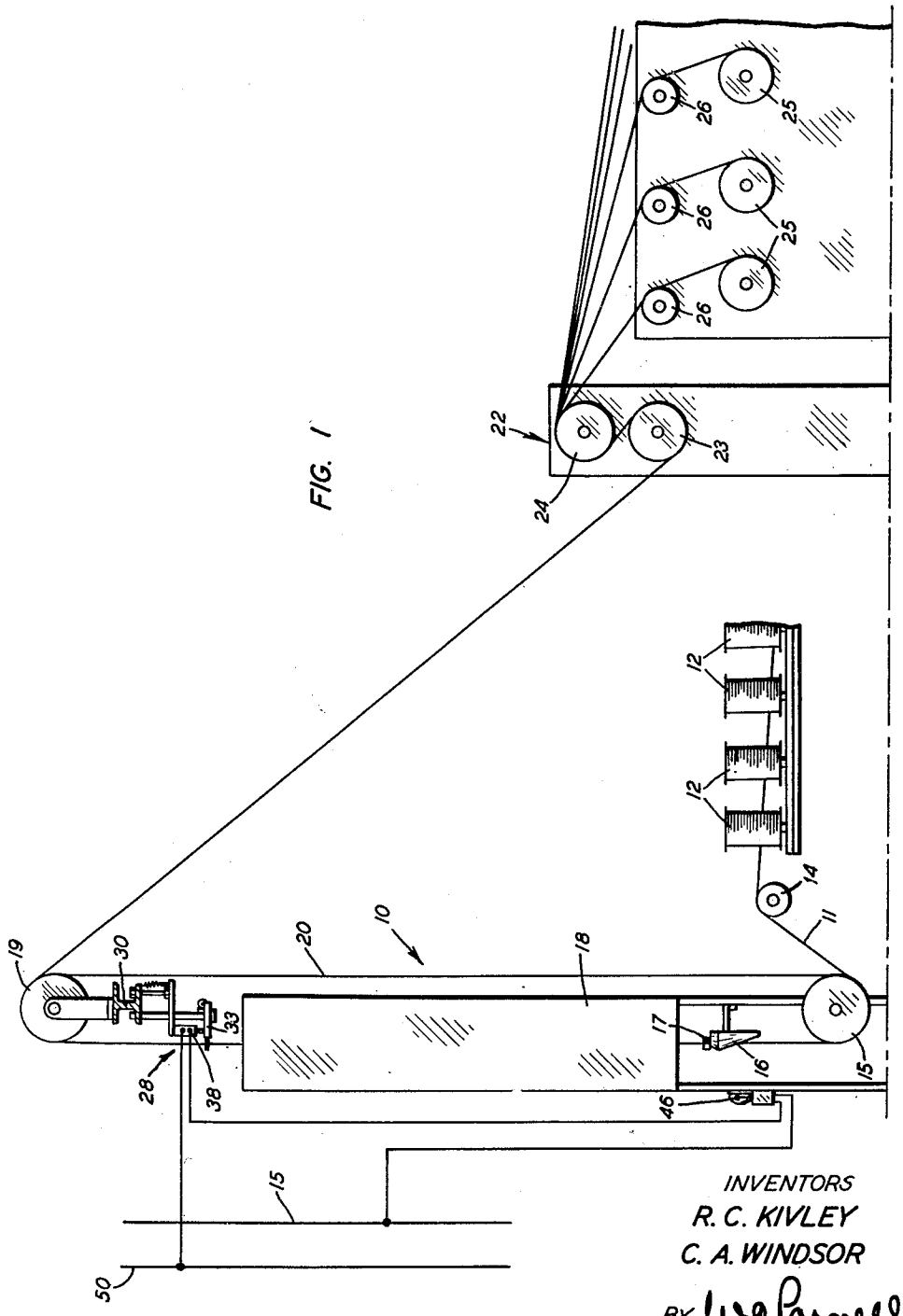
Feb. 26, 1952 R. C. KIVLEY ET AL 2,586,960

MATERIAL FEED SIGNAL SYSTEM

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FIG. 1



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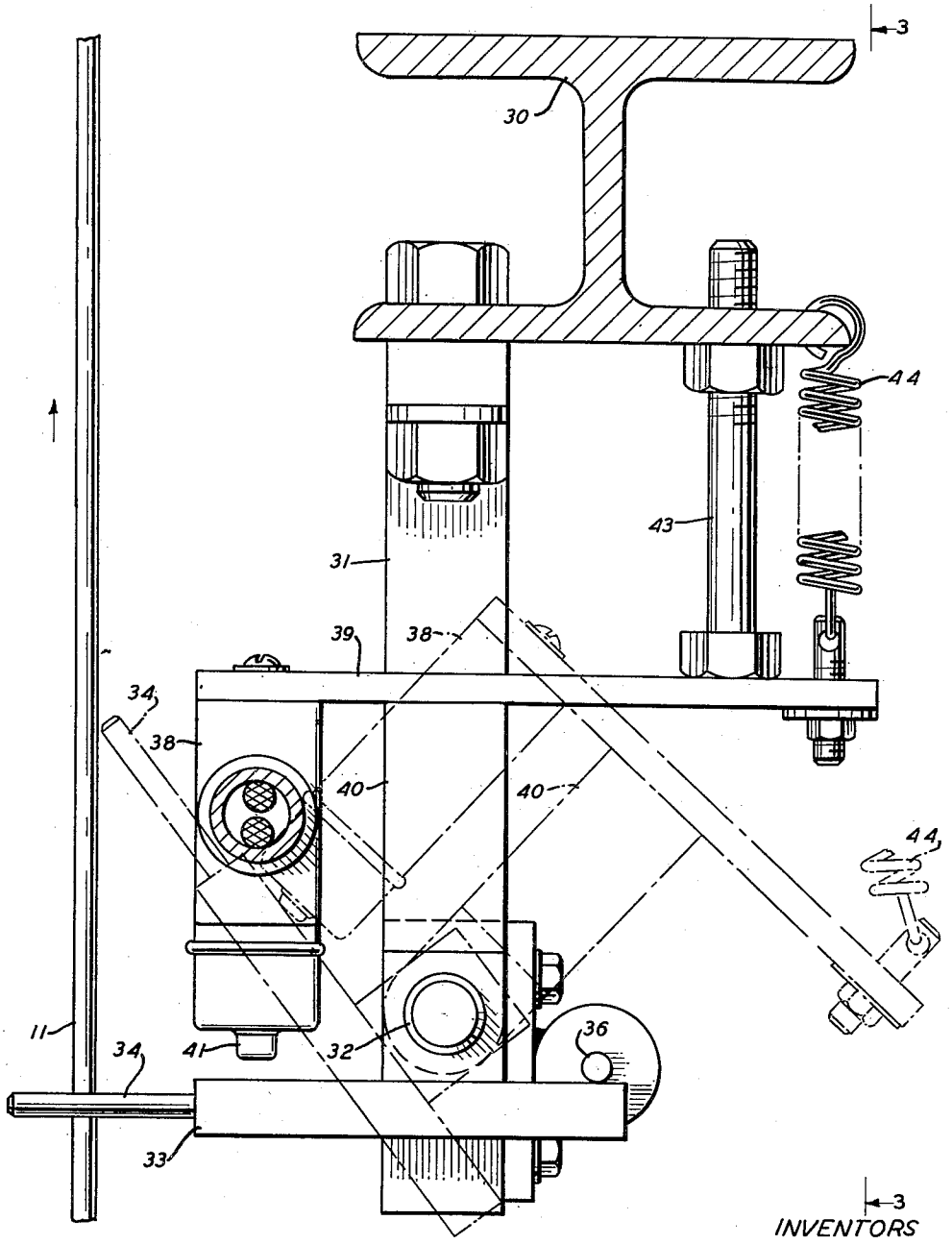


FIG. 2

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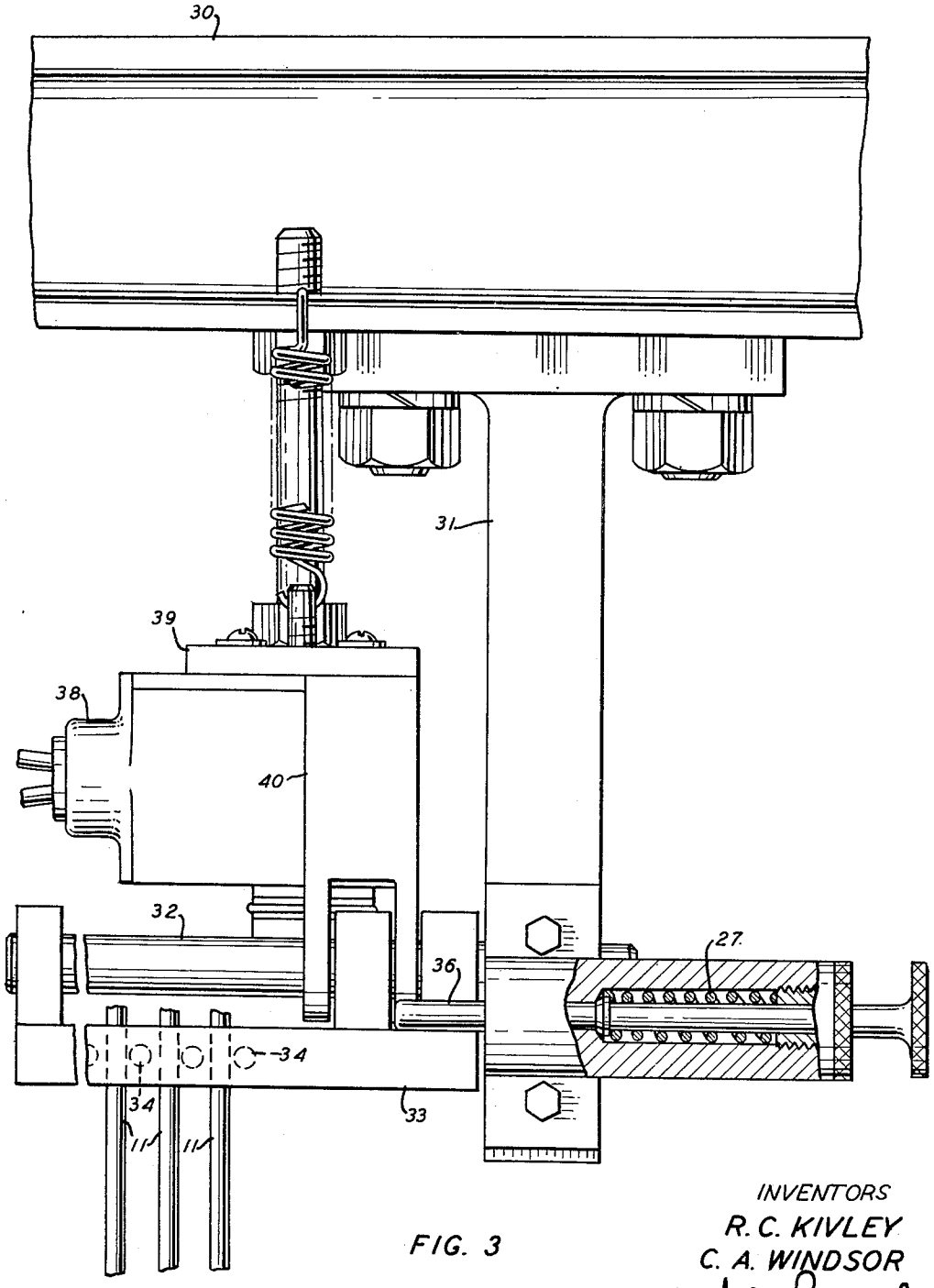


FIG. 3

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2,586,960

MATERIAL FEED SIGNAL SYSTEM

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4 Claims. (Cl. 177—311)

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This invention relates to material controlling means, and more particularly to a control for wires travelling through an enamelling machine.

During the operation of wire enamelling machines, where the paths of the wires are closely positioned, the adjacent enamel coatings on the wires sometimes adhere to each other and create disturbances such as the pulling of wiping dies free of their retaining elements on subsequent passes of the wires through the machine. In some instances, the wires, through their coatings, become so firmly attached to each other that they will not be separated from each other in their conventional travel through the machine and unless the operator is warned of these conditions damages may result to the wires or to parts of the machine.

An object of the present invention is to provide a control for longitudinally advancing strands which will individually separate the strands whenever possible and will operate a signal when the separation of the strands by this means is not possible.

With this and other objects in view, the invention comprises a strand control for use in a machine wherein the strands are caused to travel in given paths closely adjacent each other, the control comprising a normally positioned element having fingers extending between the strands to separate the strands from each other and movable by the strands should they fail to separate, and a signal operated by the movement of the fingers, to indicate the presence of unseparated strands. More specifically, the control comprises a comb pivotally supported and normally held in a given position with the teeth of the comb positioned between the wires to normally separate the wires from each other. A switch for an audible signal is positioned to be operated by movement of the comb out of its normal position.

Other objects and advantages will be apparent from the following detailed description when considered in conjunction with the accompanying drawings, wherein

Fig. 1 is a schematic side elevational view of a wire enamelling machine embodying the control mechanism;

Fig. 2 is an enlarged side elevational view of the control mechanism shown in solid lines in its normal position and in dotted lines in its actuated position; and

Fig. 3 is an elevational view of the structure shown in Fig. 2, and taken substantially along the line 3—3 of Fig. 2.

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Referring now to the drawings, attention is first directed to Fig. 1 which illustrates a wire enamelling machine indicated generally at 10 which receives strands or wires 11 from supply reels 12, passing around sheaves 14 and 15 and upwardly through enamel applicators 16. The enamel applicators are of the conventional type wherein the wires receive a coating of enamel, after which the wires travel through their dies 17 and baking chamber 18. The wires continuing from the baking chamber travel over sheaves 19 and return as indicated at 20 for an additional trip through the applicator 16, their dies 17 and the baking chamber 18. After the final trip through the machine, the wires, upon leaving the sheaves 19, travel to the constant speed capstan unit 22 where the capstans 23 and 24 pull the wires causing their travel through the machine. The wires upon leaving the unit 22 are guided onto their individual takeup reels 25 by distributors 26

The control mechanism indicated at 28 in Fig. 1 is shown in detail in Figs. 2 and 3. The mechanism 28 is supported by a horizontal I beam 30 of the machine 10 and includes a downwardly projecting arm 31 from the I beam 30 to support a pivot or shaft 32. A comb 33 extends laterally of the machine and is supported by the pivot 32 in a position whereby equally spaced fingers 34 of the comb will extend between the normal paths of the wires 11 to maintain the wires in their given paths and to tend to separate them should they adhere to each other. A spring pressed plunger 36 carried by the arm 31 is held inwardly by its spring 27 to hold the comb in the normal position, the greatest weight of the comb being adjacent the fingers 34 to maintain the comb in its normal position with its fingers between the paths of the wires.

An electrical switch 38, carried by an arm 39 mounted on a support 40 which in turn is mounted on the shaft 32, includes a plunger 41 normally spaced from the comb 33 but positioned to be actuated thereby when the comb is moved out of its normal position. The arm 39 with the support 40 and the switch 38 are normally held in the positions shown in solid lines and against an adjustable stop 43 by a spring 44, the spring permitting movement of its associated structure into the broken line position when it is not possible for the comb to separate the adhering strands or wires.

The switch 38 is of the normally open type closed by the actuation of the plunger 41 to complete a circuit for an audible signal 46 mounted

at a convenient position on the machine to signal the operator when certain of the wires adhere to each other and cannot be separated by the comb. The circuit for the signal **46** may be traced from line **50** through the switch **38**, the audible signal **46** to line **15**.

Considering now the operation of the machine **10** with the control mechanism embodied therein, it will be apparent that during the normal operation of the machine, the strands or wires **11** may be advanced continuously from their supply reels **12**, through the applicators **16**, and wiping dies **17** and the baking chamber **18**. The applicator, wiping and baking steps are repeated, after which the wires are advanced through the capstan unit **22** and the distributors to their takeup reels **25**. During this travel of the numerous wires, they may adhere to each other and in most instances, the fingers **34** of the comb **33** would be effective in separating the wires. However, if any two or more of the wires should be so firmly connected that the comb could not separate them, these wires in their vertical travel from the chamber **18** will engage the fingers **34** and thus move the comb **33** about its pivot or shaft **32**. This movement of the comb will first cause operation of the switch **38** through the engagement of the plunger **41**, operating the signal **46** to indicate to the operator the condition existing whereby the operator may manually separate the wires before they repeat their travel through the machine **10** and cause disturbance in the attempt to advance these wires through their applicators **16** and dies **17**. The spring **43** will allow the comb and switch supporting mechanism to be moved out of the path of the connected portions of the wires and as soon as this portion moves beyond the comb, the spring **43** will return the control mechanism to its normal position again positioning the fingers **34** between their respective wires.

It is to be understood that the above described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. In a machine wherein strands normally move in closely spaced parallel paths and adjacent strands may adhere to each other, a comb normally positioned with its teeth extending between the paths of the strands for separating the strands, an energizable signal, a pivot spaced from the paths of the strands to support the comb for movement out of its normal position beyond the said paths by inseparable strands whereby the inseparable strands may travel beyond the comb without being broken thereby, and means operable by movement of the comb out of its normal position to energize the signal.

2. In a machine wherein strands normally move in closely spaced parallel paths and adjacent strands may adhere to each other, a control mechanism including a comb normally positioned with its teeth extending between the paths of the strands for separating the strands, an energizable signal, a pivot spaced from the paths of the strands to support the comb for movement out of its normal position beyond the said paths by inseparable strands whereby the inseparable strands may travel beyond the comb without being broken thereby, and a switch operable by movement of the comb out of its normal position to energize the signal.

3. In a machine wherein strands normally move in closely spaced parallel paths and adjacent strands may adhere to each other, a control mechanism including a comb normally positioned with its teeth extending between the paths of the strands for separating the strands, an energizable signal, a pivot spaced from the paths of the strands to support the comb for movement out of its normal position beyond the said paths by inseparable strands whereby the inseparable strands may travel beyond the comb without being broken thereby, a switch operable by movement of the comb out of its normal position to energize the signal, a movable support for the switch, and variable means to normally locate the support with the switch a selected variable distance from the comb.

4. In a machine wherein strands normally move in closely spaced parallel paths and adjacent strands may adhere to each other, a control mechanism including a comb normally positioned with its teeth extending between the paths of the strands for separating the strands, an energizable signal, a pivot spaced from the paths of the strands to support the comb for movement out of its normal position beyond the said paths by inseparable strands whereby the inseparable strands may travel beyond the comb without being broken thereby, a switch operable by movement of the comb out of its normal position to energize the signal, a movable support for the switch, variable means to normally locate the support with the switch a selected variable distance from the comb, and yielding means normally holding the switch support and the switch relative to the comb and to return the support with the switch and the comb to their normal positions.

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