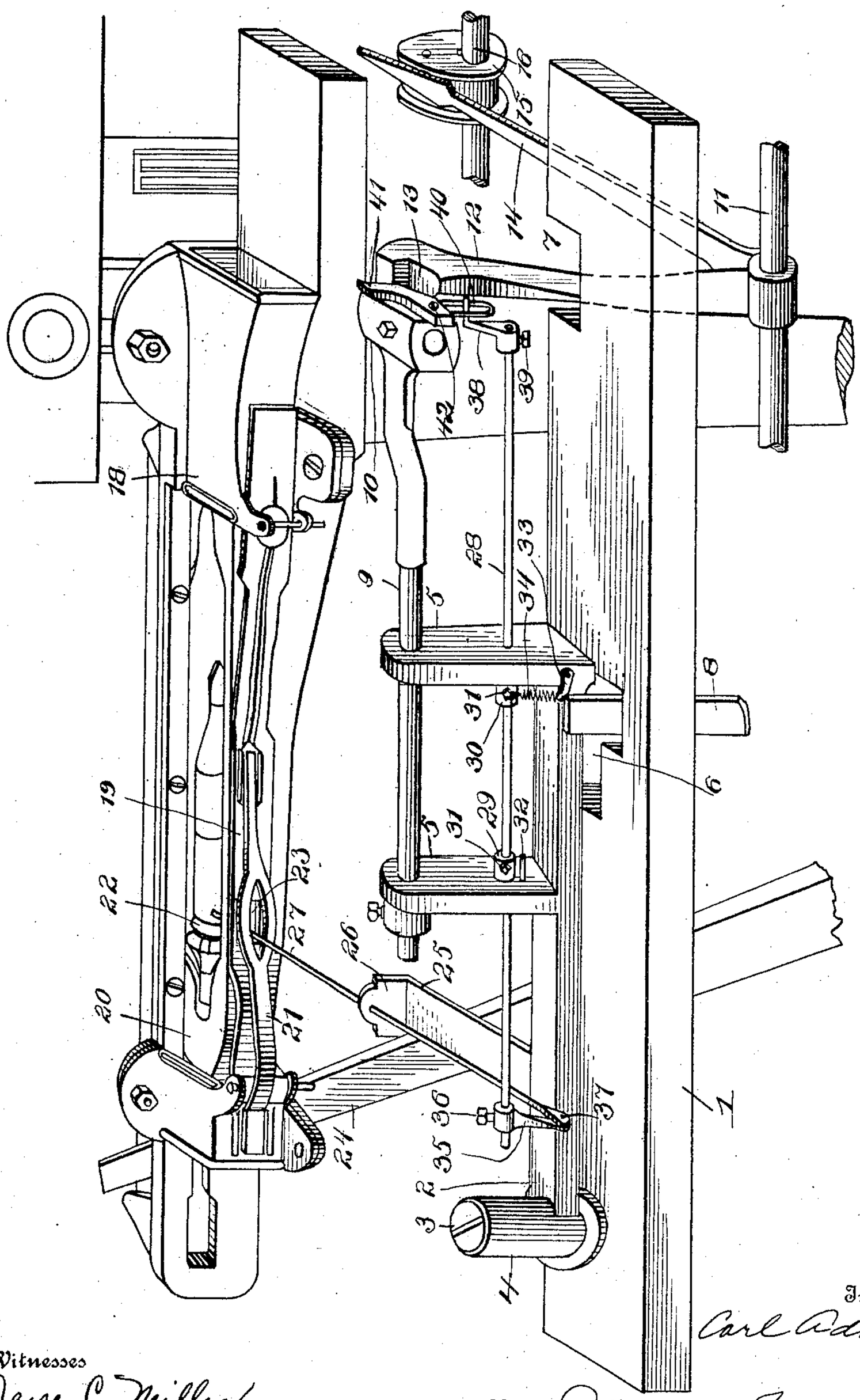
No. 840,034. PATENTED JAN. 1, 1907.

C. ADAMS.

DEVICE FOR AUTOMATICALLY STOPPING LOOMS.

APPLICATION FILED JULY 13, 1905.



Witnesses

Jesse C. Miller.

Samuel Payne.

Inventor

Carl Adams,

By William Fletcher

Attorney.

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CARL ADAMS, OF EASTON, PENNSYLVANIA.

DEVICE FOR AUTOMATICALLY STOPPING LOOMS.

No. 840,034. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed July 13, 1905. Serial No. 269,521.

To all whom it may concern:

Be it known that I, CARL ADAMS, a subject of the German Emperor, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented new and useful Improvements in Devices for Automatically Stopping Looms, of which the following is a specification.

This invention relates to certain new and useful improvements in devices for automatically stopping a loom when the filling on the bobbin or filling-carrier contained in the shuttle has been exhausted to a predetermined extent.

It is desirable to employ a device which will automatically stop the loom by means of a feeler coacting with the bobbin or quill when the filling upon said bobbin or quill has been exhausted to such an extent that it will be likely to run out at any time during the next few picks; and therefore one of the objects of the present invention is to produce a peculiarly-constructed device which employs a minimum number of parts and not only is durable, but comparatively inexpensive to construct.

Another object of the invention is the provision of means which is movably mounted upon a support and which is capable of stopping a loom when the filling upon a bobbin or quill has become partly or entirely exhausted.

With these and other objects in view the invention consists of certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described, illustrated in the accompanying drawing, and more particularly pointed out in the claims hereto appended.

In the drawing the figure is a perspective view of part of a loom, showing my invention carried in an operative position thereby.

Referring to the drawing by numerals, 1 designates a suitable support, which may be a part of the loom-frame, upon which is mounted a horizontal movable member 2, retained upon the support 1 by any suitable removable means—as, for instance, a bolt or screw 3. The screw 3 extends through a sleeve 4, formed integrally with the movable member 2. The movable member 2 constitutes a supporting swinging arm, which is provided with parallel standards 5 5. The support 1 is provided with cut-out portions 6 and 7. Within the cut-out portion 6 is positioned a vertical shipper-handle 8, the movement of which controls any suitable means for disconnecting the power and stopping a loom. The standards 5 5 carry a fixed horizontal shaft 9, which is provided with an integral head 10. A shaft 11 of the loom is provided with a weft-hammer 12, which is fixedly secured to said shaft. The upper end of the weft-hammer 12 is provided with a notched or cut-out portion 13. An arm 14 is formed integral with the weft-hammer 12 and engages a cam or eccentric 15, fixedly secured to a shaft 16. The weft-hammer 12 and the arm 14 constitute an oscillatory member. The lay 17 carries the shuttle-box 18. A shuttle binder or holder 19 engages the shuttle 20, and an actuating-spring 21 engages the shuttle binder or holder 19. A bobbin or quill 22 is positioned within the shuttle 20. The shuttle box or holder 19 and the actuating-spring 21 are provided with registering apertures 23 for permitting the feeler of my invention to normally project therethrough for engaging the bobbins 22. The shuttle 20 is also provided with an aperture registering with the apertures 23. A picker-stick 24 coacts with the shuttle-box 18. Most of the mentioned parts of the loom are known to the patented art and are only shown and described for the purpose of more clearly understanding the structure and application of my invention.

A bracket 25 is carried by the swinging arm 2. The bracket 25 is provided with a vertical apertured extension 26. The feeler 27 is supported upon the vertical extension 26 within the aperture thereof. Said feeler 27 projects through the registering elongated apertures 23 of the shuttle 20, shuttle-binder 19, and the actuating-spring 21. A horizontal revoluble rod or shaft 28 is journaled upon the parallel standards 5 5. Positioned upon the horizontal rod 28 and between the standards 5 5 are collars 29 and 30, each of which is provided with a set-screw 31. A horizontal projection 32 projects from the inner standard 5, contiguous to the collar 29. The set-screw 31 is adapted to engage the projection 32 for limiting rotary movement of the rod 28 in one direction. A removable lug 33 is secured to one edge of the outer standard 5. A flexible member 34, preferably a coil-spring, is secured at one end to the lug 33 and at the opposite end to the set-screw 31, which is carried by the collar 30. The spring 34 holds the feeler 27 against the bobbin 22. The set-screws 31 of the collars 29 and 30 are also employed for fixedly securing said col-

lars in an adjusted position upon the rod 28. A removable and adjustable arm 35 is fixedly secured upon the rod 28 by means of set-screw 36. Suitable fastening means, as rivet 37, pivotally connects the flattened apertured outer ends of the arm 35 and feeler 27. A removable and adjustable crank-arm 38 is fixedly secured to the outer end of the rod 28 by means of a set-screw 39. The right-angled portion of the crank-arm 38 is positioned within a substantially U-shaped member or portion 40, carried by a dog or pawl 41, which is pivotally mounted at 42 upon the head 10 of the shaft 9.

The motion of the lay causes the bobbin or quill 22 to come in contact with the feeler 27, and if the bobbin is filled the arm 35 will be swung outwardly and upwardly, thereby rotating shaft 28 and causing the crank-arm 38, through the medium of the substantially U-shaped member, to lift the pawl or dog 41 to the position shown in the drawings. When the bobbin is nearly empty, the feeler 27 will not be pushed back far enough to cause the pawl or dog 41 to be lifted out of the path of movement of the weft-hammer, which is actuated by the cam 25, and therefore the pawl or dog 41 will engage the notched or cut-out portion 13 of the weft-hammer 12, and as the cam 15 lifts the arm 14, which is secured integrally to the weft-hammer 12, the movable supporting-arm 2 will be swung upon the support 1 and will push the shipper-handle 8, which controls any suitable means for throwing the loom out of operation.

The adjustability of the arm 35, crank-arm 38, and the collars 29 and 30 permits of the devices to be adjusted to meet any desired requirement in reference to the size of the bobbin and the filling carried thereby.

What I claim is—

1. In a loom, the combination with a support, a movable member provided with standards carried by said support, of a revoluble member journaled upon said standards, means carried by said revoluble and movable members for limiting movement of said revoluble member, a bracket carried by said movable member, a feeler carried by said bracket and above said movable member, means connecting said feeler and revoluble member, a pawl, means for supporting said pawl upon the upper portions of said brackets, a looped extension secured to said pawl, means connecting said extension and revoluble member, a weft-hammer coöperating with said pawl for moving said movable member, and a shipper-handle positioned contiguous to and adapted to be operated by said movable member when movement is imparted thereto.

2. In a loom, the combination with a support, a movable member carried by said support, standards carried by said member, of a revoluble rod carried by said standards, collars positioned upon said rod between said standards, means for fixedly securing said collars to said rod, a projection carried by one of said standards, means carried by said rod and adapted to engage said projection for limiting movement of said rod, a spring connected to said rod and said movable member, a bracket provided with a vertical, apertured extension, said bracket secured to said movable member, a movable feeler positioned within the apertured portion of said bracket, means connecting said feeler to said rod, a pawl, means supporting said pawl upon said standards, a substantially U-shaped member extending from said pawl, means connecting said last-mentioned member and rod, a weft-hammer adapted to cooperate with said pawl for moving said movable member, and a shipper-handle positioned contiguous to said movable member and adapted to be actuated by the same for stopping the loom.

3. In a loom, the combination with a support, a bobbin, a weft-hammer and a shipper-hand e, of a swinging member carried by said support and positioned contiguous to said shipper-handle, standards carried by said swinging member, a stationary shaft positioned upon the upper portions of said standards, a revoluble rod journaled in said standards between said stationary shaft and said swinging member, a feeler normally engaging said bobbin and supported upon said swinging member, means connecting said feeler to said rod, and means mounted upon the shaft and connected to said rod and adapted to be moved into the path of movement of said weft-hammer by the exhaustion of the filling means upon the bobbin, whereby the weft-hammer will move said swinging member and thereby actuate the shipper-handle for disconnecting the power and stop the loom.

4. In a loom, the combination with a support, a shipper-handle, a weft-hammer, and a bobbin, a movable member provided with standards, carried by said support, of a bracket provided with a vertical, apertured extension, carried by said movable member, a rod-like feeler positioned within the apertured portion of said bracket, a revoluble rod journaled in said standards, means connecting said feeler and revoluble rod, a pawl, means connecting said pawl to the upper portions of said standards, said pawl provided with a depending extension, means movably connecting said extension to said revoluble rod, said pawl adapted to be engaged by the weft-hammer for swinging said movable member and thereby actuating said shipper-handle.

5. In a loom, the combination with a support, a bobbin, a shipper-arm and a movable member fulcrumed upon the support, of a crank-like weft-hammer, said hammer pro-

vided with an upper, notched portion, a standard secured to said movable member, a pawl, means connecting said pawl to the upper end of said standard, said pawl adapted to engage said notched portion of the weft-hammer, a feeler, means connecting said feeler and pawl, whereby movement of said feeler will actuate said pawl for causing the same to be engaged by said weft-hammer and thereby move said movable member for actuating said shipper-handle.

6. In a loom, the combination with a support, a bobbin, a shipper-arm, and a weft-hammer, of a movable member positioned upon said support, parallel standards carried by said movable member, a revoluble rod journaled in said standards, means positioned between said standards for preventing longitudinal movement of said revoluble rod, a feeler, means connecting said feeler to said rod, a flexible member connected to said rod and secured to said movable member for normally holding said feeler against said bobbin, and means carried entirely by said standards and movably connected to said rod and coöperating with said weft-hammer for permitting the said hammer to swing said movable member upon said support for actuating said shipper-handle.

7. In a loom, the combination with a support, a shipper-handle, a bobbin, and a movable member carried by said support, of a weft-hammer provided with a horizontal and a vertical extension, a cam engaging the horizontal extension of said weft-hammer, said vertical extension provided with a notched or cut-out portion, a pawl adapted to engage the notched portion of said weft-hammer, means connecting said pawl to said movable member, and means carried by said movable member and engaging said bobbin and pawl for swinging said pawl into the path of movement of said weft-hammer, when the filling of said bobbin is exhausted, whereby said weft-hammer swings said movable member upon said support for actuating said shipper-handle.

8. In a loom, the combination with a support, a shipper-handle, a bobbin, a weft-hammer, and a movable member carried by said support, of a parallel, stationary shaft and rotatable rod carried by said movable member, a feeler carried by said movable member and normally engaging said bobbin, means connecting said feeler and rod, a pawl carried by said stationary shaft and adapted to engage said weft-hammer, and means connecting said pawl and said revoluble rod, said weft-hammer adapted to move said movable member for actuating said shipper-handle, when said pawl is placed in the path of movement of said weft-hammer.

9. In a loom, the combination with a bobbin, a movable member, a shipper-handle, and a weft-hammer, of a standard carried by said movable member, a rotatable rod journaled in said standard, means carried by said rod for preventing longitudinal movement of said rod upon said standard, a weft-hammer-engaging member carried by the upper portion of said standard and coöperating with said weft-hammer, means connecting said hammer to said rod, a feeler carried by said movable member and normally engaging said bobbin, and means connecting said feeler to said rod, said weft-hammer when in engagement with said hammer-engaging member, adapted to move said movable member for actuating said shipper-handle.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

CARL ADAMS.

Witnesses:
W. J. TRUCHSESS,
CHAS. B. BRUNNER.