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BRAKE ACTUATING MECHANISM

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2 Sheets-Sheet 1

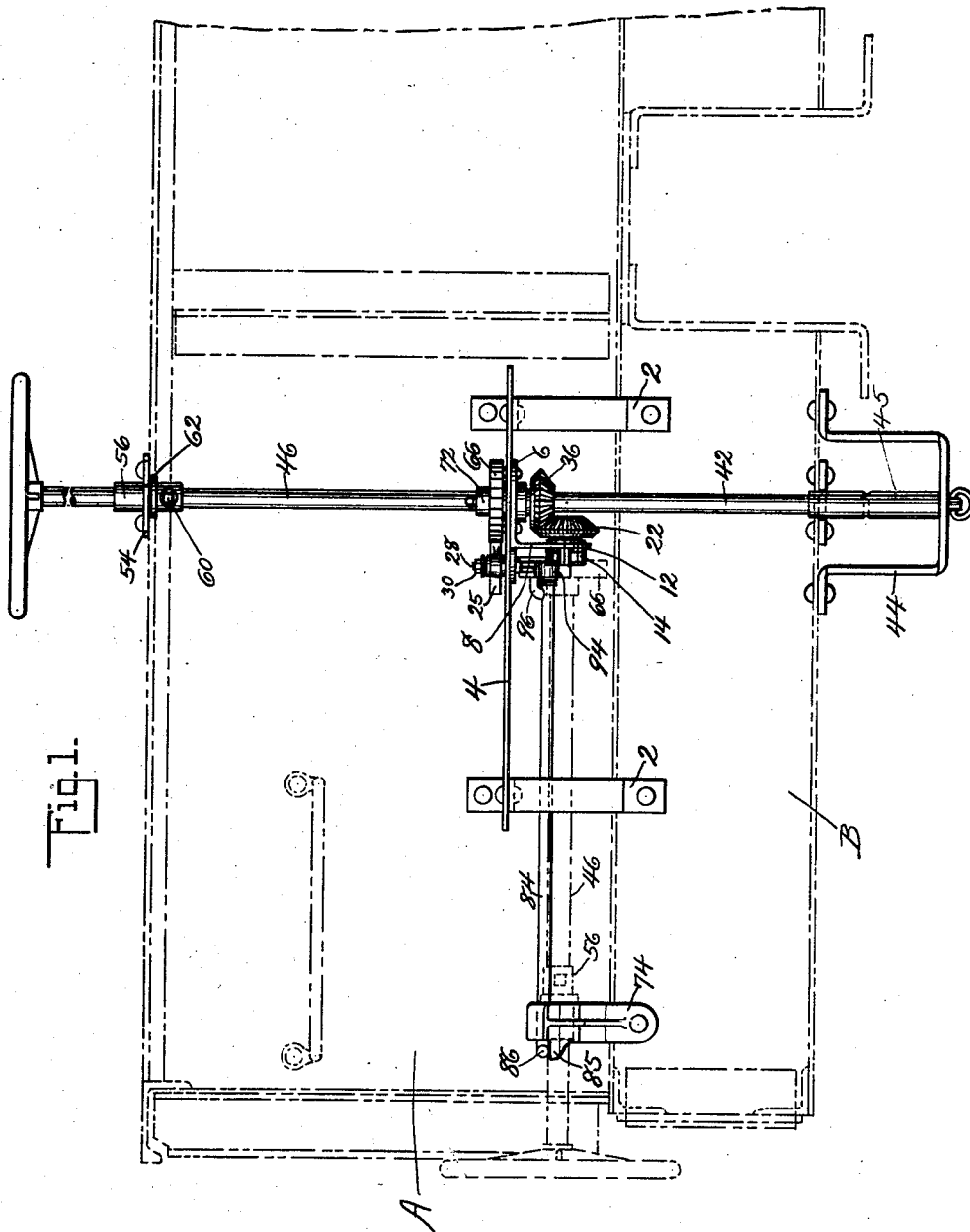


Fig. 1.

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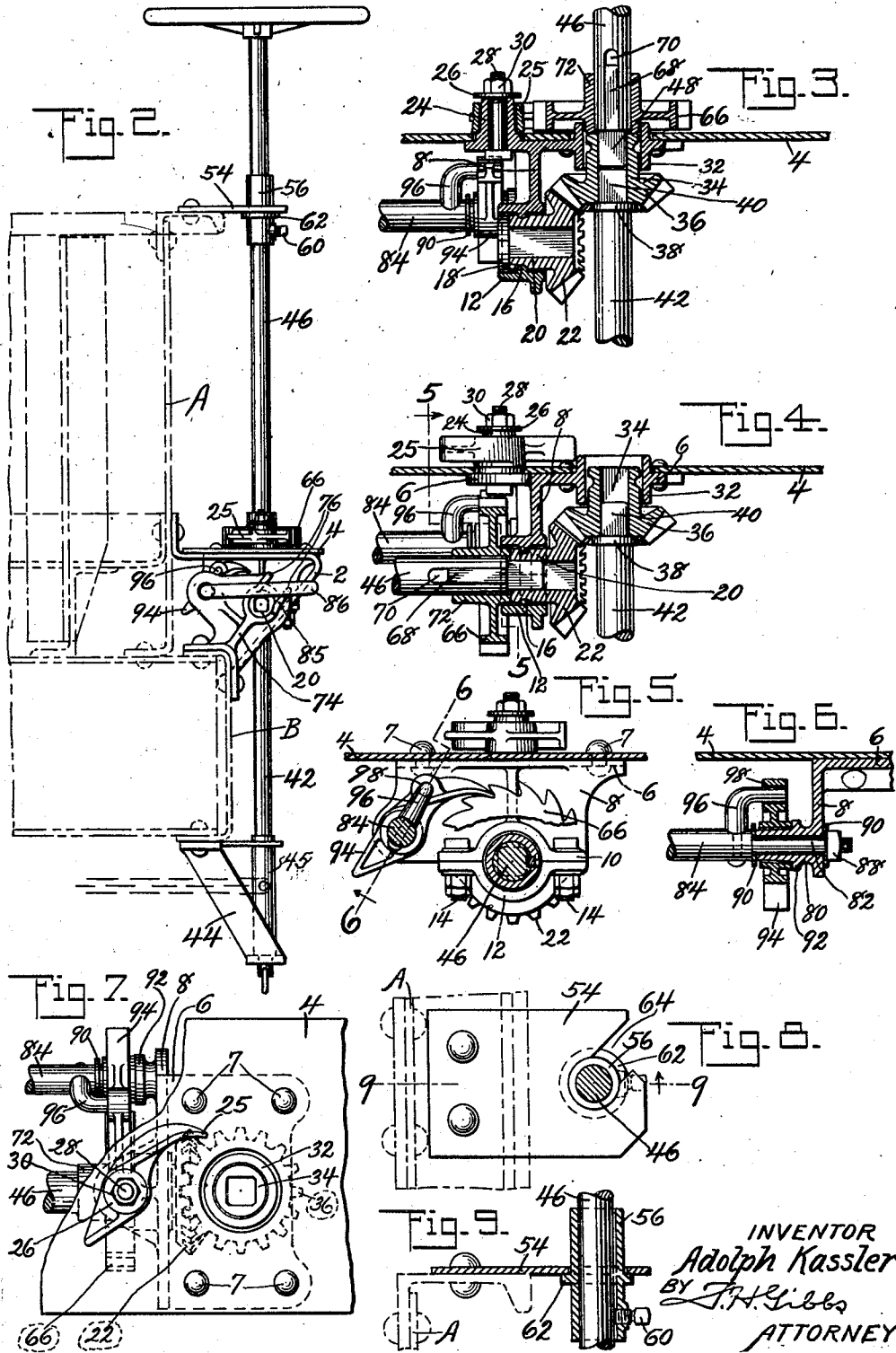
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2 Sheets-Sheet 2



# UNITED STATES PATENT OFFICE

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## BRAKE-ACTUATING MECHANISM

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Reference is had to the accompanying drawings which illustrate the preferred form of the invention; though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof within the scope of the claims will occur to persons skilled in the art.

In the drawings:

10 Figure 1 is a front elevation of the device shown as applied to a railway car, the latter being diagrammatically illustrated.

15 Fig. 2 is a side elevation of the device of the present invention shown as applied to a railway car, the end of the latter being diagrammatically illustrated.

20 Fig. 3 is a vertical sectional view through the gearing device of the brake actuating mechanism shown in Figs. 1 and 2, showing the gearing as adapted to be actuated by a vertical brake mast.

25 Fig. 4 is a vertical sectional view through the gearing device of the brake actuating mechanism shown in Figs. 1 and 2, showing the gearing as adapted to be actuated by a horizontally arranged brake mast.

Fig. 5 is a view taken on the line 5—5, Fig. 4.

30 Fig. 6 is a view taken on the line 6—6, Fig. 5.

Fig. 7 is a top plan view of the gearing device of the present invention, a step plate being shown, having a portion thereof broken away to show other parts more clearly.

35 Fig. 8 is a top plan view of the bracket for retaining the brake mast in vertical position, and

40 Fig. 9 is a sectional view on the line 9—9, Fig. 8.

This invention relates to railway car brakes and has particular reference to operating means therefor.

45 One object of the present invention is the provision of mechanism for operating car

brakes which may be manipulated from the top of the car or from the side thereof.

Another object of this invention is the provision of a gearing device for actuating railway car brakes, and an interchangeable operator therefor whereby the gearing device may be actuated either from the side of the car or from the top thereof, as desired.

A further object of the present invention is the provision of novel gearing mechanism for actuating the brake mast, and also the provision of novel mounting means for said gearing mechanism.

60 More particularly this invention contemplates the provision of a gearing mechanism and mounting therefor, for actuating railway car brake masts; said gearing mechanism being so formed as to be operable by an interchangeable lever, which, in effect, forms a part of the brake mast, whereby said gearing may be actuated either from the side of the car or from the top thereof.

70 Other objects and advantages of this invention will be apparent from the following description taken with the accompanying drawings, in which, A indicates generally a car end of any desired construction and B designates an end sill. Secured to the car end A and the end sill B are spaced brackets 2 which support a step plate 4 which mounts the gearing mechanism now to be described.

80 The gearing mechanism comprises an attaching plate 6 secured to the under surface of the step plate by suitable fasteners such as rivets 7, and a supporting plate 8 depending therefrom and having its lower end formed into a bearing part 10 of a two part bearing, the other part of which is designated at 12 and being secured to the part 10 by bolts 14 or the like. The two part bearing is, in effect, a housing, the sections 10 and 12 of which are provided with alining guide ribs 16 which engage in an annular recess 18 formed in the hollow hub 20 of a bevel gear 22 whereby to retain the gear in said housing.

The attaching plate 6 is provided with a tubular boss 24 which extends through the step plate as clearly shown in Fig. 3 and which serves as a guide or bearing to mount a pawl 25; the latter being restrained against displacement by a keeper 26 mounted on a bolt 28 secured in the tubular boss 24 by a nut 30.

The attaching plate 6 is further provided with a guide 32 which extends upwardly through the plate 4 and downwardly therefrom, into which the hollow hub 34 of a bevel gear 36 extends; said gear being arranged to mesh with the before mentioned gear 22, and being mounted on a shoulder 38 formed adjacent the reduced end 40 of a brake mast 42, the latter being supported by a stirrup 44 secured to the end sill, and having a winding drum 45 at its lower end.

For effecting rotation of the brake mast 42 by the gear 36, the inner surface of the hub 34 is preferably squared and the reduced end 40 of the brake mast is correspondingly squared. The brake mast 42 is rotated by an operator 46 having a reduced squared end 48 extending into the hub 34 as clearly shown in Fig. 3. This operator is, in effect, an extension of the brake mast 42 when assembled with the gearing mechanism as illustrated in Fig. 3, and indeed, the brake mast may well be considered as being formed of two parts, namely, 42 and 46, said parts or sections being connected together as just described.

The brake mast section or operator 46 extends upwardly as shown in Fig. 2, beyond or above the top of the car and is provided with a hand wheel for operating purposes. The section 46 is restrained against displacement as now to be described, and referring to Figs. 8 and 9, a bracket 54 is secured to the top portion of the car, which bracket is provided with a substantially circular aperture in which is seated or positioned a bearing guide 56, through which the brake mast section 46 extends; the guide being secured to said section by means of a set screw 60 or the like. For preventing vertical movement of the brake mast section 46 or the guide 56 or both, said guide is provided with an annular shoulder 62 which, when the parts are assembled, bears against the under surface of the bracket 54 (see Fig. 9). Communicating with the aperture in which the guide is positioned is a slot 64. This slot is necessary in view of the fact that when disassembling the device, the set screw 60 is loosened thereby permitting the guide 56 to drop away from the bracket 54 and the brake mast section 46 may then be removed from the bracket 54 through the slot 64.

A ratchet 66 is secured to the lower end of the brake mast section 46 by means of a key 68 seated in a longitudinal recess 70 formed in the mast section 46. The ratchet is provided with a hub 72 with which the

key engages and said ratchet 66 seats upon the upper end of the gear hub 34 and is arranged to be engaged by the before-mentioned pawl 25 for an obvious purpose.

This invention also contemplates the operation of the hereinbefore described gearing by the brake mast section 46 from the side of the car, and from the above description it will be apparent that the said brake mast section 46 and the ratchet 66 may be easily and quickly removed from their engagement or assembled connection with the bevel gear 36.

The brake mast section 46 is adapted to be attached to or assembled with the bevel gear 22 when it is desired to actuate the gearing mechanism from the side of the car, as illustrated in Fig. 4, and for supporting the brake mast section 46, a bracket 74 is secured to the end sill B adjacent the side of the car. The bracket 74 is more particularly of the form shown in Fig. 2, and is provided with spaced arms 76 for supporting the bearing guide 56 through which the mast section 46 extends, and the reduced end 48 of the brake mast section extends into the hub 20 of bevel gear 22 whereby to actuate the gear in an obvious manner.

The supporting plate 8 depending from the attaching plate 6 is provided with an integral bearing 80 through which extends the reduced end 82 of a pawl actuating lever 84, the opposite end of which lever is journaled in the bracket 74, as clearly shown in Fig. 2, and said lever is provided with an operating handle 86 which is normally supported on a stop 85 formed with the bracket 74. The lever 84 is retained against displacement by a nut 88 and the reduced end 82 defines a shoulder to limit the positioning of said lever against the outer end of the bearing 80, as will be apparent. As shown clearly in Fig. 6, suitable washers 90 are provided for an obvious purpose.

The bearing 80 is provided with an annular shoulder 92 and a pawl 94 is mounted on the shoulder; the shoulder limiting the inward movement of the pawl. Or actuating the pawl from the lever 84, the latter is provided with an angle tongue 96 the end of which is engaged in an aperture 98 formed in the pawl, and said pawl is so arranged on the plate 8 as to engage the teeth of the ratchet 66.

It is believed that the construction and operation of the device described will be fully apparent to those skilled in the art, but attention is called to the fact that the said device, more particularly the gearing mechanism thereof, is adapted to be actuated either from the side of the car or from the top thereof. When actuating the device from the top of the car, the parts are in the position shown in full lines in Fig. 1, and it will be obvious that operation of the hand wheel

shown therein will rotate the brake mast section 42 and actuate the brakes in a manner well known; the pawl and ratchet serving to secure the brake mast sections and also serving to release the brakes by disengagement of the pawl from the ratchet 66. Under certain conditions, it is desirable to actuate the gearing mechanism from the side of the car and when this is desired, all that is necessary is to release the set screw 60 and then drop the bearing guide 56 from the aperture in the plate 54, whereupon the upper brake mast section 46 may be removed from the plate 56 by passing it through the slot 64. The brake mast section 46, together with the hand wheel, and bearing guide, and the ratchet 66 may then be applied to the side of the car by first inserting the reduced end of the brake mast section 46 into the hub 20 of the bevel gear 22. This will position the ratchet 66 so as to be engaged by the pawl 94. The upper end of the brake mast section 46 is then arranged between the spaced arms 76 of the bracket and the bearing guide 56 then arranged between said arms in a manner similar to that shown in Fig. 9, and the set screw 60 adjusted to secure the bearing guide and brake mast section 46 together. It will be apparent now that operation of the hand wheel will directly rotate the bevel gear 22, and consequently, the gear 36 and the lower brake mast section 42, to actuate the brakes, and the brakes may be retained in desired adjusted position by means of the pawl 94 and the locking tongue 96.

What is claimed is:

1. In a car, brake actuating mechanism comprising a brake mast section, a gear at the upper end thereof, an attaching plate for retaining said gear, a second gear mounted by the attaching plate in meshing relation with said first named gear, an actuator detachably connected to said first named gear, a bracket on the car roof for releasably securing the actuator whereby to actuate the brake mast section from the car roof, said actuator being adapted to engage said second gear to actuate the brake mast section from the side of the car, and means at the side of the car for releasably supporting the actuator.

2. In a car, brake actuating mechanism comprising a brake mast section, a gear detachably mounted on the upper end thereof, an actuator detachably engaging said gear for actuating said brake mast section, a second gear meshing with said first named gear, and means mounted on the car for detachably supporting the actuator in engagement with said second gear for actuating the brake mast section.

3. In a car, brake actuating mechanism comprising a brake mast section, a step plate secured to the car, an attaching plate secured to the step plate, a gear having a hollow hub

journalled in the attaching plate, a second gear mounted on the end of said brake mast section and provided with a hollow hub guided by the attaching plate, said second gear meshing with said first named gear, an actuator adapted to engage within the hubs of said gears, a pawl mounted above the attaching plate, a ratchet secured to the actuator and adapted to be engaged by said pawl, means for detachably supporting the actuator in vertical position in engagement with said second gear whereby said second gear may be rotated to actuate said brake mast section, means at the side of the car for detachably supporting the actuator in engagement with said first named gear whereby said gears may be actuated to rotate the brake mast section from the side of the car, a second pawl mounted on the attaching plate and arranged to engage the ratchet when the actuator is engaged with the first named gear, and a pawl operating lever for actuating said second pawl.

4. In a car, brake actuating mechanism comprising a step plate, a gear supporting plate secured to the step plate and having a plurality of guides extending through the step plate and a depending portion having bearings, a pawl mounted on one of said guides, a second pawl supported by one of said bearings, a gear supported by another of the bearings, a brake mast section, a gear supported thereby in meshing relation with said first named gear and retained by one of the beforementioned guides, a second brake mast section adapted to actuate either of said gears to rotate the first named brake mast section, means for supporting said second brake mast section, and a lever for actuating the first named pawl.

5. In brake actuating mechanism of the kind described, means for retaining a brake mast section in position comprising a bracket secured to a car part and having an opening therein and a slot leading to said opening, a bearing guide on the brake mast section of greater diameter than the slot and adapted to extend into the opening, and means for securing the guide to the brake mast section to retain said guide in the opening, said guide being slidable on the brake mast section to permit it to be removed from the opening whereby the brake mast section may be passed through the slot to be freed from the bracket.

6. In brake actuating mechanism of the kind described, a supporting plate comprising a one-piece casting having a main portion for attachment to a step plate, or the like, and provided with guiding portions at substantially right angles thereto and adapted to extend through a step plate, a portion depending from said main portion, and a plurality of bearing portions formed on one side of said depending portion.

7. In brake actuating mechanism of the kind described, a supporting plate comprising

a casting having a main portion provided with guiding portions at substantially right angles thereto and adapted to extend through a step plate, a portion depending from said main portion and having a horizontal bearing part formed therewith, and a second bearing part formed on said depending portion.

In witness whereof I have hereunto set my hand.

ADOLPH KASSLER.

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