Sept. 22, 1964 P. B. WEST ETAL 3,149,379

STOP MOTION DEVICE

Filed Jan. 16, 1962

Fig. 1.

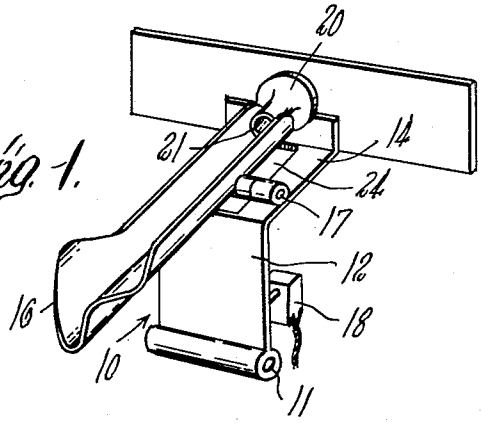


Fig. 2.

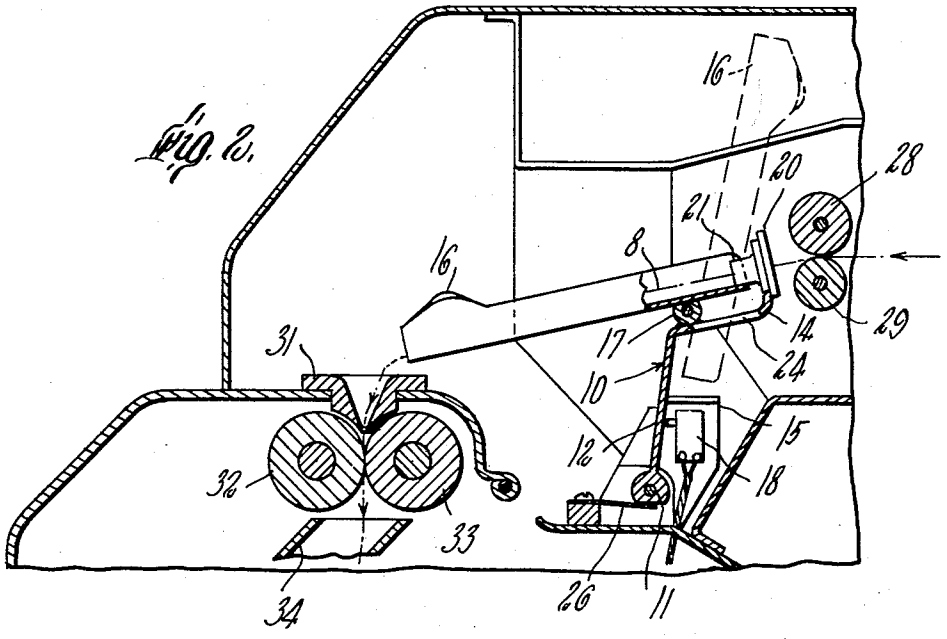
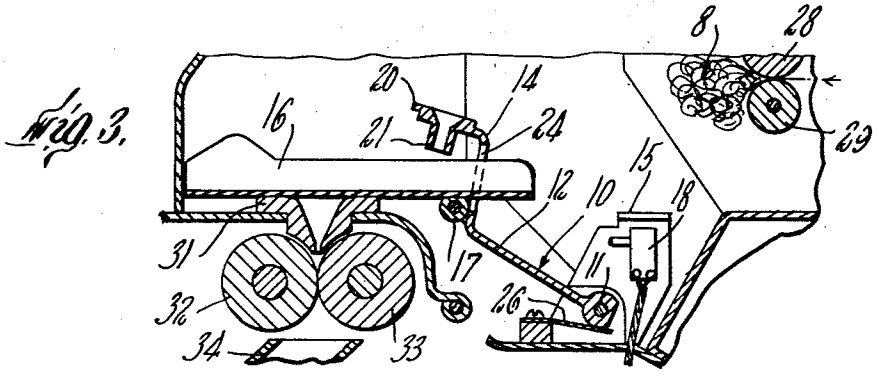


Fig. 3.



United States Patent Office 3,149,379 Patented Sept. 22, 1964

3,149,379

STOP MOTION DEVICE

Paul B. West, Clemson, and Russell A. Graham, Greenville, S.C., assignors, by mesne assignments, to Maremont Corporation, Chicago, Ill., a corporation of Illinois

Filed Jan. 16, 1962, Ser. No. 166,509
3 Claims. (Cl. 19—.23)

This invention relates to a control mechanism for textile machinery and more particularly to a stop motion device for draw frames and the like that operate to draft a cotton sliver or analogous material.

In general, the invention comprises a stop motion device having a pivotally mounted actuating member positioned intermediate the front rolls and calender rolls of a draw frame. Positioned on the actuating member is a pivotally mounted sliver trough leading from the drafting rolls to a trumpet and then to the calender rolls. A sliver forming means or trumpet is positioned at the mouth of the trough adjacent the front rolls. Switch means, adapted to stop the machinery when the actuating member is moved from its operating position, are located against the actuating member. The center of gravity of the stop motion as a whole is located to the side of the actuating member's pivot nearest the drafting rolls such that the force of gravity maintains the device in its normal operating position. In operation the operating position of the stop motion is maintained until abnormal pressure of the material being processed occurs at the mouth of the sliver trumped due to abnormal thickness of the web or to a stoppage of the sliver at the trumpet. The abnormal pressure of the sliver then causes the actuating member to move away from the drafting rolls and actuates the switch, thus shutting off the machinery.

Further features, objects, and advantages of this invention will be apparent to those skilled in the art from the following detailed description thereof in light of the accompanying drawings, wherein:

FIG. 1 is an isometric view of the invention;

FIG. 2 is a side elevation in section of a drawing frame embodying the invention in its operating position and, in dotted lines, an alternate maintenance position of the sliver trough; and

FIG. 3 is a view of FIG. 2 wherein the invention is shown in its stop position.

Referring now to the drawings, FIG. 2 shows the invention positioned within a standard drawing frame. Only that portion of the drawing frame is shown from the front rolls **28** and **29** to the coiler head **34** since the remainder of the machine is standard and well known to those skilled in the art.

As shown in FIG. 1 and FIG. 2, the invention comprises an actuating member **10** mounted on a pivot **11**, intermediate the front rolls **28**, **29**, and the calender rolls **32**, **33**. The actuating member **10** has a lower element **12**, which is in a substantially vertical attitude in the operating position of the actuating member **10**, and an upper element **14**, which is in a substantially horizontal attitude in said operating position. The upper element **14** extends from the upper portion of the lower element **12** generally toward the front rolls **28**, **29** and terminates just short thereof.

Stop means **15** are provided to define the extent to which the actuating member **10** may rotate about its pivot toward the front rolls **28**, **29**. Switch means **18** such as any standard micro-switch, are provided, effective to stop the drawing frame machinery as the actuating member **10** rotates about its pivot **11** toward the calender rolls **32**, **33**. Optionally, spring means **26**, here shown as a flat spring operating on a flattened portion of the lower element at its lower end adjacent the pivot **11**, are provided to

assist in retaining the actuating member **10** in its operating position.

Fixedly attached to the upper element **14** of the actuating member **10**, at the portion thereof nearest the front rolls **28**, **29** is a sliver forming means or trumpet **20**, mounted so that its orifices have a substantially horizontal axis, and so that the smaller orifice **21** is directed away from the front rolls.

Mounted on a second pivot **17**, positioned on the upper element **14** of the actuating member **10**, is a sliver guide trough **16**, extending from the smaller orifice **21** of the trumpet **20** to the larger orifice of a second trumpet **31**. The major portion of the trough **16** is offset from the second pivot **17** toward the second trumpet **31** and stop means, here shown as the external portion of the smaller orifice **21** of the trumpet **20**, are provided to maintain the trough **16** in a substantially horizontal operating position. As is shown by the dotted lines in FIG. 2, the trough **16** is rotatable about its pivot **17** to the extent of at least 90°. If a portion of the trough **16** extends from the second pivot **17** to the trumpet **20** for a substantial distance, as is shown in the drawings, slot means **24** are provided in the horizontal element **14** of the actuating member **10** to permit the trough **16** to rotate to the extent desired.

In operation, FIG. 2, a web **8** is delivered from the front rolls **28**, **29** through the trumpet **20**, there being condensed to a sliver, along the trough **16** to the second trumpet **31**, the calender rolls **32**, **33**, and thence to a coiler head **34**. In its normal operating position, the lower element **12** of the actuating member **10** is in a substantially vertical position and in the preferred embodiment of the invention rests upon the switch **18**. The trough **16** is substantially horizontal. The mechanism remains in this position so long as there is no abnormal pressure on the web or sliver at the trumpet **20**.

If, however, the web or sliver is subject to abnormal pressure at the trumpet **20**, for any reason, the actuating member **10** is pushed toward the coiler head **34**, as is shown in FIG. 3, thus actuating the switch **18** which operates to shut off the machine. As the actuating member **10** falls forward, the trough **16** strikes the second trumpet **31** thus causing it to rotate about its pivot **17**. Thus, due to the double pivots **11**, **17**, the actuating member **10** and the trough **16** are permitted to fall completely away from the front rolls **28** and **29**. This action completely exposes the trouble spot and facilitates the maintenance and repair of the machinery.

It will be understood that many modifications of this invention may be made without departing from the spirit and scope of the claims thereof.

It will be further understood that the example given is in no way intended to limit the scope of this invention.

What is claimed is:

1. A sliver stop motion comprising:

an actuating member having substantially vertical and substantially horizontal elements, said vertical element being pivotally mounted at its lower portion and having a substantially vertical operating position, and said horizontal element extending at a substantially right angle from said vertical element;

sliver forming means having orifices mounted on said horizontal element and having a substantially horizontal axis through its orifices;

a sliver trough pivotally mounted on said horizontal element, in a substantially horizontal position extending from said forming means;

and switch means adapted to be actuated by said actuating member as said member is pivoted away from its operating position.

2. A sliver stop motion, intermediate the front rolls and calender rolls of sliver processing machinery, comprising:

an actuating member having substantially vertical and substantially horizontal elements, said vertical element being pivotally mounted at its lower portion and having a substantially vertical operating position, and said horizontal element extending at a substantially right angle from said vertical element toward said front rolls;

stop means effective to define the extent to which said actuating member may be rotated toward said front rolls;

sliver forming means mounted on said horizontal element in a substantially horizontal position adjacent said front rolls;

a sliver trough pivotally mounted on said horizontal element, extending from said forming means toward said calender rolls, the major portion thereof being positioned away from its pivot toward said calender rolls;

said trough being maintained in a substantially horizontal operating position by contact with said sliver forming means,

slot means in said horizontal element adapted to permit the rotation of said trough about its pivot;

and switch means adapted to be actuated by said actuating member as said member is pivoted away from its operating position;

wherein the center of gravity of said stop motion is positioned adjacent the actuating member stop means away from said lower portion of said vertical element.

3. The stop motion claimed in claim 2 having spring means effective to assist in retaining said actuating member in its operating position.

References Cited in the file of this patent

UNITED STATES PATENTS

128,999	Brooks et al.	July 16, 1872
563,343	Welty	July 7, 1896
2,811,753	Whitehurst	Nov. 5, 1957
2,944,302	West	July 12, 1960
3,075,251	Nagel	Jan. 29, 1963

FOREIGN PATENTS

1,039,023	France	May 13, 1953
25	Great Britain	of 1859
1,749	Great Britain	of 1857