ARTHUR OAKLEY.