

E. A. DAVIS.
 EXPANSION JOINT FOR ELECTRIC CURRENT COLLECTOR BARS.
 APPLICATION FILED MAR. 24, 1919.

1.350,856.

Patented Aug. 24, 1920.

Fig. 1

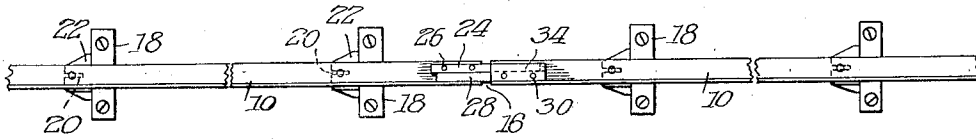


Fig. 2

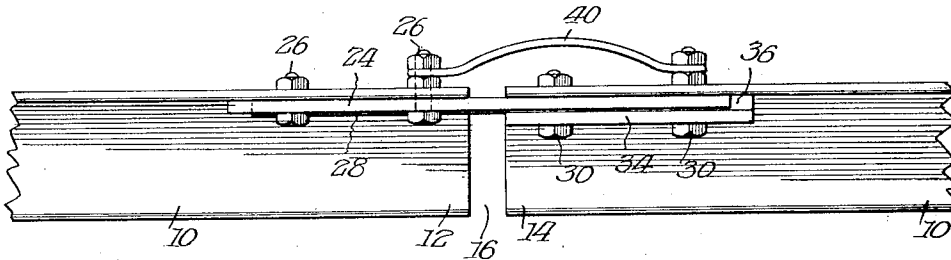


Fig. 3

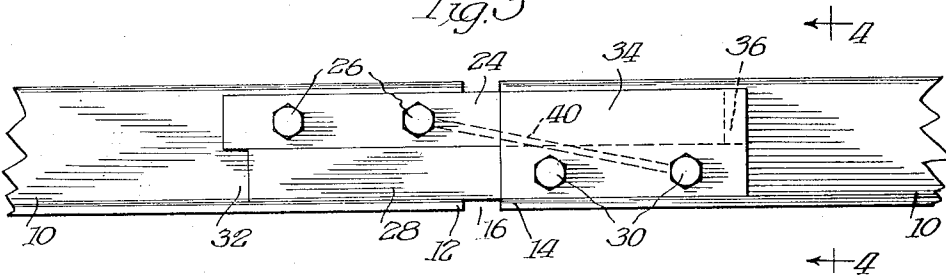
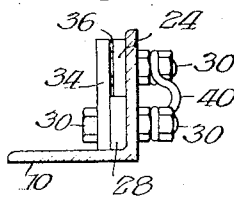


Fig. 4



Inventor:
 Elmer A. Davis,
Cheever & Co.
 attys.

UNITED STATES PATENT OFFICE.

ELMER A. DAVIS, OF HARVEY, ILLINOIS, ASSIGNOR TO WHITING FOUNDRY EQUIPMENT COMPANY, OF HARVEY, ILLINOIS, A CORPORATION OF ILLINOIS.

EXPANSION-JOINT FOR ELECTRIC-CURRENT-COLLECTOR BARS.

1,350,856.

Specification of Letters Patent.

Patented Aug. 24, 1920.

Application filed March 24, 1919. Serial No. 284,623.

To all whom it may concern:

Be it known that I, ELMER A. DAVIS, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Expansion-Joints for Electric-Current-Collector Bars, of which the following is a specification.

This invention relates to collector bars or rails from which a traveling motor or the like takes current. The particular embodiment of the invention here shown is specially designed to be used along the wall of a long building or other structure traversed by an electric traveling crane. Such cranes frequently travel a distance of five hundred or a thousand feet, and it is necessary that the collector bar or bars from which the propelling devices of the crane take their current be kept in substantially perfect alinement, if the crane mechanism is to receive its current constantly and without interruption, thereby insuring steady and safe handling of the load, a very important consideration when many tons are held suspended in the air and moved about by the crane mechanism.

The object of the invention is to provide a connecting device between successive alined sections of collector bars which can be made of a minimum number of parts with consequent minimum expense, in which expansion between the adjacent bar members readily and easily takes place without there being any danger of interrupting the flow of electric current from one bar section to another.

The invention consists in mechanism capable of carrying out the foregoing objects, which can be easily and cheaply made, which is satisfactory in operation and is not readily liable to get out of order. More particularly, the invention consists in the features and details hereafter more fully set forth in the specification and claims.

Referring to the drawings, in which like letters of reference indicate the same parts throughout the several views,

Figure 1 is a plan view of the general mounting plan of two adjacent collector bar sections whose ends are connected together by mechanism illustrating this invention in its preferred form.

Fig. 2 is an enlarged plan view of the expansion mechanism proper, being the central portion of Fig. 1.

Fig. 3 is a side view of the parts shown in Fig. 2, and

Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 3.

The collector bar proper is made up of a multiplicity of alined slightly spaced bars 10, which, in the drawings, are shown as angle irons, but they may be of other cross section without departing from this invention. The adjacent ends 12 and 14 of the bars 10 are normally separated by a space 16 of sufficient width to allow for any expansion or contraction which can possibly take place. Each bar is mounted between its ends on suitable supports 18 and is preferably made slidable lengthwise of a slot in a bracket 22 on the support. The details of mounting the bar sections between their ends are, however, no part of this invention and are not, therefore, shown in specific detail.

In order to connect the adjacent ends 12 and 14 of the bars 10 over the space 16 in such a manner that they can move toward and from each other under different heat conditions, and yet be supported one from the other and thus maintain an alinement even when the collector shoe of the crane operating mechanism is pressing more or less hard thereon, the mechanism shown in detail in Figs. 1, 2, 3 and 4 is provided, the same comprising (a) an elongated finger member 24, secured to the upper portion of one adjacent bar end 12 by any suitable means, as for instance the bolts 26; (b) a second finger member 28 secured to the other bar end 14 in any suitable manner, as by bolts 30, this second finger 28 being so shaped and arranged that it slides backward and forward in a recess 32 formed between the lower flange of the collector bar and the adjacent finger 24, and (c) a cover plate over the two finger members which are adjacent to one collector bar end and rigidly secured thereto. The specific construction of the drawings is:

Over the fixed end of finger member 28 and attached in place by the bolts heretofore described, is a cover plate 34 which contacts with the extended end of finger member 24 and in connection with the upper flange of bar end 14 forms a socket 36 within which finger 24 slides.

In actual practice, the amount of movement of the bar ends 12 and 14 within space

16 is about three-eighths of an inch and by making the finger members 24 and 28 extend six inches or so beyond the end of the adjacent collector sufficient rigidity of joint
5 is maintained during sliding action so that the adjacent bar members are kept in substantial alinement during all conditions of practice, even when the collector shoe is passing from one bar end 12 to the adjacent
10 end 14.

Electric current carried by the collector bar mechanism is transferred from one section to another, partly through the mechanism just described but more particularly
15 and preferably through a flexible connecting cable 40 connected, as shown in the drawings, or in any suitable manner, to not interfere with the expansion joint proper.

It will be noted that the joint of this invention is formed by adding to the alined adjacent bar sections only three parts; viz., the finger members 24 and 28, and the cover member 34, plus the necessary bolts, thereby insuring a minimum of expense.

20 Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In mechanism of the class described, the combination of two alined adjacent
30 bars, one of which has a flange extending from its face, a finger member overlapping both bars slidable along the face of the bar, which carries the flange, adjacent to said flange, means rigidly securing the finger
35 member to the other bar, a second finger

member overlapping both bars and lying immediately adjacent to the first mentioned finger member, means securing the second finger member to the bar on which the first finger member slides, and a cover plate carried by one of the bars embracing the portions of the two finger members adjacent thereto, secured to said bar by the same mechanism which secures the finger member which is attached to it.

2. In mechanism of the class described, the combination of two alined adjacent bars, one of which has a flange extending from its face, a finger member overlapping both bars slidable along the face of the bar, which carries the flange, adjacent to said flange, means rigidly securing the finger member to the other bar, a second finger member overlapping both bars and lying immediately adjacent to the first mentioned finger member, means securing the second finger member to the bar on which the first finger member slides, and a cover plate carried by the bar on which the second finger slides embracing the portions of two finger members adjacent thereto, secured to said bar by the same mechanism which secures the first finger member thereto.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

ELMER A. DAVIS.

Witnesses:

ISAAC WAGNER,
A. H. McDOUGALL.