

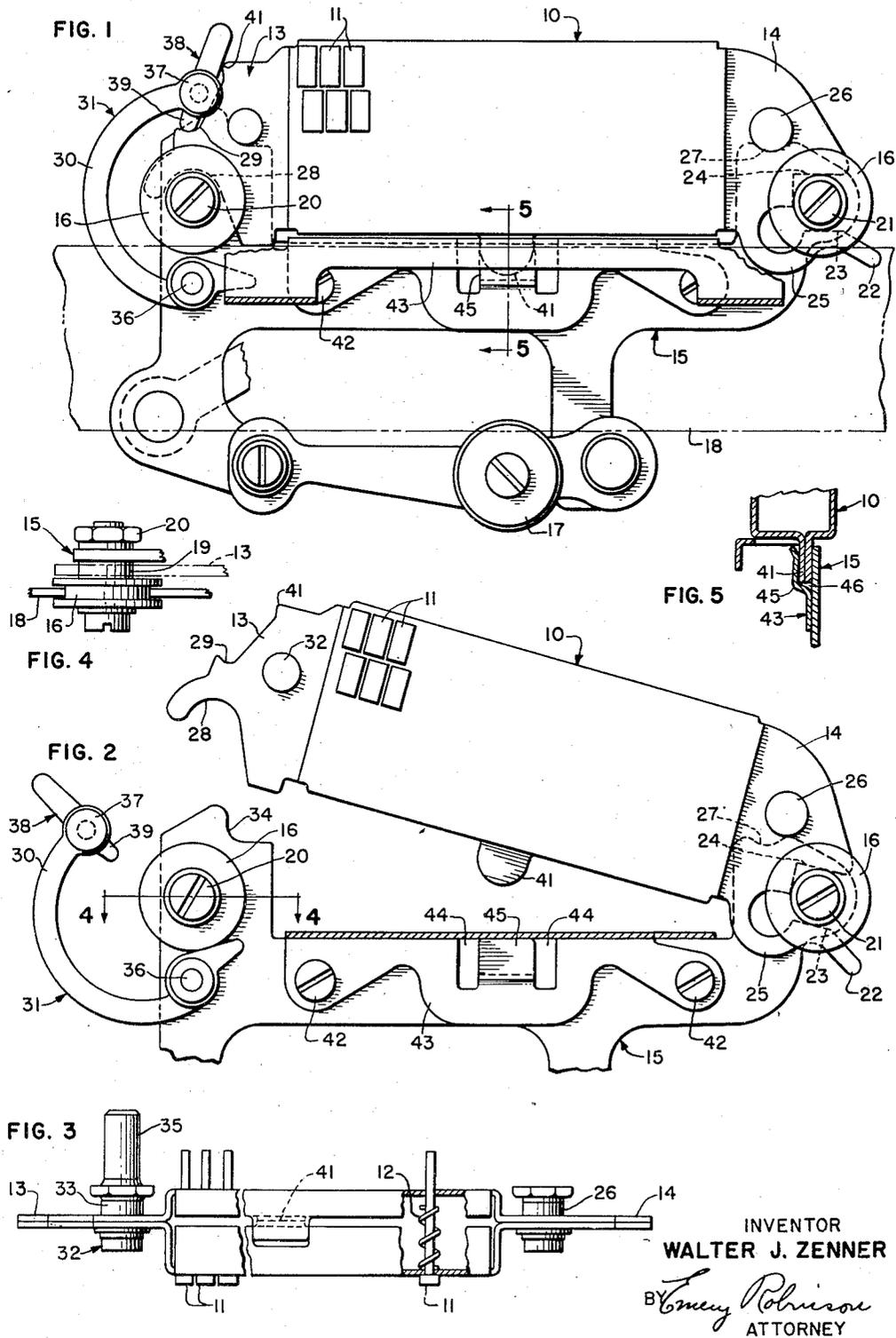
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W. J. ZENNER

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INTERCHANGEABLE TYPE CARRIER

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## INTERCHANGEABLE TYPE CARRIER

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This invention pertains to printing telegraph apparatus and more particularly to telegraph printers in which the characters are printed from type elements carried in a coordinately positionable and selectively arrestable type carrier.

The principal object of the invention is the provision of a type carrier which is readily removable and interchangeable.

Another object of the invention is to provide facilities in a telegraph printer for printing in various type fonts or styles by rendering the type carriers readily detachable and interchangeable.

The foregoing and other objects and features of the present invention will be readily understood from the following description taken in conjunction with the accompanying drawing, wherein:

Fig. 1 is an elevational view of the type carrier arrangement according to the invention with the type carrier clamped into position;

Fig. 2 is a view similar to Fig. 1 with the type carrier in a partially removed position;

Fig. 3 is a top view of the type carrier according to the invention;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2; and

Fig. 5 is a sectional view taken on line 5—5 of Fig. 1.

In the embodiment of the invention to be described hereinafter, the details of the printing telegraph apparatus which co-operate with the apparatus of the present invention but which do not constitute a part of the combination comprising the invention have not been shown in the drawing and will not be described herein since they are shown and described in great detail in the U. S. Patent No. 2,505,729 issued to W. J. Zenner on April 25, 1950, and are not essential to an understanding of the present invention.

Referring to the drawing, wherein like reference characters designate the same parts throughout the several views, the type box or carrier 10, which may be of any suitable construction but preferably is similar to the type carrier shown in detail in Figs. 44, 45, and 46, of said U. S. Patent No. 2,505,729, comprises a hollow box-like structure having aligned apertures in the front and rear faces thereof into which are slidably supported the type elements 11. A coiled compression spring 12 having one end secured to the shank of the type element encircles each type element 11 and functions to hold the type element in the retracted position (as shown in Fig. 3). The type carrier 10 is provided with flanges 13 and 14 through the medium of which the type carrier 10, by co-operating with the appropriate instrumentalities on the traveling carriage 15 of the printer apparatus, is rendered removably mountable on said carriage 15.

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Similar to the disclosure in Patent No. 2,505,729, the carriage 15 (which is comparable to carriage 158 of said patent) is provided with a pair of upper rollers 16 and a lower roller 17 adapted to ride on the upper and lower edges of a track member 18 (similar to track member 163 of said patent). The movement of the carriage 15 for character spacing is achieved in a manner disclosed in said Patent No. 2,505,729.

The flanges 13 and 14 are fashioned or conformed to permit the type box 10 to achieve ready mountability and detachability relative to the carriage 15. Flanges 13 and 14 are adapted to be supported on the bearing portions 19 of the stud shafts 20 and 21 on which the rollers 16 are rotatably mounted. Thus, flange 14 is provided with an open-ended slot adapted to ride onto and pivot on the portion 19 of stud shaft 21. To facilitate the positionment of flange 14 onto the bearing portion 19, a flare 22 is provided which terminates in a bearing surface 23. Confronting the bearing surface 23 is the bearing surface 24. Surface 23 terminates in the downwardly bowed portion 25 of flange 14. The distance between surfaces 23 and 24 is preferably slightly less than the diameter of the portion 19 embraced therebetween so that the portion 19 is adapted to be snugly gripped between the confronting surfaces 23 and 24 due to the resilience inherent in the bowed portion 25. In this manner, the carrier 10, through its flange 14, becomes pivotally articulated to the carriage 15 on the stud shaft 21. Also secured to flange 14 is a stud 26 which is adapted to rest into a depression 27 in the carriage 15, when the carrier 10 is swung counterclockwise into its home position to thereafter prevent lateral movement of the carrier 10.

Flange 13 is fashioned differently than flange 14 in that flange 13 is adapted to cooperate with a clamping device 31 hereinafter described, which is effective to tightly hold the type carrier 10 in its home position on carriage 15. To achieve this result, flange 13 is conformed with a downwardly facing hook portion 28 adapted to straddle the bearing portion 19 of stud 20. Above the hook portion 28 and aligned therewith substantially on the vertical center line thereof is an inverted hook portion 29 of smaller dimension adapted to cooperate with the clamp 31. Secured to flange 13 is a stud 32 having a journal portion 33 adapted to rest on the curved shoulder portion 34 in the carriage 15, when the carrier 10 is swung counterclockwise into its home position to laterally position the carrier 10. Stud 32 is also provided with an extension 35 to permit gripping thereof by the fingers to facilitate removal of the carrier 10.

Clamp 31 comprises a lever 30 which is mounted pivotally on a stud 36 secured to the carriage 15 and located below the stud shaft 20 and in vertical alignment therewith. Thus, when the

carrier 10 has been rotated counterclockwise about stud shaft 21 to its home position on carriage 15, as shown in Fig. 1, the pivot 36, stud shaft 20 and inverted hook portion 29 are substantially in vertical alignment. Lever 30 is bowed with the center of curvature thereof preferably, but not necessarily, coinciding substantially with the center of stud shaft 20.

At the free extremity 37 of lever 30 is pivotally carried a toggle lever 38, the depending arm 39 of which is adapted to cooperate with the inverted hook portion 29 of the flange 13 to effectuate the clamping or pinching action. In the clamped position shown in Fig. 1, the extremity 37 is positioned to the right of the vertical center line embracing pivot 36, stud 20 and portion 29.

The arm 39 of toggle lever 38 is of such length that when the longitudinal axis of lever 38 coincides with the vertical line embracing pivot 36, stud 20 and hook portion 29, the extremities of the bowed portion of clamp 31 (exemplified by pivots 36 and 37) are spread apart due to the toggle action, thus introducing stresses of resiliency or elasticity in the lever 30. The stresses built up in this toggling movement of toggle lever 38 are still effective in the position shown in Fig. 1, so that the carrier 10 is thus securely clamped in home position on the carriage 15 by the pinching action of lever 30.

The type carrier 10 is provided with a depending tab portion 41 located substantially centrally on the bottom surface of the type carrier. Attached to the carriage 15 by screws 42 is a ribbon guide member 43, wherein the ribbon guide combs or forks are not shown, since such guide combs are not a part of the invention. The guide 43 is cut away at 44, and the intermediate portion 45 is pressed out to form a clamping space between the portion 45 and the wall of the carriage 15. Thus, the inherent resilience of the metal forming the guide 43 being depended upon to press the tab 41 against the wall of carriage 15.

To mount the carrier 10 on carriage 15, the carrier 10 is manipulated to introduce the open ended notch 23—24 under the direction of flare 22 onto the bearing 19 of stud 21; a snug, gripping fit being attained due to the bowed portion 25. The carrier 10 is then swung counterclockwise to bring the studs 26 and 32 at rest on shoulders 27 and 34, respectively, at which time the hook portion 28 straddles the journal bearing 19 of stud 20, and the tab 41 is plugged into the clamping space 46. The bowed lever 30 is then rotated clockwise about pivot 36 by manually gripping the long arm of toggle lever 38, to bring the arm 39 into engagement with the portion 29. Independent clockwise rotation is then imparted to toggle lever 38 about pivot 37 to introduce a stress of elasticity or resiliency in the bowed portion of lever 30. The toggle lever 38 is thereafter forced over-center to the position shown in Fig. 1, the lever 38 resting against the stop 41 on flange 13. In this position the bowed portion of clamp 31 has lost only an insignificant amount of the resiliency or springiness imparted to it by the toggling action just described. The carrier 10 is thus securely retained in the carriage 15 by means of a three-point mounting.

To demount the carrier 10, the toggle lever 38 is manually rotated counterclockwise, as reviewed in Fig. 1 in a toggling manner through the vertical center line embracing portion 29, stud 20

and pivot 36, whereupon the stresses previously set up in the bowed portion of lever 30 are dissipated.

It is understood that the above-described arrangement is 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 combination, a detachable and interchangeable type carrier, supporting means therefor comprising a pivot for said carrier and a guide means for said carrier, means on said carrier for pivotally receiving said pivot comprising an open-ended slot having confronting bearing surfaces and resilient means integral to one of said bearing surfaces for biasing one of said bearing surfaces toward the other, clamping instrumentalities, certain of said instrumentalities comprising a bowed lever pivotally mounted at one extremity thereof on said supporting means subjacent to said guide means and adapted under certain conditions of operation to span said guide means, and a manually operable toggle lever pivotally carried at the other extremity of said bowed lever adapted to cooperate with other of said instrumentalities disposed on said carrier, whereby in response to the pincers effect produced in said bowed lever by said toggle lever said carrier is securely maintained in position.

2. In combination, a detachable and interchangeable type carrier, supporting means therefor having pivoting facilities and guiding facilities for said carrier, means on said carrier cooperating with said pivoting facilities comprising an open-ended slot having confronting bearing surfaces and resilient means integral to one of said bearing surfaces for biasing one of said bearing surfaces toward the other, clamping instrumentalities, certain of said instrumentalities comprising a bowed lever pivotally mounted at one extremity thereof on said supporting means subjacent to said guiding facilities and adapted under certain conditions of operation to span said guiding facilities, and a toggle lever pivotally carried at the other extremity of said bowed lever adapted to cooperate with other of said instrumentalities disposed on said carrier, whereby in response to the pincers effect produced in said bowed lever by said toggle lever said carrier is securely maintained in position.

3. In combination, a detachable and interchangeable type carrier, supporting means therefor having pivoting facilities and guiding facilities for said carrier, means on said carrier cooperating with said pivoting facilities, clamping instrumentalities, certain of said instrumentalities comprising a bowed lever pivotally mounted at one extremity thereof on said supporting means subjacent to said guiding facilities and adapted under certain conditions of operation to span said guiding facilities, and a toggle lever pivotally carried at the other extremity of said bowed lever adapted to cooperate with other of said instrumentalities disposed on said carrier, whereby in response to the pincers effect produced in said bowed lever by said toggle lever said carrier is securely maintained in position.

WALTER J. ZENNER.