June 30, 1936. W. SPULLIES 2,045,620

COMPENSATING GIB FOR NOISELESS ELEVATORS

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Fig. 1

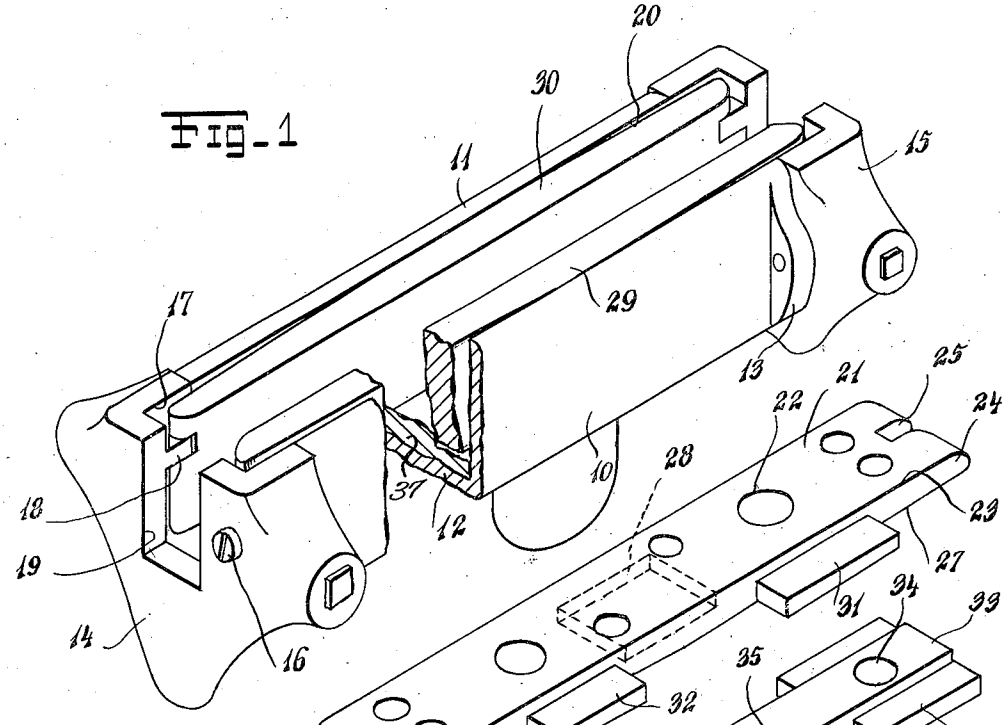

Fig. 2

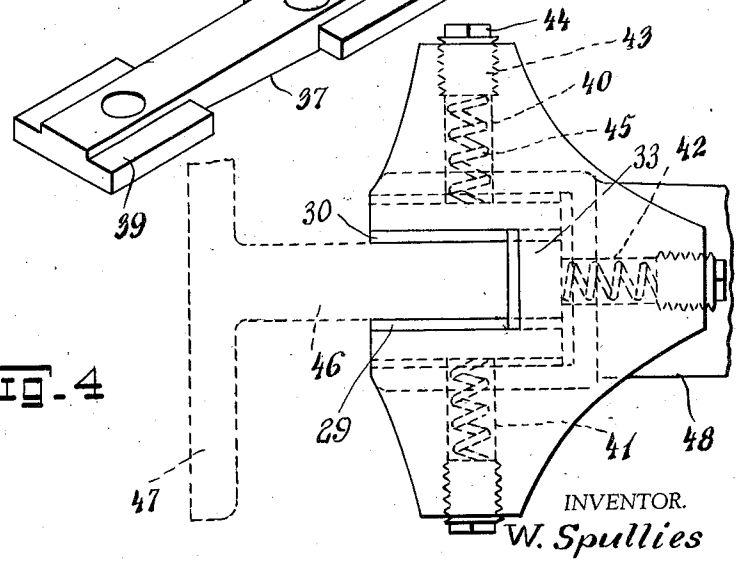

Fig. 3

Fig. 4

INVENTOR.
W. Spullies

BY

Emil Hauer
ATTORNEY.

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COMPENSATING GIB FOR NOISELESS ELEVATORS

William Spullies, Maywood, N. J.

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4 Claims. (Cl. 308—3)

The main object of this invention is to provide a compensating gib for high speed elevators. The vertical rails which guide elevators are made in piece lengths and are built into a building. Due to settling of the building inaccuracies and shifting of the rails occur and the shoes in which the gibs are mounted when passing these joints in the rails would vibrate and become noisy, were it not for the gibs. To limit this noise and make operation of a high speed elevator quiet and easy in operation, I provided floating gibs within the conventional type of shoe used in elevator type of construction.

The above and other objects will become apparent in the description below in which characters of reference refer to like-named parts in the drawing.

Referring briefly to the drawing Figure 1 is a perspective view of an elevator shoe, showing the compensating gibs mounted therein—operation of the shoe is shown in cross section to illustrate the positions of the various gibs.

Figure 2 is a perspective view of one of the side positioned compensating gibs.

Figure 3 is a perspective view of the transverse compensating gib.

Figure 4 is an end elevational view of the elevator shoe showing resilient means for urging the gibs into contact with the rail, the latter being shown in broken lines.

Referring in detail to the drawing the numerals 10 and 11 indicate the side walls of an elevator shoe. These side walls are joined by a base wall 12. The ends of the side walls are provided with bosses 13, for purposes which will be more fully hereinafter described. At the ends of the shoe substantially triangular heads 14 and 15, are mounted. These heads are secured in place by passing bolts 16, thru the heads. Said bolts are adapted to threadably pass thru the bosses 13, of the shoe structure. Each head is provided with a recess 17, in which transverse keys 18, are formed. The heads are provided with passageways 19, which conform in size to the channel 20, in the shoe and align therewith. The channel and the recesses of the heads are adapted to receive a pair of gibs such as illustrated in Figure 2, and a transverse gib, as illustrated in Figure 3. The longitudinal gibs used in pairs in each shoe and illustrated in Figure 2, comprise a substantially long flat plate 21, over whose entire surface a plurality of openings 22, are distributed. These openings are filled with some suitable soft metal such as white metal or babbitt or the like. These openings are formed on the wear side of the gibs indicated by the numeral 23. The wear side of the gib which contacts with the elevator rail is perfectly flat and is rounded at its ends 24. Opening at each end of the side gibs is a longitudinal keyway 25. These keyways are adapted to receive the keys 18, of the heads 14 and 15. The gibs are constructed in such manner as to be capable of rocking within the channel 20, of the shoe. This rocking becomes a function by providing converging flat surfaces 26 and 27, at the center of the gib and the latter has its greatest dimension at the center. On the inside of all of the gibs the chamber 28, is formed. This chamber is relatively large in proportion and receives some suitable porous material such as cork which is cemented therein and acts as a cushion. Projecting from one long side of the side gibs 29 and 30, are a pair of spaced apart rectangular tongues 30 and 32. These tongues and their functions will again be mentioned later.

The transverse gib seated upon the floor 12, of the shoe and illustrated in Figure 3, is of slightly different construction. This transverse gib, comprises a bar 33, also provided with soft metal filled openings 34, has a perfectly flat upper surface 35, and a lower rocker surface in the same manner as the gibs illustrated in Figure 2. By forming the lower surface of the bar 33, at an angle converging toward the middle and tapering off toward the end as indicated by the numerals 36 and 37, a rocking gib is provided. On both sides of the bar 33, at spaced apart positions lips 37, 38, and 39 are provided. These lips 37, 38, and 39, are so positioned and dimentioned that the lips 31 and 32, of the side gibs 29 and 30 will rise between the lips and allow rocking movement independently of any of said gibs.

The heads 14 and 15, secured to the shoe structure 10 and 11, are provided with a pair of aligned holes 40 and 41. At right angles to these holes a third similar hole 42, is formed in the heads. The exit ends of all of these holes are provided with threaded portions in which is engaged a screw 43, preferably provided with a flat sided head 44. These screws are adapted to retain curl springs 45, in place in each of the openings. The outer ends of these curl springs rest upon the rocker surface of the cooperating gibs and are adapted to urge these gibs into yieldable contact with the web 46, of the guide rail 47.

The shoes such as illustrated in Figure 1, are used in multiple units on an elevator car generally capable of reciprocating travel in a ver-

tical direction. These shoes are provided with a trunnioned spindle **48**, which projects from member **12**, centrally of the shoe. By mounting this spindle in a suitable bracket in the elevator car, the shoe is capable of axial adjustment. Adjoining rails in the well or shaft of an elevator may be perfectly aligned when the building in which the elevator is installed is erected. Owing to the settling of the building and temperature changes and many other factors, the adjoining rails become somewhat disaligned, and when the shoe passes over the bolt joint of two adjoining rails a noise ensues. To eliminate this and compensate for the variations and irregularities in the guide rails the shoe is provided with substantially floating gibs. These gibs in a single shoe are three in number. Two side gibs **29** and **30**, are contacted with the opposing surface of the web **46**, of the guide rail and a single transverse gib **33**, which contacts with the end of the web **46**. In the upward path of the moving elevator when a rise is encountered the rounded ends **24**, of the side gibs **29** and **30**, register on the irregularities and the side gibs are rocked away from the obstructive portion against the tension of the springs **45**. The openings in the gibs are filled with the soft metal which is adapted to glaze the surface of the guide rails and serve as a lubricant for quiet operation of the elevator. It is readily apparent therefor that when an obstructive rise is encountered on the ends or side of the rail the gib will be deflected against the tension of its supporting spring with a buffing and cushioning effect and quiet operation is therefore entirely possible. The keys **18**, in the heads **14** and **15** which register in the keyways **25**, are adapted to retain the side gibs in retained position.

It is to be noted that certain changes in form and construction may be made without departing from the spirit and scope of the invention.

I claim:

1. In combination with a guide rail, a trunnioned elevator shoe, a channel in said shoe, gibs positioned in said shoe adapted to contact with said guide rail, said gibs having a flat contacting surface, said gibs having angular surfaces converging toward the middle on one side, said gibs being adapted to function in rocking motion, means for locking said gibs in place in said shoe and resilient means for projecting said gibs into contact with said guide rail.

2. In combination with a guide rail, a trunnioned elevator shoe, a channel in said shoe, gibs positioned in said shoe adapted to contact with said guide rail, said gibs having a flat contacting surface, said gibs having angular surfaces converging toward the middle on one side, said gibs being adapted to function in rocking motion, and heads secured to said shoe, keys formed in said heads and means on said gibs cooperating with said keys and being adapted to retain said gibs in place in said shoe.

3. In combination with a guide rail, a trunnioned elevator shoe, a channel in said shoe, gibs positioned in said shoe adapted to contact with said guide rail, said gibs having a flat contacting surface, said gibs having angular surfaces converging toward the middle on one side, said gibs being adapted to function in rocking motion, and heads secured to said shoe, keys formed in said heads and said gibs having keyways receiving said keys in said heads, and resilient means engaging said gibs for urging the latter into contact with said guide rail.

4. In combination with a guide rail, a trunnioned elevator shoe, a channel in said shoe, gibs positioned in said shoe adapted to contact with said guide rail, said gibs having a flat contacting surface, said gibs having angular surfaces converging toward the middle on one side, said gibs being adapted to function in rocking motion, and heads secured to said shoe, keys formed in said heads and said gibs having keyways receiving said keys in said heads, curl springs in said heads engaging said gibs for urging the latter into riding contact with said guide rail, means for retaining said curl springs in said heads and means for interlocking said gibs to prevent longitudinal shifting.

WILLIAM SPULLIES.