Sept. 5, 1967 H. J. BUSH 3,339,719

TERMINAL TAPE

Filed Oct. 12, 1965

FIG. 1

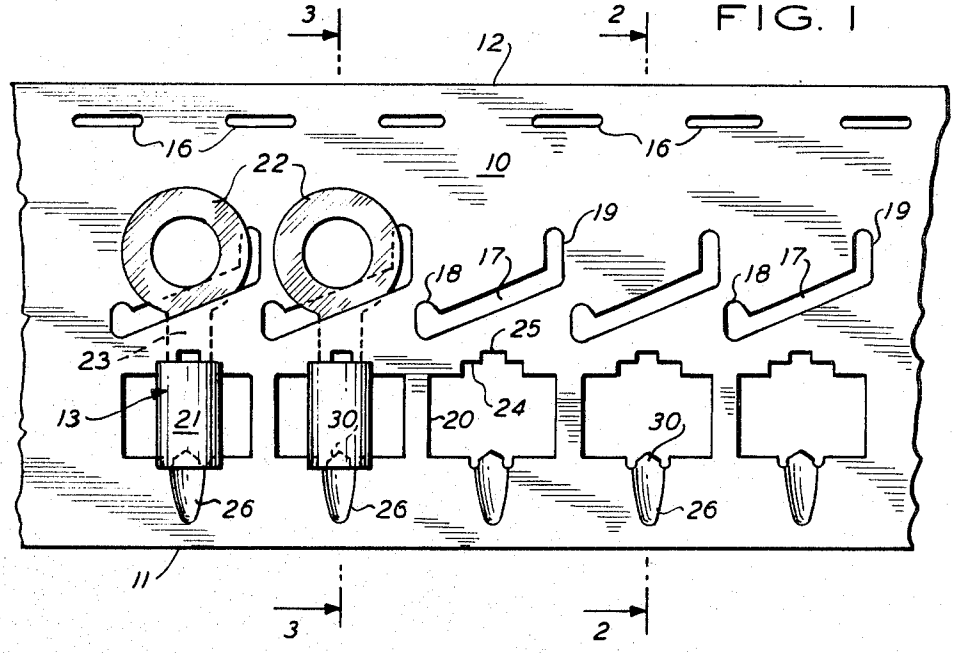


FIG. 2

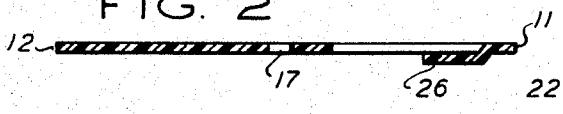


FIG. 3

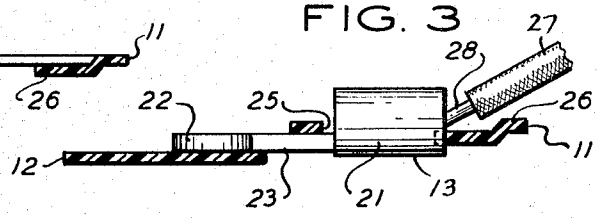


FIG. 4

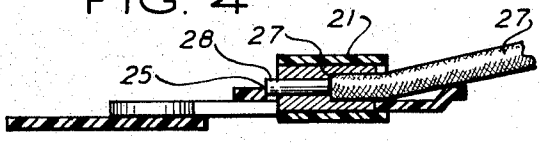
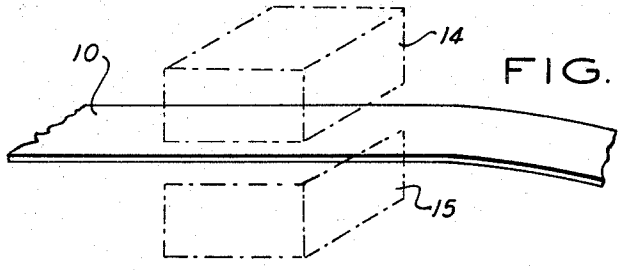


FIG. 5



INVENTOR
H. J. BUSH

BY Harry Sommer

ATTORNEY

United States Patent Office 3,339,719 Patented Sept. 5, 1967

3,339,719

TERMINAL TAPE

Harold J. Bush, Matawan, N.J., assignor to The Thomas & Betts Co. Inc., Elizabeth, N.J., a corporation of New Jersey

Filed Oct. 12, 1965, Ser. No. 495,065
16 Claims. (Cl. 206—56)

This invention relates to a terminal tape or belt for mounting a plurality of terminals in predetermined spaced relation, to facilitate securing them to conductors, for compressing, assembly or other processing operations.

The terminal tape of the invention incorporates novel structural features, such that the terminals may be initially readily inserted therein and will be held in positive, predetermined position throughout the processing operations and readily released therefrom on completion thereof.

A further feature of the invention is to provide a terminal tape having novel means for registration of the conductors with terminals positioned in the tape, to assure full insertion of each conductor into a terminal and for inspection and verification of registration.

The drawings, illustrating procedures and devices useful in carrying out the invention, and the description below, are exemplary only of the invention, which shall be deemed to cover all other devices and procedures coming within the scope and purview of the appended claims.

In the drawings, wherein similar reference characters indicate like parts:

FIG. 1 is a fragmentary top plan view of a terminal tape embodying the invention,

FIG. 2 is a transverse, sectional view, taken at line 2—2 of FIG. 1,

FIG. 3 is a transverse sectional view, taken at line 3—3 of FIG. 1, of the terminal tape, with a terminal shown positioned therein, and a conductor shown about to be inserted into the ferrule end thereof,

FIG. 4 is a similar view, showing the conductor fully inserted into the terminal, and

FIG. 5 is a schematic, perspective view of the terminal tape, inserted intermediate compression or other assembly members.

As shown in the drawings, the terminal tape of this invention comprises a web **10**, which may be fabricated of suitable polyvinyl or other plastic or convenient material, to the dimensions and degree of flexibility preferred, and of the length desired, to receive and display thereon a plurality of terminals **13**. The tape **10** may be initially made and supplied in specific or continuous lengths, in roll or other form, for feeding, as schematically noted in FIG. 5, intermediate processing members **14**, **15**, which may be compression dies, manually or automatically actuated, as desired. The tape may be advanced by frictional or mechanical means or by pawls, sprockets, or the like, engaging tape drive openings **16** (FIG. 1) along one edge of the tape.

Pursuant to the invention, a plurality of slots **17** are provided in the tape and so spaced therealong as to provide the desired spacing for the terminals **13**. The slots **17** are disposed at 25° or other desired angle relative to the longitudinal edges of the tape, and are preferably U-shaped, with the legs **18**, **19** thereof directed toward the longitudinal edge **12** of the tape and away from apertures **20** formed in the tape for reception of ferrule portions **21** of the terminals **13**. The tape may receive terminals **13** of any desired or convenient form, with ferrule portions **21** and lug ends **22** connected to the ferrule portions by throat portions **23**.

The lug end **22** of a terminal may be readily inserted through the slot **17** (slot ends **18**, **19** facilitating positioning in the slot) to dispose the throat portion **23** beneath the tape (FIG. 1) with the ferrule portion **21** straddling

aperture **20**. The latter is provided with doubly stepped portions, viz., first recessed portion **24** directed toward the slot **17** and the narrower, second, recess or stepped portion **25**, closer to slot **17**. Web **10** may be further provided with depressed grooves or V-shaped portions **26** terminating in tabs **30**, proportioned to preferably extend into the apertures **20**, to snap into (FIG. 3) the ferrules **21** on positioning of the latter in apertures **20** and to register the ferrules with the first recess **24** (FIG. 1). The V-shaped portions **26** of belt **10** are medially registered with the apertures **20** and aligned with the second recess or stepped portions **25** in the apertures **20**.

On insertion (FIG. 3) of a conductor **27** into a terminal **13**, it is initially registered and guided by the depressed V-shaped portion **26** for entry into the ferrule portion **21** of the terminal; upon full (FIG. 4) insertion of the conductor **27** into the terminal, the end **28** of the conductor (for example, the end of a wire or cable) will abut and "home" against the second recess **25** and the conductor insulation end **27** registers within the ferrule portion **21**. Thus, registration of the end **28** of the conductor with the more constricted portion **25** of aperture **20** is a positive operation; the operator will sense that the conductor has been fully inserted, by abutment of the conductor with the second recess **25** of the tape aperture **20**, in preparation for the compression or other processing procedure. The tape may, for example, then be advanced to a station wherein (FIG. 5) compression dies **14**, **15** may be closed on the assembly and the tape then advanced to remove the completed assembly.

While the foregoing disclosure of exemplary embodiments is made in accordance with the patent statutes, it is to be understood that the invention is not limited thereto or thereby, the inventive scope being defined in the appended claims.

I claim:

1. A tape for positioning terminals having conductor receiving ferrule portions therein, said tape having spaced parallel longitudinal edges defining therebetween an elongated web portion, apertures provided in said web portion for receiving the ferrule portions, constricted portions formed in said apertures, the parts being so proportioned that on insertion of a conductor in and through the ferrule, the conductor will abut the constricted portion of the aperture, to thereby align the conductor in the terminal.

2. In a terminal tape as set forth in claim **1**, said terminals having lug ends, slots in said web portion for positioning the lug ends of the terminals therein, to dispose the terminals in spaced parallel relation in the tape.

3. In a terminal tape as set forth in claim **2**, said apertures in said web portion being disposed in spaced relation to the slots and aligned therewith.

4. In a terminal tape as set forth in claim **2**, said slots being angularly disposed relative to the longitudinal edges of the tape.

5. In a terminal tape as set forth in claim **2**, said slots being disposed in a plane at an acute angle to the longitudinal edges of the tape.

6. In a terminal tape as set forth in claim **2**, said slots being disposed in a plane at an angle of approximately 25° to the longitudinal edges of the tape.

7. In a terminal tape as set forth in claim **2**, said slots being of U-shaped outline.

8. In a terminal tape as set forth in claim **2**, said slots having leg portions directed away from said apertures.

9. In a terminal tape as set forth in claim **2**, conductor guide grooves formed in said tape in alignment with the apertures and opening thereinto.

10. In a terminal tape as set forth in claim **9**, said grooves being of V-shaped outline and defining guides to facilitate insertion of the conductors into the ferrules.

11. In a terminal tape as set forth in claim 2, tabs aligned with the apertures and adapted to snap into the ferrules to hold the terminals on the tape.

12. In a terminal tape as set forth in claim 11, said tabs extending into the apertures.

13. In a terminal tape as set forth in claim 9, said grooves terminating in tabs adapted to snap into the ferrules to hold the terminals on the tape.

14. In a terminal tape as set forth in claim 2, said constricted portions of the apertures being stepped recessed portions.

15. In a terminal tape as set forth in claim 14, said constricted portions being of different dimensions.

16. A tape for positioning terminals having conductor receiving ferrule portions therein, said tape having spaced parallel longitudinal edges defining therebetween an elongated web portion, apertures and conductor aligning means provided in said web portion for receiving the ferrule portions, the parts being so proportioned that on insertion of a conductor in and through the ferrule, the conductor will abut the conductor aligning means, to thereby align the conductor in the terminal.

References Cited

UNITED STATES PATENTS

2,727,299	12/1955	Klumpp	29—155.55
2,794,964	6/1957	Hoffman	339—276
2,815,124	12/1957	Pellier	206—56
3,129,814	4/1964	Cheh et al.	206—56

THERON E. CONDON, *Primary Examiner.*

W. T. DIXON, JR., *Assistant Examiner.*