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H. K. LORENTZEN

2,670,532

APPARATUS USEFUL IN ASSEMBLING VENETIAN BLIND BARS

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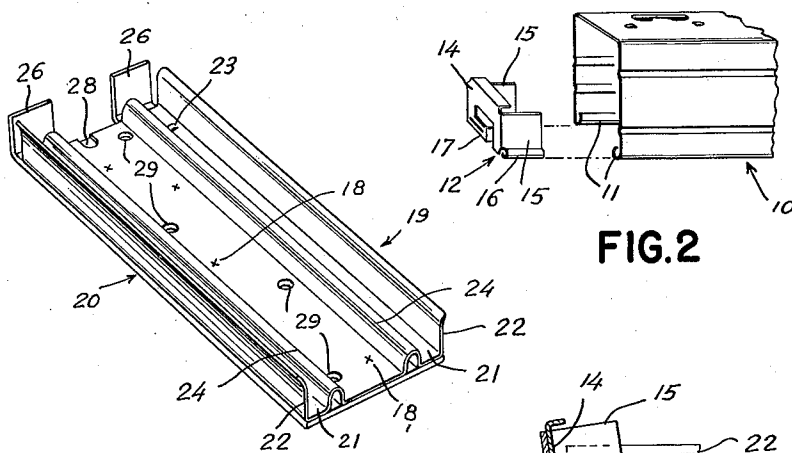


FIG. 1

FIG. 2

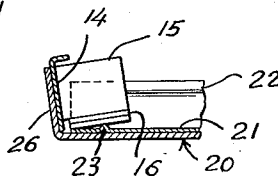


FIG. 4

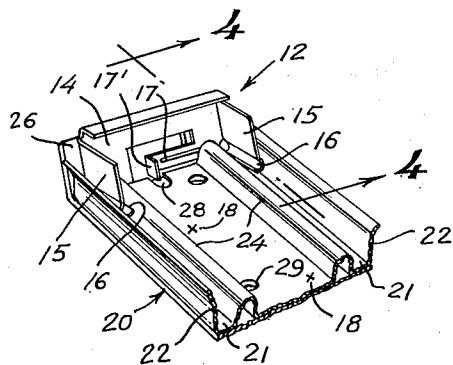


FIG. 3

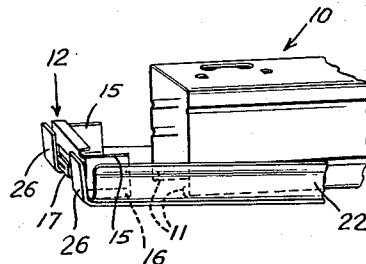


FIG. 5

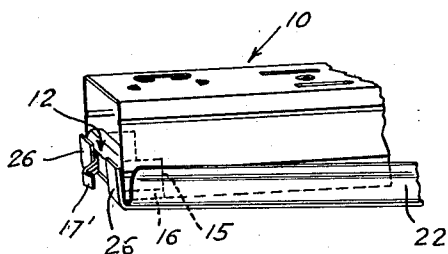


FIG. 7

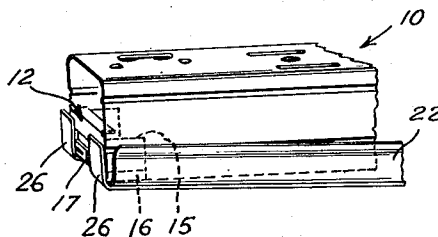


FIG. 6

INVENTOR
HANS K. LORENTZEN
BY
Remay, Chicklin & Holder
HIS ATTORNEYS

UNITED STATES PATENT OFFICE

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APPARATUS USEFUL IN ASSEMBLING
VENETIAN BLIND BARSHans K. Lorentzen, Montclair, N. J., assignor to
Lorentzen Hardware Mfg. Corp., New York,
N. Y., a corporation of New York

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8 Claims. (Cl. 29—271)

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This invention relates to Venetian blinds, and more particularly to a device for facilitating assembly of Venetian blind bars. The invention is particularly useful for assembling Venetian blind head bars and, therefore, it will be disclosed and discussed in that connection.

In head bar organizations of the type known in the trade as "enclosed metal heads" the operating mechanism is mounted within a channel-shaped sheet metal head bar. In such an organization, the head bar channel is often provided with round, inwardly-turned hollow marginal beads formed along the upper edges of the channel. It is desirable to reinforce the open ends of the head bar by end braces spanning between the side walls of the channel. These end braces may be provided with flanges which are telescoped within the hollow beads and are retained in position by frictional engagement. A head bar organization of this type is shown in the copending application S. N. 778,002 of Harry Nelson, now Patent No. 2,629,434.

End braces of the foregoing type may be engaged with the head bar without the use of special tools. However, the present invention facilitates the application of these end braces. When using the device of the present invention, the end brace is temporarily held in a stationary position and then the head bar is telescoped into engagement therewith. In the form shown herein, this device comprises an abutment specially adapted to receive and hold the end brace, and a guide for receiving the hollow beads of the inverted head bar and directing the end of the head bar into engagement with the end brace. The guide is formed of a sheet of metal and is provided with a pair of spaced tracks for guiding the head bar beads into engagement with the end brace.

Among the objects of the invention are: to provide a device for applying end braces of the type described to Venetian blind head bars in a rapid and positive manner; to provide such a device that may be formed of sheet metal stampings; to provide such a device that is economical to manufacture and durable and dependable in operation; and to provide a generally satisfactory device for the purpose intended.

Further objects, and objects relating to details and economies of construction, manufacture and use will more definitely appear from the detailed description to follow.

My invention is clearly defined in the appended claims. In the claims, as well as in the description, parts may at times be identified by specific

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names for clarity and convenience, but such nomenclature is to be understood as having the broadest meaning consistent with the context and with the concept of my invention as distinguished from the pertinent prior art. The best form in which I have contemplated applying my invention is illustrated in the accompanying drawings forming part of this specification, in which:

Fig. 1 is an isometric view showing the top of the device.

Fig. 2 is an isometric view showing one end of an inverted head bar with an end brace in exploded relation thereto.

Fig. 3 is a fragmentary view, similar to a portion of Fig. 1, showing an end brace in position preparatory to application thereof to a head bar.

Fig. 4 is a fragmentary vertical section taken on the line 4—4 of Fig. 3.

Fig. 5 is a somewhat diagrammatic view showing an end brace in position on the device and the end of a head bar in position to be progressed into engagement with the end brace.

Fig. 6 is a view similar to Fig. 5, but showing the head bar engaged with the end brace.

Fig. 7 is a view similar to Fig. 6, but the end brace being in a slightly modified condition, as will be explained.

Before proceeding with the description of the brace applying device, the construction of the head bar and end brace will be considered. The head bar 10 is formed of a light gauge sheet metal channel, the longitudinal edges of the channel being formed into inwardly-turned, open, rounded hollow beads 11, 11.

The end brace 12 comprises a sheet metal stamping having a flat plate portion 14 and side plates 15, 15, the portion 14 being adapted to span the end of the channel 10 and the side plates being adapted to lie along the inside walls of the channel when the end brace is in applied position. The side plates 15, 15 are provided with flanges 16, 16 which are proportioned to fit within the hollow beads 11, 11 of the head bar, the flanges being slightly tapered along their length so as to telescope and wedge within the beads. Frictional engagement of the flanges 16, 16 is enhanced by the resiliency of the beads 11, 11, the beads being spread slightly by the entrance of the flanges. The end brace is reversible so that it may be installed on either end of the head bar, "rights" and "lefts" not being required. This form of head bar and end brace is disclosed in more detail in the copending application S. N. 778,002 of Harry Nelson, now Patent No. 2,629,434.

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In stamping the end brace, metal is removed from plate 14 in such manner as to leave a finger 17. This finger is adapted to be bent, as required when the blind is installed, to engage the installation bracket of the blind and thereby prevent endwise movement of the head bar. This is more fully explained in Patent 2,455,135 issued November 30, 1948. In some instances the brace is so stamped as to leave the finger 17 lying in the plane of plate 14, as is shown in Figs. 2, 3, 5 and 6; in which case the finger is bent outwardly, as required, when the blind is installed. In other instances the brace is so stamped as to leave the finger 17 in an outwardly-bent condition, as is shown in Fig. 7; in which case the finger is usually bent inwardly, as required, when the blind is installed but in some cases may be bent farther outwardly.

Reference will now be had to Fig. 1. The device there shown is composed of two sheet metal (preferably sheet-steel) stampings 19 and 20, the stamping 19 being placed on top of the stamping 20 and being suitably secured to the stamping 20 as by spot welding 18.

The lower stamping 20 has at one end two integral flanges 26, 26 which project upwardly in spaced relation as shown. These flanges are adapted to act collectively as an abutment to receive and hold an end brace that is to be incorporated into a head bar.

The stamping 19 is so formed as to provide a track or guide to direct the end of a head bar toward an end brace held by flanges 26, 26. The stamping 19 includes longitudinal side flanges 22, 22 which are spaced apart by a distance which is slightly greater than the width of the head bar channel. The upper edges of the flanges 22, 22 are flared outwardly as shown to facilitate insertion of the head bar. The bottom portion of the stamping 19 is formed with upstanding longitudinal corrugations 24, 24 which stiffen the structure and, in conjunction with side flanges 22, 22 form a pair of parallel grooves or tracks 21, 21 in which the beads 11, 11 of the head bar are adapted to nest.

An end brace 12, which is to be applied to a head bar, is placed in inverted position with the plate portion 14 of the brace positioned against the abutment formed by flanges 26, 26. These abutment flanges are positioned far enough beyond the end of stamping 19 to permit the plate portion 14 of the brace to be inserted between the flanges 26, 26 and the end of guide stamping 19. The flanges 16, 16 of the brace extend into the grooves 21, 21 and are held in upwardly-inclined position by bumps 23 (one shown) which are pressed upwardly from the bottom of each groove 21. This gives the entire end brace 12 a slight backward tilt; and the abutment flanges 26, 26 have the same backward tilt so that the plate portion 14 of the end brace will lie flat against the abutment flanges 26, 26. The surface of the abutment 26, 26 confronting the guide would be disposed normal to the tracks in the guide were it not for the backward tilt of the abutment. The tracks in the guide may be said to extend generally normal to or at right angles across the abutment.

The finger 17 of the end brace has a forwardly projecting tip 17'; and the bottom of the guide stamping 19 is provided with a U-shaped cut-out 28 that provides space for reception of the finger tip 17' when the end brace is one in which the body 17 of the finger lies in the plane of plate portion 14 of the end brace. If the end brace be

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one which is initially stamped with the finger 17 in outwardly-bent condition, as shown in Fig. 7, then the finger lies in the space between abutment flanges 26, 26.

With the end brace 12 received and held as has been described, a head bar 10 is inverted and one end thereof is placed in the guide 19 as shown in Fig. 5. The operator holds the free end of the head bar in slightly raised position to give the head bar the inclination indicated in Fig. 5, this inclination corresponding approximately to the slight backward tilt of the end brace 12 as it lies against abutment flanges 26, 26. With a quick stroke the operator forces the head bar against the end brace. The beads 11, 11 telescope over the flanges 16, 16 of the end brace, and the telescoping movement continues until stopped by engagement of the end of the head bar with the plate portion 14 of the end brace. The beads 11, 11 resiliently grip the flanges 16, 16 and thereby secure the end brace to the head bar.

The head bar is then withdrawn, another end brace put in place against abutment flanges 26, 26, the head bar turned end for end, and the process repeated to apply the second brace to the opposite end of the head bar.

For convenience of operation the device is preferably firmly mounted at a convenient height, on a work bench or the like. To aid in mounting, holes 29 (four shown) are provided for mounting screws.

I claim:

1. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads of a channel-shaped, metal head bar telescopically receive portions that project from the body of an end brace spanning an end of the channel, said device comprising: an elongated strip of sheet metal, one end of which is turned upwardly to form an upstanding flange for receiving the body of the channel end brace, and an elongated guide member superimposed upon the strip, the guide member being formed to provide a pair of spaced tracks terminating at the upstanding flange of the strip for receiving the beads of the head bar and guiding them into engagement with the projecting portions of the end brace body.

2. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads of a channel-shaped, metal head bar telescopically receive portions that project from the body of an end brace spanning an end of the channel, said device comprising: an elongated strip of sheet metal, one end of which is turned upwardly to form an upstanding flange for receiving the body of the channel end brace, and an elongated guide member superimposed upon the strip, the guide member having a pair of spaced longitudinal corrugations and upturned longitudinal edges forming a pair of spaced grooves terminating at the upstanding flange of the strip for receiving the beads of the head bar and guiding them into engagement with the projecting portions of the end brace body.

3. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads on the edges of a channel-shaped head bar telescopically receive longitudinally projecting side flanges of an end brace having a body portion spanning the beads at an end of the channel, said device comprising: a guide means formed to provide a pair of parallel tracks adapted to receive the beads of the head bar and guide them into engagement with the side flanges of

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the end brace, an abutment having an upstanding surface extending at right angles across an end of the tracks, the abutment being slightly spaced from the tracks for receiving the body portion of the end brace therebetween, and means connecting the guide means and the abutment.

4. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads on the edges of a channel-shaped metal head bar telescopically receive longitudinally projecting side flanges of an end brace having a body portion spanning the beads at an end of the channel, said device comprising: a guide means formed to provide a pair of parallel tracks adapted to receive the beads of the head bar and guide them into engagement with the side flanges of the end brace, an abutment having an upstanding surface extending at right angles across an end of the tracks, the abutment being slightly spaced from the tracks for receiving the body portion of the end brace therebetween, means connecting the guide means and the abutment, and means holding an end brace placed on the device tipped with the body portion resting against the abutment and the free ends of the side flanges somewhat elevated from the surfaces of the tracks for reception of the flanges into the beads of the head bar.

5. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads on the edges of the channel-shaped metal head bar telescopically receive longitudinally projecting side flanges of an end brace having a body portion spanning the beads at an end of the channel, said device comprising: a guide means formed to provide a pair of parallel tracks adapted to receive the beads of the head bar and guide them into engagement with the side flanges of the end brace, and an abutment having an upstanding surface extending at right angles across an end of the tracks, means connecting the guide means and the abutment with the latter slightly spaced from the tracks for receiving the body portion of the end brace therebetween, said tracks including ridges so spaced as to guide the inner surfaces of the beads of the head bar, the track-forming ridges receiving the end flanges of the end brace therebetween thereby to position such end brace laterally.

6. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads on the edges of the channel-shaped metal head bar telescopically receive longitudinally projecting side flanges of an end brace having a body portion spanning the beads at an end of the channel, said device comprising: a guide means formed to provide a pair of parallel tracks adapted to receive the beads of the head bar and guide them into engagement with the side flanges of the end brace, an abutment having an upstanding surface extending at right angles across an end of the tracks, means connecting the guide means and the abutment, the abutment being tipped slightly in a rearward direction and being slightly spaced from the tracks for receiving the body portion of the end brace therebetween, said tracks including ridges so spaced as to guide the inner surfaces of the beads of the head bar, the track-forming ridges receiving the end flanges of the end brace therebetween thereby to position such end brace laterally, and means holding an end brace placed on the device tipped with the

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body portion resting against the abutment and the free ends of the side flanges somewhat elevated from the surfaces of the tracks for reception of the flanges into the beads of the head bar.

7. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads on the edges of the channel-shaped metal head bar telescopically receive longitudinally projecting side flanges of an end brace having a body portion spanning the beads at an end of the channel, said device comprising: a guide means formed to provide a pair of parallel tracks adapted to receive the beads of the head bar and guide them into engagement with the side flanges of the end brace, an abutment having an upstanding surface extending at right angles across an end of the tracks, the abutment being slightly spaced from the tracks for receiving the body portion of the end brace therebetween, said tracks being grooves formed between outer longitudinally extending flanges receiving the outer surfaces of the head bar and inner ridges guiding the inner surfaces of the beads of such head bar, the track-forming ridges receiving the end flanges of the end brace therebetween to position such end brace laterally, and means connecting the guide and the abutment.

8. In the Venetian blind art, a device useful in assembling head bars of the type in which the hollow beads on the edges of a channel-shaped metal head bar telescopically receive longitudinally projecting side flanges of an end brace having a body portion spanning the beads at an end of the channel, said device comprising: a guide means formed to provide a pair of parallel tracks adapted to receive the beads of the head bar and guide them into engagement with the side flanges of the end brace, said guide having a pair of longitudinal marginal flanges and a pair of longitudinal beads forming together a pair of open topped channel-like track-forming grooves for receiving the beads of the head bar and guiding them into engagement with the end brace, an abutment having an upstanding surface extending at right angles across an end of the tracks, the abutment being slightly spaced from the tracks for receiving the body portion of the end brace therebetween, the longitudinal beads of the guide forming ridges receiving the end flanges of the end brace therebetween thereby to position such end brace laterally, bumps located in the grooves of the guide adjacent to the abutment means to elevate the free ends of the projecting side flanges of the end brace somewhat above the surfaces of the grooves for reception of the flanges into the beads of the head bar, and means connecting the abutment and the guide.

HANS K. LORENTZEN.

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