May 12, 1964 M. ANTONEVICH 3,132,495

STOP MOTION MOUNTING FOR KNITTING MACHINES

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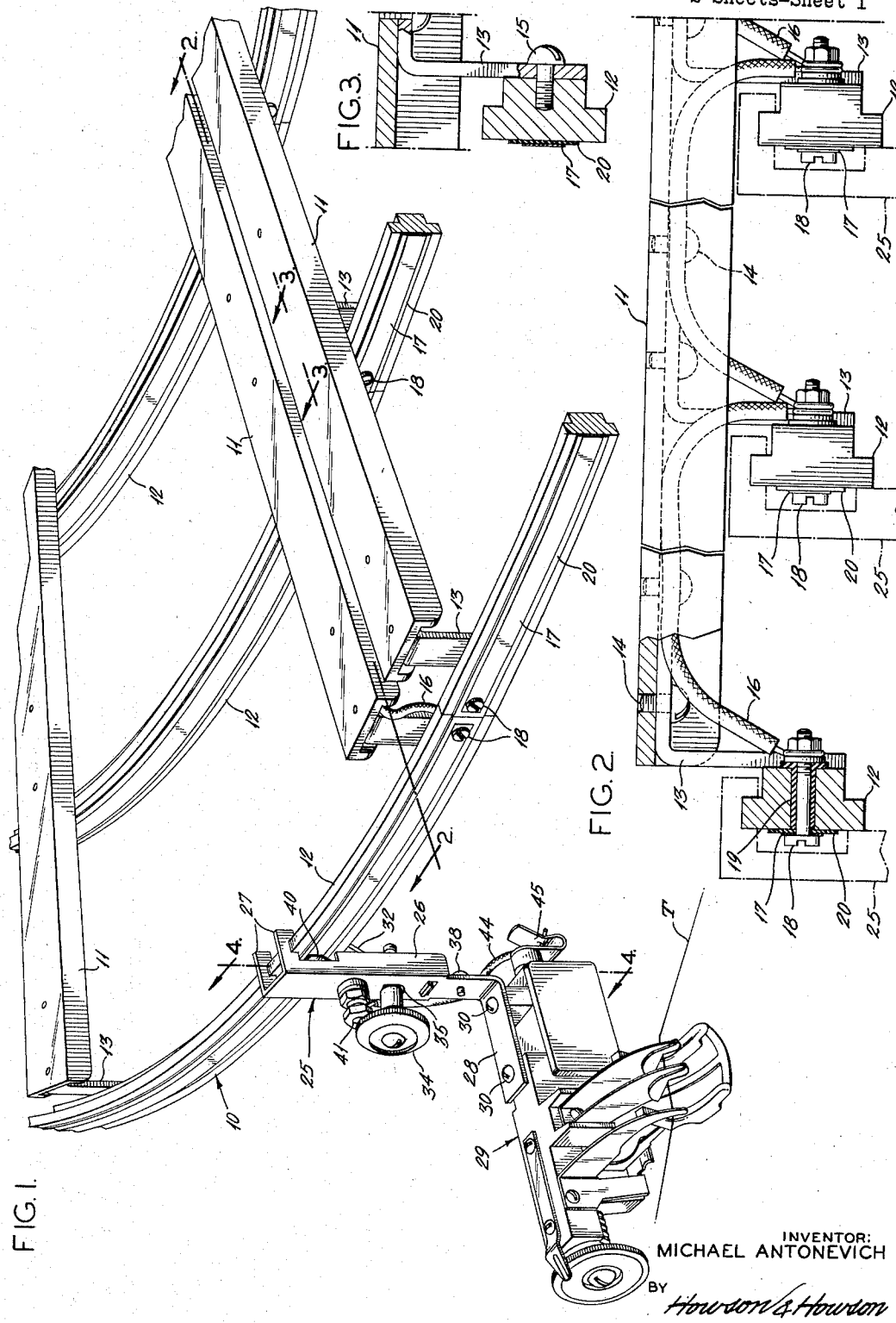


FIG. 1.

FIG. 3.

FIG. 2.

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FIG. 5.

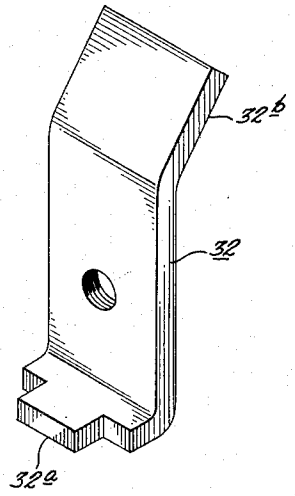
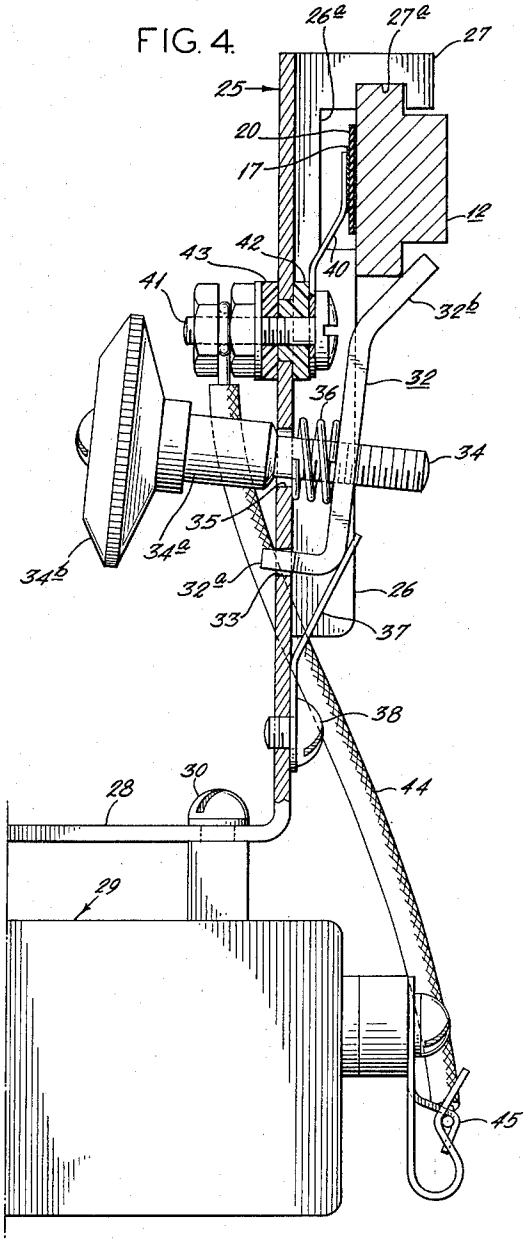


FIG. 4.



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STOP MOTION MOUNTING FOR KNITTING MACHINES

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7 Claims. (Cl. 66—163)

This invention relates to a stop motion mounting for knitting machines, especially to a mounting for a stop motion device which can quickly be clamped in a selected position or removed as a unit from the machine, the unit when clamped in place establishing a strong mechanical connection with its support and also a dependable electrical connection.

Some clamp connections for stop motion devices have been proposed but so far as known they involve the use of a bare conductor located on the top of an anchor support member and as a consequence the bare conductor is soon covered with lint and adherent refuse to such an extent that it must be cleaned each time a new connection is made with it.

Accordingly, it is one of the objects of the present invention to provide a stop motion mounting in which the bare conductor is located in a position where fouling will not readily occur.

Another object is to provide a stop motion mounting which comprises improved attaching means which firmly secures the stop motion device to its anchorage support and at the same time establishes a good electrical connection.

Another object is to provide an improved conductor strip which can be made by circuit printing methods, if desired.

Another object is to provide clamping means for a stop motion device which can be quickly released by manipulation of only one hand part and without the necessity for shifting the position of loose or swinging members into engaging position before they can be clamped.

The above and other objects of the invention as well as various features of novelty and advantages will be apparent from the following description of an exemplary embodiment, reference being made to the accompanying drawings, wherein:

FIG. 1 is a top plan and side elevation isometric view of a portion of a stop motion head ring of a circular knitting machine;

FIG. 2 is an enlarged vertical radial section taken on the line 2—2 of FIG. 1;

FIG. 3 is a partial enlarged vertical radial section taken on the line 3—3 of FIG. 1;

FIG. 4 is an enlarged vertical radial section taken on the line 4—4 of FIG. 1; and

FIG. 5 is an isometric elevation of a clamping member.

Stop motion head rings for circular knitting machines are well known in the art, for example see 2,387,100 Wachsman, so it is sufficient herein to show a portion of such a stop motion head ring **10** having radial arms **11** and arcuate anchor or support bars or rails **12** secured at radially spaced intervals to the radial arms. Specifically the rails **12** are secured to the arms **11** by angular brackets **13** which are attached beneath the channel shaped arms **11** by screws **14** and which are attached to the rails **12** by screws **15**. This leaves the rails clear for holding brackets throughout their entire length, even under the arms **11**. As shown in FIGS. 2 and 4, the rail **12** is generally T-shaped with the short stem disposed horizontally and secured at its end to the brackets **13** and with the rectangular head disposed vertically and standing in the clear at the front side and at both ends for movement therealong or slidable stop motion support brackets and clamping means therefor as will be disclosed.

Each rail sector is placed in a separate circuit by having a radially extending insulated wire conductor **16** connected at one end to an outwardly-bare inwardly-insulated contact conductor strip **17**. The connection between the conductor **16** and the strip **17** is established by a bolt **18** insulated from the rail **12**, as by a headed insulating sleeve **19**.

The contact strip **17** may be a foil or deposit placed on an insulating strip **20** by known circuit printing methods or it may be a heavier metal strip which is secured to the insulating strip **20** by adhesive or other convenient means. The insulating strip itself may be secured on the side of the rail **12** by adhesive or other convenient means.

Ground connections into the machine frame form the other side of the electrical circuit in known manner.

The removable mounting device for the stop motion device comprises a bracket **25**, preferably formed by bending up a pre-formed plate, having a vertical channel shaped body **26**, lateral inwardly extending hook-shaped arms **27**, and a lateral outwardly extending arm **28** on which the stop motion device **29** is secured, as by screws **30**.

The stop motion device itself is so well known that no description of it is needed except to note that when a thread or yarn T fails to move properly it will cause the operation of a switch to affect the operation of the machine.

As best shown in FIG. 4, the rail **12** is generally T-shaped in section with the head of the T-section disposed vertically and the thick stem disposed horizontally. The arms **27** of the mounting bracket **25** are provided with hook notches **27***a* which ride on the rib-like portion provided on the rail. The side flanges of the body portion **26** of the bracket **25** are cut out, as at **26***a* to freely span the contact strip **17**.

A clamp plate **32** has a narrow bottom tip **32***a* disposed in a hole **33** in the web of the portion **26** and a bent end **32***b* arranged to clamp against the lower rib-like portion provided on the rail. The shank of a clamp screw **34** is threaded in the clamp plate **32** and passes loosely through a hole **35** in the portion **26** of the bracket **25**. The bevelled or spherical end of an enlarged shoulder **34***a* engages the outer side of the portion **26** to effect the clamping action on the clamp plate **32**. A hand knob **34***b* is provided for operating the clamp screw. A spring **36** urges the clamp plate **32** away from the portion **26** of the bracket **25**. A leaf spring **37** secured by a screw **38** to the portion **26** holds the lower end of the clamp plate in place against the portion **26**.

Means are provided for establishing electrical connection from the contact strip **17** to the switch of the stop motion device **29** whenever the mounting bracket **25** is clamped to the rail **12**. As herein shown a spring electrode contact plate **40** is secured on the vertical portion **26** of the mounting bracket **25** in position for its upper end to press against the contact strip **17**. The securement of the spring contact plate **40** to the portion **26** is made by a bolt **41** having a headed insulating sleeve **42** and an insulating washer **43**. The nuts of the bolt **41** secure the bare end of an insulated conductor **44** which extends to the switch of the stop motion device where its other bare end is secured by an attaching clip **45**.

If it is desired that the mounting bracket be attachable at all points around the rail, the heads of the conductor connector bolts **18** can be countersunk to clear the space for the spring contact plate **40**. This would only affect sliding motion of the mounting bracket along the rails, which is usually not necessary; if the plate **40** is pushed in laterally it will work as well on the bolt heads as else-

where, provided they are not excessively high. The heads, of course, will clear the cut-outs 26*a* of the bracket.

While the contact conductor strip 17 and its insulating support strip 20 are shown as being located on the side of the rail, it is contemplated that they can be located elsewhere so long as they are not located on top where the bracket hooks hang and where they would be fouled by settling material. Since the clamp plate has a downward pull component as well as a rearward pull component, a spring contact element would be held against a contact conductor strip located on the bottom of the rail as well as when the strip is located on the side of the rail.

It is thus seen that the invention provides an improved clamp-on mounting which can be quickly attached or removed and which is not readily fouled by floating material.

While one embodiment of the invention has been described for purposes of illustration it is to be understood that there may be various embodiments and modifications within the general scope of the invention.

I claim:

1. A stop motion mounting for knitting machines, comprising in combination, a rail having a contact conductor strip secured to a side thereof other than the top, mounting support means for said rail connected to the rear side thereof, leaving the top, front and bottom clear for the full length of the rail, a mounting bracket having hook support mounted on the top of said rail for sliding movement for the full length of the rail, a resilient contact plate carried by said bracket engaging said contact conductor strip, a clamp member carried by said bracket engaging the lower part and rear side of the rail and the lower part of the bracket, and clamp means therefor, to clamp the bracket thereon at any selected location, and a stop motion device mounted on said bracket.

2. A stop motion mounting as set forth in claim 1, wherein said clamp member comprises a tip bottom projection disposed in a hole in the bracket and a top element engaging the rail, a keeper element holding the tip projection in place in said hole, and said clamp means including a clamp screw arranged between the clamp and bracket for tightening the clamp on said rail.

3. A stop motion mounting as set forth in claim 2, which further includes a spring on said clamp screw disposed between the clamp member and bracket for urging them apart.

4. A stop motion mounting as set forth in claim 1, wherein the rail is supported by its mounting support means from arms thereabove and at a distance thereabove sufficient to keep said bracket clear of the arms whereby the bracket can be secured at any point along the rail.

5. A stop motion mounting for knitting machines having an arm supported rail, comprising in combination, a T-shaped rail having its stem disposed horizontally and secured at the end to anchorage means carried below horizontal supporting arms, the head of the rail being rectangular and disposed vertically at a distance below the supporting arms, leaving the front vertical side and ends of the head clear, an insulated longitudinal conductor plate secured to the front side of said rail, and a stop motion supporting bracket slidably supported on the upper end of the head of the rail, said bracket having a rectangular supporting hook slidably mounted on the top of the rail, the bracket having a front part spaced away from the rail in front of said conductor plate and having a resilient contact member slidably engaging said conductor plate, the bracket also carrying below said contact member clamping means engageable with the lower end of the head of the rail to clamp the bracket in various adjusted positions along the rail, said clamping means being formed and arranged to pull said bracket downward and move its lower end inward to hold said contact member against said conductor plate.

6. A stop motion mounting as set forth in claim 5, wherein said clamping means includes a clamping member pivoted at its lower end on the back side of said bracket and having its upper end disposed against the rear corner of the lower end of the head of the rail, and a clamping device for said clamping member between its ends and acting against said bracket.

7. A stop motion mounting as set forth in claim 6, wherein the pivot connection of the clamping member includes a projection fitting in a hole and a resilient element holding the lower end of the clamping member toward said bracket, and wherein said clamping device comprises an element arranged to draw said clamping member toward said bracket, and a resilient member disposed between said clamping member and said bracket urging them apart.

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